

Corporate Governance and Pay-Performance Sensitivity

Subba Reddy Yarram

UNE Business School, University of New England

Abstract The present study focuses on the performance sensitivity of CEO wealth for a sample of Australian firms for the period 2005 to 2011. For a sample of 2153 non-financial firm-years, the study analyses the influences of economic determinants, governance and ownership factors on the performance sensitivity of CEO wealth for the pre-GFC, post-GFC sub-periods. Employing pooled OLS and panel random effects (RE) regressions, the study finds that firm size, performance and growth opportunities have a significant positive influence on the performance sensitivity of CEO wealth. Board size, CEO duality, average director tenure and board interlocking have a negative significant influence on the performance sensitivity of CEO wealth while CEO tenure and managerial ownership have a significant positive influence.

Keywords Corporate Governance, Ownership Structure, Executive Pay, Global Financial Crisis, Australia

1. Introduction

Executive pay levels are a focus of the popular press, politicians and general public each year as the corporate firms release their annual financial reports and disclosure information on the executive pay and perquisites. According to Jensen and Murphy[1], popular debate instead of focusing on pay performance relationship is overwhelmingly concentrated on excessive pay levels. Jensen and Murphy in their original article 23 years ago pointed out the nature of (chief executive officer) CEO pay as that of bureaucrats. CEO pay and wealth has largely been unrelated to performance and the compensation systems are immune to the concerns of shareholders with regard to performance. Subsequent research focused on the role of CEO pay in resolving the conflicts of interests between managers and shareholders. Optimal contracting theory contends that executive incentives are designed based on skills set of managers and the size and complexity of corporate firms as market for managerial labour is competitive. Chalmers et, al[2] find evidence of optimal contracting theory for Australian firms in relation to setting fixed salary and award of shares. The second approach is the managerial power approach which suggests that CEOs play a larger role in setting their own pay levels as they often appoint and cultivate boards that do not question the authority of CEOs. Murphy[3] in his 2013 book chapter suggests that both of these approaches are relevant in explaining executive compensation. Most of the earlier studies confine to the US and other OECD economies.

Matolcsy and Wright[4] find that there are significant differences in the compensation contracts of CEOs in Australia and the US. Prior research in Australia is focused mainly on CEO pay levels and the influence of economic and governance variables on cross-sectional variance of CEO pay with the exception of a few studies such as Merhebi et al. [5] and Izan et, al[6].

Starting 2004, corporate firms in Australia are mandated to provide additional disclosures relating to executive pay. In addition, corporate firms in Australia are also expected to adhere to the Principles of Good Corporate Governance and Best Practice Recommendations issued by the ASX. Unlike the earlier studies, the present study focuses on CEO wealth rather than CEO pay as increasingly CEOs and other executives either own shares or awarded shares or options based on their performance. The present study therefore focuses on the performance sensitivity of CEO wealth for the period 2005 to 2011. Matolcsy[7] and Rankin[8] finds that the economic downturns have an impact on executive pay in Australia. Given the Global Financial Crisis (GFC) in 2008, this study examines if governance and ownership factors have a varying impact on performance sensitivity of CEO pay before and after the GFC.

The rest of the paper is organized as follows. In Section 2, a brief review of literature relating to executive compensation is provided along with hypothesis development, followed by the description of the sample in Section 3. Section 4 explains the methodological approach and presents results relating to empirical analysis. Finally, Section 5 concludes the study.

2. Development of Hypotheses

Prior literature identifies four major economic determinants of CEO pay[9]. These include size and

* Corresponding author:

syarram@une.edu.au (Subba Reddy Yarram)

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complexity of operations, growth and investment opportunities, performance and risks faced by the firm. Matolcsy and Wright[10] highlight the importance of economic determinants in optimal compensation contracts.

Large firms with growing revenues and expanding operations require CEOs with the right skills and energy. Growing firms that undertake new investments may require that the CEOs have adaptable skills. Large and growing firms place more demands on CEO time and skills and therefore other things being similar, may pay higher compensation. Importance of firm size in performance sensitivity is highlighted by Cichello[11] and Lee[12]. Performance considerations also require that CEOs are skilful in navigating their businesses not only in favourable business conditions, but also when the tide turns or when faced with rough seas. Performance and risk are therefore likely to influence the compensation paid to CEOs. Agency theory contends that to align the interests of shareholders and managers, appropriate incentive structures need to be designed. The economic determinants of CEO pay are also likely to influence the performance sensitivity of CEO wealth. It is therefore hypothesized that size has a positive influence on the performance sensitivity of CEO wealth. Similarly, growth opportunities are hypothesized to have a positive influence on the performance sensitivity of CEO wealth. Performance is also hypothesized to have a positive influence on the sensitivity of CEO wealth. Risk measures on the other hand may have a positive or negative influence on the performance sensitivity of CEO wealth when the risk-averseness of CEOs is factored-in in addition to the risks borne by companies. Aggarwal and Samwick[13] show that risk has a significant bearing on the pay-performance sensitivity while Cichello[11] shows that when controlled for size the effects of risk on pay performance sensitivities are low.

Apart from economic determinants governance and ownership factors may also influence the CEO pay levels as well as the performance sensitivity of CEO wealth. Board size, independence, CEO duality, board interlocking, average tenure of directors, CEO tenure and turnover, structure and activity of remuneration committee are relevant board factors that are likely to influence performance sensitivity of CEO wealth. Similarly, managerial ownership and ownership held by substantial shareholders may also influence performance sensitivity of CEO wealth.

Larger boards often represent conflicting interests and may lead to loss of cohesion thus exerting a negative influence on the performance sensitivity of CEO wealth. It is therefore hypothesized that board size has a negative influence on the performance sensitivity of CEO wealth. Board independence on the other hand, may have a positive or negative influence on the performance sensitivity of CEO wealth. Outside directors who may or may not have the required skills, knowledge as well as motivation are likely to have less influence on the design of incentives[14]. CEOs who also assume the role of a chairperson, may act to protect their interests and therefore CEO duality is hypothesised to

have a negative influence on the performance sensitivity of CEO wealth. Less sensitivity of CEO wealth is an indication of entrenchment of the CEO.

Longer tenures of directors may help directors gain the necessary experience and knowledge relating to the business sector while at the same time, may create social ties with the CEO and hence may denote a weak governance scenario. Interlocked boards may again help directors gain exposure to workings of different businesses or sectors may also create opportunities for close contacts with CEOs. It is therefore hypothesized that boards that are characterized by longer tenures of board members and interlocked directorships have a negative influence on performance sensitivity of CEO wealth. Remuneration committee structure and activity may have a positive influence on the performance sensitivity of CEO wealth, if these committees are effective. However, often remuneration committees are filled with outside directors and often set incentives based on the recommendations of remuneration consultants who are in turn appointed at the behest of the CEO. Taking all factors into account remuneration committee activity and structure may or may not influence the performance sensitivity of CEO wealth.

CEO tenure and turnover may also influence the performance sensitivity of CEO wealth. CEOs with longer service have a reputation to protect as well as acquire more share ownership over a period of time. It is therefore hypothesized that CEO tenure and turnover have a positive influence on performance sensitivity of CEO wealth.

Ownership structure is likely to influence the performance sensitivity of CEO pay. Increased managerial ownership may lead to better alignment of interests of shareholders and managers and therefore it is hypothesized that managerial ownership has a positive influence on the performance sensitivity of CEO wealth. Similarly, substantial shareholders may act to discipline the actions of managers and therefore it is hypothesised that substantial shareholding has a positive influence on the performance sensitivity of CEO wealth.

3. Sample Description

The initial sample consists of all constituents of All Ordinaries Index at the end of 2011. All non-financial firms are excluded from the study as these firms are highly regulated. Firms with missing data on remuneration or information relating to other variables employed in the study are excluded from the study. Remuneration information is collected from the Corporate Governance module of the Sirca. Financial information is collected from Datastream database. The study period comprises of 2005 to 2011 with information on sales and other lagged variables are included from 2004. The period of 2005 to 2011 is chosen as this period represents a distinct corporate governance and remuneration framework in Australia. ASX Principles of Good Corporate Governance and Best Practice Recommendations were adopted in 2004 and the Corporate

Law Economic Reform Program (Audit Reform and Corporate Disclosure) Act 2004 (CLERP 9) was adopted from 2004.

Consequent to CLERP 9, disclosures relating to executive remuneration have improved in Australia. This period also represents a change in financial reporting with the adoption of Australian International Financial Reporting Standards (A-IFRS) in 2004. The final sample consists of 2153

firm-years for the period 2004 to 2011. Sample firms are represented in all non-financial sectors with 34 per cent of firm-years from basic materials, 21 per cent from consumer cyclical and non-cyclical sectors, 15 per cent from energy, 16 per cent of firm-years from industrials and the remaining from healthcare, technology, telecommunication services and utilities.

Table 1. Descriptive Statistics

Variable	mean	sd	Min	p25	p50	p75	max	skewness	kurtosis
Total Compensation (\$mil)	1.31	1.31	0.18	0.42	0.78	1.64	5.06	1.64	4.80
Value of CEO Shares (\$mil)	12.54	21.40	0.00	0.64	3.42	12.71	84.77	2.37	7.80
WPS (\$)	36.94	103.63	-133.20	-0.15	10.33	42.36	374.26	1.84	7.06
Sales (\$mil)	1593.84	5779.51	0.00	6.07	178.51	848.04	72463.57	7.59	69.66
Growth	2.49	1.79	0.67	1.26	1.93	3.09	7.70	1.54	4.81
RoA	0.00	0.19	-0.54	-0.05	0.05	0.11	0.25	-1.46	4.89
Tret	0.27	0.65	-0.58	-0.17	0.13	0.56	1.96	1.08	3.67
SDRoA	0.14	0.17	0.01	0.03	0.07	0.18	0.66	1.89	5.77
SDRet	0.15	0.08	0.05	0.08	0.13	0.20	0.35	0.91	2.90
Board Size	6.79	2.00	4.00	5.00	7.00	8.00	11.00	0.52	2.41
Independence	0.64	0.12	0.40	0.56	0.67	0.75	0.82	-0.44	2.10
CEO Duality	0.06	0.23	0.00	0.00	0.00	0.00	1.00	3.85	15.85
Interlocking	1.15	0.43	1.00	1.00	1.00	1.00	5.00	3.43	18.04
Director Tenure	5.35	2.13	0.83	3.83	5.08	6.54	18.57	1.04	5.36
CEO Tenure	3.78	2.51	1.00	2.00	3.00	5.00	11.00	0.82	2.95
CEO Turnover	0.16	0.37	0.00	0.00	0.00	0.00	1.00	1.83	4.35
RC Size	5.08	3.24	1.00	3.00	4.00	6.00	25.00	1.77	7.06
RC Ind	0.89	0.16	0.00	0.80	1.00	1.00	1.00	-1.68	6.61
RC AvgAtt	0.81	0.24	0.00	0.67	0.89	1.00	1.00	-1.57	5.54
Managerial Ownership	0.15	0.18	0.00	0.01	0.07	0.22	0.60	1.31	3.55
Substantial shareholding	0.34	0.23	0.00	0.15	0.32	0.52	0.76	0.18	1.97

Table 2. Trends in Variables Employed

Variable	2004	2005	2006	2007	2008	2009	2010	2011
Total Compensation (\$mil)	1.00	1.08	1.16	1.31	1.37	1.37	1.53	1.51
Value of CEO Shares (\$mil)	11.02	12.00	13.32	16.47	12.44	10.68	11.55	12.67
WPS (\$)		47.99	41.62	38.12	36.48	33.69	29.27	35.55
Sales (\$mil)	1258.19	1316.01	1346.99	1443.63	1726.57	1846.79	1745.51	1905.76
Growth	2.17	2.17	2.21	2.35	2.63	2.85	2.66	2.65
RoA	0.01	0.00	-0.01	0.01	0.01	-0.03	0.01	0.01
Tret	0.52	0.36	0.48	0.64	-0.03	-0.19	0.32	0.26
SDRoA	0.14	0.14	0.15	0.15	0.14	0.14	0.14	0.13
SDRet	0.13	0.13	0.13	0.13	0.14	0.19	0.19	0.14
Board Size	6.84	6.64	6.68	6.75	6.86	6.77	6.80	7.00
Independence	0.63	0.62	0.62	0.63	0.64	0.64	0.65	0.67
CEO Duality	0.05	0.07	0.06	0.06	0.05	0.06	0.05	0.03
Interlocking	1.18	1.16	1.17	1.17	1.15	1.13	1.16	1.11
Director Tenure	4.62	4.79	4.98	5.21	5.36	5.64	5.84	6.08
CEO Tenure	2.75	3.09	3.44	3.76	3.88	4.12	4.41	4.29
CEO Turnover	0.14	0.11	0.12	0.14	0.20	0.21	0.15	0.22
RC Size	4.97	5.07	5.04	4.98	5.00	5.12	5.20	5.18
RC Ind	0.88	0.87	0.88	0.89	0.89	0.89	0.90	0.92
RC AvgAtt	0.80	0.83	0.78	0.82	0.78	0.82	0.82	0.81
Managerial Ownership	0.17	0.18	0.16	0.15	0.14	0.14	0.13	0.13
Substantial shareholding	0.32	0.32	0.32	0.33	0.32	0.35	0.36	0.37

The average total compensation of Australian CEOs for the period 2004 to 2011 stood at \$1.31 million with a median value of \$0.78 million (Table 1). Average total compensation increased from \$1 million in 2004 to \$1.31 million in 2007 and to \$1.51 million in 2011 (Table 2). Growth in average total compensation declined during the Global Financial Crisis and subsequently recovered in 2010.

The average value of CEO shareholding for the study period stood at \$12.54 million. Average value of CEO shareholding increased from \$11.02 million in 2004 to \$16.47 million in 2007. Value of CEO shareholding declined during the GFC in 2008 and in 2009 before recovering to \$11.55 million in 2010 and to \$12.67 million in 2011.

Average CEO wealth performance sensitivity (WPS) is approximately \$37 for every \$1000 change in sales for Australian firms for the study period. WPS declined steadily from \$48 in 2005 to \$29 in 2010 before recovering to \$35.55 in 2011.

Average sales revenue of Australian firms has steadily increased during the sample period. Similarly growth opportunities have improved from 2004 to 2009 before declining in 2010. Average RoA fluctuated during the study period, and in 2 out of the 8 years, it turned to negative. Average total returns, on the other hand fluctuated rapidly and experienced negative returns during the GFC before recovering in 2010 and 2011.

Median board size of Australian firms stood at 7 consistently during the study period. On average, approximately two-thirds of the board members are independent on Australian boards. The roles of CEO and chairperson are combined in 6 per cent of the Australian firms, while at least one director has a position on more than one board at the same time. Average director tenure has steadily increased from 4.62 years in 2004 to 6.08 years in 2011, while at the same time, average CEO tenure has also steadily increased from 2.75 years to 4.29 years during the study period. CEO turnover registered an increase during the GFC as 1 in 5 CEOs changed during this period.

Average size of remuneration committees stood at 5 and a substantial proportion of these remuneration committees are independent. Average attendance of remuneration committee meetings is high as 80 per cent of the members typically attended these meetings. In terms of ownership structure, managers on average owned about 15% of ownership while substantial shareholders held on average 34% of share ownership. While managerial ownership declined marginally in the post-GFC period, the substantial shareholding declined.

Owing to page limitations, correlations are not provided. None of the correlations are very high and therefore no multicollinearity is expected amongst the independent variables.

4. Empirical Analysis and Findings

The empirical analysis is undertaken in two stages. In the first stage, pooled ordinary least squares (OLS) regressions are employed with WPS as a dependent variable and a set of economic determinants and governance variables as independent variables. OLS analysis suffers from several shortcomings such as unobserved heterogeneity, endogeneity and simultaneity. To incorporate unobserved, heterogeneity, the present study considers panel data methods. Based on Hausman test, random effects (RE) panel methods are employed in the second stage.

To account for the changes in macroeconomic environment, the study period is classified into 3 distinct sub-periods. The first period consists of 2005 to 2007 which is the pre-GFC period. The second sub-period is the post-GFC period of 2009 to 2011. For the purpose of comparisons, the present study also considers the year 2008 separately in the OLS regressions. Finally, influence of economic determinants, governance variables and control variables on WPS is examined for all years employing both OLS and RE regressions.

Lagged sales revenue has a significant positive influence on CEO wealth performance sensitivity as shown in the OLS results and the RE results (Tables 3 and 4). This result is consistent with the findings of Cichello[11]. OLS results also show that lagged sales revenue has a positive influence in both pre and post GFC periods while it has no significant influence during the GFC. The overall effect of lagged sales revenue is confirmed in the RE results but its impact in each sub-period is not statistically significant. Lagged market-based performance measure has a significant positive influence on the WPS during the study period as shown in both OLS and RE results. However, performance has no significant influence in the pre-GFC period, while it has a significant positive influence in the post-GFC period. Accounting-based performance measure, on the other hand, has no significant influence on performance. This finding is consistent with Doucouliagos et al[15]. While the risk measures predominantly show a negative influence on WPS, their impact is not statistically significant. Growth opportunities have a significant positive influence on the performance sensitivity of CEO wealth during the pre and post-GFC periods. This finding is consistent with Walker[16].

Board size has a significant negative influence on the performance sensitivity of CEO wealth during the pre and post-GFC periods while it has no influence during the GFC. The negative influence of board size on performance sensitivity of CEO wealth indicates that governance and CEO compensation policies are substitutes rather than complements.

Table 3. Determinants of WPS - OLS Regressions

	Pre-GFC	Post-GFC	Year 2008	All
Ln Sales t-1	7.765** (2.54)	6.255*** (2.88)	5.950 (1.13)	6.696*** (4.15)
RoA t-1	46.796 (0.94)	-9.560 (-0.35)	-31.058 (-0.37)	2.459 (0.10)
SDRoA	-66.742* (-1.69)	-20.195 (-0.65)	15.313 (0.18)	-22.988 (-0.95)
Tret t-1	17.698 (1.34)	13.711* (1.82)	24.709 (1.10)	17.396*** (2.76)
SDTret	109.527 (0.78)	1.662 (0.03)	-77.315 (-0.31)	9.637 (0.17)
Growth	6.793* (1.75)	6.648*** (2.84)	9.356 (1.24)	6.809*** (3.44)
Board Size	-9.276*** (-3.19)	-7.222*** (-2.81)	-5.193 (-0.88)	-7.569*** (-4.22)
Independence	12.064 (0.21)	-44.862 (-0.95)	-64.421 (-0.62)	-29.932 (-0.89)
CEO Duality	-45.077 (-1.49)	-11.870 (-0.30)	-117.113 (-1.24)	-35.801 (-1.19)
Dir Tenure	-4.951 (-1.30)	-6.333*** (-3.40)	-9.508* (-1.69)	-6.380*** (-3.93)
Interlocking	-30.172*** (-3.01)	-23.518*** (-3.14)	-11.555 (-0.78)	-22.759*** (-4.40)
RC Size	0.276 (0.14)	-0.693 (-0.59)	-1.130 (-0.41)	-0.513 (-0.59)
RC Independence	-67.846* (-1.70)	-37.200 (-1.34)	17.319 (0.19)	-43.292** (-1.99)
RC Avg Attend	33.964 (1.36)	-9.916 (-0.48)	43.252 (1.08)	11.332 (0.81)
CEO Tenure	3.590 (0.98)	7.388*** (5.49)	8.372** (2.00)	6.784*** (5.66)
CEO Turn	-5.220 (-0.19)	20.297** (2.20)	-0.061 (-0.00)	15.250* (1.74)
Dir Ownership	243.767*** (4.53)	225.703*** (5.70)	181.740** (2.20)	225.007*** (7.73)
Sub Sharehold	13.502 (0.49)	37.513* (1.95)	25.169 (0.53)	25.862* (1.77)
Industry Dum	Yes	Yes	Yes	Yes
Year Dum	Yes	Yes	No	Yes
Intercept	105.203* (1.75)	117.168** (2.41)	48.698 (0.32)	109.326*** (3.02)
Firm-Years	286	578	158	1022
R2	0.295	0.300	0.221	0.263
R2 Adjusted	0.236	0.273	0.095	0.243
F Value	3.117	6.666	1.320	7.921
Probability	0.000	0.000	0.169	0.000

t statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

Table 4. Determinants of PPS - RE Panel Analysis

	Pre-GFC	Post-GFC	All
Ln Sales t-1	6.666 (1.36)	4.221 (1.28)	3.603* (1.87)
RoA t-1	35.675 (0.72)	-36.704 (-1.34)	-12.668 (-0.59)
SDRoA	-54.875 (-1.16)	-26.380 (-0.77)	-7.232 (-0.31)
Tret t-1	12.690 (1.31)	16.738*** (2.67)	15.328*** (3.08)
SDTret	77.757 (0.52)	-24.270 (-0.39)	-18.681 (-0.39)
Growth	7.966* (1.90)	6.580*** (2.65)	7.146*** (2.71)
Board Size	-7.345* (-1.86)	-5.518* (-1.94)	-5.859*** (-2.74)
Independence	31.468 (0.50)	-29.842 (-0.68)	-23.930 (-0.67)
CEO Duality	-57.982 (-1.05)	-13.969 (-0.47)	-42.757** (-2.17)
Dir Avg Tenure	-6.841* (-1.74)	-4.734** (-2.11)	-4.342** (-2.08)
Interlocking	-38.103*** (-2.86)	-19.929** (-2.16)	-19.939*** (-3.58)
RC Size	-1.519 (-0.60)	-1.815 (-1.23)	-1.275 (-1.25)
RC Indep	-85.183* (-1.86)	-29.889 (-1.07)	-32.061 (-1.24)
RC Avg Attend	37.086 (1.24)	-13.938 (-0.72)	12.729 (0.90)
CEO Tenure	2.901 (0.71)	7.957*** (4.92)	5.776*** (4.64)
CEO Turnover	-6.217 (-0.31)	20.369* (1.84)	9.566 (1.25)
Dir Ownership	215.039*** (5.18)	207.736*** (7.59)	147.473*** (4.16)
Sub Sharehold	6.353 (0.22)	16.148 (0.82)	6.820 (0.42)
Intercept	129.045* (1.78)	103.261** (2.17)	94.600*** (2.63)
Industry Dummy	Yes	Yes	Yes
Firm-Years	286	578	1022
R2 Overall	0.256	0.269	0.236
Chi2	71.798	140.301	63.750
Probability	0.000	0.000	0.000

z statistics in parentheses

* p<0.10, ** p<0.05, *** p<0.01

The RE results show a significant negative influence of CEO duality. The negative influence of CEO duality on performance sensitivity of CEO wealth implies that CEO's entrench themselves when they combine the role of chairperson.

Average director tenure has a significant negative influence as shown in both OLS and RE results. This finding implies that as directors occupy their positions longer, they tend to ignore the pay performance relationship. On the other hand, CEO tenure has a significant positive influence on the performance sensitivity of CEO wealth implying that as CEOs continue longer in a company, they tend to accumulate more shareholding and their interests are better aligned with that of shareholders. Similarly, CEO turnover shows a positive influence in the post GFC period implying the active nature of the market for managerial labour and its disciplinary role in aligning the interests of managers and shareholders.

Interlocked boards are less effective in aligning the interests of shareholders and managers as shown by the results from OLS and RE analyses. Boards with more directors serving on other boards tend to lose focus or have competing interests that lead to designing ineffective executive pay policies that ignore performance considerations. Independence of remuneration committee has a significant negative influence in the pre-GFC as well as the overall study period. Remuneration committee structure and activity has no significant influence on the performance sensitivity of CEO wealth in RE results.

Managerial ownership has a significant positive influence on the performance sensitivity of CEO wealth in both the pre and post-GFC periods as shown in both the OLS and the RE results. This finding is consistent with Doucouliagos et al[15]. These findings imply that with increasing managerial ownership, interests of shareholders are better aligned with that of the managers. While substantial shareholders have a significant positive influence in the post-GFC periods as shown in OLS results, these findings are not confirmed in RE results that account for unobserved heterogeneity.

5. Conclusions

Executive compensation continues to attract the attention of many all around the world. While the popular debate often focuses on levels of top executive compensation this study focuses on the performance sensitivity of CEO wealth for a sample of Australian firms for the period 2005 to 2011.

For a sample of 2153 non-financial firm-years, the study analyses the influences of economic determinants, governance and ownership factors on the performance sensitivity of CEO wealth. Employing pooled OLS and panel random effects (RE) regressions, the study finds that firm size, performance and growth opportunities have a significant positive influence on the performance sensitivity of CEO wealth.

Board size, CEO duality, average director tenure and board interlocking have a negative significant influence on the performance sensitivity of CEO wealth while CEO tenure and managerial ownership have a significant positive influence. These findings have implications for governance and compensation policies. Firms with weak governance

structures fail to design incentive structures that link CEO wealth with performance. Longer tenure for CEOs as well as increased managerial ownership helps in aligning the interests of shareholders and managers.

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