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# EVA, MVA, and CEO Compensation

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## INTRODUCTION

How executives are evaluated and rewarded has become a hot topic in recent years. The details of firms' compensation practices are routinely featured in the business press and have attracted considerable attention from unions, politicians, and investment community. For example, CEO compensation has been criticized for being "unfair and excessive" (Washington Post, 1999) and "not linked to performance" (Wall Street Journal, 1998).

The academic researchers too have been preoccupied with the top executive compensation issues. Nonetheless, despite several decades of research on the linkage between executive pay and firm performance, there are more questions today than there are answers (Barkema and Gomez-Mejia, 1998). As noted by Gomez-Mejia (1994), in spite of utilizing similar archival data sources the voluminous work on this topic has yielded contradictory findings. While several studies have found a positive relationship between the levels of executive pay and firm performance (e.g., Lambert and Larcker, 1987), others have found no evidence of a pay-performance link (e.g., Kerr and Bettis, 1987); yet others have found mixed relationships depending upon the performance measure used (e.g., Antle and Smith, 1986).

Perhaps the most troublesome issue in the pay-for-performance debate is the choice of an optimal performance measure (Gomez-Mejia and Wiseman, 1997). Predictions that executive compensation varies directly with performance follow from the standard agency model (Jensen and Meckling, 1976). Since

management's actions are unobservable, shareholders offer contracts based on observable performance indicators presumed to be correlated with management's actions. The most common measures of corporate performance are accounting measures (EPS, ROE, etc.) and market measures (stock returns). But neither of these measures have provided acceptable explanatory power in prior pay-for-performance studies (Gomez-Mejia and Wiseman, 1997; McKnight and Tomkins, 1999).

This research will extend the current literature by investigating the efficacy of two recently developed (and highly publicized) corporate performance metrics, EVA and MVA (Dodd and Johns, 1999), in explaining the cross-sectional variation in CEO compensation.

## WHAT IS EVA/MVA?

Stern Stewart & Co., a consulting firm based in New York, has been among the most vocal supporters of a value-based corporate performance framework. It has coined (and trademarked) a concept called economic value added (EVA), which has received much attention in the financial media, the Wall Street, and in corporate boardrooms. Unlike traditional accounting measures of performance, EVA attempts to measure the value that firms create or destroy by subtracting a capital charge from the cash returns they generate on invested capital. Computationally, EVA is the difference between a firm's (adjusted) net operating profit after taxes (NOPAT) and its total cost

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of capital (COC).

$$\text{EVA} = \text{NOPAT} - \text{COC}$$

A positive EVA implies that the firm's managers add wealth to shareholders because the post-tax rate of return on invested capital exceeds the weighted-average cost of capital. When EVA is negative, the firm's managers destroy market value by investing in capital projects that fall short of the returns required by both debt and stock holders. For this reason, EVA is seen by its proponents as providing the most reliable year-to-year indicator of a (true) market-based performance measure known as market value added (MVA) (O'Byrne, 1996).

MVA measures the difference between market value (debt + equity) and funds contributed by investors since inception. As such, MVA reflects the stock market's judgement of the net present value (NPV) of the firm taken as a whole. It is literally the summing up of the NPV created by all past and all planned capital spending projects (i.e., firm's investment opportunity set, Smith and Watts, 1992). Accordingly, EVA/MVA enthusiasts argue that the best incentive system, measures managerial performance in terms of EVA/MVA (Ehrbar, 1999; Blair, 1997).

However, in spite of widespread adoption, in recent years, of EVA/MVA by companies as metrics for corporate planning and executive compensation (Wallace, 1997), there has been no empirical research on the linkage between EVA/MVA and executive compensation. Accordingly, the main purpose of this research is to investigate the cross-sectional association between EVA/MVA and CEO compensation components.

#### CEO COMPENSATION MIX

A top executive's total compensation package typically consists of four elements. There are two fixed pay elements: base salary, which is minimum annual cash pay; and benefits and perquisites, which are non-cash, non-variable pay such as retirement plans and country club memberships. There are also two variable pay elements: annual cash bonuses and long-term compensation (e.g., stock options, restricted stock, and long-term incentives).

While the level of compensation and the association between firm performance and compensation level have been widely investigated, much less attention has been given to the manner in which executives are compensated (Bloom and Milkovich, 1998), that is, the mix of fixed and incentive components. Nonetheless, the agency literature assumes different roles for base salary and incentive compensation (Guay, 1999).

Executives (agents) who are hired by shareholders (principals) may behave in ways, which do not

maximize shareholder wealth. For example, executives may differ from shareholders in their attitude towards risk. Shareholders can diversify their investments over many firms and thereby lower the risk from any one investment. Thus shareholders may want executives to commit to more risky projects (for higher returns). Executives, on the other hand, cannot diversify their risk because of their close association with the firm. An executive can hold only one job, and is most likely to be risk-averse with respect to that job.

To the extent the fixed components are established *ex ante*, executives are protected from poor *ex post* outcomes from risky projects. But such arrangements provide little incentives for executives to exert efforts toward shareholder value maximization. On the other hand, executives with only variable compensation (contingent on firm profitability or stock prices) bear large risks and thus demand higher levels of compensation (Gray and Cannella, 1997).

#### STATISTICAL MODEL

Based on a review of prior research, Baber et al (1998, 172) conclude that "Thus, meaningful specification of relation between compensation and firm performance include both accounting earnings and common stock returns as explanatory variables." Accordingly, in order to examine the degree of association between EVA/MVA and CEO compensation we will test the following regression model:

$$\text{COMP} = b_0 + b_1 \text{EVA} + b_2 \text{CHGMVA} + b_3 \text{MVA}$$

Where:

COMP = Compensation (BASE or BONUS or LONG or OPTION).

EVA = EVA.

CHGMVA = Change in MVA (current year-end MVA – prior year-end MVA).

MVA = Prior year-end MVA.

The intuition behind the model is that the different components of executive compensation are associated with different measures of firm performance (Baber et al, 1998). Base salary (BASE) is determined at the beginning of the fiscal year; it is related to prior year(s) performance (i.e., MVA). Cash bonus (BONUS) is determined at the end of the fiscal year; it is usually tied to accounting earnings (i.e., EVA). Long-term compensation (LONG) includes (realized) gains from the exercise of stock options and/or stock appreciation rights during the year or other stock price-related incentives earned during the year; they are related to stock price performance during the fiscal year (i.e., CHGMVA). Stock options (OPTION) is the estimated value of option grants earned during the year; it is related to current and expected stock prices (i.e., MVA and CHGMVA). Put simply, BASE, BONUS, and

LONG are actual (historical) values, which are recorded as compensation expense by the firm. OPTION, on the hand, is estimated (future) value, which is reported as a footnote to financial statements. Accordingly we expect a positive and strong association between BASE and MVA, a positive and strong association between BONUS and EVA, a positive and strong association between LONG and CHGMVA, and a positive and strong association between OPTION and MVA and CHGMVA. In order to test these predictions, we will run four separate regressions with BASE, BONUS, LONG, and OPTION as dependent variable.

### SAMPLE AND DATA

Our source of CEO compensation data is Wall Street Journal's Executive Pay Survey (Survey) (April 10, 1997). This survey which was conducted by William M. Mercer Inc., provides 1996 CEO compensation data for 350 largest U.S. businesses. We chose this source because it provided detail information on base salary, cash bonuses, long-term compensation, and option values. Base salary, cash bonuses, and long-term compensation are actual values reported in the proxy statements. Option values are present value of option grants awarded in 1996 calculated (by W. M. Mercer, Inc) using the binomial option-pricing model (Cox et al, 1979).

Our sample consists of all Survey companies included in the 1995 and 1996 Stern Stewart Performance 1000. The Stern Stewart Performance 1000 contains EVA and MVA for the 1000 largest publicly traded companies in the U.S. excluding financial institutions and public utilities. Our matching resulted in 184 companies.

### RESULTS

Table 1 summarizes selected descriptive statistics. These statistics indicate a wide range of performance and compensation. For example, OPTION has the highest mean and the largest standard deviation of all compensation components. This may indicate excessive use of stock options by some firms. But, perhaps more striking is the correlation patterns reported in Table 2.

For example, BONUS and LONG are moderately and significantly correlated with BASE ( $r = .45$  &  $r = .49$ ). These results are consistent with assertions that "Annual incentive payments, long-term incentive awards and perquisites generally are determined by reference to base salary." (Core, 1990, 28). OPTION is strongly and significantly correlated with BONUS ( $r = .69$ ) but not correlated with BASE or LONG. This result may seem counter-intuitive at first but the timing and causes of compensation components may provide a plausible explanation. Neither BASE nor LONG can be manipulated by the compensation committee during the fiscal year – BASE is fixed and LONG is dependent on the stock price movements during the year. However, BONUS and OPTION are under the control of the compensation committee and are awarded based on committee's evaluation of the CEO performance. That is, good performance will result in cash bonus (immediate rewards) and expected good performance will result in stock options (future rewards). To the extent good performance this period is an indicator of good performance next period(s), a strong correlation between BONUS and OPTION is expected.

The independent variables (i.e., performance measures) also exhibit moderate and significant intercorrelations. For example, EVA and CHGMVA are moderately and significantly correlated with MVA. These results are consistent with prior research that current (e.g., 1995) stock prices reflect expected future (e.g., 1996) earnings and stock prices (Beaver et al, 1987).

Finally the correlation results between components of compensation (except OPTION) and the performance measures indicate a much stronger correlation between those components (BASE/BONUS/LONG) and MVA than EVA. In fact, the correlation between BONUS and EVA is not even significant, while MVA and CHGMVA are moderately and significantly correlated with all three compensation components. These results indicate that compensation committees are more interested in stock price appreciation than earnings per se. However, the apparent lack of a positive and significant correlation

TABLE 1  
Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard Deviation
Panel A: (\$Thousands)				
BASE	280.40	2300.00	833.12	297.29
BONUS	.00	7900.00	909.00	893.57
LONG	.00	23546.10	2169.92	3798.12
OPTION	66.10	244531.80	4287.24	19597.0
Panel B: (\$Millions)				
EVA	-5666.00	3199.00	16.12	709.43
MVA	-11882.00	87820.00	6676.00	13195.95
CHGMVA	-32854.00	41082.00	1723.13	5843.35

between OPTION and measures of corporate performance is alarming. This result confirms allegations in popular press that stock options are excessive and not related to performance. For example, a recent Wall Street Journal article (1999), reports that new Hewlett-Packard company's CEO was offered a compensation package that included stock options valued at \$66.1 millions and that the grant is not based on H-P's performance.

## SUMMARY AND CONCLUSIONS

The main objective of this research was to empirically examine the ability of two recently publicized measures of corporate performance, EVA and MVA, to explain the cross-sectional variation in CEO pay components. Utilizing 1996 compensation data and Stern Stewart Performance 1000, we concluded that EVA and MVA are positively and significantly associated with base salary, cash bonus,

**TABLE 2**  
Intercorrelations

	BASE	BONUS	LONG	OPTION	EVA	MVA	CHGMVA
BASE	1.000						
BONUS	.451**	1.000					
LONG	.493**	.357**	1.000				
OPTION	.024	.659**	.007	1.000			
EVA	.197**	.117	.275**	-.042	1.000		
MVA	.537**	.419**	.413**	.147	.460**	1.000	
CHG MVA	.475**	.376**	.385**	.121	.708*	.656*	1.000

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

Table 3 present ordinary least squares (OLS) regression results. Three regressions (BASE, BONUS, and LONG as dependent variables) exhibit positive and significant association between measures of market value added (MVA and CHGMVA) and components of compensation (BASE, BONUS, and LONG). In fact in all three regressions (not reported), MVA provides the most explanatory power. The interpretation of EVA is, however, problematic. EVA shows both insignificant coefficients and opposite signs. These results are attributed to the presence of multicollinearity. Since pairwise correlations (Table 1) between independent variables are moderately large (largest around .7), the regression coefficient estimates are imprecise (Judge et. al, 1985). Nonetheless, the independent variables collectively are significant ( $p = .01$ ) and provide moderate explanatory power (as high as 34%). As expected, the regression of OPTION on measures of corporate performance does not provide statistically significant results. Perhaps compensation committees hope that granting stock options will produce (future) results not currently reflected in (or anticipated by) current earnings and/or stock prices.

and long-term compensation. Furthermore, it appears that MVA is more influential than EVA across all three components. These results are encouraging in that a portion of CEO compensation is linked to shareholder value. However, it is important to note that only a third of total variation is explained by performance measures.

Furthermore, our results indicate that awards of stock options are not associated with current and/or expected performance. This observation is alarming because more and more companies are granting higher and higher amounts of executive stock options. Not surprisingly, this trend has captured the attention of policy makers. For example, under pressure from media, organized labor, and activist shareholders, the Securities and Exchange Commission (SEC) in 1992 established proxy statement rules, requiring increased disclosure of option awards including justification for the size of the awards, based on performance comparisons with a "peer group" of comparable companies. But our evidence suggests that mimicking other companies' executive compensation practices does not guarantee strong pay for performance linkage.

**TABLE 3**  
Summary of OLS Regression Analysis

	Base	Bonus	Long	Option
MVA	.392**	.300**	.281**	.324
CHGMVA	.413**	.388**	.194**	.023
EVA	-.276**	-.295**	.009	-.281
R <sup>2</sup> (adjusted)	.342	.224	.180	.044
F-value	32.718**	18.645**	14.361**	3.393

\*\*Significant at the 0.01 level (2-tailed)

To sum up, our results indicate that some components of CEO compensation are related to performance but a major portion is not. This may explain the apparent lack of acceptable explanatory power in most prior pay for performance studies. May be we should accept that CEO compensation is a

complex (multidimensional) phenomenon. Perhaps an "eclectic" approach that integrates economic theory, social psychology, political science, and strategy will provide a better explanation of what determines CEO pay.

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