



# In Defense of Incentive Compensation: Its Effect on Corporate Acquisition Policy

by Sudip Datta and Mai Iskandar-Datta, Wayne State University, and Kartik Raman, Bentley College\*

**E**quity-based compensation can play a vital role in motivating managers to maximize shareholder value. Yet the perception of excesses in equity-based compensation for executives in U.S. companies has recently become pervasive in the popular press, with critics decrying potential abuses and openly skeptical about the efficacy of stock option awards in particular.<sup>1</sup> A fundamental problem is that while it is relatively easy to measure the *costs* of equity-based compensation, it is much more difficult to measure the *benefits*. Do managers actually make better decisions—decisions more consistent with shareholder value—when part of their compensation is tied to the stock price? How can we ascertain whether equity-based compensation motivates managers to forgo unprofitable projects and direct corporate resources into value-maximizing ventures?

In this article, we examine the link between executive compensation and the stock market response to corporate acquisitions. Acquisitions are a very visible form of long-term corporate investment, and any conflicts of interest between executives and shareholders will tend to reveal themselves in larger-than-average takeover premiums and below-normal stock performance following the completion of the acquisition. To the extent that equity-based compensation succeeds in motivating value-maximizing managerial behavior, however, we should see lower takeover premiums and stronger post-acquisition performance.

Using a large sample of mergers and tender offers by U.S. companies during the period 1993-1998, we found a strong positive association between the stock price response around and following corporate acquisition announcements and the proportion of equity-based compensation for the top five executives in the acquiring firm. Our principal findings can be summarized as follows:

- the bidding firm's stock price responds more favorably to an acquisition announcement when its executives receive higher levels of equity-based compensation
- higher equity-based compensation at the bidder firm is

associated with lower takeover premiums

- managers who receive higher levels of equity-based compensation are more inclined to acquire targets with higher risk but also stronger growth opportunities
- bidder firms with higher equity-based compensation enjoy stronger long-term stock performance on a risk-adjusted basis following completion of the acquisition

In sum, our results demonstrate that compensation contracts can successfully influence managerial behavior and improve corporate performance.

## The Data

We examined 1,719 acquisitions (1,577 mergers and 142 tender offers) completed by 771 firms between January 1993 and December 1998. All types of firms are in the sample. The bidder firms were listed on both the Center for Research in Security Prices and Standard & Poor's ExecuComp databases. Both the aggregate number of acquisitions and the average number of acquisitions per firm have increased over time. The average deal value (in constant 1998 dollars) also increased, from \$188.7 million in 1993 to \$732.9 million in 1998. As in previous studies, most tender offers (70%) were cash deals, while a majority of mergers (56%) were stock deals. The average target firm was approximately 11% of the size of its acquirer.

Total compensation is the sum of salary, bonus, other annual compensation, the value of restricted stock grants, the value of new stock option grants during the year, long-term incentive payouts, and all other compensation paid to the top five executives (ranked annually by ExecuComp according to salary and bonus). Although the median total compensation paid to the top five executives was \$4.8 million, the median of the annual combined salaries was only \$1.6 million. A significant portion of the compensation package (29.8%) consisted of new stock option grants.<sup>2</sup>

We defined equity-based compensation, EBC, as the Black-Scholes value of new options granted to the top five executives in the year preceding the acquisition, divided by

\* This article draws on the findings in our paper entitled "Executive Compensation and Corporate Acquisition Decisions," *Journal of Finance*, Vol. 56 (2001), pp. 2299-2336.

1. For example, articles in a recent *Wall Street Journal* special section entitled "Executive Pay" paint a grim picture of executives who are overpaid and poorly motivated by the design of their compensation packages (April 8, 1999, pp. R1-R15).

2. In contrast, Hamid Mehran finds that only 12.7% of compensation is equity-based over the 1979-1980 period; see "Executive Compensation Structure, Ownership, and Firm Performance," *Journal of Financial Economics*, Vol. 38 (1995), pp. 163-184. Our data reflect the growth in the use of equity-based compensation during the 1990s.

Table 1 **Two-Day (-1, 0) Cumulative Abnormal Return For Acquisition Announcements<sup>a</sup>**

<b>Panel A: CARS (-1,0) Categorized by Proportion of Equity-Based Compensation (in Percent)</b>				
<b>Attribute</b>	<b>Full Sample</b>	<b>Low EBC</b>	<b>High EBC</b>	<b>t/z-statistic for difference</b>
Mean	0.02	-0.25**	0.30**	-2.94***
Median	-0.19	-0.26***	-0.01	-2.20*
Observations	1,719	860	859	

<b>Panel B: CARS Categorized by Top Executive Equity Ownership Quartiles and Proportion of Equity-Based Compensation (in Percent)</b>				
	<b>Quartile 1 (lowest ownership)</b>	<b>Quartile 2</b>	<b>Quartile 3</b>	<b>Quartile 4 (highest ownership)</b>
Low EBC	-0.39** (-0.37)** [198]	-0.54*** (-0.46)*** [228]	-0.26 (-0.28) [208]	0.19 (0.23) [200]
High EBC	0.17 (0.27) [223]	0.01 (-0.29) [198]	0.65** (-0.02) [208]	0.36 (0.26) [221]
t-stat of difference	-2.63***	-2.41***	-2.52***	-0.40
Wilcoxon Z (rank sum test)	-2.53***	-1.69*	-1.63*	-0.25

a. The t-statistic is for the difference between means and the z-statistic is from the Wilcoxon rank sum test for the difference between medians (the respective distributions). Medians are reported in parentheses, and the number of observations is reported in brackets. \*\*\*, \*\*, \* denote significance at the 1%, 5%, and 10% levels, respectively.

their total compensation (excluding any value realized by exercising previous options) in the same year. We focused on stock option grants because (as we discuss later) new option grants create stronger incentives to maximize value, relative to securities such as common stock or previously awarded options that may already be in the money. A firm was in the low-EBC group if the proportion of equity-based compensation offered to its executives was at or below the median, and in the high-EBC group otherwise. About 85% of the companies in our sample awarded stock options. Of these, 79.7% awarded stock options with maturities between three and ten years while 19.8% awarded grants that expire between ten and 15 years. Thus, virtually all new stock option grants in our sample were long-term in nature, with the potential to influence the long-term investment decisions of managers. Finally, the preponderance (93.3%) of stock options were granted at the money for our sample firms.

### Executive Compensation and Announcement Reaction

For each acquisition in our sample, we calculated the excess return, or cumulative abnormal return (CAR), as the actual

return on the acquiring firm's stock minus its expected return, summed over the two-day announcement period (the day prior to and the day of the announcement).<sup>3</sup> Table 1 shows the results BOTH for the full sample and broken down by high- and low-EBC firms. Similar to the evidence in previous studies, the bidder's stock price response to the acquisition announcement was not statistically different from zero for the full sample.

What is interesting, however, is that the market reacts more favorably to acquisitions by companies with high incentive compensation than to those by companies with low EBC, suggesting that acquisitions by high-EBC firms add value, in contrast to those by low-EBC firms. The average excess return for the high-EBC subsample was a statistically significant 0.30%, while the comparable figure for the low-EBC group was a statistically significant -0.25% (Table 1, Panel A). The difference between the excess returns of the two groups was also statistically significant. This finding provides direct evidence that incentive compensation influences managers to make value-maximizing acquisitions, as predicted by finance theory.<sup>4</sup>

3. We computed expected returns on the day prior to and the day of the announcement using the market model and Scholes-Williams betas estimated over the period 200 days to 60 days prior to the announcement date.

4. As we discuss later, the positive relationship between EBC and the bidder's market response to the acquisition exists for mergers, but not for tender offers. Also, separating acquirers based on the method of payment for the acquisition (cash versus non-cash) does not affect our conclusions.

Perhaps even more interesting, we found that the existing level of managerial stock ownership in acquiring firms plays an important role in determining the effectiveness of equity-based compensation. In companies with low managerial ownership, the excess returns for the high-EBC firms were significantly greater than those for the low-EBC firms (Table 1, Panel B). At the highest levels of ownership, however, there is no difference in the stock market reaction of the high-EBC versus low-EBC companies. In fact, the link between equity-based compensation and bidder stock response progressively weakens as we move from companies with the lowest ownership to those with the highest ownership. In other words, equity-based compensation is more effective in companies with lower levels of managerial ownership.

This finding is broadly consistent with the view that equity-based compensation alleviates conflicts of interest between managers and shareholders arising from *low* managerial ownership stakes. The lack of a strong link between EBC and the bidder stock price response in companies with *higher* managerial ownership could reflect the possibility that risk-averse managers with already-high ownership levels respond to additional stock option grants by selling a part of their holdings, thereby effectively neutralizing any incentive effects of the new stock-based pay. Alternatively, companies with high managerial ownership levels may have entrenched managers who do not feel strong pressure to maximize value. However, there is no evidence that these managers are making value-destroying acquisitions—merely that at higher levels of managerial ownership, additional stock option grants are not particularly motivating.

As a percentage of shares outstanding, executive stock ownership levels (3.6%) and the number of shares underlying previously awarded options (1.7%) were substantially larger than the shares underlying newly granted options (0.5%). Nonetheless, the positive link between managerial incentives and the bidder's market response was driven solely by new stock option grants, and not by managerial stock ownership or previous awards of stock options that are most likely to be deep in the money. In comparison to securities such as common stock or previously awarded options (which are more likely to be in the money), whose compensation value rises in direct proportion to the stock price, new option grants (with their more leveraged payoffs) create significant value-maximizing incentives for risk-averse managers.

### Equity-Based Compensation and Acquisition Premiums

The hubris theory of takeovers suggests that managers care about maximizing value but are overly optimistic about their

ability to integrate and create value in an acquisition. As a result, they overestimate the value of the target and simply overpay. On the other hand, managers with misaligned incentives may overpay for acquisitions to reap personal benefits (perhaps through empire-building) rather than trying to maximize value for the acquiring firm's shareholders. Accordingly, we hypothesized that self-interested managers with low equity-based compensation are more likely to overpay for targets than their high-EBC counterparts.

To test this proposition, we examined the acquisition premiums paid by high-EBC and low-EBC managers. We computed the acquisition premium as the percentage excess of the highest price paid per share over the target share price four weeks prior to the announcement date. The average takeover premium for our sample was 40.1%. As shown in Panel A of Table 2, the average acquisition premium paid by high-EBC managers was 35.9%, which was significantly lower than the premium of 44.7% paid by managers with low equity-based compensation. The difference of 8.8 percentage points in takeover premium represents a savings of \$54.6 million by high-EBC firms based on the median target market capitalization of \$621 million for our sample of acquisitions. This evidence clearly indicates that low-EBC firms provide fewer incentives for managers to make value-maximizing decisions, and their managers pay higher takeover premiums as a result.

### Equity-Based Compensation and Acquisition Risk

Granting stock options to executives will tend to encourage them to take on more risk to increase the value of their options, which can be desirable from a standpoint of maximizing shareholder value because managers in general tend to be overly conservative and may pass up valuable but risky investments.<sup>5</sup> We examined the relationship between equity-based compensation in bidder firms and investment risk, measured by the presence of "growth options" in target firms (reflected in higher market-to-book ratios) and by changes in post-acquisition stock return variability (reflected in return standard deviations) in the bidding firm.

The evidence, shown in Panel B of Table 2, indicates that executives who received a high proportion of incentive compensation typically acquired high-growth targets with an average market-to-book ratio of 2.23, whereas managers in the low-EBC group acquired targets with significantly lower growth prospects (average market-to-book of 1.69). Higher-growth companies are typically associated with greater risk, and indeed, as shown in Panel C, high-EBC firms experienced a significantly larger increase in risk (return standard deviation increased by 27 basis points) compared to firms with low equity-based compensation (only eight basis

5. Of course, risk-averse managers may become even more risk-averse so as not to jeopardize a potentially large payout on their options.

Table 2 **Acquisition-Related Risk and Acquisition Premium Categorized by Proportion of Equity-Based Compensation<sup>a</sup>**

Attribute	Full Sample	Low EBC	High EBC	t/z-statistic for difference
<b>Panel A: Acquisition Premium (%)</b>				
Mean	40.11	44.66	35.88	4.01**
Median	35.58	37.71	33.18	3.24**
Observations	628	303	325	
<b>Panel B: Target's Market-to-Book Ratio</b>				
Mean	1.97	1.69	2.23	-3.94**
Median	1.33	1.20	1.49	-5.47**
Observations	719	348	371	
<b>Panel C: Post-Acquisition Minus Pre-Acquisition Stock Return Standard Deviation (%)</b>				
Mean	0.17	0.08	0.27	-4.27**
Median	0.06	0.00	0.11	-2.92*
Observations	1,617	810	807	

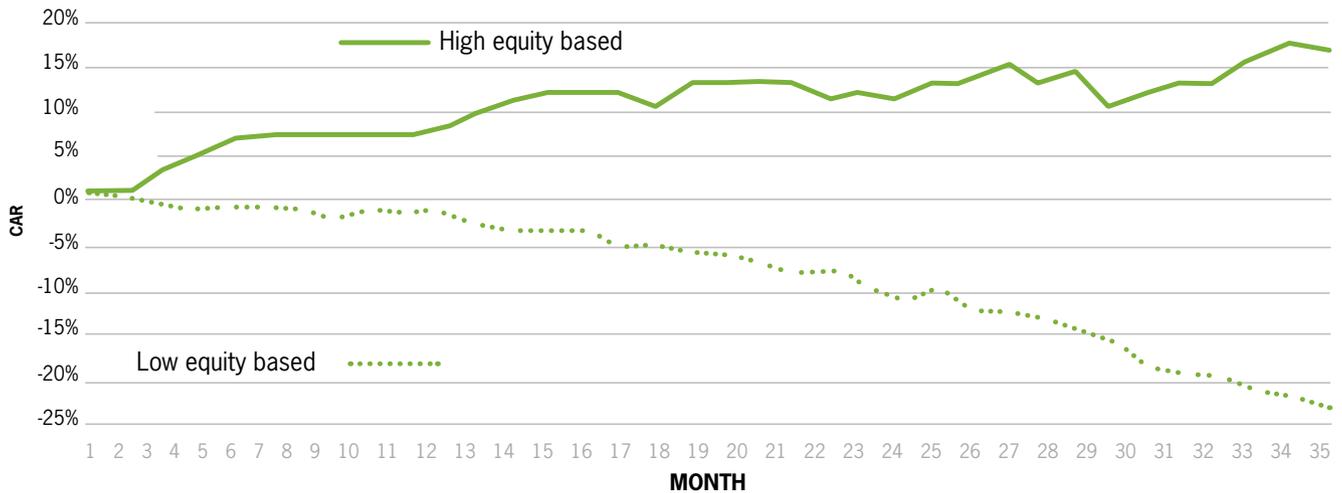
a. The t-statistic is from the t-test of differences between means. The z-statistic is from the Wilcoxon rank sum test for differences between medians (the respective distributions). The market-to-book ratio is calculated as book assets minus book equity plus market equity, all divided by book assets, at the month-end prior to the acquisition announcement date. Return standard deviation is calculated over the period 60-120 days before the acquisition announcement and again 11-70 days following the effective date. \*\*, \* indicate significance at the 1% and 5% levels, respectively.

Table 3 **Three-Year Buy-and-Hold Returns, Firm Size, Book-to-Market Ratio, and Pre-Acquisition Return for Acquiring Firms and Their Matched Controls<sup>a</sup>**

Characteristics	Sample Firm	Matched Firm	Difference	p-value
<b>Panel A: Full Sample, N=485 (Using Only the First Acquisition Announcement Per Firm)</b>				
Three-year BHR (%)	73.47 (49.66)	82.78 (60.97)	-9.31 (-11.31)	0.23 0.02
Firm size (\$ millions)	3498.47 (1083.41)	3734.86 (1110.19)	-236.39 (-26.78)	0.63 0.64
Book-to-market ratio	0.48 (0.38)	0.44 (0.39)	0.04 (-0.01)	0.57 0.36
One-year pre-acquisition return	29.29 (20.73)	28.06 (19.32)	1.23 (1.41)	0.71 0.89
<b>Panel B: Low Equity-Based Compensation Group, N=274</b>				
Three-year BHR (%)	69.68 (49.96)	98.59 (72.74)	-28.91 (-22.78)	0.00* 0.00*
<b>Panel C: High Equity-Based Compensation Group, N=211</b>				
Three-year BHR (%)	78.39 (48.50)	62.25 (41.74)	16.14 (6.76)	0.19 0.31

a. p-values reflect the significance level based on the t-statistic for difference between means and the Wilcoxon rank sum test Z-statistic for difference between medians (the distributions). Medians are reported below the means in parentheses. \* denotes significance at the 1% level.

Figure 1 **Control-Firm-Adjusted CARS Following Acquisitions:  
Categorized by Percentage of Equity-Based Compensation**



points), even when we control for changes in leverage. Taken together, the results suggest that equity-based compensation contracts can reduce the likelihood that managers will pass up valuable risky projects.

### Post-Acquisition Performance of Acquiring Firms

We analyzed long-term stock price performance for each sample firm by measuring the daily compounded return, or buy-and-hold return (BHR), over a three-year period following the completion of the acquisition. To compute long-term stock price performance, we looked at only the first acquisition by a firm and excluded acquisitions that were completed in 1997 or 1998, thus ensuring a three-year window to measure long-term stock price performance. As a result, the subsample of companies for which we analyzed long-run performance consisted of 485 acquisitions (one for each firm) over the period 1993 to 1996. For each sample firm, we constructed a benchmark by measuring the contemporaneous buy-and-hold return of a closely matched control firm chosen on the basis of size, book-to-market ratio, and pre-acquisition stock price runup. We measured abnormal long-term performance by comparing the mean and median returns of our sample firms with those of the control group.<sup>6</sup>

As shown in Table 3, for the overall sample we found that bidder firms did not underperform their control firms, on average, in the post-acquisition period. However,

low-EBC firms underperformed their controls by a statistically significant 28.9% over the three years following the acquisition (see also Figure 1). In contrast, companies awarding high equity-based incentives to their top executives outperformed their control firms by 16.1%, although this outperformance is not statistically significant. Table 3 also shows that there were no significant differences in the overall sample between bidder firms and their matched firms in terms of size, book-to-market ratios, or one-year pre-acquisition returns. Both high- and low-EBC firms were also similar to their matched control firms in all three measures, although there are certainly significant differences between high- and low-EBC firms.

We also found that among the companies involved in mergers, the median low-EBC firm underperformed its control firm by a statistically significant 24.2%, while the median high-EBC firm outperformed its matched firm, albeit insignificantly, by 6.5%. Thus, the post-merger underperformance documented in prior studies is at least partly attributable to the structure of executive compensation at acquiring firms. For tender offers, the median acquirer outperforms the median control firm, albeit insignificantly, by 13.0% in the post-acquisition period. (The sample of tender offers is too small to break down by high and low EBC.)

Previous studies have found that cash-financed acquisitions have stronger long-term performance than do non-cash

6. In addition, we used other benchmarks for robustness tests and relied on a "bootstrapping" procedure (described in detail in our *Journal of Finance* study) to make statistical inferences.

7. See T. Loughran and A. Vijh, "Do Long-Term Shareholders Benefit from Corporate Acquisitions?," *Journal of Finance*, Vol. 52 (1997), pp. 1765-1790.

## A Tale of Two Acquisitions

On November 6, 1995, International Paper Corp. (market cap \$9.5 billion) announced its acquisition of Federal Paper Board Inc. (market cap \$1.7 billion). At the time of the acquisition announcement, approximately 14% of the total compensation for the top five executives at International Paper consisted of newly granted stock options. The two-day risk-adjusted stock market reaction to the acquisition by International Paper was -1.8%, and the top executives at International Paper paid a 48.7% premium over the stock price of Federal Paper Board. In the three-year period following the acquisition, International Paper shareholders earned only 16%.

By contrast, on January 27, 1997, CVS Corp. (market cap \$4.5 billion) announced plans to acquire Revco Inc. (market cap \$2.5 billion). The proportion of total compensation in the form of new stock options for the top five executives at CVS was 37%. The two-day risk-adjusted stock market reaction to the acquisition announcement was 6.5%, and CVS paid only a 17.7% premium to acquire Revco. Finally, CVS shareholders earned 86% over the next three years.

What makes these acquisitions interesting is that the incentive compensation structures for the top executives at the two acquiring firms were very

different. The contrasting alignment of interests between the top executives and the shareholders, as represented by the respective incentive compensation packages, was reflected in the market's reaction to these deals, which was much more favorable in CVS's case. Further reflecting the differences in the incentive compensation packages, the premiums paid for these acquisitions were also starkly different. The top executives at International Paper (with relatively low incentive compensation) paid a significantly greater premium to acquire Federal Paper Board, compared to the acquisition premium paid by the CVS Corp. executives for Revco. The differences in the incentive compensation packages at International Paper and CVS also had substantially different implications for long-term investors. The comparisons from these illustrative acquisitions suggest that shareholders benefit much more from acquisitions if compensation packages provide the right incentives for top executives. Some additional M&A deals are summarized below. Consistent with our overall results, these examples show that acquirers with higher-than-average equity-based compensation experience more positive stock price reactions and pay lower takeover premiums.

### Incentive Compensation and Efficacy of M&A Deals: Some Illustrative Examples

Merger/ Acquisition Announce Date	Acquirer Name	Two-Day Acquirer Excess Return in Response to Announce	Acquirer EBC (%)	Premium Paid for Target Over Stock Price Four Weeks Prior to Announce (%)	Target Name
1/5/98	SBC Communications	-0.95%	20.11	42.90	Southern New England Telecom
8/19/93	Mattel Inc	-0.81%	4.69	43.60	Fisher Price Inc
11/21/97	TRW Inc	-0.79%	17.25	38.01	BDM International Inc
6/29/98	Hilton Hotels Corp	2.15%	63.64	7.16	Grand Casinos Inc
4/9/97	Procter & Gamble Co	2.16%	43.81	14.94	Tambrands Inc
2/14/97	Healthsouth Corp	1.39%	52.62	36.08	Horizon CMS Healthcare Corp
8/21/97	Comverse Technology Inc	1.31%	42.65	10.37	Boston Technology Inc

acquisitions.<sup>7</sup> We specifically compared cash-financed acquisitions by low-EBC firms to non-cash acquisitions by high-EBC firms. If the method of payment is the dominant effect, then the comparison of these two subsamples creates an inherent bias against finding support for our contention that the level of equity-based compensation influences post-acquisition performance: we should find no underperformance in cash-financed acquisitions by low-EBC firms, but non-cash acquisitions by high-EBC firms *should* underperform.

For cash-financed acquisitions, however, low-EBC firms underperformed their matched firms by an average of 56.7% during the post-acquisition period. This economically and statistically significant underperformance indicates that it is the weaker incentives provided by low-EBC firms, rather than the method of financing, that affect long-run post-acquisition performance. Among non-cash acquisitions, moreover, the fact that high-EBC firms do not underperform their matched controls over the three years following the acquisition also suggests that the form of compensation is more significant than the means of payment as a determinant of post-acquisition performance.

Other studies have argued that both the market and management are overoptimistic when they project past bidder performance into the future, which leads to bad acquisitions by so-called “glamour” bidders. (“Glamour” companies are defined as having market-to-book equity ratios at or above the median, while “value” companies are below the median.) However, if incentive compensation closely aligns managerial interests with those of shareholders, it would be irrational for “glamour” bidder managers, or managers of any type of bidder for that matter, not to carefully analyze a major acquisition in order to avoid shareholder value destruction. We found that glamour companies with low incentive compensation underperformed the control sample on average by a statistically significant 20.0%, while high-EBC glamour companies outperformed their matched controls by 14.2%, although this stronger performance is not statistically significant. Correspondingly, “value” companies whose managers receive high incentive compensation outperformed their matched controls by a statistically and economically significant 41.0%, whereas low-EBC “value” companies underperformed their matched firms by 19.1%. Taken together, our results suggest that it is the executive compensation structure, and not necessarily the so-called “glamour” or “value” status of acquiring firms, that is a key determinant of long-run post-acquisition performance.

## Summary and Conclusions

Corporate investment decisions are vital to the creation of shareholder wealth. Yet the separation of ownership and control in large corporations may permit executives to direct corporate resources into ventures that do not necessarily maximize shareholder value. Of course, financial economists have long recognized that compensation design, particularly the use of equity-based compensation, can help to align the interests of managers with those of shareholders and provide effective and strong motivation for managers to make value-maximizing decisions.

Examining a sample of 1,719 mergers and tender offers by U.S. companies during the period 1993-1998, we found a strong positive relationship between the degree of equity-based compensation in bidder firms and the stock price response around and following corporate acquisition announcements.<sup>8</sup> Managers who receive a higher-than-average proportion of their compensation in the form of stock options pay significantly lower acquisition premiums, acquire targets with stronger growth opportunities, and undertake acquisitions that are received more favorably by the market both upon announcement and over time. These results hold even when we account for the type of deal (merger versus tender offer), the method of payment (cash versus non-cash), and bidder firm performance (“glamour” versus “value” stocks). Interestingly, equity-based compensation is most effective when managerial ownership levels are low, and tends to lose its incentive effects at higher levels of ownership.

Our findings have important implications for improving the efficiency of the corporate acquisition process. For corporate boards and investors, our results suggest that equity-based compensation plays a significant role in long-term value creation. For policy makers, our findings support the view that managers should be shielded from shareholder lawsuits charging excessive compensation when such compensation helps to improve the functioning of corporate governance.<sup>9</sup> And in general, our results are at odds with the current skepticism about stock options.

---

SUDIP DATTA holds the T. Norris Hitchman Endowed Chair in Finance at Wayne State University's School of Business Administration.

MAI ISKANDAR-DATTA is Professor of Finance at Wayne State University's School of Business Administration.

KARTIK RAMAN is Assistant Professor of Finance at Bentley College's McCallum Graduate School of Business.

---

8. In related studies, Michael Jensen and Richard Ruback specifically inquire how the compensation of acquiring managers relates to the stock price effects of acquisition outcomes; see “The Market for Corporate Control: The Scientific Evidence,” *Journal of Financial Economics*, Vol. 11 (1983), pp. 5-50. Andrei Shleifer and Robert Vishny con-

jecture that equity-based executive compensation “should have the effect of reducing the non-value-maximizing behavior of [acquiring] managers”; see “Value Maximization and the Acquisition Process,” *Journal of Economic Perspectives*, Vol. 2 (1988), pp. 7-20.

9. Shleifer and Vishny (1988), cited above, also make this argument.