

Shareholder Value Advisors

HOW TO MEASURE COMPENSATION EFFECTIVENESS

Executive compensation has three basic objectives:

- **Provide strong incentives:** give managers sufficient incentive compensation to motivate them to work long hours, take risks and make unpleasant decisions to maximize shareholder value,
- **Retain key talent:** give good managers sufficient total compensation to attract and retain them, particularly during periods of poor performance due to market and industry factors, and
- **Limit shareholder cost:** limit the cost of management compensation to levels that will maximize the wealth of current shareholders.

For most companies, top management's incentive comes from stock & option holdings, not current or expected future compensation

Our research shows that top executives at major U.S. companies have strong incentives to increase shareholder wealth. For the average company, a 10% increase in shareholder wealth increases top executive wealth by 4.3%, on average. But what's surprising is that almost all of this incentive comes from stock and option holdings, not current pay. For the average top executive at an S&P 1500 company, a 10% increase in shareholder wealth increases the value of the executive's stock and option holdings by 15.6%, but increases the value of the executive's current and expected future compensation by only 0.8%. The present value of expected future compensation accounts for 75% of executive wealth, but makes little contribution to the executive's incentive to increase shareholder wealth. [Our research has been published in the *Harvard Business Review* and Morgan Stanley's *Journal of Applied Corporate Finance*. See Stephen F. O'Byrne and S. David Young, "Why Executive Pay Is Failing," *Harvard Business Review*, June 2006, and Stephen F. O'Byrne and S. David Young, "Top Management Incentives and Company Performance," *Journal of Applied Corporate Finance*, Winter 2005. David Young is Professor of Accounting and Control at INSEAD, an international business school with campuses in Fontainebleau, France and Singapore].

Most companies focus on two misleading measures: percent of pay at risk and competitive position

The failure of compensation, at the average company, to provide a strong incentive is not due to directors' lack of interest in strong incentives. There is widespread agreement on the basic objectives of executive compensation: provide strong incentives to increase shareholder wealth, retain key talent and limit the cost of executive compensation to levels that maximize the wealth of current shareholders. The problem is that the basic objectives are hard to measure and directors frequently rely on two misleading measures: percentage of pay at risk as a proxy for incentive strength and competitive position target, e.g., 50th percentile pay, as a proxy for retention risk and shareholder cost.

The proper measure of incentive strength is “wealth leverage”

The proper measure of incentive strength is the sensitivity of executive wealth to changes in shareholder wealth, what we call “wealth leverage.” Executives, like investors, are motivated by expected changes in their wealth, not just by expected changes in their annual pay. Executive wealth has three major components:

- The current value of company stock and stock options,
- The present value of expected future compensation, including future salary, bonus, stock and option grants, and pension, and
- Non-company related wealth such as houses, cars and other investments.

Substantial non-company related wealth can greatly diminish an executive’s incentive, but for simplicity, we’ll explain wealth leverage just using company-related wealth. We express the return on this wealth as follows:

$$\text{Executive Wealth Return} = \frac{\Delta \text{Executive Wealth} + \text{Cash Received}}{\text{Beginning Wealth}}$$

where $\Delta \text{Executive Wealth}$ is the increase or decrease in executive wealth for the year and Cash Received is cash compensation and stock sale proceeds. Wealth leverage is the ratio of executive wealth return to shareholder return:

$$\text{Wealth Leverage} = \frac{\text{Executive Wealth Return}}{\text{Shareholder Wealth Return}}$$

where shareholder wealth return is equal to $(\Delta \text{price} + \text{dividend})/\text{beginning price}$.

Wealth leverage measures the sensitivity of changes in executive wealth to changes in shareholder wealth. The wealth leverage of a “pure” entrepreneur, who has 100% of his or her wealth in company stock, is 1.0 because any percentage change in shareholder wealth results in an equal percentage change in the entrepreneur’s wealth. A wealth leverage of 0 indicates no relationship between executive and shareholder wealth. The appendix at the end of this letter explains our wealth leverage methodology and research in more detail and shows why percent of pay at risk is not a reliable proxy for wealth leverage.

Why compensation usually provides a weak incentive

The major reason compensation fails to provide a significant incentive at the average company is competitive pay policy. Most companies have a competitive position target, e.g., 50th percentile pay, and strive to provide a target pay level regardless of company performance. A target pay level creates a systematic performance penalty. If an option on 100,000 shares provides competitive compensation when the stock is at \$10, an increase in the stock price to \$20 requires a 50% reduction in option shares to stay at the target compensation level and a decline in the stock price to \$5 requires a 100% increase in option shares to maintain the target compensation level. Superior performance is penalized by a reduction in shares and poor performance is rewarded by an increase in shares. Since the share adjustment offsets the impact of the stock price

change, the present value of expected future compensation – a large component of executive wealth – has little sensitivity to changes in shareholder wealth.

The rationale for a competitive pay policy is that it limits retention risk and shareholder cost. By not letting pay fall below the target percentile, the company ensures that pay is high enough to retain employees, and by not letting pay rise above the target percentile, the company ensures that shareholder cost is reasonable. But a target pay percentile does not provide a meaningful measure of retention risk or shareholder cost. 50th percentile pay provides low retention risk for a 20th percentile performer, but high retention risk for an 80th percentile performer. A much better measure of retention risk is the difference between an executive's performance percentile and the executive's compensation percentile (taking account of unvested deferred compensation). 50th percentile pay is not a meaningful measure of shareholder cost because it reflects the cost, but not the benefit, of incentive compensation. The objective of incentive compensation is to improve company performance, but a pay percentile does not reflect the shareholder wealth gain from a strong incentive. A much better measure of net shareholder cost is the difference between actual and market compensation minus the expected excess return from top management wealth leverage. A useful proxy for net shareholder cost is the difference between a company's compensation percentile and the average compensation percentile for companies with equal wealth leverage.

A look at individual pay decisions shows that directors often rebel against the performance penalty inherent in a competitive pay policy. We analyzed consecutive option grants received by 19,511 executives reported in S&P's Execucomp database over the period 1992-2004 and found that 53% of the time the second option grant did not reflect a performance penalty. In other words, 53% of the time, option shares were unchanged or shares increased when the stock price increased or shares declined when the stock price declined. In these cases, directors were taking action to increase compensation leverage. So why is compensation leverage low? A look at 7,397 executives who received three consecutive option grants suggests that director inconsistency is a big part of the problem. 43% of the executives with no performance penalty in year two did suffer a performance penalty in year three. Similarly, 51% of the executives who suffered a performance penalty in year two were not similarly penalized in year three. The data shows that directors swing back and forth between strong incentives and competitive pay adjustments, favoring one objective one year, but the second objective the next year.

Companies need to focus on the right measures: wealth leverage, retention risk and net shareholder cost

To create strong, sustainable and cost-efficient incentives, companies need to focus on the right measures – wealth leverage, retention risk and net shareholder cost – and adopt *policies* that provide strong incentives with tolerable retention risk and reasonable shareholder cost. Current and expected future compensation will provide modest incentives to increase shareholder wealth unless executives have an economic interest that is similar to the fixed share interest of the shareholder. Compensation policies that help create strong incentives include:

- A fixed percentage interest in economic profit (i.e., income with a charge for equity capital) or economic profit improvement, e.g., the management team bonus is 10% of profit in excess of 7% of capital,

- Fixed share stock compensation, e.g., an annual option grant on 10,000 shares exercisable at the current market price,
- Performance targets that are independent of prior company performance, e.g., target ROIC is the cost of capital or peer company average ROIC, and
- Compensation paid in deferred stock.

Monte Carlo simulation is essential to measure compensation effectiveness

Since strong incentive policies are almost always combined with policies that weaken incentives (e.g., salary and other compensation that is independent of performance, periodic re-calibration of incentive compensation targets to competitive levels, annual re-calibration of performance targets to reflect prior year performance and incentive plan caps and floors), it is essential to use Monte Carlo simulation to assess the overall incentive provided by all the elements of the total compensation program. Monte Carlo simulation is also essential to estimate the impact of unvested deferred compensation on retention risk and the shareholder cost of incentive plans that are hard to value with option pricing models.

Our Monte Carlo simulations provide three key charts for assessing compensation effectiveness (see p. 5):

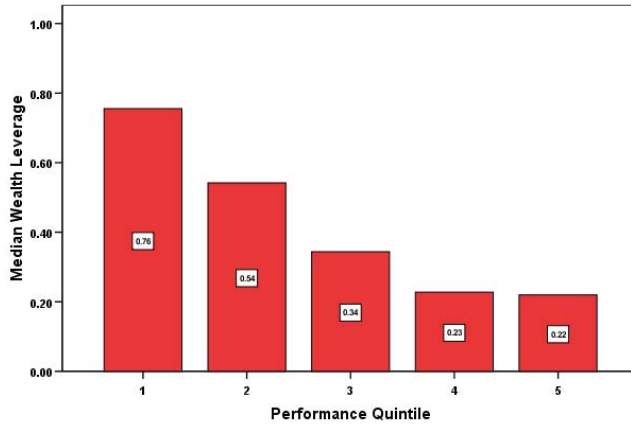
- A wealth leverage bar chart, which shows the strength of the incentive and how it varies with company performance,
- A retention risk scatterplot, which shows the relationship between top management's compensation percentile, taking account of unvested deferred compensation, and the company's performance percentile, and
- A shareholder cost bar chart, which shows the average percent difference from market pay for companies with equal wealth leverage and the company's percent difference, both gross and net of the expected shareholder wealth gain from strong incentives.

The benefits of the Monte Carlo analysis

The Monte Carlo simulation and our supporting analyses answer the following questions:

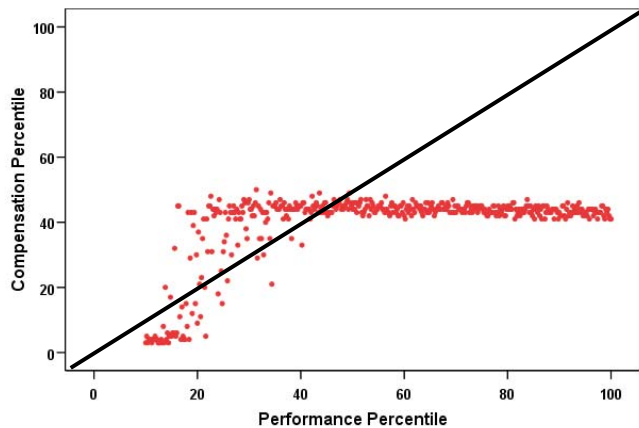
- Is the incentive consistently strong?
 - Is wealth leverage below average for the industry?
 - Is higher wealth leverage associated with higher shareholder returns?
- Is retention risk tolerable and cost-efficient?
- Is compensation cost reasonable given the strength of the incentive?
- What are the positive and negative plan features?
- What is the impact of strong incentive policies not included in the current program design?

Wealth Leverage vs. Performance Percentile



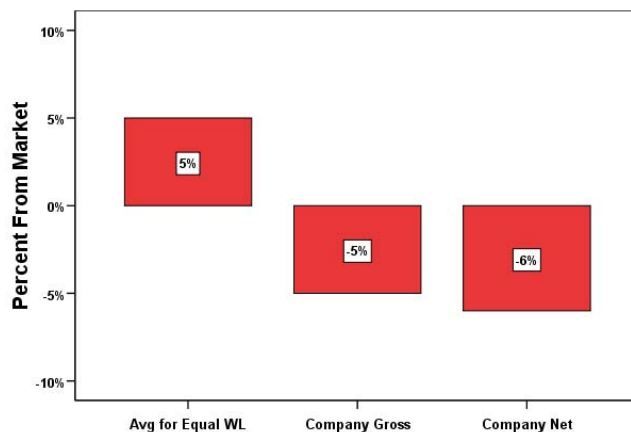
This chart shows there is a strong incentive to increase shareholder wealth in poor performance scenarios, but a weak incentive in superior performance scenarios. In superior performance scenarios, the company frequently exceeds the maximum operating income compensated under the plan, so there is little incentive at the margin.

Compensation Percentile vs. Performance Percentile



This chart shows that the company has significant retention risk for superior performance because the company's compensation percentile is well below its performance percentile (the two percentiles are equal on the main diagonal). Superior performance retention risk comes from low pay targets for the maximum compensated performance under the plan.

Gross and Net Shareholder Cost



This chart shows that the company pays below market and less than other companies with the same wealth leverage. But there is little change in percent difference when we subtract the expected shareholder wealth gain from strong wealth leverage. The company's wealth leverage is not high enough to have a significant impact on company performance.

With the benefit of the Monte Carlo simulation and our supporting analyses, management and directors can:

- Evaluate the current program using quantitative measures of incentive strength, retention risk and shareholder cost,
- Set preliminary objectives for incentive strength, retention risk and shareholder cost,
- Identify policy alternatives that more efficiently achieve the company's preliminary objectives, and
- Make cost-efficient changes in the current program.

THE THREE STEPS IN ASSESSING COMPENSATION EFFECTIVENESS

1. Competitive Compensation Analysis

We need to understand the level and distribution of market compensation to model future retention risk. We use S&P's Execucomp database to estimate competitive total compensation levels for a company's top executives and to calculate the percentile distribution of peer company total compensation.

2. Financial Analysis and Development of Monte Carlo Simulations

We develop 500 Monte Carlo simulations of ten year future performance. The simulations reflect the full range and variability of future performance, based on the historical volatility of operating and market performance. We use S&P's Compustat database to analyze historical peer company performance and validate our simulation assumptions such as the correlation of shareholder return and economic profit improvement with capital and revenue growth and the relative volatility of operating performance and market value.

The second major sub-step in developing the Monte Carlo simulations is programming the company's current compensation policies and a range of policy alternatives. We simulate compensation awards and compensation payouts for each year of each scenario, and we use that simulation data to calculate executive wealth, wealth leverage, retention risk and shareholder cost.

3. Evaluation of the Current Program and Modeling of Strong Incentive Policies

We use the Monte Carlo simulations to measure the wealth leverage, retention risk and shareholder cost of the current program. We do multiple runs with varied compensation assumptions, e.g., changing grant levels, caps and competitive adjustments, to understand the factors that account for the level of, and the variations in, wealth leverage and retention risk. We also model a variety of strong incentive policies and the distinctive pay policies of peer companies.

Presentation of the Monte Carlo simulations and our other analytical findings should be the first step in a dialogue between directors and management about desirable objectives for wealth leverage and retention risk and appropriate program changes to achieve those objectives more cost-efficiently. This dialogue usually results in several rounds of modeling and review before a consensus on appropriate changes is reached.

APPENDIX: WEALTH LEVERAGE

How wealth leverage is calculated

To estimate wealth leverage, we calculate executive and shareholder returns for multiple years, and then calculate the slope of the regression trendline relating executive wealth return to shareholder return. The trendline gives us the average sensitivity of executive wealth to shareholder wealth over the analysis period. We can calculate wealth leverage using historical returns or using returns from a Monte Carlo simulation of the compensation program. Historical returns are essential to estimate the impact of incentives on company performance, but Monte Carlo simulations are more useful in understanding how program design affects wealth leverage.

The table below illustrates a wealth leverage estimate using a Monte Carlo simulation of future shareholder wealth. The simulation assumes an expected stock return of 9% and a stock volatility of 0.413 (the median for companies in the S&P 1500). We use a five year horizon and assume that the executive has a base salary of \$100,000 and a target bonus of \$100,000. The actual bonus award, as a percentage of the target bonus, is equal to ending shareholder wealth as a percentage of beginning shareholder wealth. The bonus is equivalent to investing the target bonus in the stock at the beginning of the year and then selling it at the end of the year.

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Shareholder Wealth	\$20.00	\$18.11	\$29.25	\$19.03	\$18.36	\$16.34
Shareholder Return		-9%	62%	-35%	-4%	-11%
Shareholder Wealth % of Prior Year		91%	162%	65%	96%	89%
Target Bonus	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Actual Bonus % of Target Bonus		91%	162%	65%	96%	89%
Actual Bonus		\$90,530	\$161,540	\$65,051	\$96,491	\$88,994
Base Salary	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
PV of Future Salary	\$432,948	\$354,595	\$272,325	\$185,941	\$95,238	\$0
Cumulative Salary Received		\$100,000	\$205,000	\$315,250	\$431,013	\$552,563
PV of Future Bonus	\$432,948	\$354,595	\$272,325	\$185,941	\$95,238	\$0
Cumulative Actual Bonus		\$90,530	\$256,596	\$334,477	\$447,692	\$559,071
Executive Wealth	\$865,895	\$899,720	\$1,006,246	\$1,021,609	\$1,069,181	\$1,111,634
Executive Wealth Return		3.9%	11.8%	1.5%	4.7%	4.0%
Shareholder Wealth Return		-9.5%	61.5%	-34.9%	-3.5%	-11.0%
Wealth Leverage						0.11

The first step in the wealth leverage estimate is calculating the executive's wealth and wealth return for each year. At the start of year 1, the executive's wealth is comprised entirely of the present value of expected future compensation. The present value of five years of expected salary (\$100,000 per year) is \$432,948, assuming a 5% discount rate. The present value of five years of expected bonus is also \$432,948, giving total wealth at the end of year 0 of \$865,895. At the end of year 1, the executive has received cash payments of \$100,000 in salary and \$90,530 in bonus and has four years of expected future compensation remaining. Adding the cash received of \$190,530 to the present value of four years of expected salary, \$354,595, and the present value of four years of

expected bonus, \$354,595, the executive's wealth at the end of year 1 is \$899,720. This gives the executive a wealth return of 3.9% vs. the shareholders' return of -9.5%. Similar calculations for each of the subsequent years show that the executive's wealth returns range from a low of 1.5% in year 3 to a high of 11.8% in year 2, while the shareholders' returns range from a low of -34.9% in year 3 to a high of 61.5% in year 2.

The second step in the wealth leverage estimate is forming a trend line over the 5-year period, with shareholder return as the independent variable and executive wealth return as the dependent variable. The slope of the trend line, 0.11 in this case, is the wealth leverage for the scenario. The third, and final, step is repeating the analysis for 499 other shareholder wealth scenarios. Across all 500 scenarios, wealth leverage ranges from a low of 0.08 to a high of 0.12, with a median of 0.11. Wealth leverage of 0.11 means that a 10% increase in shareholder wealth increases executive wealth by only 1.1%.

What's surprising about this example is that 50% of pay at risk generates wealth leverage of only 0.11. If an executive had 50% of his wealth in company stock and 50% in the present value of expected future salary, his wealth leverage would be 0.5. Two key differences between the executive and the shareholder explain why the executive's wealth leverage is so low. First, the target bonus, unlike the shareholder's expected return, is independent of prior performance. When the stock price drops from \$20 at the end of year 0 to \$18.11 at the end of year 1, the shareholder's 9% expected return falls from \$1.80 per share to \$1.63; the target bonus, by contrast, is unaffected by the price drop. To make the bonus more like an ownership interest, we could make the target bonus in each year equal to the actual bonus in the prior year. This would increase median wealth leverage from 0.11 to 0.31. The second difference between the executive and the shareholder is that the bonus, unlike the shareholder's interest, is paid out in cash at the end of the year. To make the bonus more like an ownership interest, we could pay the bonus in stock that must be held through the end of year five. This would increase median wealth leverage from 0.31 to 0.52. This shows that we can achieve wealth leverage that is five times greater than that provided by our original bonus plan with no increase in the initial percentage of pay at risk. The final bonus plan is equivalent to a stock incentive plan that provides an annual stock grant of a fixed number of shares.

The three sources of wealth leverage

Our example shows that there are three sources of wealth leverage. The first source is the correlation between current year pay as a percent of target and shareholder return. This is the focus of most board discussions of pay for performance, but even with the perfect correlation we have in our example, it only provides 20% of the total wealth leverage provided by a fixed share stock grant. If the bonus were correlated only 0.5 with shareholder return, the wealth leverage from this source would be less than 10% of the total wealth leverage provided by a fixed share stock grant. A second source of wealth leverage is tying compensation opportunity to past performance by making the target bonus equal to last year's actual bonus (or providing a fixed share stock grant). This source of wealth leverage is completely lost when a company has a competitive position target. The third source of wealth leverage is tying payout or realized value to future performance. This source of wealth leverage is getting increasing attention as boards focus on vesting requirements, stock retention requirements and stock ownership guidelines.

Top executive wealth leverage for S&P 1500 companies

We adapted our simulation methodology to estimate top executive wealth leverage for S&P 1500 companies using proxy data for 1992-2004. Our annual estimates of the present value of expected future compensation took into account all pay components up to the executive's projected retirement date as well as future pension payments. We limited the sample to top five executives with at least three years of history data to have sufficient data to estimate target compensation levels. We estimated company average wealth leverage by calculating the slope of the trendline relating average executive wealth return to shareholder return net of market and industry returns for the years 1995-2004. Our analysis showed that:

- The median company had wealth leverage of 0.43, with 10 percent of the companies below 0.12 and 10 percent above 0.81.
- Wealth leverage had a significant impact on company performance; on average, an increase of 0.1 in wealth leverage increased a company's annualized excess return by 0.9 percentage points.

To get a better empirical understanding of the sources of wealth leverage, we disaggregated wealth leverage into two components: compensation leverage and holdings leverage. Compensation leverage is the wealth leverage of the present value of expected future compensation, including expected salary, bonus and stock/option grants. Holdings leverage is the wealth leverage of stock and option holdings (excluding the impact of new grants received during the year). For the median company, compensation leverage is only 0.08, while holdings leverage is 1.56. Because compensation leverage is so low for the median company, holdings account for more than 85% of median company wealth leverage even though they represent only 25% of executive wealth. While compensation provides little incentive for the median company, differences in compensation leverage are important and account for about a third of differences in total wealth leverage across all the companies in the S&P 1500.

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Steve O'Byrne is President and co-founder of Shareholder Value Advisors Inc., a consulting firm that helps companies increase shareholder value through better performance measurement, incentive compensation and valuation analysis. Mr. O'Byrne has been an advisor to the Securities & Exchange Commission, the Financial Accounting Standards Board, Institutional Shareholder Services and CS First Boston equity research. His publications include:

- "Why Executive Pay Is Failing" (with Professor David Young of INSEAD) in the *Harvard Business Review* (June 2006)
- "Top Management Incentives and Corporate Performance" (with David Young) in the *Journal of Applied Corporate Finance* (Fall 2005)
- "Should Directors Ever Sell Their Shares?" in *Directors & Boards* (Summer 2002)
- *EVA and Value Based Management*, McGraw-Hill (November 2000)
- "Does Value Based Management Discourage Investment in Intangibles?" in *Value-Based Metrics: Foundations and Practice*, edited by Frank J. Fabozzi and James L. Grant (2000)
- "EVA and Its Critics" in the *Journal of Applied Corporate Finance* (Summer 1999)
- "The Measurement of Post-Acquisition Performance: Toward A Value-Based Benchmarking Methodology" (with Professor Mark L. Sirower of New York University) in the *Journal of Applied Corporate Finance* (Summer 1998)
- "EVA and Shareholder Return" in *Financial Practice and Education* (Spring/Summer 1997)
- "Executive Compensation" in the *Handbook of Modern Finance* (1997)
- "EVA and Market Value" in the *Journal of Applied Corporate Finance* (Spring 1996)
- "Be Bold With Wealth Incentives" in *Directors & Boards* (Fall 1995)
- "Total Compensation Strategy" in the *Journal of Applied Corporate Finance* (Summer 1995)

Prior to co-founding Shareholder Value Advisors in 1998, Mr. O'Byrne was head of the compensation consulting practice at Stern Stewart & Co. (1992-1998) and a Principal in the executive compensation consulting practice at Towers Perrin. Prior to joining Towers Perrin in 1979, he worked in the tax department at Price Waterhouse and taught mathematics at Loyola University of Chicago. Mr. O'Byrne holds a B.A. degree in political science from the University of Chicago, an M.S. in Mathematics from Northwestern University and a J.D. from the University of Chicago. He is a member of the New York Society of Security Analysts, a certified public accountant and a member of the Illinois bar.