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Why Capital Efficiency Measures Are Rarely Used in Incentive Plans, and How to Change That

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Most finance academics, along with many corporate practitioners, believe that discounted cash flow, or DCF, is the most reliable method for calculating the market value of a company's shares. The use of DCF in turn implies that shareholders are better off when companies invest only in projects that are expected to earn more than the cost of capital—and when they pay out, through dividends or stock buybacks, capital that is expected to earn less than the shareholders' opportunity cost. Despite the wide acceptance of these principles, very few companies use performance measures that focus on corporate efficiency in using capital—measures such as return on capital (ROC) or economic value added (EVA)—as the main basis for their top management incentive programs.

In this article, we start by documenting the limited use of capital efficiency measures in top management incentive plans. Second, we analyze three often cited problems with capital efficiency measures that may well account for their limited use. Third and last, we suggest a number of adjustments to standard capital efficiency measures that are designed to address these problems and, in so doing, to give corporate directors more confidence in using measures like EVA to reward and hold managers accountable for value-adding performance.

The Limited Use of Capital Efficiency Measures

To estimate the prevalence of capital efficiency measures in top management incentive plans, we used the word search facility on the U.S. Securities and Exchange Commission's EDGAR database to identify companies currently using capital efficiency measures like EVA and ROE in their top management incentive plans. Of the 220 companies that we found, 47% are using an economic profit or "EVA" measure that deducts a capital charge from earnings, and 53% used ROE or ROIC (return on invested capital). The prevalence of capital efficiency measures by industry sector ranged from 3.1% for information technology to 18.8% for materials (see Figure 1). Capital efficiency measures were more common in bigger and more diversified companies. One sixth, or 16.7%, of companies in the top revenue quintile of the S&P 1500 used capital efficiency measures as compared to 3.7% of companies in the bottom revenue quintile, and 13.4% of companies with five or more business segments used capital efficiency measures vs. 5.0% for single-segment companies. The impact of both size and number of segments is consistent across the sample in that each higher size and segment quintile has higher percentages of companies using capital efficiency measures.

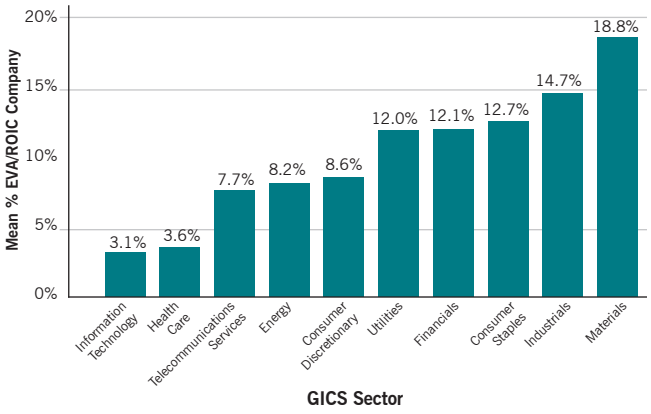
Surprisingly, the use of capital efficiency measures is not consistently related to capital intensity, measured by capital-to-sales or capital-to-EBITDA ratios. But when we classified companies by the *tangible* capital intensity of their GICS industry, using the ratio of tangible capital to EBITDA, we did find that companies in more capital-intensive industries were more likely to use capital efficiency measures. This relationship, although consistent across industry capital intensity quintiles, is not very strong: 12.8% of companies in the top quintile used capital efficiency measures as compared to 5.3% in the bottom quintile.

Our prevalence estimates are conservative because we excluded companies like ExxonMobil that have said that a capital efficiency measure is considered when making compensation decisions but have not reported having a threshold or target for the measure. But other data sources confirm the limited role of capital efficiency measures in top management incentive plans. For example, Towers Perrin's 2005 Annual Incentive Plan Design Survey reports the prevalence of 14 performance measures. The most commonly used measures were sales (31%), earnings per share, or EPS (29%), and operating income (28%). The prevalence of the four capital efficiency measures surveyed ranged from 9% for ROE to 3% for EVA. On average, there were 2.1 performance measures per company with capital efficiency measures accounting for 11% of the total.

Why Don't More Companies Use Capital Efficiency Measures?

The characteristics of companies that use capital efficiency measures don't provide much help in explaining why more companies don't use capital efficiency measures. Companies that are larger, more diversified, and operate in more capital-intensive industries are more likely to use capital efficiency measures. But since the vast majority of companies with these characteristics don't use capital efficiency measures, the characteristics themselves don't appear to provide much insight into why a large majority of companies have chosen not to use such measures.

Figure 1 **Percent EVA/ROIC Companies by Sector**



We believe that the limited use of capital efficiency measures is attributable to three widespread perceptions about the use of such measures:

(1) it prevents companies from attracting or retaining managers in a competitive labor market;

(2) it discourages companies from investing in growth opportunities; and

(3) it is unnecessary because share-based compensation, along with annual target setting for profit goals and a DCF-based capital budgeting process, already provide strong incentives for capital efficiency.

How do we know that it's not executives' lack of familiarity with capital efficiency measures that accounts for their limited use? For one thing, neither of us has ever met a public company director or senior manager who was not aware of at least one such measure. But even more telling, the history of companies using EVA suggests that the number of companies that have used capital efficiency measures in the past could be as much as five times larger than the number of current users. In 1999, Stern Stewart & Co., the consulting firm that pioneered the EVA measure, published a list of 66 EVA companies that were clients of the firm. In 2008, 39 of those 66 were still independent public companies with financial data reported in S&P's Compustat database. But only six of these 39 companies were still using EVA. This suggests that there are now about 5.5 former EVA users for every current EVA user. If all our capital efficiency measures have a similar ratio of former to current users, 781 (or 52%) of the S&P 1500 companies would be former users of capital efficiency measures, and 923 (or 62%) of such companies would be either current or former users.

Negative Perception #1: Not Practical in the Labor Market

The fact that 85% (or 33 of 39) of one-time EVA companies no longer use the measure for incentive compensation is strong evidence that tying EVA to compensation is not easy. A closer look at the compensation practices of the six long-time EVA companies—Ball Corporation, Briggs & Stratton, Herman Miller, Manitowoc, Vulcan Materials, and Whirlpool—provides some insight into why it's difficult. To understand their difficulties, we first need to review the design of the "modern" EVA bonus plan used by most Stern Stewart clients, as well as a number of other companies.

We are focusing on EVA rather than ROIC for two reasons. EVA incentive plans are usually simpler than ROIC plans in that they can often be described in terms of a simple sharing arrangement between management and shareholders—for example, management typically gets a fixed percentage of EVA or EVA improvement. ROIC plans are more complicated. Almost all ROIC companies combine ROIC with earnings growth because rewarding ROIC alone would create an incentive to shrink the business to its most profitable components.[1]

The second reason we're focusing on EVA is that it provides a richer historical record for understanding the incentive problems associated with capital efficiency measures. We can identify and track the experience of a large number of EVA companies going back to the early 1990s.

The first EVA bonus plans implemented by Stern Stewart made the bonus earned equal to a given percentage of EVA or, in some cases, a percentage of EVA plus a percentage of the increase in EVA (or what we hereafter call "EVA improvement"). The more recent, or "second-generation," EVA bonus plans typically make the bonus earned equal to the sum of a target bonus and a fixed percentage of "excess" EVA improvement. Excess EVA improvement is the current year's EVA improvement minus a target (or "expected") EVA improvement. The target bonus is calibrated to give management competitive compensation in the labor market, and the expected EVA improvement feature is meant to provide investors a cost-of-capital return on the market value of their investment before management begins to earn more than the target bonus. In short, the plan is designed to give management above-normal rewards only when investors earn above-normal returns in the capital market.

Excess EVA improvement can be positive or negative. And when it's sufficiently negative, the total bonus earned can be negative. Moreover, the bonus earned, whether positive or negative, is uncapped. To help ensure that negative bonuses are recovered from the manager, the plan includes a bonus

1. A "simple" ROIC plan that rewards profit growth subject to an ROIC threshold involves more complicated sharing than EVA because the reward for incremental investment depends on both historical and incremental ROIC. And a more elaborate plan that combines ROIC and earnings growth in a payout matrix involves even more complex sharing arrangements that would needlessly complicate our discussion of accountability issues.

"bank." The bank balance is credited with any positive bonus earned and debited with any negative bonus earned. At the end of the year, the bonus paid is determined by the bank balance: if the bank balance is negative, the bonus paid is zero; if the bank balance is less than the target bonus, the bonus paid is the bank balance; and if the bank balance is greater than the target bonus, the bonus paid is the target bonus plus one-third of the bank balance in excess of the target bonus.

The bonus bank concept plays a critical role in providing management accountability for the company's multi-year, or *cumulative*, EVA improvement. The cumulative bonus earned is equal to the sum of the cumulative target bonus plus the fixed percentage of the cumulative excess EVA improvement, which in turn is equal to the sum of the cumulative bonus paid plus the ending bonus bank balance. The bonus bank balance can be seen as a record of the extent to which management has been paid too much or too little for cumulative EVA improvement achieved. When the bonus bank is negative, management has been paid more than is warranted for the cumulative EVA improvement achieved.

The possibility of a negative bonus bank makes the EVA bonus plan considerably more demanding than a conventional bonus plan. With a negative bank, the current year bonus paid can be zero even though the company achieves the target EVA improvement. In a conventional bonus plan, which takes no account of prior years' performance, target performance will always earn the target bonus.

Three Case Studies

Only three of the six longtime EVA users—Briggs & Stratton, Herman Miller, and Manitowoc—originally adopted an EVA bonus plan with a provision for negative bonus banks. The trials these three companies have endured to maintain some form of a negative bonus bank, and the changes they have made in their bonus banks, provide compelling testimony to the difficulty of reconciling full EVA accountability with the demands of the labor market. Their inability to maintain full accountability is particularly telling because all three companies are led by CEOs who have played a key role in the company's adoption of EVA and maintained their enthusiasm for EVA as an operating measure of shareholder value. Briggs & Stratton CEO John Shiely was the general counsel when the company adopted EVA in 1990 and later co-authored a book on EVA with Stern Stewart founder Joel Stern. Herman Miller CEO Brian Walker was the CFO when the company adopted it in 1996. Manitowoc CEO Glenn Tellock was the Controller when the company adopted EVA in 1993.

We will first summarize the current plan features to make the three histories easier to follow. All three companies have retained the basic concept that the bonus earned is the sum of a target bonus plus a percentage of the excess EVA improvement. However, the bonus is no longer uncapped. At Herman Miller the bonus paid can't exceed two times the target bonus (what we call "2X") or go below zero. It has dropped the "bonus bank" label, but does have a limited carryover of excess EVA improvement when the bonus earned is below 0 or above 2X. The carryover of negative excess EVA improvement is limited to the amount that would reduce the next year's bonus by -1X and the carryover of positive excess EVA improvement is limited to the amount that would increase the next year's bonus by +1X. Manitowoc has adopted a floor of zero and a cap of 2.5X and eliminated the bonus bank concept. Briggs & Stratton has retained the bonus bank concept, but puts a floor of -1X on negative bonus bank balances. The EVA bonus earned has a floor of -1X and a cap of 3X. The company has also adopted a second incentive plan that pays a bonus based on factors other than EVA. In 2008 when the EVA bonus earned was negative, the company paid a bonus of 1X under this second incentive plan.

Herman Miller forgave all negative bonus bank balances at the end of fiscal 2002. This was a year when recession-like conditions in the office furniture industry caused a 25% decline in industry revenue—"the largest decline on record"—and a drop in the bonus earned to a -2.9X target. In explaining its decision to forgive the negative bank balances, the Compensation Committee explained that negative banks "could have a significant detrimental impact on the company's ability to retain key executives." At the same time, however, the committee ensured that management would not get a windfall gain from the negative bank forgiveness by approving a special, one-time increase in the EVA improvement target from $3.2 million to $71 million. It also made the 2003 target bonus contingent on the achievement of 5.5% revenue growth.

In fiscal 2003, the company's bonus payout was only 11% of target and the committee approved a change in the target pay mix, raising salaries and reducing target bonuses because, "as the industry experienced its second year of contraction and incentive targets were not achieved, [the company's] executive compensation became uncompetitive." In fiscal 2004, the bonus payout was 55% of target and the committee approved a revised EVA bonus plan that eliminated the bonus bank, capped the paid bonus at 2X, and provided the limited carryover of excess EVA improvement described above.

Manitowoc also struggled to find a bonus bank formula that was compatible with its competitive pay objectives. In 2002, it modified the bonus payout rules to provide a bonus payout in a year in which the bonus earned was positive, but the beginning bonus bank was negative. The bonus payout was equal to the sum of (1) the bonus earned up to the target bonus, (2) 50% of the bonus earned in excess of target up to the point at which the negative bank balance is repaid, and (3) a third of the bonus earned above the amount needed to repay the negative bank balance. This type of provision was intended

to help retain managers by providing a reasonable prospect of a bonus at or above target when the beginning bonus bank is negative. Three years later, Manitowoc established a floor of zero and a cap of 2.5X target bonus and eliminated the bonus bank saying only that the new plan design "eliminates some of the volatility" of the old plan design.

As early as 1994, Briggs & Stratton's EVA bonus plan had a provision providing for payment of the bonus earned up to 75% of target in a year in which the beginning bonus bank balance was negative. In 2004, a year in which the bonus earned was 2.53X target, the Compensation Committee decided to establish a floor of -1X target bonus and a cap of 3X target bonus. It also adopted a requirement that 100% of the bonus earned in excess of target be banked. In 2007, after bonuses of -1.26X in 2006 and -3.25X in 2007, the committee decided to limit the negative bonus balance to -1X and, when the beginning bank balance is negative, to pay out any positive bonus earned 100% up to the target bonus and 50% in excess of the target bonus. The committee noted that the changes were "intended to re-establish financial incentives for senior executives to exceed targeted performance, given that recent financial results on a company-wide basis have created substantial Bonus Bank deficits for senior executives and the Bonus Bank deficits are expected to exceed Extraordinary Bonus Accruals for several years."

The Committee also restored the payout of one third of any positive bank balance in excess of the target bonus and established a "Powerful Solution Incentive Plan" to supplement the EVA bonus plan. This plan provides a maximum award equal to the EVA target bonus for achieving goals for a variety of non-EVA measures, including restructuring, cost reduction, market share, new products, gross margin and sales volume. In 2008, the bonus earned under the EVA bonus plan was -1.02X, but all the senior executives reported in the proxy received a bonus equal to their EVA target bonus under the Powerful Solution plan. The Compensation Committee said it believed that the goals achieved under the Powerful Solution Plan would "contribute to the long-term consolidated financial results of the company." In other words, the goals were leading indicators of future EVA performance.

The Herman Miller history does the best job of highlighting the key dilemma faced by the Compensation Committee. The negative bonus bank was forcing the ccommittee to hold management accountable for poor performance that the committee believed was largely due to market and industry factors. In this situation, the committee members felt they had two choices. They could maintain the bonus bank and risk losing good managers, or they could limit or abolish the bonus bank and lose the formal accountability mechanism provided by the bank. They ended up deciding that losing good managers was a bigger risk than losing an accountability mechanism.

But there is a third alternative they might have pursued. They could have estimated the impact of market and industry factors on bonuses and then provided bonus bank "relief" for the negative balance attributable to those factors.

There are two common ways to estimate the impact of industry factors on EVA improvement. One is to calculate excess EVA improvement as a percentage of beginning capital for a group of peer companies, and then use the median excess improvement as a measure of the impact of industry factors. For example, if the company's beginning capital were $500 million and the median excess EVA improvement were -0.5% of beginning capital, then excess EVA improvement of -$2.5 million would be attributed to the negative impact of industry factors. The second method is to develop a regression model that shows percentage excess EVA improvement as a function of the level, or the change in the level, of an industry production measure. We can then use the model to estimate the expected excess EVA improvement at the current value of the industry production measure.

In cases where industry factors have a substantial negative impact on the bonus earned—say, of -1X or more, negative—either of these two methods can be used as a basis for granting bonus bank relief to offset the negative impact of industry factors. But the second method of estimating the industry impact is likely to be better for two reasons. It provides a more statistically reliable adjustment because the regression model can make use of a long history period, not just current year data. And it provides a more timely adjustment because industry production data is normally available sooner than individual company financial reports.

We have worked with several companies to develop these industry adjustment models. SPX Corporation used a peer model to provide negative bonus bank relief at the end of 2003. The model worked well, but the company was unwilling to disclose the model and other details of its EVA bonus plan when it was attacked by Relational Investors in 2004 for excessive top management pay and director conflict of interest (because the directors received a bonus based on EVA). When its CEO (and EVA champion) John Blystone left the company at the end of 2004, the board decided to drop EVA.

In the case of another company using a different capital efficiency measure, we developed a model of the earnings impact of an industry production measure. In this case, the board decided to rely on a discretionary adjustment for industry factors because they were concerned, based on the results of historical simulations, that the size of the industry adjustment would be difficult to explain to shareholders. Although a reasonable concern, this was not, in our opinion, sufficient reason to forgo the benefits of formula-based pay.

Negative Perception #2: Discourages Good Growth

The second negative perception about capital efficiency measures is that they discourage value-enhancing earnings growth. There is a clear corporate preference for earnings measures over capital efficiency measures. In a recent Towers

Perrin survey, earnings measures accounted for more than half the performance measures used in annual incentive plans, as opposed to just 11% for capital efficiency measures. Similarly, in a study we did some years ago of companies that dropped EVA, we found that most of them adopted earnings growth as their new performance measure. Some of this preference may reflect a simple-minded belief that earnings is all that analysts and investors care about. At the same time, however, there is persuasive empirical evidence that use of the EVA capital charge fails to distinguish value-increasing earnings growth from value-reducing earnings growth.

In our own recent analysis of investor returns for S&P 1500 companies, we found that while changes in NOPAT ("Net Operating Profit After Tax") over a five-year period explained 46% of the variation in the corresponding five-year investor returns, the five-year changes in EVA explained only 22% of the variation in investor returns.[2] This result is surprising because EVA changes should explain even more of the return variation if the EVA capital charge helps management and investors distinguish value-adding from value-reducing growth in earnings.

But does this mean that investors don't really care about capital costs? Probably not. A more plausible explanation, as discussed below, is that the EVA capital charge fails to make an important distinction between "new" and "old" capital.

The Problem with Standard EVA Capital Charges. Recent investment tends to have a lower rate of return than old investment for two reasons. One is the "delayed productivity" of much corporate investment; in other words, many if not most major corporate investments generate lower cash flows in early years and thus take time to become "EVA-positive." To the extent this is so, EVA measures of performance will fail to capture the future expected increases in profitability and value stemming from current investment.

A second reason new investment tends to have lower returns than old investment has to do with the conventional accounting for depreciable assets. When straight-line depreciation is used in computing NOPAT, a project with a constant annual cash flow will show a rising ROIC as the capital base is depreciated. But this is, of course, a distortion or misrepresentation of economic reality. Because assets do not in fact depreciate in a steady, straight-line fashion over time, the project's accounting ROIC is almost certain to understate its actual, or "economic," rate of return in the early years and overstate those returns in the later years. This problem can be corrected by using so-called "sinking" fund depreciation in which, much like a home mortgage, the early years' amortizations are small. But this method is not allowed by GAAP, and few companies are willing to accept the complexity of two sets of depreciation calculations.

When we distinguish between old and new capital, we can show that investors do care about capital costs. To do this, we developed a model that explains five-year investor returns using three main variables: the five-year change in NOPAT, the future value of free cash flow over the period, and the annual changes in capital for years 0, -1, -2, -3 and -4 (that is, in the year of and the four years preceding the year of the investment). This model explains 50% of the variation in five-year investor returns, as compared to 46% for NOPAT alone.

The model shows that capital investment, controlling for NOPAT, increases investor wealth. Each dollar of capital investment in year 0 increases ending investor wealth by $1.47, while $1 of capital investment in year -4 increases ending investor wealth by $0.74. Since capital is strictly a negative value in the EVA calculation (i.e., EVA = NOPAT – WACC x Capital), these positive capital coefficients appear, at first glance, to be completely inconsistent with EVA. However, if we take account of the investors' opportunity cost of capital, we can show that the company needs a substantial return in year 0 return on year -4 capital investment to justify making that investment. If we assume that the investors' cost of capital is 10%, the year 0 opportunity cost of $1 invested at the start of year -4 is $1.61. Since the model tells us that investment adds only $0.74 to year 0 investor wealth, the investor will be worse off by $0.87 (= $1.61 - $0.74) unless the investment has increased the company's NOPAT. If we assume that each $1 of year 0 NOPAT adds $9 to market value and $1 to free cash flow—these are the coefficients from the model—and that there has been no NOPAT before year 0, we need $0.087 of year 0 NOPAT to add the $0.87 of missing value needed to justify the year -4 investment. Doing a similar calculation for year 0 investment, we find that the required return on year 0 investment is -3.7%.

This example shows that we can use the coefficients from a regression model to develop an EVA capital charge that is more consistent with investor valuation and the delayed productivity of capital. When we use the coefficients from our S&P 1500 model, the modified EVA capital charge is about 20% less than the conventional EVA capital charge, but the explanatory power of EVA changes increases from 22% to 43%.

Negative Perception #3: Needless Complexity

A third factor that we see limiting the use of capital efficiency measures is the widespread view that such measures are not necessary to create incentives for capital efficiency within companies. When managers hold stock or options and either receive the full economic benefit of dividends or have the ability to repurchase company stock, they have a strong incen-

2. Both regressions are based on 11,283 five-year periods ending in the years 1994-2007.

tive to use capital efficiently even though their compensation is not tied to an explicit capital efficiency measure.[3] Moreover, incentives for capital efficiency can also be created by the capital budgeting process and the target-setting process.

In our view, however, none of these arguments is very convincing. Share-based compensation does provide an incentive for capital efficiency for top management, but little incentive for capital efficiency at the business unit level, where it's likely to matter most. Capital budgeting has no feedback mechanism to protect against biased forecasting. And earnings targets that take account of capital efficiency aren't likely to be effective in motivating managers unless managers understand how capital investment changes the earnings target—and that requires use of a capital efficiency measure.

What Should Directors Do?

One possible response to our proposals is that effective oversight by a competent board of directors is a more reliable way of encouraging value-adding corporate investment and high shareholder returns than incentive plans based on capital efficiency measures and industry adjustments. Though many boards are comfortable using single-year incentive formulas, most directors are strongly convinced that director discretion provides more efficient incentives than the multi-year plans we have been discussing. For example, in the case of growth companies where corporate investment is expanding, directors could insist on gradually increasing profit targets designed to achieve acceptable returns on capital over time. And in the case of more mature companies that are returning large amounts of capital to investors, directors could adjust profit targets downward to reflect the decisions to pay out the capital. What's more, when profit shortfalls are clearly attributable to market and industry factors beyond management's control, the directors could also set targets that don't require management to make up the shortfall before management earns a target bonus.

But we have reason to believe that boards are not very good in carrying out such a multi-year approach. We have done extensive research on pay for performance in S&P 1500 companies. Our measure of pay for performance is the sensitivity of *relative* pay to *relative* performance—where relative pay is the ratio of an executive's total compensation to the average for all executives in similar size companies in the same industry, and where relative return is the company's return net of the industry average.

The good news is that we find considerable sensitivity of *current* pay to *current* performance. On average, a 10% excess shareholder return is associated with a relative pay premium of 5%. Nevertheless, if a pay system provides motive and accountability for not just the current year's performance, but for what might be called longer-term or *cumulative performance*, current pay will be sensitive to prior-year performance as well. If earnings targets are not reduced in response to poor management performance, if there are negative bonus banks that reduce current-year bonus payouts or if annual equity compensation is a fixed number of shares, then poor performance in the prior year will lead to lower pay relative to the market in the current year. Unfortunately, we find disturbingly little sensitivity of current pay to the prior-year performance. On average, a 10% excess shareholder return in the prior year is associated with a current year relative pay premium of 0.2%.

This absence of a link between prior years' performance and current rewards can be explained by a number of corporate practices, including competitive top management pay packages targeted at the 50th or 75th percentile, the reduction of corporate earnings targets in response to poor management performance, and share grants that increase as stock returns become progressively more negative. The fact that current-year pay has almost no sensitivity to prior-year performance is a sign that corporate incentive plans, as overseen and administered with considerable discretion by corporate boards, have almost no memory. And the net result is a systematic failure to tie *cumulative* pay to *cumulative* performance.

To address this problem, directors should use capital efficiency measures and a bonus bank. Capital efficiency measures are essential because they make it possible to distinguish management's contribution to shareholder value from the value of the funds originally supplied by the firm's investors. As discussed in these pages, the use of such measures often requires adjustments to take account of the delayed productivity of capital to prevent them from discouraging value-adding growth and investment. A negative bonus bank is essential to provide full accountability for performance, but it is likely to create problems in retaining good managers unless there is a method to provide relief for negative industry conditions beyond management's control. But for all the challenges of designing such a system, directors need to understand that such complexity provides better incentives for management and protection for investors than our present system of limiting management's accountability mainly to current-year earnings.

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3. If we make the simplifying assumption that the P/E multiple is constant, we can show that the manager is better off repurchasing stock rather than reinvesting in the company if the expected return on the operating investment is less than (1 + COE)/(P/E multiple + 1) where COE is the sharedholders' opportunity cost. This means, for example, that the minimum return for value enhancing re-investment is 8.5% if COE = 10% and P/E = 12.

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