Does VBM Discourage Investment in Intangibles?

By Steve O'Byrne
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Overview

The goal of value based management is to create an operating measure of period performance that is consistent with shareholder value. An operating measure is an accounting (or non-financial) measure that does not depend on market value and can be measured at the business unit level. An operating measure is completely consistent with shareholder value if maximizing the operating measure over a measurement period also maximizes the dollar excess return computed on a market value basis. The most popular value based operating measure is Stern Stewart's EVA®, which is an economic profit measure, i.e., a profit measure that includes a charge for the opportunity cost of equity capital. The market value of a company, i.e., the present value of its future free cash flow, can be expressed in terms of economic profit (i.e., market value is equal to the sum of book capital and the present value of future economic profit), but this does not imply that maximizing measurement period economic profit also maximizes the dollar excess return.

The first major objective of this paper is to evaluate the consistency between incentive plan measures of economic profit, which typically reward the change in economic profit over a three to five year measurement period, and shareholder value, with particular emphasis on investments in intangibles. Intangible investments, such as R&D or acquisition goodwill, are particularly difficult challenges for value based management because the expected free cash flows from intangible investments are often far in future. The second major objective, once we show that there is severe conflict between economic profit incentive plans and intangible investments, is to examine the response of operating companies to the conflict: Have they reduced intangible investments? Have they abandoned economic profit as an incentive compensation measure? Have they developed a way to modify economic profit or their incentive plans to mitigate the conflict?

The first major finding of our case studies is that companies that have embraced value-based management have, in their initial implementations, greatly underestimated the accounting effort and complexity needed to reconcile economic profit with shareholder value. This is not surprising since value based management is generally promoted as an attack on accounting with the promise that shareholder value is simply a matter of "getting to cash." "Shareholder value accounting," i.e., accounting that makes economic profit consistent with shareholder value, requires economic depreciation, which violates GAAP depreciation standards, and, for acquisitions and R&D, negative economic depreciation, which violates historical cost accounting as well as GAAP depreciation standards. Linking incentive compensation to economic profit also requires significant effort in setting economic profit targets. Managers and directors will challenge the use of economic profit for incentive compensation if performance targets are not perceived to be fair or result in substantial inconsistencies with realized shareholder returns. A second major finding is that some companies, including AT&T and Monsanto, have abandoned economic profit as a performance measure because they were unable, or unwilling, to resolve the accounting and target setting problems that arise in using economic profit. A third major finding is that other value based companies, which prefer not to be identified, have found ad-hoc techniques, such as "metering in" acquisitions costs to capital and adjusting compensation targets on a pro-forma basis, to mitigate the conflict between economic profit and shareholder value and to maintain their commitment to value based management. It is my judgment that the companies that have maintained their commitment to value based management have been 1) willing to invest much more time and effort in addressing accounting and target setting problems, and 2) willing to do so because they have made contractual commitments to multi-year incentive compensation targets for operating performance (and hence, management's compensation is dependent on the resolution of the accounting and target setting problems).

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Overview – cont'd

The following sections of this paper cover:

- Discounted cash flow (DCF) valuation, the definition of free cash flow (FCF) and the weakness of FCF as a measure of period performance,
- The concept of economic profit (EP) and the opportunity it provides to create a better measure of period performance,
- The economic profit analysis of market value: future growth value and expected EP improvement,
- The Stern Stewart EVA bonus plan design,
- The objectives of shareholder value accounting and their conflict with the objectives of GAAP accounting,
- The conflict between shareholder value and economic profit using straight line depreciation,
- The severe conflict between shareholder value and economic profit created by acquisitions (when economic profit is computed on the basis of historical cost accounting),
- The need for negative economic depreciation to eliminate the conflict created by acquisitions,
- The responses of EVA companies to the conflict created by acquisitions, and
- Summary and conclusions.

A note on EVA and EP terminology. In this paper, we use "EVA" when referring to Stern Stewart & Co. client implementations or to policies or programs developed or advocated by Stern Stewart, e.g., the Stern Stewart EVA bonus plan design. We use economic profit, or "EP", when talking about issues or problems that are not specific to EVA, but exist for any economic profit measure. For example, the details of the Stern Stewart EVA bonus plan are discussed in terms of EP because the bonus plan concepts apply to any economic profit measure.

DCF Valuation and Free Cash Flow

The DCF value of equity is the present value of future dividends discounted at the cost of equity and the DCF value of debt is the present value of future interest and principal payments discounted at the cost of debt. The enterprise value, i.e., the market value of equity plus the market value of debt, is equal to the present value of future free cash flow discounted at the weighted average cost of capital, as long as the cost of capital is the market weighted average of the cost of equity and the after tax cost of debt. Free cash flow is defined as the net after-tax distribution to investors:

After-tax interest expense + dividends + stock repurchases + debt repayments - new stock issues - new debt

FCF can be expressed in operating terms as NOPAT - Δcapital where NOPAT (Net Operating Profit After Tax) and capital are defined as:

NOPAT = Operating Profit * (1 - tax rate)
= After-tax profit with 100% equity financing
= Net income + (1 - tax rate) * interest expense
Capital = Equity + debt

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DCF Valuation and Free Cash Flow – cont'd

The great virtue of FCF is that it allows market value to be expressed in terms of operating performance and eliminates the need for an explicit forecast of financing costs:

$$\text{Market Value} = \sum_{i=1}^{\infty} \frac{FCF_i}{(1+c)^i}$$

To estimate the enterprise value, we need only forecast the income statement and balance sheet and make the assumption that constant leverage is maintained on a market value basis. We don't need to model the separate cash flows paid to equity and debt holders and our estimate of the enterprise value is correct (assuming our cash flow forecast is correct!) as long as our forecasts adhere to clean surplus accounting. FCF, unlike earnings, can be used for valuation analysis because it recognizes that the value of future earnings depends on the level of investment required to produce the earnings.

The great weakness of FCF is that it provides a terrible measure of annual operating performance. FCF can be negative because investment is high in a profitable business or because NOPAT is low in a unprofitable business. In 1992, when Wal-Mart was at the top of the Stern Stewart Performance 1000 ranking, Wal-Mart had free cash flow of –13% of capital with an EVA return of +8% of capital and a market/capital ratio of 4.8. At the same time, K-Mart had free cash flow of –7% of capital, but had an EVA return of –3% and a market/capital ratio of 1.1. Because FCF fails to distinguish between poor performance and high investment, it does a poor job of explaining differences in market value. In an earlier study (O'Byrne, 1996), I analyzed the relationship between operating performance and market value for the years 1985-93 for the companies in the 1993 Stern Stewart Performance 1000 database and compared the explanatory power of free cash flow (FCF), net operating profit after tax (NOPAT) and EVA. My results, which were based on a sample of 6,551 company/years and expressed in terms of the variance explained in the market/capital ratio, were:

Variable/Model	Variance Explained
FCF	0%
NOPAT	17%
NOPAT (i.e., non-zero intercept)	33%
EVA	31%
EVA with positive and negative coefficients	38%
and with ln (capital) term	42%

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DCF Valuation and Free Cash Flow – cont'd

The following example shows that the problem with FCF is that it fails to match the investment with the value it creates. Consider a restaurant chain where each new restaurant costs $500K to build and generates $100K in annual cash flow after the first year. If the chain has twenty restaurants in operation and builds two more during the year, it will have cash flow of $1,000K [= 20 * $100K – 2 * $500K]. If a second chain also has 20 restaurants in operation, but builds eight more restaurants during the year, it will have cash flow of -$2,000K [= 20 * $100K – 8 * $500K].

The second restaurant chain has lower current cash flow, but a higher DCF value [assuming no new units for both chains after year 1].

Year	Chain 1 Cash Flow	PV Of Chain 1 Cash Flow	Chain 2 Cash Flow	PV Of Chain 2 Cash Flow
1	1,000	909	-2,000	-1,818
2	2,200	1,818	2,800	2,314
3+	2,200	18,182	2,800	23,141
Total		20,909		23,637

The second chain spends an extra $3,000K in year 1, but has additional cash flow of $600K in each subsequent year. The value, at the end of year 1, of the additional $600K per year is $6,000K, or $3,000K more than the additional cost in year 1. The present value of this $3,000K, $2,727K, is the difference in the value of the two companies. Cash flow is a poor measure of market value in this example because it subtracts the cash spent to build new restaurants in year 1 without adding the present value of the cash likely to be produced by the new restaurants in subsequent years.

Economic Profit

Economic profit differs from FCF by substituting, for the actual investment in the year, a capital charge based on book capital:

$$FCF = NOPAT - \Delta Capital$$

$$EP = NOPAT - c * capital$$

Economic profit can provide a better measure of period performance – while maintaining consistency with DCF valuation - because it permits the recognition of expenditures to be deferred to the future periods they benefit. Economic profit maintains consistency with DCF valuation because the total expense recognized under EP – depreciation and capital charge – is always equal, in present value, to the initial cash outlay regardless of the depreciation schedule. Economic profit defers the recognition of expenditures through the capitalization process. A capitalized expenditure is not charged against economic profit in the year in which it is made, only in the years in which depreciation and/or capital charge is recognized.

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Economic Profit – cont'd

The total expense recognized under EP – depreciation or amortization, if any, plus the capital charge – is equal, in present value, to the initial cash outlay regardless of whether the cash outlay is 1) recognized as an expense in the year incurred, 2) capitalized and amortized over a finite life, 3) capitalized and kept on the balance sheet without amortization forever, or even 4) capitalized and accreted each year with "negative depreciation." The following example shows that the present value of the total asset cost is the same when a $100,000 outlay is depreciated over a four year life and when it is depreciated over a seven year life:

FOUR YEAR WRITE-OFF OF $100,000 OUTLAY

Year	Depre-ciation	PV Of Depre-ciation	Begin-ning Capital	Capital Charge	PV Of Capital Charge
1	25,000	22,727	100,000	10,000	9,091
2	25,000	20,661	75,000	7,500	6,198
3	25,000	18,783	50,000	5,000	3,757
4	25,000	17,075	25,000	2,500	1,708
Total		79,247			20,753

PV of total asset cost = $79,247 + $20,753 = $100,000

SEVEN YEAR WRITE-OFF OF $100,000 OUTLAY

Year	Depre-ciation	PV Of Depre-ciation	Begin-ning Capital	Capital Charge	PV Of Capital Charge
1	14,286	12,987	100,000	10,000	9,091
2	14,286	11,806	85,714	8,571	7,084
3	14,286	10,733	71,429	7,143	5,367
4	14,286	9,757	57,143	5,714	3,903
5	14,286	8,870	42,857	4,286	2,661
6	14,286	8,064	28,571	2,857	1,613
7	14,286	7,331	14,286	1,429	733
Total		69,549			30,451

PV of total asset cost = $69,549 + $30,451 = $100,000

It is not difficult to prove, in the general case, that the present value of the total expense recognized under EP is equal to the initial cash outlay. We will prove the result for a non-depreciable asset (and leave the depreciable asset case to the reader). Let $EP_1 = NOPAT_1 - c * Capital_0$ and $FCF_1 = NOPAT_1 - I_1$. Investment of I_1 reduces FCF by I_1 in year 1 and reduces EP by $c * I_1$ in all subsequent years (for the simple case of a non-depreciable asset); the present value of the EP investment charge is equal to the FCF investment charge:

$$I_1 = c * I_1/(1+c)^1 + c * I_1/(1+c)^2 + c * I_1/(1+c)^3 + \ldots$$

Since EP also charges for beginning book capital (a sunk cost irrelevant to FCF), the fundamental EP valuation equation is:

$$\text{PV of future FCF} = Capital_0 + \text{PV of future EP}$$

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Future Growth Value and Expected EP Improvement

The fundamental EP valuation equation provides much more insight when we break the present value of future EP into two pieces: the perpetuity value of current EP and the present value of expected EP improvement:

Market value = Capital + EP_0/c + PV of future $\Delta EP_{i,0}$

Market value = Current operations value + future growth value

In this equation, $\Delta EP_{i,0}$ is the difference between EP_i and EP_0, i.e., $\Delta EP_{i,0} = EP_i - EP_0$. We can also express future growth value as $(1+c)/c$ * PV of future annual ΔEP_i where annual $EP_i = EP_i - EP_{i-1}$ (O'Byrne, 1996):

Market value = Capital + EP_0/c + $[(1+c)/c]$ * PV of future ΔEP_i

The following table illustrates these two components of value in the April 1998 valuations of Coca-Cola and Coca-Cola Enterprises:

		Coca-Cola ($bil)	Coca-Cola Enterprises ($bil)
Market value =	Market value =	$194.7	$23.7
	Capital +	$15.0	$12.6
Current Operations Value + "COV"	Capitalized Current EP +	$29.5	$1.1
Future Growth Value "FGV"	PV of Expected EP Improvement	$150.2	$10.0
	EP	$2,850	$99
	Cost of capital	9.65%	9.18%
	Stock Price (4/98)	$75.88	$37.75
	Shares Outstd (mil)	2,515	396

The distinction between current operations value (COV) and future growth value (FGV) is critical to understanding the relationship between EP, which is a measure of return on book capital, and shareholder return, which is based solely on market value. Investors expect a cost of capital return on the *total* market value of the company. This means that they expect a cost of capital return on current operations value *and* a cost of capital return on future growth value:

$$c * MV_0 = c * COV_0 + c * FGV_0.$$

Future growth value is an extremely important concept because it can tell us (after considerable analysis) how much EP improvement is needed for investors to earn a cost of capital return on market value. If a company has no future growth value, it does not need any EP improvement to provide its investors with a cost of capital return on the market value of their investment. NOPAT, with no EP improvement, provides a cost of capital return on current operations value and hence, a cost of capital return on market value when future growth value is zero.

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Future Growth Value and Expected EP Improvement – cont'd

We can prove this relationship as follows:

$NOPAT_1 = EP_1 + c * Capital_0$ (from the definition of EP)

$NOPAT_1 = EP_0 + c * Capital_0$ (since no EP improvement implies $EP_1 = EP_0$)

$NOPAT_1 = c * (EP_0/c + Capital_0) = c * COV_0$

This shows that $NOPAT_1$, with constant EP, provides a cost of capital return on current operations value.

When future growth value is positive, ΔEP and ΔFGV must provide a return of $c * FGV_0$ for investors to earn a cost of capital return on market value. The return on future growth has only three sources:

- The contribution of ΔEP to cash flow, i.e., ΔEP,
- The contribution of ΔEP to current operations value, i.e., $\Delta EP/c$, and
- The change, if any, in FGV, i.e., ΔFGV.

These three sources of value must provide the required return:

$$\Delta EP_1 + \Delta EP_1/c + \Delta FGV_1 = c * FGV_0$$

This formula for the required return on future growth value follows from substituting the following expressions:

$MV_0 = Cap_0 + EP_0/c + FGV_0$

$MV_1 = Cap_1 + EP_1/c + FGV_1$

$FCF_1 = NOPAT_1 - \Delta Cap_1 = EP_1 + c * Cap_0 - \Delta Cap_1$

into the equation of the actual and expected returns:

$$MV_1 + FCF_1 - MV_0 = c * MV_0$$

In the simple cases where $\Delta FGV_1 = 0$ or ΔFGV_1 is a multiple of $\Delta EP_1/c$, the required return on future growth value depends only on ΔEP and we can speak unambiguously of "Expected EP Improvement," i.e., the EP improvement needed to provide a cost of capital return on future growth value.

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Future Growth Value and Expected EP Improvement – cont'd

The following table shows the calculation of expected EP improvement for Coca-Cola and Coca-Cola Enterprises under the assumption $\Delta FGV_1 = 0$:

	Coca-Cola	Coca-Cola Enterprises
Future Growth Value	$150,221	$9,994
Required Return on FGV	$14,502	$917
Cost of Capital	9.65%	9.18%
EP Multiple [1 + (1/c)]	11.36	11.89
Expected ΔEP	$1,277	$77

If ΔFGV_1 is a multiple of $\Delta EP_1/c$, e.g., $\Delta FGV_1 = .8 * \Delta EVA_1/c$, the expected return equation requires:

$$\Delta EP_1 + \Delta EP_1/c + .8 * \Delta EP_1/c = (1 + (1.8/c)) * \Delta EP_1 = c * FGV_0$$

In this case, the EP multiple would be 19.65 (= 1 + (1.8/.0965)) for Coca-Cola and 20.61 for Coca-Cola Enterprises, and Expected ΔEP would be $738 = ($14,502/19.65) for Coca-Cola and $44 for Coca-Cola Enterprises. The more general case is where ΔFGV depends on factors other than ΔEP. One factor that ΔFGV is often said to depend on is FGV_0. FGV_0 is said to decay, or "fade," to zero over a "competitive advantage period." My own empirical analysis of five year changes in FGV shows that ΔFGV is negatively related to FGV_0, i.e., there is a fade, but also that ΔFGV is positively related to sales (or capital) growth. When sales growth affects ΔFGV, there is not a unique expected EP improvement. Higher sales growth means a smaller EP improvement is needed to provide the required return on FGV, while lower sales growth means a larger EP improvement is needed to provide the required return on FGV.

The Stern Stewart EVA Bonus Plan Design

Bonus plans based on economic profit have existed for many years. The most common plan design simply gave management a fixed percentage of each year's economic profit. For example, in 1922, General Motors adopted a bonus plan that provided for a bonus pool equal to 10% of profit in excess of a 7% return on capital. More recently, in 1984, the Walt Disney company gave Michael Eisner an annual bonus equal to 2% of net income in excess of a 9% return on equity. In both of these cases, a fixed percentage interest in economic profit worked quite well and the plan survived for a very long time. The General Motors bonus formula was used for 25 years without any change in the sharing percentage or cost of capital (Sloan, 1963) and the Eisner formula was used for almost 15 years with only one change in the cost of capital. Despite its success at General Motors and Walt Disney, this simple bonus formula is rarely used today. A fixed percentage interest in economic profit can lead to four significant problems. For companies with persistently negative economic profit, the bonus plan provides no incentive. For more average companies, where economic profit fluctuates from positive to negative, the bonus is, in effect, an option on the good years.

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The Stern Stewart EVA Bonus Plan Design – cont'd

This encourages management to shift revenue and expense across years to maximize incentive payouts and can also have the effect of making management's effective share of cumulative economic profit far greater than its nominal share.

A third problem is that giving management a share of economic profit from the first dollar leads to very inefficient trade-offs between the strength of the incentive and the shareholder cost of the incentive. For example, if we apply Michael Eisner's formula of 2% of economic profit to a company, like Wal-Mart, with $1 billion in economic profit, the result is a $20 million bonus, which shareholders will rightly feel is far more than necessary to attract highly qualified managerial talent. The seemingly simple solution to this problem is to move the decimal point to the left, i.e., give an interest of 0.2% of economic profit instead of 2.0%. But this isn't really a good answer. When we cut management's share of economic profit from 2.0% to 0.2%, we reduce the incentive at the margin by a factor of 10. The more efficient solution is to give management a share of economic profit improvement.

The fourth problem is that the formulas make no provision for expected economic profit improvement and hence, can provide substantial payouts when the shareholders lose money. The recent history of Wal-Mart provides an example of the situation in which this can occur. In 1992, Wal-Mart had $957 million of economic profit and a future growth value of $55 billion (or $30 billion more than its current operations value of $25 billion). This future growth value implied investor expectations of substantial economic profit improvement. When Wal-Mart's economic profit went sideways over the next two years ($1,056 million in 1993 and $917 million in 1994), its future growth value dropped by $25 billion and its stock price declined from $32.00 to $21.25. In this situation, a fixed percentage of economic profit would provide substantial bonuses even though the shareholders were losing money.

The modern version of the economic profit bonus plan, the Stern Stewart EVA bonus plan (see O'Byrne 1994, 1995 and 1997), begins by making the performance measure economic profit improvement. There are three reasons for this. The first is that an interest in economic profit improvement provides a more efficient incentive/cost trade-off than an interest in economic profit. The second is that economic profit improvement is a measure that applies to all companies, not just companies with positive economic profit. The third is that economic profit improvement provides a mechanism for linking bonuses to the shareholders' return on market value. By making the bonus plan performance measure "excess EP improvement," i.e., the EP improvement in excess of the expected EP improvement required for investors to earn a cost of capital return on market value, the plan can control the relationship between bonus payout and shareholder return. A fixed percentage, or ownership, interest in excess economic profit improvement is the heart of the Stern Stewart EVA bonus plan. The bonus earned is the sum of the fixed percentage of excess EP improvement (which can be negative) and a target bonus. The target bonus is the bonus earned for zero excess EP improvement, i.e., for achieving the expected EP improvement. The target bonus is used to provide a bonus for expected performance that is competitive with labor market norms. The bonus earned can be negative and is uncapped on both the upside and the downside. The bonus earned is credited to a bonus bank, and the bonus bank balance, rather than the current year bonus earned, determines the bonus paid. Typically, the payout rule for the bonus bank is 100% of the bonus bank balance (if positive), up to the amount of the target bonus, plus 1/3 of the bank balance in excess of the target bonus. The graph below shows the modern economic profit bonus plan.

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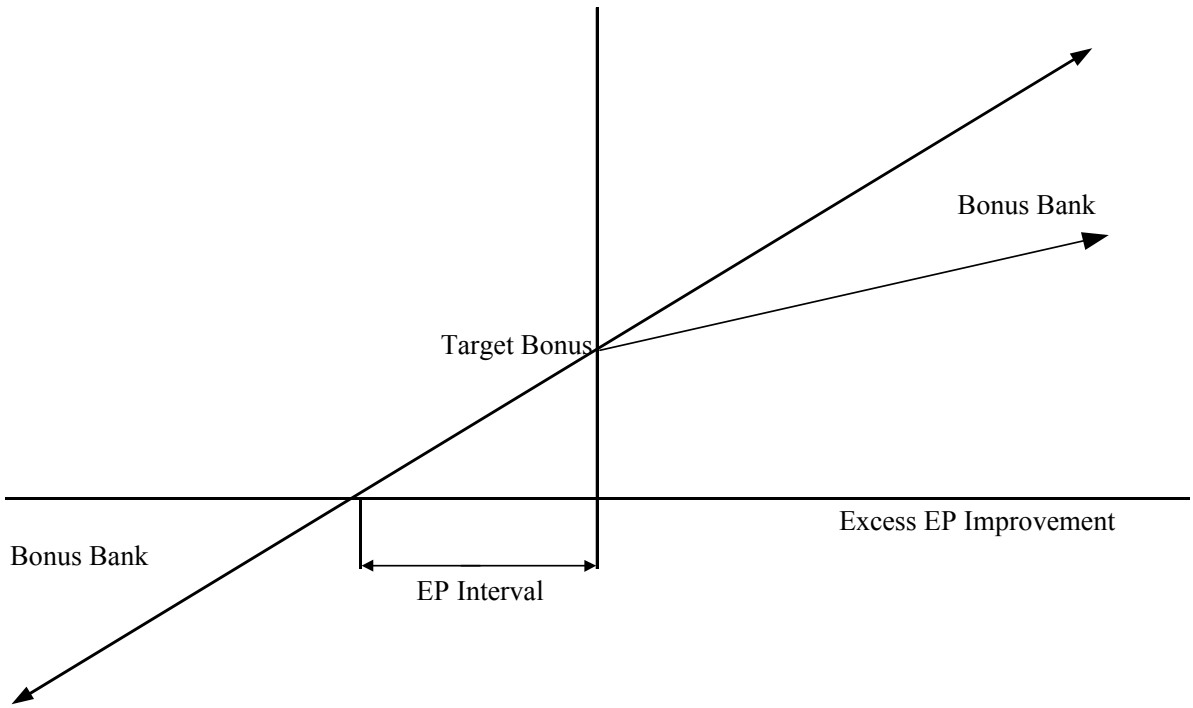
The Stern Stewart EVA Bonus Plan Design – cont'd



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The Stern Stewart EVA Bonus Plan Design – cont'd

The "EP interval" is the shortfall in excess economic profit improvement that wipes out the target bonus. The slope of the bonus line is the ratio of the change in bonus to the change in excess EP and gives management's share of excess EP improvement. The slope, or management's share of excess economic profit improvement, can be expressed as the ratio of the aggregate target bonus to the EP interval since the target bonus is the change in bonus associated with an excess EP improvement equal to the EP interval. For a typical manufacturing company, management's share of excess economic profit improvement is 40-60%. The calibration of an economic profit bonus plan requires the determination of three key parameters, 1) the target bonus, 2) the expected EP improvement and 3) the EP interval, and bonus bank terms and payout rules. For each of these parameters, the calibration normally starts with a guiding concept:

- Expected EP improvement: the EP improvement required for the company's investors to a cost of capital return on the market value of their investment,
- The EP interval: the EP shortfall that makes the investor (or shareholder return) return equal to zero, and
- The target bonus: a competitive bonus opportunity based on peer company compensation practices.

Expected EP improvement and management's share of excess EP improvement (the target bonus divided by the EP interval) are typically fixed for a three to five year period. Fixing the performance target and management's percentage interest eliminates the "performance penalty" inherent in competitive compensation policies and provides a stronger incentive. A policy of recalibrating annually to a competitive compensation level always penalizes performance because superior performance leads to higher targets and/or a smaller percentage interest and poor performance leads to reduced targets and/or a larger percentage interest (see O'Byrne 1996 for a much more extended discussion of this issue). Fixing the plan parameters for a multi-year period provides a stronger incentive, but also creates more retention risk and/or higher shareholder cost than a typical competitive compensation program. The guiding concept of making the bonus zero when the shareholder return is zero usually results in too much retention risk (i.e., too great a risk of a multi-year zero bonus) and leads to the use of a wider EP interval. The need for a wider EP interval forces the company to make a difficult trade-off between the strength of the incentive and the cost of the incentive plan to the shareholders. If the wider EP interval is completely offset by an increase in the target bonus (i.e., the target bonus is increased proportionally), management can retain the same percentage interest in excess EP improvement with a lower risk of a zero bonus. In this case, the company achieves a stronger incentive with tolerable retention risk by providing compensation opportunities that are above competitive levels. In effect, the shareholders pay for a stronger incentive by providing higher compensation opportunities. Alternatively, the company may decide to offset none, or only a part, of the wider EP interval by an increase in the target bonus and hence, accept a weaker incentive in order to limit shareholder cost. In some cases, after considering alternatives, the company will decide to keep a shorter EP interval and accept more retention risk. In these cases, management "pays" for a stronger incentive by accepting greater compensation risk. Most EVA companies the author has worked with have adopted bonus plan parameters than provide stronger incentives than a typical competitive compensation program and "finance" the stronger incentive through a combination of higher shareholder cost and greater retention risk (relative to a typical competitive compensation program).

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- The EP interval: the EP shortfall that makes the investor (or shareholder return) return equal to zero, and
- The target bonus: a competitive bonus opportunity based on peer company compensation practices.

Expected EP improvement and management's share of excess EP improvement (the target bonus divided by the EP interval) are typically fixed for a three to five year period. Fixing the performance target and management's percentage interest eliminates the "performance penalty" inherent in competitive compensation policies and provides a stronger incentive. A policy of recalibrating annually to a competitive compensation level always penalizes performance because superior performance leads to higher targets and/or a smaller percentage interest and poor performance leads to reduced targets and/or a larger percentage interest (see O'Byrne 1996 for a much more extended discussion of this issue). Fixing the plan parameters for a multi-year period provides a stronger incentive, but also creates more retention risk and/or higher shareholder cost than a typical competitive compensation program. The guiding concept of making the bonus zero when the shareholder return is zero usually results in too much retention risk (i.e., too great a risk of a multi-year zero bonus) and leads to the use of a wider EP interval. The need for a wider EP interval forces the company to make a difficult trade-off between the strength of the incentive and the cost of the incentive plan to the shareholders. If the wider EP interval is completely offset by an increase in the target bonus (i.e., the target bonus is increased proportionally), management can retain the same percentage interest in excess EP improvement with a lower risk of a zero bonus. In this case, the company achieves a stronger incentive with tolerable retention risk by providing compensation opportunities that are above competitive levels. In effect, the shareholders pay for a stronger incentive by providing higher compensation opportunities. Alternatively, the company may decide to offset none, or only a part, of the wider EP interval by an increase in the target bonus and hence, accept a weaker incentive in order to limit shareholder cost. In some cases, after considering alternatives, the company will decide to keep a shorter EP interval and accept more retention risk. In these cases, management "pays" for a stronger incentive by accepting greater compensation risk. Most EVA companies the author has worked with have adopted bonus plan parameters than provide stronger incentives than a typical competitive compensation program and "finance" the stronger incentive through a combination of higher shareholder cost and greater retention risk (relative to a typical competitive compensation program).

Does VBM Discourage Investment in Intangibles?

By Steve O'Byrne
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The Objectives of Shareholder Value Accounting

Economic profit is an effort to provide a better measure of period performance than FCF by recognizing cash outlays as expenses in different periods from the periods in which they are incurred. There are two basic techniques to shift the recognition of expense while maintaining consistency with DCF valuation: capital charge and present value. The recognition of a current cash expenditure can be deferred to future periods while maintaining consistency with DCF valuation through the use of a *capital charge*. The recognition of a future cash expenditure can be accelerated to the current period while maintaining consistency with DCF valuation through the use of *present value*. These two techniques make it *possible* to create an economic profit measure which is a better measure of period performance than FCF. However, these two techniques, by themselves, are not sufficient to create a better measure of period performance because they do not answer any of the following questions: Which outlays benefit future periods? What is the life of the future benefit? Is the benefit constant over time? Increasing? Or decreasing? Is the benefit constant (increasing/decreasing) over time: In absolute dollars? In EP? In ROIC?

The objective of expense, amortization and accretion policies for economic profit accounting should be to make economic profit more consistent with discounted cash flow valuation and more highly correlated with price levels and returns. This objective is widely shared by financial economists and academic accountants. William Beaver (1998) writes:

- "When a 'desirable' properties approach is pursued, financial accounting theorists have usually adopted an economic income approach. Under this approach, accounting alternatives are evaluated in terms of their perceived proximity to this 'ideal'…Economic income is defined as the change in the present value of future cash flows, after proper adjustments for deposits (for example, additional common stock issues) or withdrawals (for example, dividends)."

More specifically, expense, amortization and accretion policies should:

- Make accounting depreciation equal to economic depreciation, i.e., make accounting depreciation equal to the decline (or accretion) in the present value of the future cash flows from the asset,
- Make the accounting return on capital equal to the economic, or internal, rate of return, and
- Make current NOPAT and capital better predictors of current market value.

Accounting policies that achieve these objectives are generally not permitted under GAAP. "Annuity," or sinking fund, depreciation, which makes the accounting return on capital equal to the economic return (when future cash flows are constant), is not permitted under GAAP (FAS 92, ¶37). While no official pronouncement explains why sinking fund depreciation is not permitted, a leading accounting text (Schroeder 1998, p. 374) says that sinking fund depreciation has been attacked "because it yields an increasing charge to depreciation in each year of asset life, while accountants generally agree that the service potential of the asset actually decreases each year." Capitalizing R&D, which is only the first step in making accounting depreciation equal to economic depreciation for R&D, is not permitted under GAAP either (FAS 2). The FASB believes that a more objective approach, that provides greater certainty about the method of calculation used across companies, is more desirable than a more judgmental approach that may provide a better estimate of economic income. The benefits of R&D "cannot be measured with a reasonable degree of certainty," and "the relationship between current R&D costs and the amount of resultant future benefits to an enterprise is so uncertain that capitalization of any R&D costs is not useful in assessing the earnings potential of the enterprise." (FAS 2, ¶45, 50).

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Does VBM Discourage Investment in Intangibles?

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The Objectives of Shareholder Value Accounting – cont'd

The unwillingness of GAAP to accept economic depreciation for PP&E, much less for R&D, forces companies that use EP for financial management and incentive compensation to decide whether the benefits of economic depreciation outweigh its complexity and the confusion of having GAAP and economic depreciation. The vast majority of EVA companies have decided that the benefits of economic depreciation do not outweigh its complexity. Only one EVA company (that the author is aware of) has adjusted GAAP depreciation for PP&E. Many EVA companies capitalize R&D, but none (that the author is aware of) depart from straight line depreciation of R&D. Almost all EVA companies add goodwill amortization back to NOPAT, but only one EVA company has used negative economic depreciation for acquisitions (and that company is only planning to use it for one year). We will show later in this paper that the failure of EVA companies to use negative economic depreciation for acquisitions has led to severe conflicts between EVA and shareholder value. In some cases, the conflict has caused the company to reject acquisitions that would increase shareholder value. More frequently, EVA companies have proceeded with acquisitions that appear to have positive net present value and sought other means to reconcile the conflict between EVA and shareholder value. In some of these cases, the conflict has been reconciled by abandoning EVA as a measure of performance. In other cases, the conflict has been reconciled by "metering in" the acquisition cost to capital, by recalculating EVA on a pro-forma basis and by excluding non-interest bearing liabilities assumed in the acquisition from capital. The first two of these approaches, "metering in" the acquisition cost and recalculating EVA on a pro-forma basis (which requires recalibrating incentive plan targets), can replicate negative economic depreciation and hence, can truly reconcile the conflict between EP and shareholder value. To understand the conflicts between EP and shareholder value as well as the company responses, we need to look more closely at the problems created by straight line depreciation and acquisitions.

The Conflict Between Shareholder Value and EP Using Straight Line Depreciation

When a company adopts economic profit as an operating performance measure without adjusting GAAP, i.e., straight line, depreciation, the economic profit measure is not consistent with shareholder value. Consider the following project, which has a $2,000 cash operating margin each year for five years and an internal rate of return of 21.7%. If the company's cost of capital is less than 21.7%, the company should accept the project, otherwise it should reject the project. With straight line depreciation, assuming a 20% cost of capital, economic profit is negative in the first two years (-$240 in year 1 and -$60 in year 2), even though the cumulative EP improvement, on a present value basis, is $28 (which implies a cumulative EP, on a present value basis, of (1+c)/c * $27.6, or $165). The big negative EP in year 1 results in negative cumulative ΔEP on a present value basis through year 2, so a manager with an EVA bonus plan would have no incentive to take the project unless the plan had a three year horizon before recalibration.

The project EP is negative in years 1 & 2 because the accounting return on capital in year one (14.7%) and year two (18.3%) is less than the economic, or internal, rate of return.

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The Conflict Between Shareholder Value and EP Using Straight Line Depreciation – cont'd

Year	0	1	2	3	4	5	6
Cash operating margin		2,000	2,000	2,000	2,000	2,000	
Fixed capital (year end)	4,500	3,600	2,700	1,800	900	0	
Depreciation		900	900	900	900	900	
Operating profit		1,100	1,100	1,100	1,100	1,100	
Tax rate/taxes	40%	440	440	440	440	440	
NOPAT		660	660	660	660	660	
ROIC		14.667%	18.333%	24.444%	36.667%	73.333%	
Delta Capital	4,500	-900	-900	-900	-900	-900	
Free Cash Flow	-4,500	1,560	1,560	1,560	1,560	1,560	
IRR	21.660%						
EP (Cost of Capital = 20%)		-240	-60	120	300	480	0
EP Improvement		-240	180	180	180	180	-480
PV of EP Improvement		-200	125	104	87	72	-161
Cumulative PV of EP Improvement		-200	-75	29	116	188	28

We can also use this example to show that straight line depreciation can lead to two false inferences about company performance. The first false inference is that company performance is improving. The accounting return on capital in this example is rising each year, but the annual cash flow is constant so there is no reason to say that performance is improving or to expect that a second identical project would have a higher internal rate of return. This false inference can lead to misguided stock recommendations by security analysts who base their buy and sell recommendations on changes in ROIC. The second false inference is that the company earns more (or less) than the cost of capital and hence, that growth does (or does not) add value. If the company has a 20% cost of capital, it appears that the company earns less than the cost of capital in the first two years even though its internal rate of return exceeds the cost of capital. This false inference can also lead operating managers to make misguided decisions about capital allocation.

To make the accounting return on capital equal to the internal rate of return, we need to use sinking fund depreciation based on the pre-tax internal rate of return. If we make the simplifying assumption that tax and book depreciation are the same, sinking fund depreciation, calculated from the pre-tax IRR, will make the accounting return on capital equal to the internal rate of return:

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The Conflict Between Shareholder Value and EP Using Straight Line Depreciation – cont'd

Year	0	1	2	3	4	5	6
Cash operating margin		2,000	2,000	2,000	2,000	2,000	
Fixed capital (year end)	4,500	4,041	3,426	2,599	1,490	0	
Depreciation		459	616	827	1,110	1,490	
Operating profit		1,541	1,384	1,173	890	510	
Tax rate/taxes	40%	617	554	469	356	204	
NOPAT		925	831	704	534	306	
ROIC		20.553%	20.553%	20.553%	20.553%	20.552%	
Delta Capital	4,500	-459	-616	-827	-1,110	-1,490	
Free Cash Flow	-4,500	1,383	1,446	1,531	1,644	1,796	
IRR	20.553%						
EP (Cost of Capital = 20%)		25	22	19	14	8	0
EP Improvement		25	-3	-3	-5	-6	-8
PV of EP Improvement		21	-2	-2	-2	-2	-3
Cumulative PV of EP Improvement		21	19	17	15	12	10

The sinking fund depreciation eliminates the conflict between the EVA bonus plan and shareholder value in this example. The EP improvement is positive in the first year and the present value of the cumulative EP improvement is positive for all time horizons. Sinking fund depreciation is based on the same principles as the amortization of a home mortgage. To calculate sinking fund depreciation, determine the useful life of the asset, determine the appropriate discount rate, calculate the level payment needed to amortize the cost of the asset over its useful life, and split each year's level payment into principal (i.e., depreciation) and interest. The following table illustrates the calculation of the sinking fund depreciation (assuming no salvage value at the end of the asset's useful life) for the first year:

Asset cost	$4,500
Useful life (years)	5
Discount rate	34.25%
Annuity factor	2.25
Level payment	$2,000
1st year interest	$1,541
1st year depreciation	$459
1st year end net asset value	$4,041

The formula for the annuity factor is $[1 - (1/(1+r))^N]/r$
1st year interest is $4,500 * .3425

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The Conflict Between Shareholder Value and EP Using Straight Line Depreciation – cont'd

The level payment is equal to the cash operating margin. This shows that the sinking fund depreciation is splitting each year's cash operating margin into investment return and recovery of capital. Sinking fund depreciation eliminates the two false inferences we made with straight line depreciation. There is no change in the rate of return and hence, no false inference that company performance is improving or that the company earns more (or less) than the cost of capital. Sinking fund depreciation also eliminates the two year penalty in incentive compensation for undertaking the project. The cumulative present value of EP improvement, and hence, the cumulative present value of the bonus, is positive in every year.

The more general case, where the cash operating margin is not constant or tax depreciation is independent of book depreciation, we need to use economic depreciation to make the accounting return on capital equal to the economic, or internal, rate of return. Economic depreciation is equal to the decline in the asset value, i.e., the decline in the present value of the future cash flows, from one period to the next. To ensure that the cumulative depreciation is equal to the historical cost of the asset, we need to calculate the present value of the future cash flows using the internal rate of return. The following example modifies the prior example by projecting a 10% annual increase in the cash operating margin:

Year	0	1	2	3	4	5	6
Cash operating margin		2,000	2,200	2,420	2,662	2,928	
Fixed capital (year end)	4,500	4,178	3,646	2,837	1,660	0	
Depreciation		322	531	809	1,177	1,660	
Operating profit		1,678	1,669	1,611	1,485	1,268	
Tax rate/taxes	40%	440	520	608	705	811	
NOPAT		1,238	1,149	1,003	780	457	
ROIC		27.501%	27.501%	27.501%	27.501%	27.501%	
Delta Capital	4,500	-322	-531	-809	-1,177	-1,660	
Free Cash Flow	-4,500	1,560	1,680	1,812	1,957	2,117	
IRR	27.501%						
EP (Cost of Capital = 20%)		338	313	274	213	125	0
EP Improvement		338	-24	-40	-61	-88	-125
PV of EP Improvement		281	-17	-23	-29	-35	-42
Cumulative PV of EP Improvement		281	264	241	212	177	135

The use of economic depreciation eliminates the conflict between the EVA bonus plan and shareholder value (with straight line depreciation, the first year EP improvement is -$240). The EP improvement is positive in the first year and the present value of the cumulative EP improvement is positive for all time horizons. We can use the IRR to make a shortcut calculation of economic depreciation. The expected total return on the asset in each period is equal to the expected cash received plus the change in the asset value. In depreciation terms, where a decline in asset value is positive depreciation, the expected total return on the asset in each period is equal to the expected cash received minus depreciation, i.e., the decline in the asset value.

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The Conflict Between Shareholder Value and EP Using Straight Line Depreciation – cont'd

Thus, depreciation is equal to the expected cash received minus the expected total return on the asset. The expected cash received in year 1 is 1,560. The expected return on the asset is beginning capital * IRR, or $4,500 * .27501 = $1,238. This implies that the economic depreciation in year 1 is $1,560 - $1,238 = $322.

While the conflict between economic profit and shareholder value created by straight line depreciation can be overcome by sinking fund or positive economic depreciation, only one EVA company (that I am aware of) that has ever used sinking fund depreciation for an asset that is not leased! (When operating leases are capitalized by EVA companies and the lease expense is reduced by implicit interest, the net lease expense is equivalent to sinking fund depreciation). Many EVA companies have considered sinking fund depreciation, but rejected it as too complicated to justify the benefit. Their rejection of sinking fund depreciation may be influenced by the fact that the built-in EVA improvement arising from straight line depreciation on the existing asset base more than offsets the benefit of sinking fund depreciation on new assets.

Eliminating the conflict between EP and shareholder value created by straight line depreciation requires a departure from normal GAAP depreciation, but does not require the abandonment of historical cost accounting because the economic depreciation is positive. A much more difficult problem arises for investments that have negative economic depreciation. Negative economic depreciation occurs whenever the expected cash return is less than the expected total return. Negative economic depreciation is commonplace for investments with "back-loaded" cash flows, e.g., acquisitions, R&D, training, developing a distribution network. Most of these investments with back-loaded cash flows are investments in "intangibles." Failure to recognize negative economic depreciation can lead to severe conflicts between EP and shareholder value when a company makes an acquisition or develops an intangible asset internally. We will see that EVA companies, while hardly bothered by depreciation problems, have been struggled tremendously with the conflicts created by acquisitions.

The Severe Conflict Between EP and Shareholder Value Created By Acquisitions

The following example shows an acquisition forecast that projects 15% capital growth and an 18% return on capital for seven years. In year 1, NOPAT is $1,800 on an investment of $10,000. By year 7, NOPAT increases to $4,164 and book capital increases to $26,600 with an investment of $3,470 in year 7. The terminal value at the end of year 7, $54,126, is 12 times projected year 8 NOPAT assuming a cost of capital (10%) return on the new investment in year 7: $54,126 = 12 * ($4,164 + 10% * $3,470). The DCF value of the forecast at the end of year 0 is $29,965, which is the sum of the present value of free cash flow for years 1-7, $2,190, plus the present value of the terminal value, $27,775. The "back-loading" of the cash flows is evident in the first year cash and income yields. The cash yield is only 1% (= $300/$29,965) and the earnings yield only 6% (= $1,800/$29,965), while the cost of capital is 10%. Despite these low yields, the back-loading of the forecast is not extreme for an acquisition or R&D investment. The DCF value at the end of year 0 is only 16.6 times year 1 NOPAT, which is not an unusually high multiple for an acquisition. The first year cash and earnings yields are much higher than a typical R&D investment, which usually has no cash or earnings contribution for several years.

To demonstrate the conflict between EP and shareholder value, we will assume that we purchase the company at the end of year 1 for its DCF value, $32,662.

Does VBM Discourage Investment in Intangibles?

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The Severe Conflict Between EP and Shareholder Value Created By Acquisitions – cont'd

The purchase price, under normal EP accounting, becomes our book capital at the end of year 1. If we assume that the operating assets, after only one year, are still worth their book value, 65% of the purchase price, or $21,162, will be goodwill. To make it clear that goodwill amortization is only a small part of the conflict between EP and shareholder value, we will assume that there is no goodwill amortization (we also assume, for simplicity, that there are no additional tax savings from the acquisition).

Since the acquisition price is the DCF value of the forecast, realizing the forecast will not create or destroy any value for the shareholders, i.e., they are no better or worse off than if the acquisition had not been made and the cash had been returned to the shareholders. Since the acquisition is value neutral, economic profit should be zero every year, but, with conventional EP accounting, i.e., adding back goodwill amortization to NOPAT, economic profit is -$1,196 in year 2 and remains negative through year 7. The economic profit in year 2 is negative because year 2 NOPAT is only 6.3% of capital when the cost of capital is 10%. If this acquisition is added to an existing business, it will reduce bonuses under the EVA bonus plan for at least six years unless the bonus plan is recalibrated. The EP improvement in year 2 is negative (-$1,196) and the cumulative present value of EP improvement remains negative through year 7.

	0	1	2	3	4	5	6	7
Operating Forecast								
Capital Growth Rate		15%	15%	15%	15%	15%	15%	15%
Operating Capital	10,000	11,500	13,225	15,209	17,490	20,114	23,131	26,600
Return on Operating Capital		18%	18%	18%	18%	18%	18%	18%
NOPAT		1,800	2,070	2,381	2,738	3,148	3,620	4,164
Valuation								
Investment	10,000	1,500	1,725	1,984	2,281	2,624	3,017	3,470
Free Cash Flow		300	345	397	456	525	603	694
PV of Free Cash Flow		273	285	298	312	326	341	356
Cumulative PV of FCF	2,190							
Terminal Value	54,126							
PV of Terminal Value	27,775							
Market Value	29,965	32,662	35,583	38,744	42,162	45,854	49,836	54,126
Conventional EP Analysis								
Book Capital With Acquisition		32,662	34,387	36,370	38,652	41,275	44,292	47,762
Return on Acquisition Book Capital			6.3%	6.9%	7.5%	8.1%	8.8%	9.4%
Capital Charge			3,266	3,439	3,637	3,865	4,128	4,429
Economic Profit			-1,196	-1,058	-899	-717	-507	-266
Economic Profit Improvement			-1,196	138	159	183	210	241
PV of EP Improvement			-1,087	114	119	125	130	136
Cumulative PV of EP Improvement			-1,087	-973	-854	-729	-599	-463
EP With Economic Depreciation								
Decline in Market Value			-2,921	-3,162	-3,418	-3,692	-3,982	-4,290
Add Back New Investment			1,725	1,984	2,281	2,624	3,017	3,470
= Economic Depreciation			-1,196	-1,178	-1,137	-1,068	-965	-820
Adjusted Acquisition Book Capital			35,583	38,744	42,162	45,854	49,836	54,126
Adjusted NOPAT			3,266	3,558	3,874	4,216	4,585	4,984
Adjusted Capital Charge			3,266	3,558	3,874	4,216	4,585	4,984
EP With Economic Depreciation			0	0	0	0	0	0

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The Severe Conflict Between EP and Shareholder Value Created By Acquisitions – cont'd

The bottom panel of the exhibit shows that economic depreciation eliminates the conflict between EP and shareholder value. The calculation of economic depreciation in this case is a little more complicated than in the previous example because new capital is being invested each year. Since the new capital is not part of the original asset cost, the economic depreciation is the decline in the present value of future cash flows net of new capital invested. In the prior example, economic depreciation was the expected cash return minus the expected total return. In this case, the difference between the expected cash return in year 2, $345, and the expected total return, $3,266 (= 10% * $32,662) is -$2,921. $2,921 is the appreciation in the value of the business, but -$2,921 is not the economic depreciation of the original acquisition asset because the expected cash return was reduced by $1,725 of new investment. When we subtract the new investment from the gross economic depreciation, we get the correct economic depreciation of -$1,196.

The Responses of EVA Companies to the Conflict Between Shareholder Value and EP

While negative economic depreciation can provide an accounting result that is consistent with maximizing shareholder value, only one EVA company (that I am aware of) has used negative economic depreciation and that company plans to use it for only the first year of an acquisition. A major reason that few EVA companies recognize negative economic depreciation is that Stern Stewart has generally placed little emphasis on depreciation, amortization and accretion issues. Stern Stewart has been far more concerned about the understatement of investment than depreciation policy:

- "Capital employed can be estimated by taking the standard accounting book value for a company's net assets and then grossing it up three ways:
  - To convert from accrual to cash accounting (by adding accounting reserves that are formed by recurring, non-cash bookkeeping provisions such as the deferred tax reserve)
  - To convert from the liquidating perspective of lenders to the going-concern perspective of shareholders (as by capitalizing R&D outlays and market-building expenditures)
  - To convert from successful-efforts to full-cost accounting (as by adding back cumulative unusual losses, less gains, after taxes)." (Stewart, 1991).

The responses of EVA companies to the conflict between shareholder value and EVA for positive NPV acquisitions can be grouped in three broad categories:

- *The company rejects the acquisition* because it does not contribute positive EVA within the incentive plan cycle. This is not a good outcome for the shareholders because positive NPV implies that the acquisition increases shareholder value. However, it does not appear (based on the number of negative EVA acquisitions that they have undertaken) that EVA companies reject positive NPV acquisitions very often. The problem is probably more severe at the business unit level where the managers evaluating the acquisition are not in a position to control the accounting treatment of the acquisition for EVA calculation.
- *The company drops EVA* because it cannot show that the acquisitions increase EVA. This is what has happened at Monsanto.
- *The company makes an accounting adjustment to make the acquisition EVA positive or neutral*.

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The Responses of EVA Companies to the Conflict Between Shareholder Value and EP – cont'd

The first two responses are really failures to reconcile the conflict between shareholder and EP. Since rejected opportunities are difficult to track and document, we are not able to present a case study of a rejected acquisition. The second response, dropping EVA, can be viewed with much better perspective if we first consider the accounting adjustments that EVA companies have made to reconcile the conflict and maintain their commitment to value based management. There are at least four different accounting adjustments that EVA companies have adopted to make the acquisition EVA positive or neutral:

- "Metering" the acquisition cost into capital,
- Making a "dilutive" adjustment to NOPAT (this is really negative economic depreciation although the company does not label it as such),
- Using a pro-forma base year to measure EVA improvement and recalibrating EVA incentive compensation targets, and
- Excluding non-interest bearing liabilities from capital.

"Metering" The Acquisition Cost Into Capital

Some EVA companies "meter" the acquisition cost into capital at a rate that provides zero EVA improvement for achieving the zero NPV acquisition forecast. The capital recognized is just sufficient to wipe out the EVA improvement computed on operating capital. Let's use year 2 for an example. The projected operating capital EVA for year 2 is \$920 = \$2,070 – 10% * \$11,500. This represents an increase of \$120 over the year 1 EVA of \$800. The projected EVA improvement will cover the capital charge on \$1,200 = \$120/10% of acquisition goodwill, so \$1,200 of acquisition goodwill is recognized in year 1 ending capital and \$19,962 of acquisition goodwill is kept off the books in a "suspense" account. The exclusion of \$19,962 from capital creates a deferred capital charge of \$1,996 that must be added to the suspense account to maintain consistency with DCF valuation. The size of the deferred capital charge keeps the suspense account growing until year 6 and leaves \$20,419 of deferred goodwill, or 96% of the original acquisition goodwill, in the suspense account at the end of year 7. It is unlikely, however, that the suspense account would remain for seven years. When the incentive plan targets are recalibrated (typically three to five years after the initial calibration), the prior year EVA, used to determine EVA improvement, would be recalculated on the basis of actual capital (including all goodwill) and the suspense account would be eliminated. Thus, this approach ultimately becomes another case of using a pro-forma base year.

A major weakness of this approach is that it is completely dependent on management's acquisition forecast and thus, creates an incentive for management to justify the acquisition on a heavily back-loaded basis. With a back-loaded forecast, quite modest EP improvement targets can be justified for the remaining term of the current incentive plan term, while the burden of the more substantial EP improvements projected for the long term is avoided through recalibration at the end of the plan term.

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"Metering" The Acquisition Cost Into Capital – cont'd

	0	1	2	3	4	5	6	7
Operating Forecast								
Operating Capital Growth Rate		15%	15%	15%	15%	15%	15%	15%
Operating Capital	10,000	11,500	13,225	15,209	17,490	20,114	23,131	26,600
Total Goodwill		21,162	21,162	21,162	21,162	21,162	21,162	21,162
Recognized Goodwill		1,200	2,580	4,167	5,992	8,091	10,504	13,280
Deferred Goodwill		19,962	20,578	21,049	21,329	21,363	21,086	20,419
Total Capital	10,000	12,700	15,805	19,376	23,482	28,204	33,635	39,880
Return on Operating Capital		18%	18%	18%	18%	18%	18%	18%
NOPAT		1,800	2,070	2,381	2,738	3,148	3,620	4,164
Capital Charge		1,000	1,270	1,581	1,938	2,348	2,820	3,364
Economic Profit		800	800	800	800	800	800	800
Economic Profit Improvement			0	0	0	0	0	0

Adding a "Dilutive" Adjustment to NOPAT

One EVA company makes a "dilutive" adjustment to NOPAT in the first year of an acquisition. The dilutive adjustment offsets the projected decline in first year EVA caused by the acquisition. The company's intention is to limit the dilutive adjustment to the first acquisition year. Under this policy, positive year 2 EVA rather than positive NPV becomes the company's acquisition standard. If the company adheres to this policy, it may miss out on many attractive acquisition opportunities.

Using a Pro-Forma Base Year & Recalibrating Incentive Plan EVA Improvement Targets

Some companies reconcile the conflict between EP and shareholder value by using a pro-forma base year for the EP improvement calculation. The pro-forma calculation adds the acquisition goodwill to capital before computing the prior year EP. In this case, beginning capital for the pre-acquisition year (year 1) would be \$10,000 + \$21,162 = \$31,162, and make pro-forma EP for the base year (year 1) equal to \$1,800 – 10% * \$31,162 = -\$1,316. The pro-forma calculation makes current operations value equal to \$19,500 (= \$32,662 + (-\$1,316.2/10%)) and future growth value equal to \$13,162 (= \$32,662 - \$19,500). The pro-forma calculation changes the first year EP improvement from -\$1,196 to +\$120 (= -\$1,196 - -\$1,136)). The pro-forma calculation can make the bonus plan measure of excess EP improvement completely consistent with shareholder value if the "expected EP improvement" target in the bonus plan is adjusted to reflect the required return on the acquired future growth value of \$13,162. In the exhibit below, we have calculated expected EP improvement from the acquisition forecast in the following steps:

- Calculate NOPAT, capital and future free cash flow from the operating forecast,
- Calculate market value, i.e., the present value of future FCF, for each future year using the projected FCF from the operating forecast,
- Calculate future growth value for each year using market value and current operations value,
- Calculate the required return on future growth value for each year, $c * FGV_{n-1}$,
- Calculate the change in future growth value for each year, ΔFGV_n,
- Calculate the required return from ΔEP for each year, $c * FGV_{n-1} - \Delta FGV_n$, and, finally,
- Calculate expected ΔEP for each year, $\Delta EP = (c * FGV_{n-1} - \Delta FGV_n)/((1+c)/c)$.

Does VBM Discourage Investment in Intangibles?

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Using a Pro-Forma Base Year & Recalibrating Incentive Plan EVA Improvement Targets – cont'd

For years two and three, the calculation of expected EP improvement is:

	Year 2	Year 3
Beginning FGV	13,158	12,956
c * FGV	1,316	1,296
ΔFGV	-4	-202
c * FGV - ΔFGV	1,320	1,518
(1+c)/c	11	11
Expected ΔEP	120	138

The expected ΔEP from these calculations is exactly equal to projected ΔEP in the forecast.

	0	1	2	3	4	5	6	7
Operating Forecast								
Operating Capital Growth Rate		15%	15%	15%	15%	15%	15%	15%
Operating Capital	10,000	11,500	13,225	15,209	17,490	20,114	23,131	26,600
Goodwill	21,162	21,162	21,162	21,162	21,162	21,162	21,162	21,162
Total Capital	31,162	32,662	34,387	36,371	38,652	41,276	44,293	47,762
Return on Operating Capital		18%	18%	18%	18%	18%	18%	18%
NOPAT		1,800	2,070	2,381	2,738	3,148	3,620	4,164
Capital Charge		3,116	3,266	3,439	3,637	3,865	4,128	4,429
Economic Profit		-1,316	-1,196	-1,058	-900	-717	-507	-266
Free Cash Flow			345	397	456	525	603	694
FV of Free Cash Flow			556	581	607	635	664	694
Analysis of Market Value								
Market Value		32,662	35,583	38,744	42,162	45,854	49,836	54,126
Current Operations Value		19,500	22,425	25,789	29,657	34,106	39,221	45,105
Future Growth Value		13,162	13,158	12,956	12,505	11,748	10,614	9,021
Change in FGV			-4	-202	-450	-757	-1,134	-1,594
Required Return From EP			1,320	1,518	1,746	2,008	2,309	2,655
Expected EP Improvement			120	138	159	183	210	241
Excess EP Improvement								
EP Improvement			120	138	159	183	210	241
Excess EP Improvement			0	0	0	0	0	0
Analysis of Change in FGV								
Delta FGV/Pro-forma FGV			0.000	-0.015	-0.034	-0.058	-0.086	-0.121

Our calculations show that if we know ΔFGV for any year, we can calculate ΔEP for that year and FGV for the following year. If, for example, we know ΔFGV because it is a function of FGV_0 (as it would be in a fade or decay model), then we can calculate ΔEP for all future years. In our calculations above, which are based on the operating forecast, ΔFGV, expressed as a fraction of FGV_0, increases (in absolute value) each year to -.12 of FGV_0 in year 6. If we could estimate this same relationship from peer market data, i.e., that ΔFGV increases (in absolute value) to -.12 of FGV_0 by year 6, we could estimate ΔEP for each year without relying, in any way, for the acquisition forecast.

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Using a Pro-Forma Base Year & Recalibrating Incentive Plan EVA Improvement Targets – cont'd

The following exhibit shows the estimation of ΔEP using this relationship:

	0	1	2	3	4	5	6	7
Operating Forecast								
Operating Capital Growth Rate		15%	15%	15%	15%	15%	15%	15%
Operating Capital	10,000	11,500	13,225	15,209	17,490	20,114	23,131	26,600
Goodwill	21,162	21,162	21,162	21,162	21,162	21,162	21,162	21,162
Total Capital	31,162	32,662	34,387	36,371	38,652	41,276	44,293	47,762
Return on Operating Capital		18%	18%	18%	18%	18%	18%	18%
NOPAT		1,800	2,070	2,381	2,738	3,148	3,620	4,164
Capital Charge		3,116	3,266	3,439	3,637	3,865	4,128	4,429
Economic Profit		-1,316	-1,196	-1,058	-900	-717	-507	-266
Free Cash Flow			345	397	456	525	603	694
FV of Free Cash Flow			556	581	607	635	664	694
Analysis of Market Value								
Market Value		32,662						
Current Operations Value		19,500						
Future Growth Value		13,162	12,898	12,372	11,582	10,529	9,213	7,634
Change in FGV			-263	-526	-790	-1,053	-1,316	-1,579
Required Return From EP			1,579	1,816	2,027	2,211	2,369	2,501
Expected EP Improvement			144	165	184	201	215	227
Excess EP Improvement								
EP Improvement			120	138	159	183	210	241
Excess EP Improvement			-24	-27	-26	-19	-5	14
Analysis of Change in FGV								
Delta FGV/Pro-forma FGV			-0.020	-0.040	-0.060	-0.080	-0.100	-0.120

The calculation of year 2 expected EP of $144 involves the following steps. We begin with the known FGV at the start of the year, FGV_1 = $13,162. We use the projected decay in FGV_1 to estimate ΔFGV_2. The projected decay is -.02 * FGV_1, or -$263 (= -.02 * $13,162), which gives our estimate of ΔFGV_2. We then substitute the known values of c * FGV_1 ($1,316.2 = 10% * $13,162) and ΔFGV_2 in the equation for the required return:

$$\Delta EP_3 + \Delta EP_3/c = \Delta EP_3 * (1 + 1/c) = c * FGV_2 - \Delta FGV_3$$

$$\Delta EP_3 + \Delta EP_3/c = \Delta EP_3 * (1 + 1/c) = \$1,299 - -\$526$$

$$\Delta EP_3 = (c/(1 + c)) * \$1,825 = \$165$$

In this case, the estimates of ΔEP from the linear decay function over-state the "true" expected improvement (from the operating forecast), and hence, are not strictly consistent with shareholder value. The over-statement in year 2 is $24, which is 1.2% of year 2 NOPAT and 20% of year 2 ΔEP. The cumulative over-statement of ΔEP is $87, which is 0.5% of cumulative NOPAT. A more complete discussion of estimating ΔEP from peer market data requires an extensive analysis of empirical models of ΔFGV, which is beyond the scope of this paper.

Does VBM Discourage Investment in Intangibles?

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Using a Pro-Forma Base Year & Recalibrating Incentive Plan EVA Improvement Targets – cont'd

This approach to reconciling the conflict between EP and shareholder value has two major benefits because it does not rely on the acquisition forecast. It reduces the incentive for management to use a back-loaded forecast to justify the acquisition and it makes corporate directors more comfortable that the incentive plan payouts that result from the new targets will be consistent with realized shareholder returns. A disadvantage of this approach is that every significant acquisition requires a restatement of historical EP. Frequent restatement makes it difficult to maintain credibility with internal and external audiences that tend to be suspicious that restatements are self-serving efforts on the part of management to make performance look better than it really is.

Excluding Acquisition Liabilities From Capital

A fourth approach to reconciling the conflict between EP and shareholder value in acquisitions is the exclusion from capital of non-interesting bearing long-term liabilities assumed by the acquirer. This approach has the effect of increasing post-acquisition EP, but is not correct because it destroys the equality of operating and financing free cash flow, and hence, destroys the linkage between excess EP improvement and shareholder return. It is based on an incorrect belief that it is appropriate to exclude liabilities from capital because they are not interest bearing.

Capital is often defined as total assets minus non-interest bearing liabilities. This is an extension of Bennett Stewart's use of "current non-interest bearing liabilities" in the operating definition of capital (Stewart 1991). The term "non-interest bearing" is a frequent source of confusion because it does not accurately describe the liabilities that can be subtracted from capital without destroying the equality of financing and operating FCF. "Hidden interest liabilities" is a more accurate description of the liabilities that can be subtracted from capital without destroying the equality of financing and operating FCF. Some companies have significantly improved their post-acquisition EP by excluding from capital substantial environmental liabilities that are not stated on a present value basis and hence, do not bear interest. It will be easier to show why it is inappropriate to exclude these liabilities if we first consider accounts payable, which can be excluded from capital without destroying the equality of financing and operating free cash flow.

The following example shows that the present value of future free cash flow when accounts payable are deducted from capital is exactly equal to the present value of future free cash flow when accounts payable are treated as debt as long as cost of goods sold is reduced by the implicit interest on account payable. In this example, we assume that the implicit interest rate is equal to the pre-tax cost of capital since this is the simplest way of assuming that the weighted average cost of capital is unaffected by the accounting treatment of accounts payable. In the first case, capital is equal to total assets minus accounts payable and the implicit interest in cost of goods sold is a deduction against operating profit. In the second case, capital is equal to total assets since accounts payable are considered debt and no implicit interest is charged against operating profit. In year 4 in both cases, inventory is liquidated, accounts payable are paid off and PP&E is sold for book value at the end of year. In the first case, where accounts payable is treated as a reduction in investment (i.e., capital), the present value of future free cash flow is $9,626. In the second case, where accounts payable is treated as a debt, the present value of future free cash flow is $10,694. But this implies, since the beginning accounts payable is $1,068, that the equity value is $10,694 minus $1,068, or $9,626, which is exactly the present value of free cash flow in the first case.

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Excluding Acquisition Liabilities From Capital – cont'd

Accounts Payable Deducted From Capital

	0	1	2	3	4
Operating Forecast					
Sales		10,000	11,500	13,225	15,209
Cash Cost of Goods Sold		6,500	7,475	8,596	9,886
Interest in Cost of Goods Sold		164	189	217	250
Gross Margin		3,336	3,836	4,411	5,073
SG&A		2,000	2,300	2,645	3,042
Operating Profit		1,336	1,536	1,766	2,031
Taxes		467	538	618	711
NOPAT		868	998	1,148	1,320
PP&E	10,000	11,000	12,650	14,548	0
Inventory	1,083	1,246	1,433	1,648	0
Accounts Payable	1,068	1,229	1,413	1,625	0
Capital	10,015	11,017	12,670	14,570	0
Valuation					
Investment	10,015	1,002	1,653	1,900	-14,570
Free Cash Flow		-134	-654	-752	15,890
PV of Free Cash Flow		-122	-541	-565	10,853
Cumulative PV of FCF	9,626				
Terminal Value	0				
PV of Terminal Value	0				
Market Value	9,626				

Accounts Payable Treated As Debt

	0	1	2	3	4
Operating Forecast					
Sales		10,000	11,500	13,225	15,209
Cash Cost of Goods Sold		6,500	7,475	8,596	9,886
Gross Margin		3,500	4,025	4,629	5,323
SG&A		2,000	2,300	2,645	3,042
Operating Profit		1,500	1,725	1,984	2,281
Taxes		525	604	694	798
NOPAT		975	1,121	1,289	1,483
PP&E	10,000	11,000	12,650	14,548	0
Inventory	1,083	1,246	1,433	1,648	0
Accounts Payable	1,068	1,229	1,413	1,625	0
Capital	11,083	12,246	14,083	16,195	0
Valuation					
Investment	11,083	1,163	1,837	2,112	-16,195
Free Cash Flow		-188	-716	-823	17,678
PV of Free Cash Flow		-170	-591	-618	12,074
Cumulative PV of FCF	10,694				
Terminal Value	0				
PV of Terminal Value	0				
Market Value	10,694				
Less Debt =	1,068				
Market Equity Value	9,626				

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Excluding Acquisition Liabilities From Capital – cont'd

Confusion and inaccuracy arises when this example is falsely generalized to the conclusion that liabilities recognized on a future value basis may be excluded from capital without harm. One company has excluded from capital more than $1 billion of environmental liabilities assumed in an acquisition. These liabilities should be recognized on a present value basis, but they should also be included in capital because they represent real liabilities for future cash payments by the company's shareholders and the implicit interest on the liabilities is not being charged against operating profit. Since the payment of the liability is tax deductible, it should be included in capital on an after-tax present value basis. If we assume that the present value of these liabilities is $1.0 billion, the addition to capital would be the after-tax value of the liabilities, or $650 million (assuming a 35% tax rate). Their exclusion from capital reduces the capital charge in the EP calculation by $65 million (based on a 10% cost of capital). This difference is large enough to change the EP impact of the company's acquisition from positive to negative. To demonstrate that it is not appropriate to exclude the present value of these liabilities from capital, let's make two modifications to our example above. We eliminate the accounts payable (so we can focus on just one liability) and assume that there is an environmental liability that is that is settled at the end of year 3 for $2,000.

Environmental Liability Treated As Debt

	0	1	2	3	4
Operating Forecast					
Sales		10,000	11,500	13,225	15,209
Cash Cost of Goods Sold		6,500	7,475	8,596	9,886
Gross Margin		3,500	4,025	4,629	5,323
SG&A		2,000	2,300	2,645	3,042
Operating Profit		1,500	1,725	1,984	2,281
Taxes		525	604	694	798
NOPAT		975	1,121	1,289	1,483
PP&E	10,000	11,000	12,650	14,548	0
Inventory	1,083	1,246	1,433	1,648	0
After-tax Environmental Liability	977	1,074	1,182	1,300	0
Capital	11,083	12,246	14,083	16,195	0
Valuation					
Investment	11,083	1,163	1,837	2,112	-16,195
Free Cash Flow		-188	-716	-823	17,678
PV of Free Cash Flow		-170	-591	-618	12,074
Cumulative PV of FCF	10,694				
Terminal Value	0				
PV of Terminal Value	0				
Market Value	10,694	11,951	13,862	16,071	0
Less Debt =	977				
Market Equity Value	9,717				
Economic Profit Analysis					
Beginning Capital		11,083	12,246	14,083	16,195
Return on Capital		8.8%	9.2%	9.2%	9.2%
Capital Charge		1,108	1,225	1,408	1,620
Economic Profit		-133	-103	-119	-137
PV of Economic Profit		-121	-85	-89	-93
Cumulative PV of EVA	-389				
Capital + PV of EVA	10,694				

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Excluding Acquisition Liabilities From Capital – cont'd

The first two panels below show that the environmental liability can be treated as debt or deducted from capital as long as the implicit after-tax interest expense on the liability is charged against NOPAT. In both cases, the liability is recognized on an after-tax present value basis using a 35% tax rate. The initial liability is $977 [= (1-.35) *$2,000/$(1.1)^3$] and interest expense is computed using the 10% cost of capital. In both cases, the equity value is $9,717.

Environmental Liability Deducted From Capital/Expense Recognized

	0	1	2	3	4
Operating Forecast					
Sales		10,000	11,500	13,225	15,209
Cash Cost of Goods Sold		6,500	7,475	8,596	9,886
Gross Margin		3,500	4,025	4,629	5,323
SG&A		2,000	2,300	2,645	3,042
Operating Profit		1,500	1,725	1,984	2,281
Taxes		525	604	694	798
NOPAT		975	1,121	1,289	1,483
Implicit A-T Interest on Environmental Liability		98	107	118	0
Adjusted NOPAT		877	1,014	1,171	1,483
PP&E	10,000	11,000	12,650	14,548	0
Inventory	1,083	1,246	1,433	1,648	0
After-tax Environmental Liability	977	1,074	1,182	0	0
Capital	10,107	11,171	12,901	16,195	0
Valuation					
Investment	10,107	1,065	1,729	3,294	-16,195
Free Cash Flow		-188	-716	-2,123	17,678
PV of Free Cash Flow		-170	-591	-1,595	12,074
Cumulative PV of FCF	9,717				
Terminal Value	0				
PV of Terminal Value	0				
Market Value	9,717	10,877	12,680	16,071	0
Economic Profit Analysis					
Beginning Capital		10,107	11,171	12,901	16,195
Return on Capital		9.6%	10.0%	10.0%	9.2%
Capital Charge		1,011	1,117	1,290	1,620
Economic Profit		-133	-103	-119	-137
PV of Economic Profit		-121	-85	-89	-93
Cumulative PV of EVA	-389				
Capital + PV of EVA	9,717				

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Excluding Acquisition Liabilities From Capital – cont'd

When the environmental liability is recognized on a future value basis and deducted from capital without charging any implicit interest against NOPAT, the operating definition of free cash flow is not correct and economic profit is overstated. In year 2, for example, economic profit appears to be +$97 when it should be -$103.

Environmental Liability Deducted From Capital/No Expense Recognized

	0	1	2	3	4
Operating Forecast					
Sales		10,000	11,500	13,225	15,209
Cash Cost of Goods Sold		6,500	7,475	8,596	9,886
Gross Margin		3,500	4,025	4,629	5,323
SG&A		2,000	2,300	2,645	3,042
Operating Profit		1,500	1,725	1,984	2,281
Taxes		525	604	694	798
NOPAT		975	1,121	1,289	1,483
Implicit A-T Interest on Environmental Liability		0	0	0	0
Adjusted NOPAT		975	1,121	1,289	1,483
PP&E	10,000	11,000	12,650	14,548	0
Inventory	1,083	1,246	1,433	1,648	0
After-tax Environmental Liability	2,000	2,000	2,000	0	0
Capital	9,083	10,246	12,083	16,195	0
Valuation					
Investment	9,083	1,163	1,837	4,112	-16,195
Free Cash Flow		-188	-716	-2,823	17,678
PV of Free Cash Flow		-170	-591	-2,121	12,074
Cumulative PV of FCF	9,191				
Terminal Value	0				
PV of Terminal Value	0				
Market Value	9,191	10,298	12,044	16,071	0
Economic Profit Analysis					
Beginning Capital		9,083	10,246	12,083	16,195
Return on Capital		10.7%	10.9%	10.7%	9.2%
Capital Charge		908	1,025	1,208	1,620
Economic Profit		67	97	81	-137
PV of Economic Profit		61	80	61	-93
Cumulative PV of EVA	108				
Capital + PV of EVA	9,191				

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Abandoning EVA as a Performance Measure

Now that we have seen the complexity of the accounting adjustments needed to reconcile EP with shareholder value, it is easier to appreciate that the accounting and target setting effort required might overwhelm companies with a limited commitment to economic profit as financial management system and basis for incentive compensation. Let's look at a couple of case studies.

Monsanto

Monsanto announced its adoption of EVA in its 1996 annual report:

- "In 1996, Monsanto put in place a new performance measurement system called economic value added (EVA). The company will begin measuring its performance against EVA targets in 1997."

In 1997, Monsanto spun off its chemicals business and significantly increased in its spending on agricultural bio-technology and pharmaceuticals. The annual report said:

- "Although there's no universally accepted definition of 'growth' spending, our calculations – which include technology, infrastructure costs and the income effects of recent acquisitions – show…we spent more than $1.3 billion pretax on growth in 1997, an increase of more than $500 million, or about a 60 percent increase, from our growth spending in 1996."

In February 1997, a portion of the new EVA bonus was replaced by a performance stock option grant. In the annual report for 1997, the company praised future EVA, but highlighted the shortcomings of current income (which implies, with rising capital, an even greater shortcoming in current EVA): "Our value-based metrics, such as Economic Value Added (EVA), incline us to make economically attractive investments, even when they depress current income, as they often do." The current performance measure the company highlighted in the 1997 annual report was "Earnings Before Interest, Taxes, Amortization and Technology". In its first quarterly earnings report for 1998, Monsanto said:

- "We have an extremely attractive new product pipeline and a growing position in critically important technologies. We've been very clear about our commitment to make the investments necessary to take full advantage of these opportunities, recognizing that they have had and will have an increasing effect on near-term quarterly earnings."

In 1998, the retreat from EVA continued:

- In the first quarter earnings press release, Monsanto devoted a paragraph to its EVA performance and reported EVA results just below earnings per share.
- In the second quarter earnings press release, Monsanto dropped the paragraph about its EVA performance, but continued to report EVA results just below earnings per share.
- In the third quarter earnings press release, Monsanto omitted any discussion of its EVA performance, but continued to report EVA results just below earnings per share.
- In the fourth quarter earnings press release, Monsanto dropped its reporting of EVA and substituted EBIT where it had previously reported EVA.

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Abandoning EVA as a Performance Measure – cont'd

In 1999, Monsanto's EVA Director was given new responsibilities. He is now "Director of Y2K Planning."

ATT

AT&T's 1992 annual report expressed strong support for economic profit as a basis for performance measurement and incentive compensation:

- "In 1992 we began measuring the performance of each of our units with an important new management tool called 'Economic Value Added' – 'EVA' for short….EVA gives our managers a way to also track the creation of shareowner value in individual AT&T units….We have made it the centerpiece of our 'value based planning' process. And we are linking a portion of our managers' incentive compensation to performance against EVA targets for 1993….In summary, our performance planning, measurement and reward programs are now fully aligned with the interests of the shareowners."

The company remained enthusiastic about EVA for two years. In 1993 and 1994, it exceeded its EVA targets. Then, in September 1995, CEO Bob Allen announced the spin-offs of Lucent Technologies and NCR. For the fourth quarter of 1995,

- the bonus plan "was adjusted to provide 50% of the incentive on the EVA level of achievement and 50% based on successful accomplishment of the restructuring transition work, including the impact on PVA [People Valued Added] and CVA [Customer Value Added]….Because of adjustments for NCR (formerly AT&T Global Information Solutions) writedown, the 1995 EVA target was not met and the portion of the Chairman's annual bonus which relates to this target was reduced accordingly. The 1995 results for the PVA, CVA, and restructuring transition measurements were met." (1996 proxy)

In the same year, the Compensation Committee said:

- "The committee recognizes that the Company's impending restructure will render obsolete the performance criteria established for the long-term cycles 1994-96 and 1995-97. To address this transition period, and the difficulty of setting long-term financial targets while the restructure is in process, the committee has recommended and approved that the criteria for performance periods 1994-1996 and 1995-97 are deemed to have been met at the target level." (1996 proxy)

In 1996, the company started to abandon EVA:

- "The Company achieved its EVA target, but the Committee noted that it did so, in part, by modifying spending plans, resulting in lower average capital deployed. The Committee therefore determined that, with respect to financial performance, the additional metric of Earnings Per Share results should be considered….The Company achieved its EVA target, but…shareholders experienced a 9% decrease in the value of their AT&T-related holdings during 1996, though the broad market rose 20%.….In 1997, the Company will re-institute a performance share program tied to three-year relative total shareholder return ('TSR') as measured against a peer group of industry competitors." (1997 proxy)

In 1997, the company dropped EVA completely and adopted earnings per share and expense to revenue ratio as its financial performance measures. While AT&T's decision to drop EVA took five years, evidence from its investor relations website suggests that it lost its enthusiasm for EVA early on. A search for "EVA" in the website, which includes 718 documents, identifies only two documents – the 1992 annual report and the 1993 mission statement.

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Abandoning EVA as a Performance Measure – cont'd

Other Companies

A number of other companies have dropped EVA after encountering difficulties in adjusting for spin-offs and divestitures. Premark provides an example:

- "The financial objectives for the 1995-97 and 1996-98 long-term incentive programs were originally established as a certain level of EVA. However, due to the difficulties and complexities of adjusting EVA fairly in order to exclude the effects of the spin-off and Hartco divestiture on capital, tax rates and corporate office expense, the financial objectives have been restated by the Committee as segment profit." (1997 proxy)

For other companies, the complexity of economic profit was more than they could handle. Grancare's compensation committee, in explaining its decision to drop EVA as a performance measure, said:

- "The Committee believes that fulfilling EPS expectations is the most essential short-term object for those having corporate responsibilities. It also is simple for participants, members of the Company's Board of Directors and the investment community to understand and is a prevalent measure in the healthcare management industry."

Summary and Conclusions

It is not easy to make economic profit consistent with shareholder value despite the facile claims that shareholder value is just a matter of "getting to cash." Many, if not most, of the companies that embrace economic profit as an approach to financial management and incentive compensation are unprepared for the accounting complexity and effort required to make economic profit consistent with shareholder value. Very few companies are willing to adopt the non-GAAP accounting concepts, such as sinking fund depreciation and negative economic depreciation, that are needed to reconcile economic profit with shareholder value "on the books". Without these concepts, or equivalent "off the books" adjustments, incentive plans based on economic profit improvement discourage value creating investments that don't provide a current cash return equal to the cost of capital. This is the standard profile of investments in intangibles, such as R&D and acquisition goodwill, so there is no doubt that economic profit, as normally calculated, does discourage investment in intangibles. A number of companies have adopted "off the books" adjustments that do substantially reconcile economic profit with shareholder value. The two adjustments that have been used most often are "metering" the acquisition cost into capital and using a pro-forma base year combined with recalibration of the incentive plan targets. The difficulty and complexity of the effort needed to reconcile economic profit with shareholder value is evident in the companies that have failed to carry through the effort and decided instead to drop economic profit as a performance measure.

What distinguishes the companies that persevere from those that give up? It is my judgment, based on the case studies and my broader experience, that companies that take a contractual approach to management compensation, by making multi-year commitments to sharing percentages and performance targets, are much more willing to invest the time and effort required to address accounting issues that must be resolved to make economic profit consistent with shareholder value. For these companies, the accounting issues have important compensation consequences.

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Summary and Conclusions – cont'd

The companies that provide the basis for the examples of accounting adjustments that reconcile acquisition EP with shareholder value all use the Stern Stewart EVA bonus plan design with multi-year commitments to sharing percentages and expected EVA improvement. Several of them also make multi-year commitments to fixed share stock option grant guidelines. The companies that have abandoned EVA, on the other hand, take a very discretionary approach to executive compensation. The Premark compensation committee says:

- "The Committee verifies the actual performance achieved as a precondition to approving awards, and reserves the right to adjust any formula-based award that, in its judgment, is inappropriate in light of overall results and circumstances."

The Quaker Oats compensation committee says:

- "Company and unit financial performance is measured primarily by Controllable Earnings targets…The Committee also considers performance against other key financial measures such as sales, earnings per share, return on assets, return on equity and operating income. In order for the full financial portion of the target bonuses to be paid, the Company must meet its internal financial targets and the Committee also considers how that performance relates to other comparable companies."

The experience of these companies suggests that there are two good reasons why companies should take a more contractual approach to executive compensation: stronger incentives and better accounting!

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