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An Analysis of Economic Value Added

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Acceptance of Senior Honors Thesis

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Abstract

The purpose of this paper is to provide an overview and analysis of the Economic Value Added metric. Several large, well known companies have begun to use EVA in recent years as an internal measure of performance, and one may speculate that its popularity will only continue. This paper shows what the EVA metric is and highlights some advantages and disadvantages from its proponents and critics.

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A Critique of Economic Value Added

Introduction

Discerning investors, always eager to make above-average returns on their funds, have begun to pay more attention to non-traditional measures of financial performance that measure value, than to traditional accounting measures (Dillon & Owers, 1997, p. 32). This value has been defined as the "true economic profit" that a company can be assessed for (Value Based-EVA, 2008, ¶ 1). Many managers have begun to use EVA or similar concepts to judge the impacts of present decisions and to help make future ones (Shaked & Leroy, 1997, ¶ 3).

Many experts believe that making financial decisions based only on accounting data can hurt a company (Stewart, 1991, p. 22, 24-29). Economic Value Added (EVA*) is a useful financial metric that measures value based on adjusted accounting data to assess financial performance and help a company grow (Stewart, p. 3; Makelainen & Roztocki, 1998, p. 7).

Dissatisfaction with Earnings Per Share

According to conventional accounting wisdom, Earnings Per Share, or EPS (perhaps the most common financial metric), is the key financial metric for financial performance assessment (Stewart, p. 22). It is likely one of the most widely used and well known financial metric in the business world. The equation for EPS is calculated as: [Net Income – preferred stock dividends] / Either [Common stock shares outstanding +

* Author's note; EVA (EVA©) is a mark of Stern Stewart, & Co. but will appear throughout this paper without the "©" symbol.

equivalents] or [The "average amount of shares outstanding"] (Value Based – EPS, 2008, ¶ in sidebar Box).

Some experts in the field of finance believe that EPS ratios change too quickly and too much to be of any real use for financial analysis (Stewart, p. 22). Even worse, they are based on historical costs that are usually unadjusted for present use. Those dissatisfied with using EPS (and similar accounting metrics) as an indicator of financial performance have turned to using "value-based performance measures" instead (Roztocki & Needy, n.d.-EVA for Small Mfg. Co., 1 ¶ 3).

Other Problems Encountered with Accounting Based Measures

Critics of EPS and similar accounting metrics cite several other reasons why they are displeased with the prevalence of using EPS as a measure for growth and performance. According to many analysts, making decisions using EPS (and subsequently the Generally Accepted Accounting Procedures, or GAAP necessary to arrive at EPS) appears to be the cause for a large amount of misallocation of funds among companies (Stewart, p. 2). Analysts such as G. Bennett Stewart III show that the use of the current standard accounting procedures (GAAP) causes companies to do seemingly irrational things to keep a good EPS figure (Stewart, p. 24-28). Critics of maximizing EPS claim that growing the EPS metric is the impetus behind much waste and lost opportunities among companies that should be realizing more growth (Stewart, p. 24-28, 75).

Share Prices

In spite of the above-mentioned problems, many managers still pursue EPS figures because they believe that good EPS figures appeal to investors and influence stock prices (Stewart, p. 2). However, in this pursuit of growing EPS to lure investors, the managers tend to compromise the financial strengths of their companies (Stewart, p. 2). Managers who believe that share prices are moved by the movement of EPS are in reality taking the wrong road toward the right goal of stock price control (Stewart, p. 21). On the other hand, analysts who prefer to measure value instead of earnings believe that what investors really desire is not a high EPS , but instead a high cash value of the company (based on future cash flows) (Stewart, p. 2). This is also what they believe is the reason that stock prices change; change in value causes change in share prices (Stewart, p. 2). These analysts believe that firms should attempt to increase "value" instead of EPS, and therefore measure financial performance by a value-measuring metric instead of EPS (Stewart, p. 2, 3).

EVA

EVA, or Economic Value Added, is such a metric that seeks to improve and measure efficiency and "value creation" (Shaked & Leroy, 1997, p. 1 ¶ 2; Stewart, p. 3). G. Bennett Stewart III., originator of EVA and author of one of the largest works on the subject (a source heavily drawn on for this paper), naturally believes that accounting earnings and dividends (and EPS) are irrelevant concerning stocks and their valuation (Stewart, p. 3, 43). He says that "Management should focus on maximizing a measure called Economic Value Added (EVA)…[which] is the only measure to tie directly to intrinsic market value" and that EVA should replace EPS (Stewart, p. 2 ¶ 3; 3 ¶ 2).

The difference between the two measures is reflected in the two schools of thought that they represent. Another expert states that "(a)ccounting focuses on the residual income available for residual claims, before they receive any returns" (Dillon & Owers, 1997, p. 33 ¶ 7-8). It involves itself with what has already happened in the firm's financial history and is to some degree irrelevant for the purposes of judging financial progress for the present period (Dillon & Owers). This takes a different approach to the present and forward-looking views of "the economic concept of income" that judges financial achievement for investors and takes into consideration future outlays of funds; EVA attempts to reconcile these two views somewhat but is mostly aligned with the second position (p. 33¶ 7-8).

EVA – The Metric and its Equation

The EVA metric uses data derived from accounting statements to measures the increase in value made by a company (Makelainen & Roztocki, 1998). It takes into consideration all of the relevant factors necessary to measure, essentially, how much growth a company has made and what that growth cost the company in terms of outlaid funds. It is a measuring of net benefits by counting what those benefits cost (Stewart, p. 2, 3).

There are several different versions of the EVA equation, but all of them are based on the same foundational ideas for EVA laid out by Stewart. His equation is as follows:

EVA = NOPAT – cost of capital*capital *or* EVA = operating profits – a capital charge (p. 224 ¶ 3).

Stewart defines EVA to be "the difference between the profits each unit derives from its operations (NOPAT) and the charge for capital each unit incurs through the use of its credit line" (p. 224 ¶ 3).

EVA gleans only the pertinent data derived from relevant financial statements; as Stewart says, "accounting entries that do not affect cash do not affect value" since cash and value (again, here the term value is referring to the increase in a company's worth) are major factors of successful businesses (p. 2, 26; Makelainen & Roztocki, 1998, p. 4 ¶ 6, Value Based – EVA, 2008). The EVA equation helps managers and decision makers to discern which projects will be beneficial to the firm or not, by showing which ones will add to the value of the firm (Stewart, p. 3). All projects that do not increase the firm's worth are not used, regardless of the effect that they have on accounting figures (or earnings), such as EPS (p. 3). Those projects that improve value are conditionally accepted and evaluated further (p. 3, 4, 26). This is the simple concept of only doing what is good for the firm's financial health, and not doing what would financially hurt the firm (p.2).

Elements of EVA – NOPAT & Cost of Capital

Net Operating Profit After Taxes (NOPAT) is an adjusted figure; Stewart at one point defines it as "Sales – operating expenses – taxes" (p. 308 ¶ 2). This is one of the easiest adjustments to make to accounting data taken from financial statements (Mäkeläinen, 1998). Essentially it is profits minus operating cash outflows and taxes (Stewart, p. 308).

Cost of capital can be simply defined as what one must pay for the funds that one uses (Stewart, p. 473). Application of this definition is more difficult, as this paper will

show. Stewart defines cost of capital as "the minimum acceptable return on investment…an invisible dividing line between good and bad corporate performance" (p. 431 ¶ 1). This is important because if investors are not satisfied with the corporate returns, they will choose to no longer continue supporting the firm (Mäkeläinen & Roztocki, 1998, p. 4 ¶ 6). In a sense, cost of capital is like a break-even point for a firm; if a firm does not have adequate returns to cover its cost of capital, it cannot pay investors for what it has borrowed, likely indicating incompetent management (Stewart, p. 431, 432). This would be a very poor position for a company to be in.

Stewart mentions that the cost of capital has several uses. It can be useful both as a measure with which to compare the present value of "free cash flows" and as a "hurdle rate" (minimum return acceptance rate) to determine whether or not to implement specific changes in a company (p. 431 ¶ 1, 2). This is the rate that a new change in the firm would have to bring in (in terms of returns) to make the plan profitable (p. 431 ¶ 1, 2).

Stewart describes the cost of capital as "opportunity cost" in that it must be worth the investors' time and money to invest in the firm in question, otherwise they will invest somewhere else (p. 431 ¶ 3; Makelainen & Roztocki, p. 4 ¶ 6). Stewart, like other authors on this topic, acknowledges that calculating the cost of capital is not an easy thing to do (p. 432). He notes that there are actually four components that build the cost of capital (four different costs). They are the costs of "business risk," "borrowing," "equity," and "weighted average cost of capital," the last of which is most relevant to the calculation of EVA and "is the blended cost of the firm's debt and equity" (p. 432 ¶ 6).

Elements of EVA – Cost of Debt Capital

Of the two costs that the weighted average cost of capital can be broken down to, the cost of debt is easier to calculate (p. 434). This cost is calculated as the cost of acquiring debt capital at the present time (p. 434). The current rate of a company's debt capital (as a calculation of its yield to maturity, or the amount that one would receive by keeping it until its due date) is the preferable way to estimate this cost, but an industry average can be used as well (p. 434, ¶ 3, InvestorWords, 2008). So, the difficulty of calculating the cost of capital mostly comes from calculating the cost of equity (p. 434, ¶ 4).

Elements of EVA – Cost of Equity Capital

Once again, the cost of equity is represented by the "opportunity cost" of the suppliers of funds (p. 434 ¶ 4). This cost depends in large part on the factor of risk; more risk requires a greater return (p. 435). If the return does not adequately cover the risk (i.e. if another company of similar risk offers a greater return), the firm will not acquire or will not hold onto the capital (Mäkeläinen & Roztocki, p. 4 ¶ 6). One way to obtain some guidance to determine the cost of equity capital is to look to past costs (Stewart, p. 436). Managers may analyze historical data and observe investor preferences and trends (p.436-438). A general figure for the cost of equity capital has typically hovered around 6% above the interest rate on government bonds (the most consistently stable securities available over time) (p. 438 ¶ 1-3). To render this government security base rate usable for calculation of the cost of equity capital, Stewart adds the consideration of a "risk index", resulting in the equation:

"Cost of equity = Risk-free rate + Risk index * Market risk premium" (p. 441 ¶ 4, 442 ¶ 1, 2).

This provides for a fair benchmark figure against which to judge equity returns for a given risk (p. 441-442).

Taxes

While not specifically mentioned in the EVA metric, it is important to consider differing views on how to treat taxes with an EVA calculation. The formula for EVA is constructed to exclude factoring in taxes as part of the equation, and some experts agree that this is the most desirable way to deal with them in the analysis (Mäkeläinen). This is due to the fact that taxes are an unchangeable part of a company's finances in this regard (Mäkeläinen). However, others believe that there must be at least some mention of taxes since they are an unchangeable *outflow* in the company's finances (Mäkeläinen). They say that it also makes the company's EVA goal easier to understand and present to those who do not have to fully understand EVA but are involved in improving it (Mäkeläinen). Also, it more wholly reflects the issue of taxation and depreciation schedules, which are real issues in many companies (Mäkeläinen). Esa Mäkeläinen suggests two solutions to involve bringing the real issue of taxes into the EVA equation for an improved outcome.

The first is that of explicitly removing depreciation in the EVA equation, allowing the metric to focus on only what is left after taxes and depreciation are taken care of (Mäkeläinen). Such an equation would look like this:

"EVA = [Net operating profit - ((Net operating profit – excess ([depreciation]) – other increase in reserves)*(tax rate))] -WACC*capital" (Mäkeläinen).

Mäkeläinen suggests that this would be calculated in the same manner that the IRS calculates taxes (Mäkeläinen).

The other, and not as accurate method would be to anticipate what the applicable tax rate would be and use that to calculate the depreciation in EVA (Mäkeläinen). This method may be easier to implement than the previous one, according to Mäkeläinen.

A Simple Example of an EVA Calculation

As an example, a simple EVA calculation will be shown here. This example was drawn from one provided by Narcyz Roztocki and Kim LaScola Needy of the University of Pittsburg in a paper titled *EVA for Small Manufacturing Companies* (Roztocki & Needy, EVA for Small Mfg. Co., n.d.).

Given the income statement in Figure 1,

Sales	5,620
Cost of goods sold	(3,513)
SG&A expenses	(1,743)
Income from operations	**364**
Other income	0
Earnings before interest and taxes	**364**
Interest expense	(44)
Pretax income	**320**
Taxes (40%)	(128)
Net income	**192**

Figure 1 (Roztocki & Needy, EVA for Small Mfg. Co., p. 4 ¶ 8)

and given the balance sheet on the next page in Figure 2 (data for both figures are in thousands),

ASSETS	**1997**	**1998**
Current assets		
Cash	21	28
Accounts receivable	668	768
Inventory	852	892
Prepaid expenses	33	43
Other current assets	26	31
Total current assets	**1,600**	**1,762**
Fixed assets		
Computer equipment	76	84
Furniture and fixtures	15	19
Motor vehicles	30	31
Equipment	157	168
Other fixed assets	22	35
Total fixed assets	**300**	**337**
TOTAL ASSETS	**1,900**	**2,099**
LIABILITIES		
Current Liabilities		
Accounts payable	510	589
Short-term debt	104	120
Accrued expenses	190	211
Total current liabilities	**804**	**920**
Long-term liabilities		
Bank loan/long-term debt	496	550
	496	
Total long-term liabilities		**550**
Owners' equity		
Common stock	25	25
Retained earnings	575	604
Total owners' equity	**600**	**629**
TOTAL LIABILITIES	**1,900**	**2,099**

Figure 2 (Roztocki & Needy, EVA for Small Mfg. Co., p. 5 ¶ 2)

authors Roztocki and Needy illustrate how to calculate EVA for their sample company. This illustration is relatively brief, does not include many adjustments, and is included here as a concise example about how to calculate EVA.

In essence, the authors calculate Capital for the EVA equation by subtracting Accounts Payable and Accrued Expenses from the Total Liabilities, resulting in $1,900,000 – ($510,000+$190,000) = **$1,200,000** (p. 5 ¶ 3).

Next, they estimate the "Capital Cost Rate" (p. 5 ¶ 7). Their equation for this rate is the cost to borrow debt capital added to the cost for equity capital (as mentioned in the explanation above). Their rate for debt capital is 9%, and their rate for equity capital is 12%. The equation to calculate the total cost of capital is: *CCR = CCRDebt ´ (Debt/(Debt+Equity))(1-t*(ax rate)*)+ CCREquity ´ (Equity/(Debt+Equity))* (Roztocki & Needy, EVA for Small Mfg. Co., p. 3 ¶ 4). Using the information from the balance sheet for year 1997, the resulting number comes out to be **8.7%** (p. 6 ¶ 1).

NOPAT is calculated in this example by adjusting NPAT, or net income (from Figure 1) for interest and tax factors. The authors add $42,000 of "interest savings" (since financing in this equation is internal), and $50,000 for "compensation for … (owners') investment" to the net income (p. 6 ¶ 2). Additionally, they subtract the tax savings they forego, valued at 40% (the tax rate) of the total savings amount, which is $92,000 (p. 6 ¶ 2). The end calculation for this factor is $192,000 +$ 92,000 – ($92,000*40%) = $**247,200** (p. 6 ¶ 4). This is real income, or what is left over after income has been adjusted.

Finally, the authors calculate EVA as NOPAT less the capital charge (p. 6 ¶ 5). The figure for this is $247,200 – $1,200,000*(8.7%), resulting in "a positive value of… ($142,800)…for its owners in 1998" (parenthetical element added) (p. 6 ¶ 6). This number can then be compared previous years to see if progress was made or lost. A consistent calculation like the one given above takes into account the amounts of

financial risks to achieve progress by using easily documents accessible to the company's managers.

EVA's Advantages and Disadvantages

Proponents of EVA proudly point to explicit and secondary benefits of implementing EVA in a company's structure. A company can benefit from some of these advantages of EVA even if it is not made the sole target metric.

Advantages

Efficiency

EVA points managers and firms toward efficiency—essentially a goal of using EVA is to cause the firm to accomplish more (monetarily) with as little capital as necessary (Stewart, p. 3). Efficiency is not the first concern of EVA, but EVA can show what "*value"* was made from what capital was used; in this way it can judge efficiency (Mäkeläinen,; Dillon & Owers, p. 33 ¶ 3). Money is not free, so it should be used in such a way that would maximize its return, or at least pay for the cost of using it (Dillon & Owers, p. 33 ¶ 2). This is a "fundamental notion" of EVA – to get more for less (p. 33 ¶ 2). Since the "cost of funds" used is the interest, the lower the price of the funds the better and more desirable the borrowed funds are (all other factors equal) (p. 33 ¶ 3).

Manager's Incentives

The implications of this efficiency that EVA promotes is what its proponents believe is another major reason why EVA should replace EPS. Stewart believes that a policy of having managers meet yearly budgets is not as practical as having them be

measured by EVA, which would provide a greater incentive for performance (Stewart, p. 5). Stewart wisely points out that more than just financial awards are necessary to get stellar financial performance from managers; managers need to want to succeed (though the financial reward helps as well) (p. 223).

Stewart suggests that a firm bases its managers' incentive on an adjusted percentage of EVA, suggesting that they should get a portion of the actual value they help to make (p. 4, 5, 234-240). Utilization of this method would not limit managers to a particular bonus range (like a majority of American companies do), so the sky is essentially the limit to the value they can create and then benefit from (p. 234). The managers' goal is to make the company more profitable and efficient without incurring any more costs that are not (at least) covered by the increasing profits – they are not to hurt the company by increasing its debt without having the new profits pay for it (p. 225). Under this system, the more efficient and value-enhanced the firm becomes, the higher a manager's incentive (bonus compensation) becomes (p. 233). Improvement in EVA (and therefore the firm's worth) is the goal that the managers aim for, resulting in the growth of a firm's value (Shaked & Leroy, p. 3¶4, 11¶2, 12¶2; Stewart, p. 233). Stewart believes in a laissez-faire approach, allowing a manager to do what he sees fit (obviously within ethical standards) to increase the company's value (Stewart, p. 228).

Applicability

Another benefit of EVA is that its applicability is virtually universal. Its simplest application requires only two of the most commonly used financial statements; the balance sheet and the income statement, allowing it to be applied to virtually any company with accurate financial statements (Mäkeläinen & Roztocki, p. 5 ¶ 2).

Other Advantages

The principles of Economic Value Added are also relatively simple to understand (Mäkeläinen, 1998, p. 6 ¶1, 3). The fact that the principles of EVA (efficiency, increasing wealth) can be easily conveyed to others, including employees, gives them a common goal that they can clearly contribute to and appreciate (Mäkeläinen & Roztocki, p. 6). While the theory underlying EVA and its application can be complex, the basic points it stands for appeal to common sense. EVA can also be used as a kind of diagnostic tool, showing managers which sections of the firm need more work to increase a firm's value for the next period (Mäkeläinen & Roztocki, p. 18 ¶ 2, 3).

Disadvantages

Like all other things in life, no one solution is a perfect fit for everyone, and EVA is no exception. Some experts say that while EVA looks simple, it can be or become cumbersomely complex (Shaked & Leroy, p. 1¶ 5, 6). Obviously, the simpler EVA can be made by a company's finance department, the easier it will be to understand and the more it will be used (p. 4 ¶ 4, 5). Additionally, there are no official standards pertaining to the use of EVA, so companies may apply the metric differently than other, similar companies do (unlike GAAP standards), giving results that do not provide for fair "comparability" (p. 1¶ 7). This is a major disadvantage of EVA.

Disadvantages - Suitability

A major disadvantage is the question of the universal suitability of EVA. Some suggest that EVA is not the best choice for all companies (p. 5 ¶ 1, 3, 9). These experts believe that EVA is more suited to established companies "with few requirements for

capital expenditures" likely because capital is a major factor in the EVA equation (p. 9 ¶ 5, 6). Such experts believe that EVA is not suitable for "companies that are …sensitive to the availability of capital… [instead, they] might do better to use…CVA" (p. 2 ¶ 1). Those familiar with both metrics will observe that the formula for CVA (cash value added) is built on essentially the same principal as EVA. The formula for CVA is "operating cash less the charges for the capital employed by the unit" (p. 10 ¶ 3).

Disadvantages - Measurement of Efficiency

Several authors have brought up other disadvantages of using EVA, four of which will be listed here. The first disadvantage is what Peter Brewer, along with his co-authors in an article entitled *Economic Value Added(EVA): Its Uses and Limitations*, calls the problem of "size differences" (Brewer, Chandra, & Hock, 1999, p. 7 ¶ 3). Brewer mentions that one can make the comparison of two companies and find that one company has a higher EVA, yet a lower ROI (Return on Investment). This indicates that although one company had more value created in terms of the EVA metric, it still would not seem to be as efficient at creating wealth as the other since it did not necessarily make more value with fewer funds (p. 7 ¶ 3). As he says, "(a) larger plant or division will tend to have a higher EVA relative to its smaller counterparts" (p. 7 ¶ 3).

Disadvantages - Accuracy

Another potential shortfall Brewer lists is that since the calculation of EVA depends on the financial statements based on accounting principles, accountants can change factors to some degree to change the resulting EVA figure. Examples he lists include moving the fulfillment of orders in or out of an "accounting period" to move the

revenues recorded in or out, and shifting expenses in a like manner (p. 8 ¶ 2). However, one may note that a properly adjusted EVA metric will take into account such changes.

Disadvantages - Short-sightedness

Yet another downfall is what Brewer considers to be a shortsighted approach to what appears to be in his article R&D expenses (p. 8 ¶ 4-6). He voices the opinion of those who believe that EVA and similar metrics prompt managers to make positive changes for the present time and present benefits without regarding so much the projects that provide returns in the future (p. 8 ¶ 7).

It is in the author of this paper's opinion, though, that a manager who truly looks out for the well being of his company will secure both current and future returns, yet will merely place a smaller priority on the current returns, desiring a secure future for the company.

Stewart also presents a kind of rebuttal in his *Quest for Value*. He says that a plan in which a bonus is awarded to a manager who meets a goal and is limited by a bonus cap (or in other words that the manager's bonus falls within a high/low range) can be hurtful to a company in both good times and bad times (p. 234). Stewart says that having such a policy will only motivate managers to give better performance during good times, when success is attainable and managers are within the high/low range. However, when managers realize that they will not be able to meet their goal, or when they are at the top of the range and will not be rewarded for any further success, they will have much less incentive to contribute to the well-being of the firm (p. 234). This is in contrast to his plan, which does provide incentive for times of less value added (when future returns

have not yet been realized), enough perhaps to tide a good manager over until the success of the future project is evident (p. 235-241).

Disadvantages – Usefulness as a Solution-maker

The last downfall that Brewer mentions is what he calls the problem of "results orientation" (p. 9, ¶ 1). By this he means that EVA is not a very helpful diagnostic tool to "point towards the root causes of operational inefficiencies" (p. 9, ¶ 2). Therefore, he assumes that when it comes to strategizing about the next term, EVA will offer little help and guidance toward improving value (p. 9 ¶ 2).

Others believe that the opposite is true and that EVA can show managers what needs to be altered to increase value for the next fiscal term (Mäkeläinen & Roztocki, p. 18).

Adjustments to EVA

The adjustments made in the EVA analysis are extremely important to both the accuracy and identity of the EVA metric. An unadjusted EVA calculation is just using accounting data that does not necessarily reflect the current financial position of a company (Investopedia: EVA, 2008). Although one can make over 150 adjustments to the EVA equation, many experts believe that a simpler equation is a better equation, and that it is usually best to keep the amount of adjustments under 20. One may also note that several companies have successfully used around five or six adjustments, depending on what the company thinks is best (Anderson, Bey, & Weaver, 2005).

Data gathering research has found that the most popular adjustments include those to "successful efforts accounting, research and development, deferred taxes, provisions

for warranties and bad debts, LIFO reserves, depreciation, goodwill, operating leases, restructuring charges, and accounting for capital charge" (5 ¶ 1).

Managers, of course, must discern what kind of adjustments to make and how they will affect the company's finances (Anderson, et al., 2005). One point brought up by Anderson is that one must be careful when deciding whether to make a single adjustment or set a policy for annual future adjustments depending on the activity in question (p. 5). The resulting difference between the two choices can have a very large impact on the company's finances (p. 5).

A study in a paper written by Anne Anderson, Roger Bey, and Samuel Weaver shows the results of observation of the activities of over 300 companies, and found that the most important adjustments were for Research and Development accounts and for the LIFO accounting process (p. 15). Additionally, they compared the results of their own adjustments on the companies' financial statements to those calculated by the originators of the EVA metric, Stern and Stewart (p. 15). Anderson, Bey, and Weaver's calculations included only the five major adjustments listed above, while the Stern and Stewart adjustments likely involved more factors (p. 15). The results of the observation showed that the two figures for each company were over 90% similar, proving that for the most part, adjustments could be minimal for ease of use and still yield fairly accurate results (p. 15).

Why EVA Should Replace Select Other Financial Measures

EVA's advantages stand out even more when it is compared to some other measures. One aspect about the metric that gives it an edge over most others is that it serves as a kind of bridge between purer valuation measures and more common, yet

easier to use measures of financial performance. This helps it to be useful and accurate, but not cumbersome to use (Mäkeläinen, 1998). One may still ask, why not use the other measures that have been made popular over time? The reason is that almost without exclusion, the other measures have characteristics that seriously inhibit their usefulness. As examples, several well-known metrics, such as ROI, ROE, and EPS are listed below, with reasons why they are inadequate as primary measures of performance based on their composition.

ROI

Those who advocate using EVA and/or similar value based measures claim that using NPV to determine the Internal Rate of Return (necessary for using the EVA equation to measure performance) is superior to using ROI (Mäkeläinen, 1998). Since "(w)ith practical performance measuring the internal rate of return can not be measured … some accounting rate of return is used instead to estimate the rate of return to capital," managers must choose which substitute, whether NPV of ROI, to use (Mäkeläinen, 1998). Proponents of EVA believe that using ROI is disadvantageous because ROI has a tendency to yield flawed results, as would an unadjusted EVA figure (Mäkeläinen, 1998).

Mäkeläinen points out "that EVA and NPV go hand in hand as also ROI and IRR" (Mäkeläinen, 1998). Actually, Mäkeläinen says that both are useful since they both have different objectives; EVA/NPV is a value creation combination, and IRR/ROI is a return on funds combination. The objectives are similar yet still different. While it would be good to increase the pure efficiency of what a company gets for its funds, the more important goal for a company, according to Mäkeläinen, is to increase the wealth of shareholders, or to make the company more valuable (Mäkeläinen, 1998).

The reason that increasing NPV/EVA is more beneficial to shareholders than increasing ROI/IRR can be illustrated in one example such as given by Mäkeläinen. The results of the example show that attempting to increase ROI can lead managers to reject projects that would have built value but would also have diluted the good ROI figures. The manager who decides to reject projects that have returns less than required for building ROI but more than required for building NPV misses out on the opportunity to add real worth to his company, because his standard for returns is too high. What the manager in this case should do instead is consider all projects that would create value, regardless of the effect they might have on ROI. In this way he could take advantage of using the full scope of his real choices. One last flaw of ROI that Mäkeläinen mentions is that it does not consider covering the "cost of capital" as an integral part of the equation (Mäkeläinen, 1998).

ROE

The ROE metric is similar to the ROI metric, but it can show even more distorted results than ROI. As Mäkeläinen says, "simply increasing leverage can increase ROE," which demonstrates that ROE is almost useless as a yearly management performance measure since it can show growth even though the company has not grown (Mäkeläinen, 1998).

Writers for one web site promoting the use of Economic Value Added point out that there are several other specific problems with using the ROE metric. They say that a project that takes more time will come out with a larger distortion than if it took less time to complete, and that different schedules of depreciation can also alter the result (Value Based-ROE, 2008). Additionally, the amount of time it takes to replace the funds spent

on improvements and the "growth rate of (the) new investment" can alter the results given (¶ 3).

EPS

One very popular (perhaps the most popular) metric that EVA is proposed to replace is the metric for EPS. In addition to the other problems mentioned at the beginning of this paper, the metric has what some critics believe to be other serious problems. Like ROE, the result for EPS can be altered by changing some less significant factors about a company that should not warrant a change in the valuation of a company (Mäkeläinen, 1998). In other words, a manager can make a not-so-significant change in the company's finances that would make a significant change in the EPS, appearing that he improved the company when he really may not have (Mäkeläinen, 1998).

Another characteristic about EPS that some experts find fault with is that it does not include the factor of risk in its equation. This is an important item for both investors and decision-makers for the company (Value Based-EPS, 2008). The element of risk should definitely help to make the decision whether or not to go ahead with a given project (Stewart). Supporters of EVA also point out that EPS should not be used because it does not take into account the fact that invested capital must be recovered (Value Based-EPS).

Common Missing factors

In this short overview comparing EVA to select well-known metrics, two major flaws tend to reappear. The first is that some equations do not take into account all of the relevant factors necessary for making a good analysis. A metric will ignore the factor of

risk or of making up the invested capital for a particular project or both (Mäkeläinen, 1998). The second problem is that several of these metrics can be easily manipulated to make it look like a company is doing better when in reality not much has changed or the company's status has actually gotten worse.

ABC and EVA

There can be some compatibility between EVA and some other financial metrics and systems. While such combined systems are out of the realm of this paper, a brief highlight of one will be overviewed here. Some have suggested a system of compatibility between Activity Based Costing (ABC) and EVA. Activity Based Costing is a system used to measure "rate of the consumption of resources" performance in manufacturing and other companies (Roztocki & Needy- ABC, n.d., p. 1 ¶ 1). Activity Based Costing is like EVA in that it is an alternative to older measures of corporate performance (Value Based-ABC, 2008). ABC aids managers by providing information about a company based on "cost pools", and what moves them (Value Based-ABC, ¶ 2). Advocates of ABC claim that it is more accurate than older methods of accounting and that it gives managers better data to work with (Value Based-ABC).

Advantages to using an ABC costing method include focusing on the important data relevant to the financial workings of a company, and using the data in such a way as to be able to accurately keep track of the prime movers within a company's functions (Activity Based, n.d.).

The basic steps necessary to use ABC costing as a way to actively implement internal control are to "identify activities, assign resource costs to activities, identify outputs (and) assign activity costs to outputs" (Activity Based)

A combined system as proposed by Roztocki and Needy would have a company use ABC costing with accounting data to analyze efficiency and then use the EVA analysis to determine how much value was built or lost (Roztocki & Needy-ABC).

Conclusion

EVA appears to have an intuitive, straightforward approach. Measuring value created appears to be an important and relatively easy way to calculate performance (Mäkeläinen & Roztocki, 1998, p. 2, 19).

EVA recognizes not only end results, but also the cost of the input of funds to get the results. This provides a basis for the measurement of efficiency and motivates managers to be more efficient with funds (as stated above), which is usually beneficial. However, it is a well known fact that people will always want more than what they deserve, so a manager whose goal is to increase EVA should have oversight above him or her that will prevent that person from acting unethically to reach a goal. This would obviously be necessary regardless of what metric was used, but would be especially important with the use of a metric like EVA, in which there is virtually (in some cases) no limit to the manager's reward for performance.

The fact that EVA is based on accounting data may be one of its best characteristics. This allows it to be applied to any publicly held company and allows for a measure of consistency, since the data used is fairly universal (p. 5).

Thusly, the Economic Value Added metric, while somewhat unconventional by traditional standards of financial performance, appears to be a very useful measure for corporate performance (Shaked &Leroy, p. 1 ¶ 2). It emphasizes efficiency and wise management as factors that produce wealth. EVA gives managers a picture of what

improvements were made over the course of a fiscal period by using common financial statements, rendering it easily applicable (Makelainen & Roztocki, p. 7, 19). When calculated with adjustments and used appropriately, it looks as if it would be a good measure for almost all companies to implement.

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