

# Indicators used for measuring shareholders value

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Creating shareholder value is the key to success in today's marketplace. There is increasing pressure on corporate executives to measure, manage and report the creation of shareholder value on a regular basis. In the emerging field of shareholder value analysis, various measures have been developed that claim to quantify the creation of shareholder value and wealth.

Shareholders wealth creation has become the new corporate paradigm in recent years.

The performance measure economic value added (EVA) has been adopted by a rapidly growing number of firms and is beginning to appear in mainstream finance textbooks. Despite such acceptance, little empirical work has been done on the ability of EVA to reflect market value added. This study empirically tests the strength of the relationship between EVA and market value added. The results do not fully support the arguments of EVA proponents that it is the best internal measure of corporate success in adding value to shareholder investments.

The paper proposes to compare a series of indicators used for measuring shareholders value such as: EVA, EBIT, MVA, ROE, EPS, s.a. In the first part of the paper there are presented the concepts of shareholder value, creating value and value-based management. The second part is practical and here there are presented, exemplified and discussed a series of indicators used for measuring shareholder value.

Stern Stewart states that Economic Value Added is a measure of economic profit. It is calculated as the difference between the Net Operating Profit After Tax and the opportunity cost of invested Capital. This opportunity cost is determined by the weighted average cost of Debt and Equity Capital ("WACC") and the amount of Capital employed, Market Value Added measures the difference between the market value of the firm (Debt and Equity) and the amount of Capital invested. Equivalently, MVA equals the present value of future expected EVA<sup>®</sup>. Firms that trade at premiums to invested Capital have positive MVA, while those trading below invested Capital have negative MVA.

MVA= Total Market Value of Company - All the money (capital) that has ever been invested in it  
= Cash investors could get out of company today - Cash that has been put in to company  
= Current Market Value of Company's Securities (stocks and bonds) - Invested Capital (debt and equity and debt offerings, bank loans, retained earnings, Capitalized R&D spending)

If positive – the company has made its shareholders richer.

If negative – shows how much shareholder wealth has been obliterated.

MVA tends to move in tandem with the market.

EVA and MVA are Value-Based Metrics seen as good measures of a company's performance, as telling as EPS (earnings per share) and ROE (Return on Equity)

### **Value-based management**

The value of a company is determined by its discounted future cash flows. Value is created only when companies invest capital at returns that exceed the cost of that capital. VBM extends these concepts by focusing on how companies use them to make both major strategic and everyday operating decisions. Properly executed, it is an approach to management that aligns a company's overall aspirations, analytical techniques, and management processes to focus management decision making on the key drivers of value.

VBM is very different from 1960s-style planning systems. It is not a staff-driven exercise. It focuses on better decision making at all levels in an organization. It recognizes that top-down command-and-control structures cannot work well, especially in large multibusiness corporations. Instead, it calls on managers to use value-based performance metrics for making better decisions. It entails managing the balance sheet as well as the income statement, and balancing long- and short-term perspectives. When VBM is implemented well, it brings tremendous benefit. It is like restructuring to achieve maximum value on a continuing basis.

The first step in VBM is embracing value maximization as the ultimate financial objective for a company. Traditional financial performance measures, such as earnings or earnings growth, are not always good proxies for value creation. To focus more directly on creating value, companies should set goals in terms of discounted cash flow value, the most direct measure of value creation. Such targets also need to be translated into shorter-term, more objective financial performance targets. Companies also need nonfinancial goals – goals concerning customer satisfaction, product innovation, and employee satisfaction, for example – to inspire and guide the entire organization. Such objectives do not contradict value maximization. On the contrary, the most prosperous companies are usually the ones that excel in precisely these areas. Nonfinancial goals must, however, be carefully considered in light of a company's financial circumstances. Objectives must also be tailored to the different levels within an organization.

For the head of a business unit, the objective may be explicit value creation measured in financial terms. A functional manager's goals could be expressed in terms of customer service, market share, product quality, or productivity. A manufacturing manager might focus on cost per unit, cycle time, or defect rate. In product development, the issues might be the time it takes to develop a new product, the number of products developed, and their performance compared with the competition.

Pablo Fernández analyzed 582 American companies using EVA, MVA, NOPAT and WACC . For each of the 582 companies, we have calculated the 10-year correlation between the increase in the MVA (Market Value Added) each year and each year's EVA, NOPAT and WACC. For 296 (of the 582) companies, the correlation between the increase in the MVA each year and the NOPAT was greater than the correlation between the increase in the MVA each year and the EVA. There are 210 companies for which the correlation with the EVA has been negative! The average correlation between the increase in the MVA and EVA, NOPAT and WACC was 16%, 21% and -21.4%. The average correlation between the increase in the MVA and the increases of EVA, NOPAT and WACC was 18%, 22.5% and -4.1%.

He also found out that the correlation between the shareholder return in 1994-1998 and the increase in the CVA (according to the Boston Consulting Group) of the world's 100 most profitable companies was 1.7%.

A Company creates value for the shareholders when the shareholder return exceeds the equity's cost (the required return to equity). A Company destroys value when the opposite occurs.

**Shareholder value creation** = Equity market value x (Shareholder return -  $K_e$ )

Note the significant difference between the above formula and economic profit. Economic profit uses the equity book value instead of the equity market value, and the ROE instead of the shareholder return. It is not surprising that economic profit is very different from shareholder value creation. Similarly, the EVA uses the book value of the company's debt and equity instead of the equity market value, and the ROA instead of the shareholder return. Therefore, it can come as no surprise that shareholder value creation has very little to do with the EVA, irrespective of whatever adjustments may be made to the accounting data used.

### *Accounting Returns*

The most widely used measures of return are based upon accounting earnings.

#### a. Return on Invested Capital

The return on capital or invested capital in a business attempts to measure the return earned on capital invested in an investment. In practice, it is usually defined as follows:

$$\text{Return on Capital (ROIC)} = \frac{\text{Operating Income} (1 - \text{tax rate})}{\text{Book Value of Invested Capital} - 1}$$

There are four key components to this definition. The first is the use of operating income rather than net income in the numerator. The second is the tax adjustment to this operating income, computed as a hypothetical tax based on an effective or marginal tax rate. The third is the use of book values for invested capital, rather than market values. The final is the timing difference; the capital invested is from the end of the prior year whereas the operating income is the current year's number. There are good reasons for each of these practices and we will examine the details in the sub-sections that follow.

#### I. After-tax Operating Income

The return on capital measures return generated on all capital, debt as well as equity, invested in an asset or assets. Consequently, it has to consider earnings not just to equity investors (which is net income) but also to lenders in the form of interest payments. Thus, operating income, as a pre-debt measure of earnings, is used in the computation, and it is adjusted for taxes to arrive at an after-tax return on capital. There are two ways of estimating this operating income.

- One is to use the reported earnings before interest and taxes (EBIT) on the income statement and to adjust this number for the tax liability.

$$\text{After-tax Operating Income} = \text{EBIT} (1 - \text{tax rate})$$

- The other is to start with net income and to add back after-tax interest expenses and eliminate other non-operating items to arrive at the after-tax operating income:

$$\text{After-tax operating income} = \text{Net Income} + \text{Interest Expenses} (1 - \text{tax rate}) - \text{Nonoperating income} (1 - \text{tax rate})$$

## II. Invested Capital

In most financial computations, when given a choice between market value and book value, we choose to proceed with market value. Thus, the cost of capital is computed using market value weights for debt and equity and betas are levered and unlevered using market values. The accounting return computation is perhaps the only place in finance where we revert back to book value, and the reason we do it is simple.

## III. Timing Differences

Assume that you buy a stock for \$50 at the start of a period and that it rises to \$70 over the period. If you were computing the return you earned on this stock, you would compute it to be 40% (obtained by dividing the change in price by the price at the start of the period). It is the same reasoning that drives us to use the capital invested at the start of the period in computing return on invested capital.

### Return on Equity

While the return on capital measures the return on all capital invested in an asset, the return on equity focuses on just the equity component of the investment. It relates the earnings left over for equity investors after debt service costs have been factored in to the equity invested in the asset. The accounting definition of return on equity reflects this:

$$\text{Return on Equity (ROE)} = \frac{\text{Net Incomet}}{\text{Book Value of Equity}}$$

More than ever, corporate executives are under increasing pressure to demonstrate on a regular basis that they are creating shareholder value. This pressure has led to an emergence of a variety of measures that claim to quantify value-creating performance. Creating value for shareholders is now a widely accepted corporate objective. The interest in value creation has been stimulated by several developments.

\* Capital markets are becoming increasingly global. Investors can readily shift investments to higher yielding, often foreign, opportunities.

\* Institutional investors, which traditionally were passive investors, have begun exerting influence on corporate managements to create value for shareholders.

\* Corporate governance is shifting, with owners now demanding accountability from corporate executives. Manifestations of the increased assertiveness of shareholders include the necessity for executives to justify their compensation levels, and well-publicized lists of under performing companies and overpaid executives.

\* Business press is emphasizing shareholder value creation in performance rating exercises.

\* Greater attention is being paid to link top management compensation to shareholder returns.

From the economist's viewpoint, value is created when management generates revenues over and above the economic costs to generate these revenues. Costs come from four sources: employee wages and benefits; material, supplies, and economic depreciation of physical assets; taxes; and the opportunity cost of using the capital. Under this value-based view, value is only created when revenues exceed all costs including a capital charge. This value accrues mostly to shareholders because they are the residual owners of the firm.

Shareholders expect management to generate value over and above the costs of resources consumed, including the cost of using capital. If suppliers of capital do not receive a fair return to compensate them for the risk they are taking, they will withdraw their capital in search of better returns, since value will be lost. A company that is destroying value will always struggle to attract further capital to finance expansion since it will be hamstrung by a share price that stands at a discount to the underlying value of its assets and by higher interest rates on debt or bank loans demanded by creditors.

Wealth creation refers to changes in the wealth of shareholders on a periodic (annual) basis. Applicable to exchange-listed firms, changes in shareholder wealth are inferred mostly from changes in stock prices, dividends paid, and equity raised during the period. Since stock prices reflect investor expectations about future cash flows, creating wealth for shareholders requires that the firm undertake investment decisions that have a positive net present value (NPV).

Although used interchangeably, there is a subtle difference between value creation and wealth creation. The value perspective is based on measuring value directly from accounting-based information with some adjustments, while the wealth perspective relies mainly on stock market information. For a publicly traded firm these two concepts are identical when (i) management provides all pertinent information to capital markets, and (ii) the markets believe and have confidence in management.

### **Implementation of EVA**

In February 2001, Harsco Corporation, a \$2 billion industrial services and products company headquartered in Camp Hill, PA, engaged Stern Stewart to help implement the EVA management system. Over the next ten months, teams of Harsco managers and Stern Stewart consultants worked to craft an EVA implementation that uniquely fit Harsco's business model and operating characteristics. Over this period and the year that has followed, Harsco has employed EVA to improve its capital allocation process, incentive compensation systems and the overall business literacy of its employees. The efforts undertaken by Harsco have, in many ways, resulted in a model program for the effective implementation of value-based management. This article details the steps that Harsco has taken. The success of the EVA implementation at Harsco starts at the top. Under the leadership of Harsco's chairman and its CFO, senior management has made clear that value creation through EVA improvement is a primary financial goal.

They have set the tone through consistent communication of management's philosophy, both internally and externally, and have made it clear to each of their managers that they are being held accountable for results.

Every company is different and the ways in which value-based management can be employed to improve a company's overall management system are too numerous to mention here. Harsco's success in this project, however, points to the primary success factor in any such undertaking: strong leadership from a senior management team committed to driving shareholder value. By clearly stating management's priorities and taking action to enforce them, the Harsco team created an example that its managers were glad to follow. The recent demise of companies such as Enron and Worldcom, where management's focus and drive was not for creating value but instead for driving accounting earnings, has shown that this leadership is very valuable indeed.

## **Study**

The development in the Finland capital market, both in depth and breadth along with the increased awareness among the shareholders, has increased the pressure on the companies to consistently perform better. One of the indicators of such performance is the Market Value Added (MVA). Literature is replete with studies, which have tried to capture the behavior of MVA. Stewart (1991) claims that EVA is the ultimate proxy of MVA. Following Stewart (1991), several studies examined the relationship between EVA and MVA using the Stern Stewart-1000 data. Most of these studies found evidence to support Stewart's claim.

Despite the popularity of the concept, very few studies have been undertaken to empirically test the ability of EVA to reflect or proxy the MVA of Indian companies. This study makes an attempt to fill the gap.

This study empirically examines the relationship between MVA and EVA of the Finland companies. Though the focus of the paper is the relationship between EVA and MVA, it also tries to understand the relationship between MVA and other common accounting numbers like NOPAT, EVA or EBIT. The study indicates that there is no strong evidence to support Stern Stewart's claim that EVA is superior to the traditional performance measures in its association with MVA.

Following Kramer and Pusher (2001), the information content has been examined using the usual statistical tools like regression and correlation.. In order to study the relationship we determined the following:

- Determined the Coefficient of correlation (  $r$  ) between MVA and EVA & other accounting measures
- Regressed MVA over EVA
- Regressed MVA over NOPAT, EBIT, EVA
- Regressed Change in MVA with the change in other financial indicators

Economic value added (EVA), developed by Stern Stewart &Company, is the difference between the firm's after-tax return on capital and its cost of capital. Stewart(1991) defined EVA as residual return that subtracts the cost of invested capital from net operating profit after tax. EVA is equal to the economic book value of the capital at the beginning of the year and the difference between its return on capital and cost of capital. The concept of EVA helps in understanding the value creation process. Using EVA, one can take the following actions to improve the value created (Damodaran 2000):

- Increasing the operating income from assets in place by reducing costs or increasing sales.

- Reducing the cost of capital by changing the financing mix.
- Reducing the amount of capital tied up in existing projects, without affecting operating income significantly, by reducing working capital investment and selling unutilized assets.

Several authors tried to understand the difference between EVA and other accounting based performance indicators. Uyemura, Kantor, and Petit(1996) explained how EVA differs from the accounting profits. They are of view that the adjustments while determining the EVA, minimizes accounting distortions. O'Hanlon and Peasnell (1996) assert that EVA provides a valuable framework for 'converting wrong accounting' numbers into correct estimates of value. In fact, to compute EVA, Stewart(1994) considers more than 150 adjustments to NOPAT and capital. Most of the adjustments are intended to shifting the traditional accounting closure to economic value accounting. Stewart (1991) defines MVA as the excess of market value of capital (both debt and equity) over the book value of capital. If the MVA is positive, the company has created wealth for its shareholders.

According to Stern and Shiely (2001), to determine the market value, equity is taken at the market price on the date the calculation is made, and debt at book value. The total investment in the company since day one is then calculated as interest-bearing debt and equity, including retained earnings. Present market value is then compared with total investment. If the former amount is greater than the former, the company has created wealth.

While EVA is an accounting-based measure for the corporate performance of one year, MVA is a market generated number. MVA is cumulative measure of the value created by the management in excess of the capital invested. Stern and Shiely (2001) also claim that there is a strong correlation between the change in EVA and change in MVA.

Several studies have documented the relationship between EVA and MVA. Most of the studies have been done using SS-1000 data. The study by Stewart (1991) is the first study which showcases EVA as a proxy for MVA. Using a sample of more than 600 US companies for the period of 1987-88, the author has argued that the ability of change in EVA to explain the change in MVA is quite high. Stern, Stewart, and Chew (1995) reported that the change in EVA over a period of five years explained 50% of the change in MVA.

Stern and Shiely (2001) mentioned in their book, that there is significant link between EVA growth and growth in MVA. There are other studies which have shown the relationship between EVA and the firm values. O'Byrne (1996) studied the information content of EVA and NOPAT and argued that EVA, unlike other earnings measures like NOPAT, net income or earnings per share, is systematically linked to market value and concluded that the EVA outperforms earnings in explaining firms values. Grant (1996) calculates regression statistics between the MVA-to-capital and EVA-to-capital ratios from the data of 983 firms. He finds explanatory levels ( $r^2$ ) of 32% with statistical significance. Milunovich and Tsuei (1996) review the correlation between MVA and several conventional performance measures in the computer industry. They find EVA to correlate somewhat better with MVA than the other measures. Victor (1996) observed that correlation between EVA and MVA is very high. He concluded that any effort to improve EVA would lead to increase in MVA. Lehn and Makhija (1997) studied the relationship between several performance measures and stock return and found that correlation between EVA and return is higher than that of other indicators. The relationship between EVA and MVA in the financial institutions was studied by Uyemura, Kantor, and Pettit(1996) and documented a strong relation between EVA and MVA.

There are several studies, which do not support the strong relation between EVA and MVA. Dodd and Chen (1996) studied the ability of EVA to track stock returns and found that EVA accounts for only 20% in the variations in stock returns, whereas, ROA explains more than 24%. Dodd and Chen (1997) found that the traditional measures, residual income and operating income display a greater ability to explain stock return than EVA. Biddle, Bowen, and Wallace(1997) studied the incremental content and concluded that earnings reflect stock returns better than EVA. The study did not find any evidence to support Stewart's(1991) claim that EVA dominates earnings in relative information content. Also Kramer and Pushner (1997), Easton and Harris (1991) arrived at similar conclusions.

#### Dependent Variable

My dependent variable is MVA. BR-SS survey defines MVA as the value added in excess of economic capital employed.  $MVA = MV \text{ of the firm} - \text{Economic capital}$  Market value of the firm has been taken as the sum of the book value of debt and average market capitalization.

#### Independent Variables

· EVA: EVA is the net operating profit after tax, less the charge on economic capital employed.  $EVA = \text{Net Operating Profits} - \text{Weighted Average Cost of Capital} * \text{Total Capital Employed}$   
NOPAT: Net Operating Profit After Tax. NOPAT is determined on the basis of the accounting profit.  $NOPAT = (\text{PAT} + \text{Non-recurring expenses} + \text{Revenue Expenses on R\&D} + \text{Interest Expense} + \text{Provision for Taxes}) - \text{Non-recurring income} + \text{R\&D Amortisation} - \text{Cash Operating Taxes}$  (source BT-SS Survey)

EBIT: Earnings Before Interest and Tax (PBIT).

#### Change in MVA and EVA

The relationship between the change in EVA and change in MVA was also discussed at length in Stewart (1991). As mentioned earlier, Stewart argued that EVA is the ultimate accounting proxy for MVA. Here we got some interesting results. The change in EVA and NOPAT are of course positively correlated with the change in MVA, but the correlation with  $\Delta EVA$  is higher than that of  $\Delta NOPAT$ . Moreover, the coefficient of determination of  $\Delta EVA$  is also high. This gives an indication that the change in EVA has the higher capability to explain the  $\Delta MVA$ . My evidence supports the Stewart (1991) study. However, the findings of my study differ completely from Kramer and Pushner (2001) who observed a negative correlation between  $\Delta EVA$  and  $\Delta MVA$ .

#### NOPAT and PAT

One of the important items while computing the EVA is the adjusted accounting profit, which is known as NOPAT. In fact, Stewart(1991) have suggested more than 150 adjustments to make accounting profit more reflective of the market. Several studies, (Chen and Dodd (2001), Stewart (2001), gave the following reasons for using NOPAT instead of PAT:

· Charge for debt is not deducted from the income. NOPAT focuses on the operating efficiency of the firm. Analysis of NOPAT throws light on the operating efficiency of the firm without getting affected by the capital structure. Moreover, PAT ignores the return on the equity capital, it is considered to be an incomplete measure of economic reality.



· The second reason is the impact of Generally Accepted Accounting Principles (GAAP). It is often been mentioned that GAAP distorts accounting and in most of the cases, it fails to capture the market. Therefore, the accounting adjustments were suggested to address those distortions. Although EVA is based on the accounting numbers, it is not bound by accounting conventions. The user or the analysts have the freedom to deviate from GAAP, if it can be explained that such deviations will improve its ability to measure the value creation ability of the business. The general aim of the adjustment, according to Young and O'Byrne (2003) is to correct for perceived biases or distortions that arise either because of the tendency of managers to 'game' accounting numbers or because of deficiencies in the GAAP model.

### **Conclusions**

My study indicates that there is no strong evidence to support SS claim that EVA is superior to the traditional performance measures in its association with MVA. NOPAT and EBIT better explain MVA. My findings are also consistent with several prior studies. EBIT emerged as a relatively better explanatory variable.