

New trends in measuring financial performance: Economic Value – Added (EVA)

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Abstract

Traditional measures of corporate performance are many in numbers. But it is argued that, in general, these measures fail to identify the true surplus. Economic Value Added (EVA) is advocated as a new measure of corporate performance that focuses on clear surplus in contrast to the traditionally used profit based indicators. Economic Value Added represents a powerful business tool which, if used correctly, promises to improve firm performance and produce greater returns to shareholders.

EVA is not just another performance measure, but can be the main part of an integrated financial management system, leading to decentralized decision making. Thus, the adoption of EVA should indirectly bring changes in management, which in turn can enhance firm value.

Key words: Financial performance, Traditional measures, Economic Value Added

الملخص:

على الرغم من تعدد القياسات التقليدية للأداء إلا أنها فشلت في التعريف بالفائض الحقيقي، الأمر الذي نبحث فيه القيمة الاقتصادية المضافة باعتبارها مقياس حديث للأداء. القيمة الاقتصادية المضافة تمثل أداة فعالة إذا استعملت بالشكل الصحيح، كما أنها تعد بتحسين الأداء وتحقيق مزيد من العوائد لحملة الأسهم، فهي ليست مجرد قياس للأداء بل أنها يمكن أن تشكل طرفا رئيسيا في نظام الإدارة المالية، بما يقود إلى لا مركزية صنع القرار. فاعتماد طريقة القيمة الاقتصادية المضافة يؤدي وبشكل غير مباشر إلى تغييرات في الإدارة والذي يؤدي بدوره إلى تحسين قيمة الشركة.

الكلمات المفتاحية: الأداء المالي، القياسات التقليدية، القيمة الاقتصادية المضافة

1. Introduction

The performance and competitiveness are the most important words among the companies nowadays. They are essential for the survival of the company, if the company is not competitive on the market, it will not create enough performance to satisfy its shareholders. If the company does not satisfy its shareholders, it can easily lose its value for them and go out the business.

For years, the companies have been measuring their performance by using the traditional performance measures. Traditional financial measures reflect historical performance, having a limited relevance for anticipate the future evolution of performance.

These measures take into account only the effects of using the invested capital into affair and not the cost of capital too. Most companies have superior financial performances, but in fact their activities don't generate value but drive to a permanent loss in value. The modern measures are based on the concept 'to create value' ⁽¹⁾.

Under conventional accounting, most companies appear profitable but many in fact are not. In his *1995 Harvard Business Review Article* "The Information Executives Truly Need," Drucker states, "What we call profits, the money left to service equity, is usually not profit at all. Until a business returns a profit that is greater than its cost of capital, it operates at a loss. Never mind that it pays taxes as if it had a genuine profit. The enterprise still returns less to the economy than it devours in resources....Until then it does not create wealth; it destroys it" ⁽²⁾.

Therefore, the obvious question that should be asked would be: is there a single measure of corporate performance enabling investors to identify investment opportunities and motivate managers to make value-added business decisions?.

The aim of this contribution is trying to answer the above question by introducing a new metric of performance measurement known as "Economic Value Added" which has offered a new way how the value and shareholder value creation can be perceived. EVA has greatly impacted the financial world and has been adopted by hundreds of the companies worldwide. It has provided the shareholders the better way how to measure the true economic performance of the company and bring the closer alignment of managerial and shareholder goals. Thanks to EVA managers have a better idea how to create a shareholder value and motivate its employees.

2. Performance measurement:

From the beginning it is important to understand why measuring an organization's performance is both necessary and vital. An organization operating without a performance measurement system is like an airplane flying without a compass. The purpose of measuring performance is not only to know how a business is performing but also to enable it to perform better. The ultimate aim of implementing a performance measurement system is to improve the performance of an organization so that it may better serve its customers, employees, owners, and stakeholders.

If one "gets" performance measurement right, the data generated will tell the user where the business is, how it is doing, and where it is going. In short, it is a report card for a business that provides users with information on what is working well and what is not.

A performance measurement system enables an organization to plan, measure, and control its performance according to a predefined strategy. In short, it enables a business to achieve desired results and to create shareholder value ⁽³⁾.

The performance of a company gets reflected on its valuation by the capital market. Market valuation reflects investor's perception about the current performance of the company and also their expectation on its future performance. They build their expectations on the estimated growth of the business in terms of return on capital. This results in an incongruence between current performance and the value of the company. Even if the current performance is better in relative terms, poor growth prospects adversely affects the value of the firm. Therefore, any metric of performance, to be effective, should be able to not only capture the current performance but also

should be able to incorporate the direction and magnitude of future growth. Therefore the robustness of a measure is borne out by the degree of correlation the particular metric has with respect to the market valuation ⁽⁴⁾.

Perfect correlation is impossible because as shown by empirical researchers, fundamentals of a company cannot fully explain its market capitalization, other factors such as speculative activities, market sentiments and macro-economic factors influence movement in share prices. However the superiority of a performance metric over others lies in providing better information to investors.

Metrics of performance have a very important and critical role not only in evaluating the current performance of a company but also in achieving high performance and growth in the future. The metrics of performance have a variety of users, which include all the stakeholders whose well being depends on the continued well being of the company. Principal stakeholders are the equity holders, debt holders, management, and suppliers of material and services, employees and the end-users of the products and services. Value creation and maximization depends on the alignment of the various conflicting interests of these stakeholders towards a common goal. This means maximization of the company value without jeopardizing the interests of any of the stakeholders ⁽⁵⁾.

Young and O'Byrne explain the importance of shareholder value creation as well as stakeholder value creation on the claim of Coca-Cola in its 1995 annual report: "Coca-Cola provides value to everyone who touches it." In other words this claim presents the philosophical approaches of Coke's managers. According to their opinions the shareholder value can be delivered only by delivering value to everyone else, because if customers or employees are not satisfied, they can easily change the company ⁽⁶⁾. On the other hand others emphasize that the company should prefer shareholder value creation, because shareholders comprise the main group of stakeholders, they also bear the highest level of risk. In order to create stakeholders value in long term, the first of all the company has to satisfy the requirements of shareholders.

Because of those different approaches it is very important for the company to identify and choose such a metric, which measures the firm value as much as is possible without being biased towards any of the stakeholders. The selection of the appropriate measurement is critical for the success of the firm ⁽⁷⁾.

Accounting measures of performance directly relate to the current net income of a business entity with equity, total assets, net sales or similar surrogates of inputs or outputs. Examples of such measures are Return on Equity (ROE), Return on Assets (ROA) and Operating Profit Margin. Each of these indices measures a different aspect of performance. ROE measures the performance from the perspectives of the equity holders, ROA measures the asset productivity, and operating profit margin reflects the margin generated by the firm from its operation.

It is important to note that none of these measures truly reflect the complete picture by themselves but have to be seen in conjunction with other metrics. These measures are also plagued by the firm level inconsistencies in the accounting figures as well as the inconsistencies in the valuation methods used by accountants in measuring assets, liabilities and income of the firm. Accounting valuation methods are in variance with the methods that are being used to value individual projects and firms. The value of an asset or a firm, which is a collection of assets, is computed by discounting future stream of cash flows. The net present value (NPV) is the surplus that the investment is expected to generate over the cost of capital. Measures of periodical performance of a firm, which is the collection of assets in place, should follow the same underlying principles. Economic value added (EVA) is a measure that captures the valuation principles ⁽⁸⁾.

3. Economic Value Added (EVA) - the concept

Although, the Economic Value Added (EVA) model was thoroughly applied by Stern Stewart & Co., for the first time, in the nineties, a similar concept had been contemplated by economists for many years before that. It was the famous economist Alfred Marshall in 1890, who

first spoke about the notion of economic profit, in terms of the real profit that a company makes when it covers, besides the various operating costs, the cost of its invested capital ⁽⁹⁾.

Economic Value Added approach performance measurement gains a new meaning in contrast with the traditional approach which is merely based on the simple notions of accounting profits and the relevant ratios derived from them, such as the return on equity (ROE) and the return on assets (ROA). The difference is that the traditional performance measurement benchmarks do not consider the cost of invested capital (equity and debt) in order to generate the profits made by a company. Thus, under the traditional approach two companies that have the same ROE would be considered as equally successful, whereas under the EVA approach the same conclusion could not be reached if these two firms had a different cost of capital, in other words if their economic profit or residual income was different ⁽¹⁰⁾.

Based upon the above meaning of economic profit, Stern Stewart & Co, developed the concept of the Economic Value Added Model. The basic difference between the notions of economic value and residual income concerns the method for calculating profits and invested capital. Stern Stewart suggested various adjustments in the financial statements of the firms, in order to move away from the concept of accounting profits and approach the notion of real economic value. Considering this, it follows that, if the EVA model with the adjustments that Stern Stewart proposes is closer to the real economic value of the firm, then its application will enable management to monitor and control more efficiently the use of invested capital ⁽¹¹⁾.

Stern Stewart argues that Economic Value Added is the financial performance measure that comes closer than any other to capturing the true economic profit of an organization, and is the performance measure most directly linked to the creation of shareholder wealth over time. EVA is a measure to assess the extent to which, companies have succeeded in achieving the objective of enhancing shareholders' wealth. EVA is an estimate of the amount by which earnings exceed or fall short of the required minimum rate of return that shareholders and debt holders could get by investing in other securities of comparable risk. In other words, the EVA of the company is just a measure of the incremental return that the investment earns over the market rate of return which means the profitability net of cost of capital ⁽¹²⁾.

4. Computation of Economic Value Added (EVA) :

Lehn and Makhija describe EVA as follows: "EVA and related measures attempt to improve on traditional accounting measures of performance by measuring the economic profits an enterprise- after tax operating profits less the cost of the capital employed to produce those profit" ⁽¹³⁾. In other words EVA is nothing but the residual income after factoring the cost of capital into net operating profit after tax.

$$\text{EVA} = \text{Net Operating Profit After Taxes} - (\text{Capital} \times \text{Cost of Capital})$$

Or: $\text{EVA} = (\text{ROIC} - \text{WACC}) \times \text{IC}$, where

ROIC = return on invested capital

WACC = Weighted Average Cost of Capital

IC = Invested Capital (at the beginning of the year)

The ROIC minus the WACC is also called the "return spread". If the return spread is positive, it means the company is generating surplus returns above its cost of capital and this translates into a higher market value added.

EVA can be improved by following means ⁽¹⁴⁾:

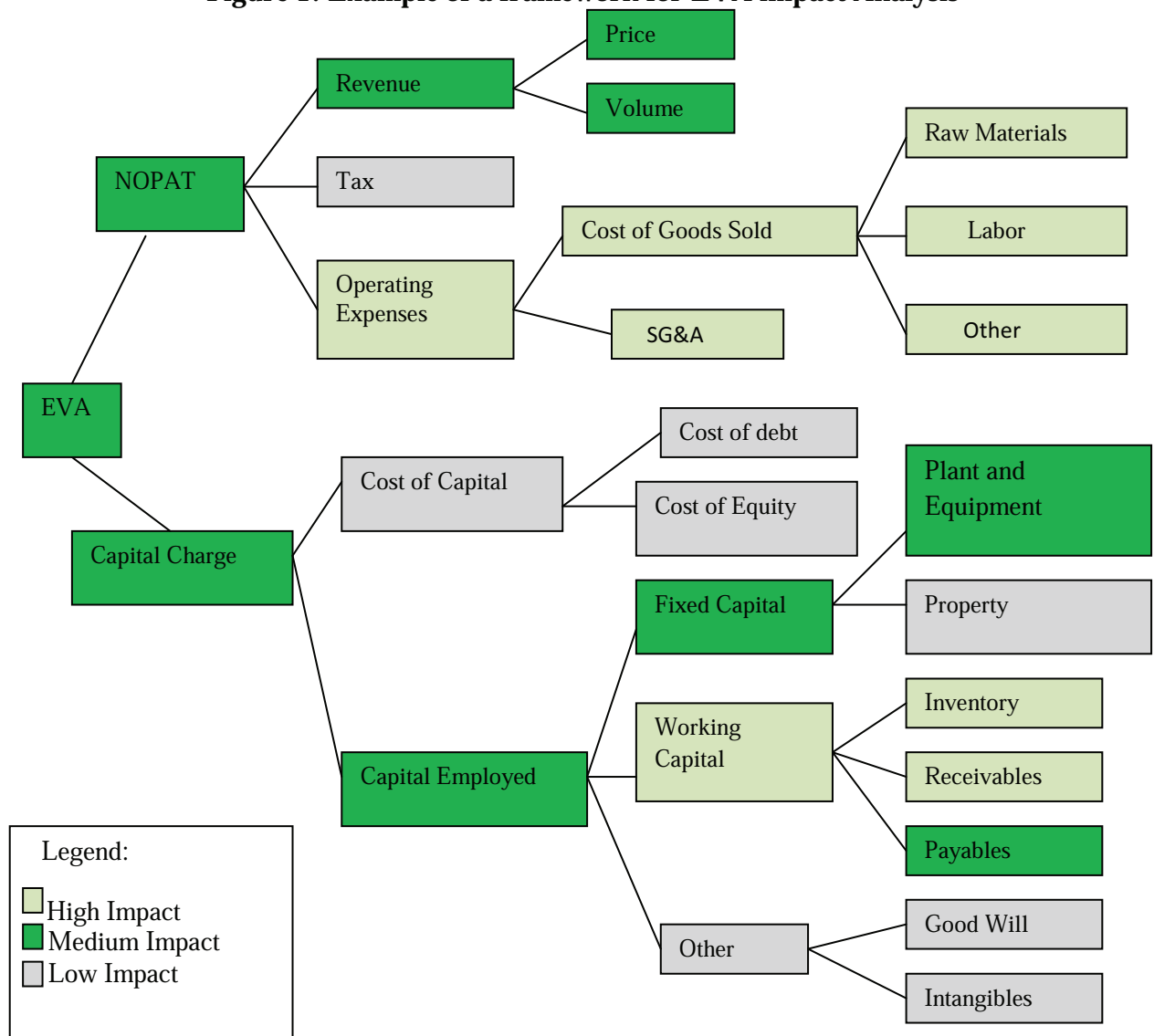
- Improve returns (ROIC) with the existing capital (IC)
- Employ capital productively- It means to employ less capital (IC) and earn the given returns (ROIC)

- Reduce the capital cost (WACC) with a given level of capital (IC) and given level of net operating profit (NOPAT)

This idea helps managers integrate two basic principles of finance into their daily decision-making. First, the primary financial objective of all companies should be to maximise shareholder wealth. Second, the value of a company is based on investors' expectations of future earnings exceeding or falling short of the cost of capital. The cost of capital is a decisive measure pertaining to computing EVA. The cost of capital is the rate of return a company would expect to receive had they invested in a different venue with a similar risk (Cost of Capital). This amount is the figure that determines whether a corporation is performing well or badly. Although it may appear to be a cash cost, it is actually an opportunity cost. Calculating the trade-off between risk and reward derives an opportunity cost. The cost of capital consists of a risk free rate of return and a risk premium.

A more detailed view of the EVA framework and impact analysis is provided below. The figure below (for a manufacturing organisation) shows the area that have the highest impact on EVA – those being operating expenses and working capital.

Figure 1: Example of a framework for EVA impact Analysis



Source: Demystifying EVA and EVA Implementation, Finegan and Company, LLC. Presentation at Icelandic Management Association EVA Conference, November, 1999.

Using a numerical example, we may better clarify the calculation of EVA. Table 1 shows the calculation of EVA in a company experiencing growth. The right side depicts what happens to the company's financials when it uses capital to fund growth at a rate less than the cost of capital.

Table 1: EVA Calculation (unity DA)

Sales	200		400	
Operating costs	160	—	320	—
Operating profit before tax	40	—	80	—
Tax at 40%	16		32	
NOPAT	24		48	
		—		—
Loans	80		200	
Shareholders' equity	160		400	
Capital	240		600	

Looking at the Sales and Net operating profit after tax (NOPAT), the company appears to be in a better position. However, EVA becomes significantly less as it decreases from breakeven to a 12 loss. The 360 additional capital investment to fund growth only increases NOPAT by 24. As such, management is earning 6.7 % on its investments when the company's investors could have earned 10 % in the market.

5. EVA as a management compensation tool

EVA is not just a performance measurement tool, it also plays very important role in the incentive compensation system. The main goal of the incentive compensation system is to ensure the alignment of management and shareholders interests.

Very often the managers prefer to create a profit in short term than create shareholder value over the long term and value is destroyed. EVA ensures closer alignment with shareholder value than any other traditional measurement, because it recognizes the cost of capital.

In other words, compensation methods based on EVA work better in achieving the objective of goal congruence and minimize the agency cost. Use of EVA improves 'internal corporate governance' in the sense that it motivates manager to get rid of value destructive activities and to invest only in those projects that are expected to enhance shareholder value⁽¹⁵⁾.

Ideally, a management control system should motivate managers for 'self control' rather than managers are being controlled because human beings have general resistance to controls. Linking compensation with EVA helps employees in conducting a self-examination of every action taken by them to ensure that it enhances EVA of the firm. Care should be taken to tie compensation to the enhancement of long term EVA rather than short term EVA. As discussed earlier, managers do have scope to enhance the short term EVA at the cost of long term value creation by rejecting good investment opportunities that have long gestation period or, avoiding discretionary costs or by targeting a capital structure that might reduce the WACC in the short run while enhancing the

financial risk in the long run. One way to counter to counter this limitation is to defer payment of a part of incentives⁽¹⁶⁾.

Therefore, EVA has to be incorporated into the incentive compensation system within a long term period. Otherwise, current EVA could be improved at expenses of future EVA and shareholder value.

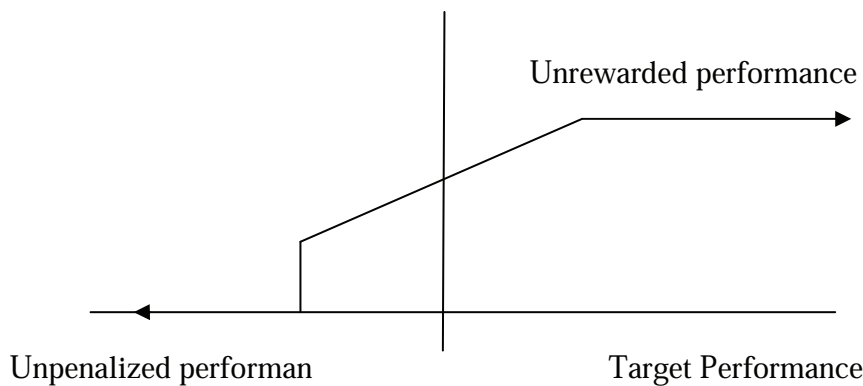
Empirical evidence supports the above observations. Empirical studies concluded that EVA, when used as an incentive compensation measure, tends to improve the value of the firm by inducing managers towards value creating activities .

In short, the EVA bonus plan tries to balance four objectives of management compensation: to align the interests of managers and owners; to provide managers with enough incentives (leverage); to limit retention risk; and to limit shareholder costs associated with the compensation plan⁽¹⁷⁾.

5.1 Traditional Bonus Plan

Traditional bonus plan is the most popular approach among the European firms. A bonus is paid out upon achievement of a given performance target with a limit on the upside (cap) and the downside (floor). The floor is meant to avoid “negative” bonuses and thus limit retention risk, while the cap is meant to limit shareholder cost, or the risk of paying too much when the stock price is not doing well⁽¹⁸⁾.

Figure 2: Traditional Bonus Plan



Source: S. David Young and Stephen F. O’Byrne, *EVA and Value-Based Management* (McGraw-Hill, 2001), p 132, reproduced with permission of the McGraw-Hill companies.

This bonus scheme has limitations: First, caps limit incentives for exceptional performance and floors limit penalties for mediocre performance, thereby reducing the intensity of the pay-to-performance relation. Second, these thresholds, combined with negotiated targets, encourage short-term gaming. When performance is already above the cap, managers will have an incentive to defer any additional profit opportunity to the next period, since they will not be rewarded for it and they may be penalized through a higher target the next period⁽¹⁹⁾. Conversely, when it is clear that performance will be below the floor, managers will have an incentive to report even lower performance, since they will not be penalized further for it and may actually be rewarded through a lower target the subsequent period.

5.2 EVA Based Bonus Plan

EVA proponents recommend removing caps and floors, using objective targets delinked from the budget negotiation process and avoiding yearly resetting of the targets. In essence, the objective

of the EVA bonus plan is to replicate the features of equity-based compensation (unlimited upside and downside incentives, objective external targets, high correlation with shareholder value, no accounting distortions) while preserving the line-of-sight feature of an operating performance bonus plan, less affected by factors outside management's control

5.2.1 Early Versions of EVA Bonus Plans⁽²⁰⁾.

The original EVA-based bonus plans were designed to be as straight-forward as the metric they were based upon. Quite simply, under these early plans management received a fixed percentage of EVA earned⁽²¹⁾.

$$Bonus = X\% * EVA$$

Relative to traditional bonus schemes, this plan provides stronger leverage (through the uncapped fixed percentage interest) and removes the negative incentives associated with the presence of a cap. However, it presents the following problems:

❖ *Mismeasurement of EVA*: If EVA is not measured properly, this type of plan may become too costly to shareholders. For example, if capital reflects historical book values rather than the market value of assets in place, EVA will be positive even if investors are not receiving a fair return on the value of the assets in place

❖ *Accounting for Future Growth*: Even when EVA on assets in place is measured perfectly, this plan does not take into account the fact that the market value of a firm reflects not only the value of the assets in place but also the value of future growth opportunities⁽²²⁾. Since shareholders pay for both components of firm value, they expect a return of the full market value of their investment—assets in place and future growth opportunities. A positive EVA only ensures that the firm is delivering on the first component and, thus, it may be accompanied by a stock price decline. As a result, this bonus plan could impose excessive costs on shareholders and would not be as “self-financing” as its formula would suggest. Conversely, negative EVA may be accompanied by a stock price increase due to the creation of future growth opportunities, but this plan would not provide for any bonus opportunities at negative-EVA firms

❖ *The Incentive to “Shift” EVA*: The presence of a floor (implicitly set at zero EVA) effectively makes the plan an option on “good” years (i.e., years with positive EVA), thereby encouraging the shifting of EVA across periods and resulting in higher effective cost to shareholders⁽²³⁾.

5.2.2 Recent Version of EVA Bonus Plans

Under characteristic modern EVA bonus plans, the bonus earned by a manager is equal to the sum of a target bonus plus a fixed share of excess EVA improvement, that is, the difference between the actual change in EVA (ΔEVA) and an expected improvement in EVA (EI).

$$Bonus = Target\ bonus + y\ \% (\Delta\ EVA - EI)$$

Where:

The **Target Bonus** is the bonus earned by a manager for delivering the EVA improvement that is expected by investors (to be determined by the compensation committee prior to the performance period). This expected EVA improvement should be equivalent to the EVA that will provide shareholders with a cost-of-capital return on the market value of their investment in the business. Proponents of this approach explain that “a target bonus is necessary to make the bonus plan consistent with the labor market practice of paying a substantial bonus for normal or expected

performance”⁽²⁴⁾. This is a target based on peer company compensation practices, but should be larger than conventional target bonuses for two reasons. First, a larger bonus is required to provide more leverage and second, the potential for negative bonuses makes EVA plans riskier⁽²⁵⁾.

The **change in EVA less Expected EVA improvement** is meant to capture the incremental EVA that a manager has delivered above and beyond the EVA growth that investors expect and have already paid for. The percentage of the incremental performance (y%) that is returned to management is also established by the compensation committee.

This plan states that managers should receive a target bonus for “normal” performance (when actual changes in EVA are equal to the expected improvement, i.e., $\Delta EVA - EI = 0$), while they should get rewarded (penalized) for superior (inferior) performance, with no limits on the upside or downside.

The explicit introduction of the notion of expected performance allows the modern EVA bonus plan to deal with the fact that the market value of a firm reflects not only the value of the assets in place but also the value of future growth opportunities. The inclusion of the EI allows for a better alignment between returns to managers (bonuses) and returns to investors.

A numerical example should help to clarify exactly how the above bonus formula works. Below, we have outlined the beginning and end of period EVA performance for four very different business units that might be a part of the same corporation. We have assumed that the target bonus for each BU manager is 100.000DA and the y% is 2%:

Table 2 : Total Bonus Calculation (unity DA)

	BU A	BU B	BU C	BU D
Beginning of period EVA	40M	(40M)	80M	20M
End of period EVA	60M	(10M)	100M	24M
Incremental EVA delivered	20M	30M	20M	4M
Expected EVA improvement	10M	10M	20M	10M
Achieved Expected EVA improvement?	Yes	Yes	Yes	No
Target Bonus	100.000	100.000	100.000	0
Incremental Bonus	$(20M - 10M) * 2\% = 200.000$	$(30M - 10M) * 2\% = 400.000$	$(20M - 20M) * 2\% = 0$	$(4M - 10M) * 2\% = (120.000)$
Total Bonus	300.000	500.000	100.000	(120.000)

Source: Prepared by the researchers

As it is shown from the illustration, this approach has a number of benefits. First, it does not differentiate between economically profitable and unprofitable businesses. In fact, despite ending the period with negative EVA, because the manager of BU B was able to deliver the highest EVA improvement relative to expectations, he was rewarded with the highest bonus. In contrast, despite managing a positive EVA business, the manager of BU D did not receive a bonus as he did not deliver the minimum EVA improvement expected by investors (despite delivering some EVA improvement). Second, the size of the EVA improvement in itself is not important – it is the size of

this improvement relative to expectations. The managers for BU A and BU C both delivered an incremental 10M in EVA, but the manager for BU C did not receive an incremental bonus since this 10M was exactly what investors expected the business to deliver. Another interesting feature is the ability to earn a negative bonus, just as an individual's investment in BU D would have lost value during this period.

A critical dimension of this structure lies in the fact that it is uncapped on both the upside and the downside to best replicate the incentives of ownership. While this approach may potentially result in large payouts, G. Bennett Stewart points out that these payouts can be easily afforded by shareholders because "they are automatically self-funding"⁽²⁶⁾.

6. The link between EVA and Market Value Added (MVA)

A company's total market value is equal to the sum of the market value of its equity and the market value of its debt. In theory, this amount is what can be 'taken out' of the company at any given time. The market value added (MVA) is the difference between the total market value of the company and the economic capital⁽²⁷⁾. The economic capital, also called the invested capital (IC), is the amount that is 'put into' the company and it basically refers to the fixed assets plus the net working capital.

$$MVA = \text{Market value of company} - IC$$

From an investor's point of view, MVA is the best external measure of a company's performance. Stewart⁽²⁸⁾ states that MVA is a cumulative measure of corporate performance and that it represents the stock market's assessment from a particular time onwards of the net present value (NPV) of all a company's past and projected capital projects. The MVA is calculated at a given moment, but, in order to assess performance over time, the difference or change in MVA from one date to another can be determined to see whether value has been created or destroyed.

EVA is an internal measure of performance that determines MVA. Stewart⁽²⁹⁾ defines EVA as follows: 'Company's EVA is the fuel that fires up its MVA.' EVA takes into account the full cost of capital, including the cost of equity.

The link between EVA and MVA is that MVA is the present value of all the future EVAs a company is expected to generate, discounted at the WACC:

$$MVA = PV(\text{all future EVAs})$$

It therefore stands to reason that the external measure of performance (MVA) can be maximized by maximizing the internal measure of performance, the EVA.

7. Studies in support of EVA as the best driver of MVA

A number of studies have been conducted to establish the relationship between EVA and MVA.

- Stern's comparison of EVA with popular accounting measures:

Stern⁽³⁰⁾ argues that the key operating measure of corporate performance is not popular accounting measures such as earnings, earnings growth, dividends, and dividend growth, ROE, or even cash flow, but in fact EVA. The changes in the market value of a selected group of companies (specifically their MVAs) have been shown to have a relatively low correlation with the above accounting measures. His research showed that the r^2 for the relationship between MVA and various independent variables ranged from 9% for turnover growth to 25% for ROE rates. By comparison, the r^2 for EVA relative to MVA was 50%. All the results were based on averages and they are set out in table 3.

Table 3 MVA vs. other financial performance measures

Correlation with MVA	r ²
EVA	50%
ROE	25%
Cash flow growth	22%
EPS growth	18%
Asset growth	18%
Dividend growth	16%
Turnover growth	9%

Source: Stern, J. Value and people management. Corporate Finance, July, 1993 p37.

- *Uyemura et al. EVA and wealth creation*

Uyemura et al. ⁽³¹⁾ used a sample of the 100 largest US banks for the ten –year period from 1986 to 1995 to calculate MVA and to test the correlation with EVA, as well as four other accounting measures, namely net income (amount), EPS, ROE and ROA. The results of their regression analysis are set out in table4.

Table 4 Correlation of different performance measures with shareholder wealth

Performance measure	r ²
EVA	40%
ROA	13%
ROE	10%
Net income (amount)	8%
EPS	6%

Source: Uyemura, D.G., Kantor, C.C. & Pettit, J.M. EVA for banks: value creation, risk management, and profitability measurement. Journal of Applied Corporate Finance, Summer 1996.

The analysis above clearly shows that EVA is the measure that correlates the best by far with shareholder wealth creation. In an alternative approach where changes in the performance were regressed against standardized MVA, the results were not very different, Standardized EVA (EVA divided by capital) again had an r² of 40%, while for ROA it was 25%, for ROE it was 21%, for net income it was 3% and for EPS it was 6%.

- *C. Milunovich and Tsuei's study on the use of EVA and MVA in the US computer industry*

Milunovich and Tsuei ⁽³²⁾ investigated the correlation between frequently used financial measures (including EVA) and the MVA of companies in the US computer technology industry (so-called 'server-vendor') for the period from 1990 to 1995.

The results of their study are set out in table 5

Table 5 Correlation of different performance measures with MVA in the US computer technology industry

Performance measure	r ²
EVA	42%

EPS growth	34%
ROE	29%
Free cash growth	25%
FCF	18%

Source: Milunovich, S. & Tsuei, EVA in the computer industry. Journal of Applied Corporate Finance, Spring 1996 p115.

Clearly, EVA demonstrated the best correlation and it would be fair to infer that a company that can consistently improve its EVA should be able to boost its MVA and therefore its shareholder value. Milunovich and Tsuei argue that the relatively weak correlation between MVA and FCF is due to the fact that FCF can be a misleading indicator. They point out that a fast-growing technology star-up company with positive EVA investment opportunities and a loss-making company on the verge of bankruptcy can have similar negative cash flows. They concluded that growth in earnings is not enough to create value, unless returns are above the cost of capital. They are of the opinion that EVA works best as a supplement to other measures when one is evaluating shares and that EVA sometimes works when other measures fail.

8. Conclusion

Economic Value Added is a topic that encompasses all levels of business operations. It is imperative that measures be taken to ensure all members of a company are committed to the principles of EVA. EVA is more than a performance measure; it is the focal point of management system and a mindset. EVA affords the company the ability to establish clear, accountable links between strategic thinking, capital investment, day-to-day operating decisions, and shareholder value.

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- (18) An above-target current operating performance may be accompanied by a stock price decline if achieved at the expense of expected future performance, if it is merely the result of accounting manipulation, or if the performance target was set too low relative to investors' expectations.
- (19) Since the new threshold is based on the performance from the last period.
- (20) For a more detailed account of the evolution of EVA bonus plans, see S. David Young and Stephen F. O'Byrne, EVA and Value-Based Management (McGraw-Hill, 2001), Chapter 4.
- (21) General Motors adopted such a plan in 1922 by giving managers a bonus of 10% of the profit earned above the 7% cost of capital. This plan remained in place for 25 years(7). In effect, management got 10% and shareholders 90% of the profit after deducting a salary for management and a minimum return for shareholders.
- (22) Firm Value = Value of Assets in Place + value of Future Growth Opportunities
- (23) Assume that the bonus plan provides for a payout equal to 5% of EVA. If the firm reports EVA of 100 in year 1 and 100 in year 2, the cumulative EVA is 200 and the cumulative bonus is $(100 \times 5\%) + (100 \times 5\%) = 10$. Hence, the effective cumulative bonus is 5% of cumulative EVA (10/200), consistent with the bonus formula. The alignment of interest is preserved. Now assume that the firm reports EVA of - 100 in year 1 and +300 in year 2, the cumulative EVA is still 200 but the cumulative bonus is $(-100 \times 5\%) + (300 \times 5\%) = 15$. Hence, the effective cumulative bonus is 7.5% of cumulative EVA (15/200), higher than the nominal 5% suggested by the plan formula. Given this payoff function, there is a clear incentive to "spread" the cumulative EVA so as to maximize positive EVA in good years.

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