

Editorial

Performance Management Measures that Enhance Organisational Value: A Review

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Abstract

Corporate financial performance, measured either in terms of profitability or return on capital invested (ROI) has been viewed as inadequate as firms began focusing on shareholder value as the primary long-term objective of the organisation. Subsequently, financial-based value measures and value-metrics were devised that explicitly acknowledged that both equity and debt have costs, and thus there was a need to incorporate financing risk-return into performance calculations.

In more recent times, however, the importance of evaluating a firm's performance in executing its strategies was recognised, and financial measures alone (be they profitability measures or value measures) were seen as inadequate to evaluate the totality of performance against strategic objectives. Non-financial measures and non-traditional valuation approaches to performance management and value creation were seen as equally important. Two such approaches, the Balance Scorecard (BSC) framework and the CEVITATM measure are discussed in this paper, the latter based on the underlying premise that an organisation's value is not based on what it has (its assets) but what it can do with both its tangible and intangible assets (i.e. its capability) in the execution of its strategies.

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Keywords

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Strategic Value Added (SVA)
Balanced Scorecard (BSC)
Capability Economic Value (CEVITATM)

Introduction

“Goals and objectives are the starting point for determining what performance measurements are needed in an organisation” Muse (2000).

Performance measurement is a crucial activity for organisations to do well. It plays a critical part in crafting strategy, evaluating past performance and remunerating managers (Ittner and Larcker, 1998). Thus, financial performance measurement is central to guiding decision-making (Copeland, 2002) - a key role of the management accountant – which is very necessary to focus an organisation's employees on improving results.

The overall goal of most firms is (still) to maximise profits (see Kimball, 1998; Stead, 1995; Soenen and Jung, 2002). Often this is because the compensation system is geared towards rewarding the achievement of profit targets. Ideally, however, performance measurement systems should be designed to overcome the temptation of managers to maximise short-term profits and instead seek to improve the long-term financial health of the firm (Baye, 2003; Kimball, 1998).

While there are numerous measures of an organisation's financial performance, the most informative are those that reflect the aspects of profitability and capital employed (Keef and Roush, 2001). However, most managers understand the income statement of a company and its associated measures (EBIT, Net Income,

Net Profit¹ and Profit Margin) more so than values of the company represented in its Balance Sheet (Scott, 2001; Hammond, 1998). Since managers may have difficulty in appreciating the relationship between the two statements this may be a reason that the most commonly used measures of financial performance are, Net Profit and Sales (Ayadi, Dubrene and Obi, 1996; Kelly and O'Connor, 1997).

This paper aims to address three objectives:

Objective 1: To illustrate similarities and differences between the performance measures mentioned in the financial statements and review and contrast their relative usefulness to organisations. To this end, the performance measures are grouped into 'traditional accounting-based financial performance measures' (i.e. ROI, Net Profit and Net Income) and 'Value Measures' (i.e. Residual Income, Economic Profit and Strategic Value).

Objective 2: To compare the traditional accounting based measure of financial performance and the newer value-based measures, in terms of Altman's significant predictors of financial distress. In so doing, an attempt is made to judge how these differing financial performance measures facilitate organisations' critical object of sustaining overall financial health.

Objective 3: To extend the concept of performance measurement acknowledging that that managers have become aware of the need to link non-financial indicators of operational performance to organisation's financial performance and to recognise that it is the 'capability' of an organisation to execute its strategies that provide long-term value. Because strategies implemented today require a 'gestation' period before results are seen in financial performance measures, firms are interested in tracing a cause and effect linkage between current strategies and tactics through to financial

measures to determine if they are creating shareholder value. One such methodology that will be discussed is the Balance Scorecard framework and the other the CEVITATM approach to value organisational capabilities.

Performance Measurement Metrics

Traditional Financial Accounting Based Measures

"Business performance measurement used to be a simple affair. Aggregate financial measures such as ROI and EPS provided simple, if crude, indicators of a firm's achievements" (Carlin, 1999).

Traditionally, performance measurement has emphasised accounting earnings with the argument that a firm's earnings is an indicator into its current and potential cash generating ability (Chen and Dodd, 2001). However, many criticise these measures as being flawed because they do not consider the capital and resources needed to generate that income (see Chen and Dodd, 2001; Ittner and Larcker, 1998, Litman and Welling, 2002). To overcome this issue, companies began calculating *Return on Investment* (ROI)² which compares operating income to invested capital linking the Income Statement with the Balance Sheet (see Brewer, et. al, 1999).

In calculating ROI, accountants consider two types of investment: Equity and Total Assets. *Return on Total Assets* is a wider measure than *Return on Equity* that can be represented by Equation 1:

Equation 1: $ROA = \text{Net Income} / \text{Average Total Assets}$

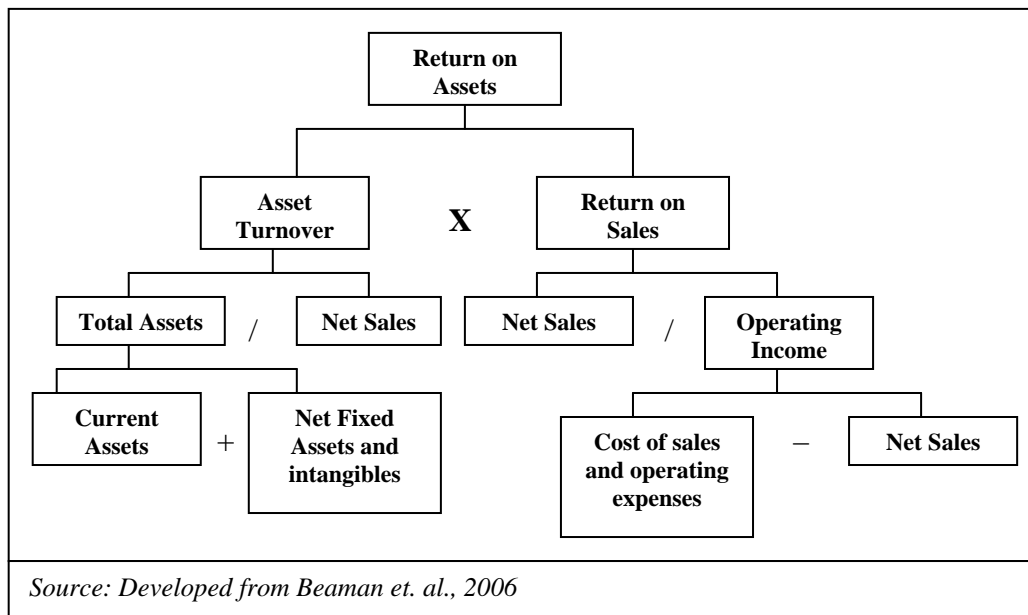
² It should be highlighted up front that there is no standard definition. For example, what should be included in the profit calculation and what should be included in the denominator (capital) - should it include debt and minority interests or not? (see Gardiner & Bagshaw, 1997). This complication resulting for accounting differences (which is derived from the leeway provided by the GAAP) amongst companies is addressed in Appendix 1.

¹ Damodaran (<http://pages.stern.nyu.edu/~adamodar/>) defines Net Profit to be Net Income less expenses not associated with operations and changes in accounting methods. Net Income he defines as operating income (EBIT) less interest expenses and taxes.

The benefit of the ROA measure is that it incorporates the operating aspects into a single performance measure (Beaman, et. al, 2006). The company Du Pont introduced the ROI measure in the early 1900s (Brewer, et.al, 1999) and developed what has become known as the Du-Pont Ratio

Tree (See Figure One) from which managers are able to identify the means to improve their ROA statistic, and the subsequent decisions for improving their performance as measured by ROA.

Figure One: Du-Pont Ratio Tree



Though *Return on Investment* is a fundamental measure of performance that has become a primary criteria in investment and management decisions (Stead, 1995), the use of these traditional accounting-based measures has some fundamental problems with respect to the way they are reported in financial statements, and, may lead to some behavioural problems with respect to the managers who are measured against them (for an overview of the perceived problems with accounting based measures see Appendix 1). Further, Ramezani, et. al., (2002) emphasise that management incentives are often linked to management's ability to beat ROI, but this lacks a mechanism for judging whether their activities create returns to shareholders³.

³ Moreover, traditional accounting based financial performance measures are thought to be inadequate in today's economy where intangible assets become a primary source of competitive advantage (see Upton, 2001, Ratnatunga, 2002)

Traditional Value-Based Measures

The value of a firm is a function of future cash flows and the cost of capital. While, the accounting based measures of performance reward managers for exceeding a budgeted ROI or Net Profit targets, this can often be achieved by making decisions that do not optimise value. Value based measures have become popular because they reward managers for investing in projects where the expected future cash flows exceeds the cost of capital (Calabrese, 1999; Ramazani et. al, 2002), and since this, by definition, means that the returns will be better than the returns shareholders can get in any 'risk' comparable investment, then shareholder wealth will be maximised. Three popular measures, *Net Present Value* (NPV), *Economic Profit* (EP) and *Residual Income* (RI) are briefly summarised now.

Net Present Value (NPV)

The first value measure to address is *Net Present Value* (NPV) which, is a capital investment tool used to discount the future cash flows of an investment into present day dollars by applying a discount rate equal to the *Weighted Average Cost of Capital* (WACC⁴). Comparing this calculated NPV with the initial capital outlay determines whether the investment creates value or not. The importance of this to performance measurement is that since the primary goal of an organisation is to maximise shareholder value, the fundamental method of calculating value is by incorporating a NPV model into the decision making process. It is here that the future oriented role of the management accountant is highlighted in the area of performance management, in providing decision making information to enhance future net-cash flows and obtain finance at the lowest possible cost.

Economic Profit and Residual Income

Economic Profit (EP) as defined by economists is total revenue minus opportunity cost where opportunity cost is the explicit (accounting costs) and implicit costs, which are the costs of not pursuing the next best alternative (Bayer, 2003). In the business world, these implicit costs are generally considered to be the cost of capital (Kimball, 1998).

Peter Drucker (1995) cited in Calabrese, (1999), nicely summed up the difference between accounting profits and EPs when he said, “*What we generally call profits, the money left to service equity, is usually not profits at all. Until a business returns a profit that is greater than the cost of capital, it operates at a loss.*”

EP is a dollar (or absolute) measure calculated as shown in Equation 2:

Equation 2: $EP = \text{after-tax operating income} - (\text{capital invested} * \text{cost of capital})$

⁴ The weighted average cost of the different means of financing capital (i.e. Equity and Debt)

EP differs from Net Income because it includes the total cost of debt and equity whereas Net Income includes only the interest expense associated with debt (Chen and Dodd, 2001). Therefore, the significance of EP to financial performance measurement is that it reveals the net contribution to value.

Residual Income (RI) is an accounting application of the EP concept. McKinsey and Company use EP as a performance measurement. It can be shown the way they define EP (Equation 3) is that it can be estimated by the difference between ROI⁵ and the cost of capital and is essentially a version of Residual Income (Chen and Dodd, 2001):

Equation 3: $EP = (ROI - \text{Cost of capital}) * \text{Capital Invested} = \text{Residual Income}.$

The popular *Economic Value Added* (EVA[®]) measure developed by 1980s by New York consultants Stern Stewart and Co., as an indicator of returns to shareholders is often seen as an extension of the EP concept. These ‘Value-Metric’ performance measurement approaches will be discussed next.

Recent Financial-Based Value Metrics

“*The fact is, EVA, CFROI, and all the others are premised on fundamental economics that 20 years ago was called Residual Income*” (Myers, 1996, p. 50)

One of the criticisms of using accounting based measures as financial performance measures is that they are historical in nature and do not reflect a firms strategic investments which are necessary for future success (Baye, 2003; Upton, 2001) and are the foundation of a firm’s value (see Damodaran, 2008; Clarke, 2000). For example, it is critical for business survival

⁵ Since McKinsey’s calculation of Economic Profit consists of the ROI measurement, we can see how Economic Profit and ROI are linked through the return on capital employed, but differ through the application of cost of capital to determine the Economic Profit.

that firms invest in R&D for future growth (Grant, 2003), yet traditional measures such as ROI are poor at reflecting R&D appropriately (Ayadi, et. al, 1996) and in fact may report negatively on managers.

Drawn from EP and RI concepts, value analysis focuses primarily on the economic rather than the accounting principles (Mills and Print, 1995; Ramezani et al., 2002) and is considered by Mills (1995) to link finance to strategy⁶, thus providing a future orientation to performance measurement.

Interest in value-based measures created a consultants field day in developing “new glamour metrics” (Myers, 1996, p. 41) and a proliferation of metric acronyms. For example there is Stern Stewart’s *Economic Value Added* (EVA[®]) and the spin off *Market Value Added* (MVA), HOLT value associate’s *Cash Flow Return on Investment* (CFROI)⁷, Boston Consulting Group’s combination of CFROI and a concept called *Total Business Return* (TBR), and LEK/Alcar Consulting Group’s *Shareholder Value Added* (Myers, 1996). Despite the many strategic value performance metrics, this editorial shall limit its discussion to EVA[®] and *Strategic Value Analysis* (SVA).

Economic Value Added (EVA[®])

Though the concept of EP has been known for decades and RI has its origins in a paper published in 1890 (Skinner, 1993 cited in Keef and Roush, 2001), it has recently been made popular as a performance measurement metric by Stern Stewart in a calculation that they term Economic Value Added (EVA[®]) (Keef and Roush, 2001; Myers, 1996). In practical application, though EVA is a relatively new measurement that approximates EP

(Kimball, 1998), its predecessor RI (Ittner and Larcker, 1998), was implemented by General Motors in the 1950s (Brewer, et.al., 1999). Chen and Dodd (2001) comment that “conceptually, there appears to be no difference between RI and EVA[®]” (p.70) save for the 160 plus accounting adjustments that advocates say overcomes the accounting distortions introduced by GAAP (Dodd and Johns, 1999). These accounting adjustments are necessary because EVA[®], and other measures of RI, depend on accurate measures of economic income and investment; and thus accounting biases should be identified and eliminated before judging or rewarding performance (Bayer, 2003).

Equation 4:

$$EVA^{\circ} = \text{Net Operating Profit after Tax (NOPAT)} - (\text{Total Invested Capital} * \text{Cost of Capital})$$

Damodaran (2008) considers EVA[®] to be a “throwback to the net present value rule”, and shows mathematically that the present value of the EVA[®] of a project over its life is the NPV of the project. Logically, since there is a link between EVA[®] and NPV, and NPV is the fundamental basis of valuation of any asset (including a company), then the value of the firm can be linked to the EVA[®] added by it. Thus, maximising EVA[®] will be consistent with maximising firm value and subsequently, shareholder value.

Note from Equation 4 it can be seen that if profit is greater than the capital charge, then economic value has been added. Therefore, Scott (2001) put forward that there are four key drivers of EVA[®]:

1. Net Operating Profit after Tax (Revenue – Total Costs)
2. Total Assets (Working Capital + Fixed Assets)
3. Total Capital (Equity + Long-Term Loan)⁸
4. Cost of Capital Charge

⁶ Where strategies are formulated to maximise a firm’s chance of success in an uncertain future and represents the firm’s “quest of profits [value]” (Grant, 2003, p. 23)

⁷ Cash Flow Return On Investment (CFROI) is a value-based performance measure introduced by HOLT Consulting which is an efficiency measure comparing cash flows with the total assets employed to generate those cash flows.

⁸ Because Total Assets will be bought with Total Capital (Equity plus Debt), Total Assets = Total Capital

Table 1: Strategic Value Analysis Drivers

Categories		Driver
1	Operating Decision	Sales Growth Rate
2	Operating Decision	Operating Profit Margin
3	Operating Decision	Cash Tax Rate
4	Investment Decision	Fixed Capital Needs
5	Investment Decision	Working Capital Needs
6	Financing Decision	Cost of Capital
7	Financing Decision	Planning period
<i>The operating and investment decision, together, approximate a firm's free cash flow</i>		
Source: Adapted from Clarke, 2000		

Subsequently, the decisions managers will consider when attempting to increase EVA[®] will include (Scott, 2001):

1. Improving NOPAT relative to Total Assets (i.e. increase revenue, profit margins or decrease costs)
2. Dispose of assets returning less than the cost of capital (i.e. sell marginal fixed assets and/or reduce working capital)
3. Invest in assets that will return more than the cost of capital
4. Reduce the cost of capital.

It is EVA[®]'s ability to be tied into manager's incentive schemes via undertaking value enhancing actions that adds to its appeal to business (see Grant, 2003). The management accountant provides much of the decision oriented information requires for such value enhancing actions. Further, the management accountant will subsequently evaluate the resultant performance in of such actions and the effect of such on managers' compensation plans.

Strategic Value Analysis (SVA)

SVA is comprised of seven value drivers that can be grouped into three categories: operating, investing and financing (Clarke, 2000). Mills and Print (1995) illustrate how SVA can be viewed in terms of EVA[®]⁹ but

“draws them [the value drivers] together somewhat differently”. Table 1 outlines these drivers.

While EVA[®] measures performance from a corporate finance perspective (Ramezani, et al., 2002), SVA looks upon performance from a shareholder wealth creation perspective. Despite the different perspectives of EVA[®] and SVA, because the present value of EVA[®] over a project's life is equivalent to the NPV of a project and SVA is built on the assumption that the value of a business is the present value of its future cash flows, it is not surprising that given the same inputs, the two measures yield the same result (Mills and Print, 1995; Myers, 1996).

A benefit of SVA over EVA[®] is from the linking of decisions, over the planning period, to the key value drivers which encourages managers to plan as far into the future as possible¹⁰ to maximise the value of strategic decisions compared with the continuing value of the firm. To illustrate this, Clarke (2000) provides the example of an increase in sales volume (usually seen as desirable) that may destroy value because of the additional working capital needs.

⁹ See Mills and Print (1995) for details

¹⁰ This should be balanced with the need to allow for emergent strategies. Therefore, managers need to be realistic in their stated planning period.

Performance Measures of Financial Health

Traditional accounting based measures of financial performance can yield perverse results. Net Profit, Net Income and ROI are profitability measures that may encourage managers to maximise a 'statistic' in isolation, which may lead to value being destroyed, and ultimately financial distress. The definition of financial distress most often applied is that a company cannot meet its debt obligations as they fall due (see Margret, 2002). The implication of this is that a company in a profitable financial position may become insolvent (Chambers, 1973 cited in Margret, 2002). Subsequently, profitability measures alone may not indicate the true financial health of an organisation.

Altman (1968) developed a model of financial distress that simultaneously accounts for significant predictors¹¹ of bankruptcy (Sharma, 2001) which can also be used as a gauge of overall financial health. These significant predictors are:

1. Profitability (EBIT/total assets)
2. Liquidity (net working capital/total assets)
3. Financial leverage (equity/debt)
4. Earning power (retained earnings/total assets)

Despite Stern Stewart's claim that the only measure that is needed is EVA[®], it is *not* suggested here that a single value based metric should be organisation's only financial measure¹². However, it is to be demonstrated that the newer value-based performance metrics such as EVA[®] and SVA seem to be superior to *Traditional Financial Performance Measures* (TFPM)

¹¹ Some authors have criticised this model because it lacks explicit recognition of the importance of cash flow to financial health (see, Gallinger, 2000; Sharma, 2001).

¹² It is acknowledged that these include such marketing and production measures such as conversion factors, turnaround times [trends] that may provide 'early warnings' of future needs. Though these are seen as critical, this essay has purposely precluded these from discussion to focus on financial performance metrics.

(such as the profitability measures of Net Profit, Net Income and ROI), not only because they include the cost of capital in determining profitability (and ultimately value), but because they seemingly incorporate other aspects of promoting financial health through its calculation and the subsequent management decisions made to maximise them. Table Two illustrates this¹³.

Note that Table Two seeks to illustrate how accounting based performance measures of profitability need to be supplemented by additional financial ratios to guide management's quest to maximise profitability. However, maximising value-based measures of financial performance appears to be better aligned with promoting overall corporate financial health.

Index-Based Measures

Further to using financial performance metrics, it is accepted in the business world that *Non-Financial Indicators* (NFIs) are important lead indicators of future financial performance (Miller and Israel, 2002; Upton, 2001). A further issue is that traditional financial reports leave out much of the assets, especially the intangible assets, that power today's knowledge economy organisations.

More contemporary approaches to valuing intangibles take the view that whilst many of the assets that make up an organisation's capability may not be visible, they can still be measured and managed (see MERITUM, 2002). The argument is that if managers want to cultivate intellectual and other intangible resources, they need to develop performance measures that link internal productivity to market value. The question is: how does one link reasonably objective financial statement measures to the somewhat subjective measures of intangibles, such as intellectual capital or creative capability? The answer is to use index-based co-efficients. Two such approaches will now be discussed, the *Balanced Scorecard* (BSC) and *CEVITA*TM.

¹³ Though this is not intended to be comprehensive.

Table Two: Comparison of TFPM to EVA and SVA in Promoting Corporate Financial Health

Altman's Aspects of Financial Health	
<i>Profitability.</i>	
TFPM	To maximise profits means to maximise Net Profit, Net Income or ROI. This measures the end, rather than the means which may destroy value (e.g. return less than the cost of additional capital).
EVA	EVA profits are calculated after the cost of capital and thus is a stricter profit calculation than traditional accounting measures
SVA	Sales growth (and thus increases in operating profit) will only be rewarded if the operating (\$) margin exceeds the costs of additional working capital needed (costed by the cost of capital)
<i>Liquidity</i>	
TFPM	Accounting based Financial performance measures do not account for liquidity therefore maximising profitability does not necessarily means liquid funds
EVA	EVA can be increased by liquidating capital from suboptimal investments thus encouraging managers to release cash from them ¹⁴
SVA	SVA can be increased by reducing working capital, this includes reducing debtor days to reduce net working capital.
<i>Leverage</i>	
TFPM	No measure of leverage potential or 'risk' of excessive debt
EVA	Cost of capital measures the firm's risk. To increase EVA management will seek to decrease the cost of capital which is achieved by approaching optimal capital structure (debt/equity)
SVA	Cost of capital measures the firm's risk. To increase SVA management will seek to decrease the cost of capital which is achieved by approaching the optimal capital structure (debt/equity)
<i>Earning Power</i>¹⁵	
TFPM	Financial measures are adversely affected by investments that are aimed at sustaining future profitability over net income today
EVA	EVA takes a future cash flow perspective of investments
SVA	Because of the planning period, the further out one can plan the more value is capture in the value drivers rather than the terminal value. Subsequently, SVA takes a long term view of cash flow

The Balanced Scorecard (BSC)

Though NFIs have been used for many years, the need to link these with a financial outcome has been illustrated by Kaplan and Norton's *Balance Scorecard* (BSC) that links three areas (Innovation and Learning

Internal, External) to the fourth key area financial (Kaplan and Norton, 1996). Based on the cause and effect assumptions on which the BSC is constructed, the thrust of such index-based measures is that it is ultimately an organisations strategies that create its value as measured by its financial

¹⁴ Accounting based financial performance measures may encourage managers to keep 'marginal assets' thus tying up cash and attracting a finance charge, if the disposal value is less than the book value (or other accounting method used to record asset value).

¹⁵ Although Earning power is defined as (Retained Earnings / Total Assets), it is also assumed to mean a future orientation of the firms profitability potential because retained earning will fall as a company begins to lose money. Thus future profitability is important to this measure's longer term value.

dimensions which is split into three parts (Player, 1997): Revenue growth, Cost management, and Asset utilisation¹⁶ (Kaplan and Norton, 1996). These are seen as being congruent with the construct of value-based financial performance measures that bring together profit (a function of revenue and costs), capital used and its associated cost (measuring asset utilisation) into a single measure.

The scorecard has been refined to reflect criticisms among practitioners. One problem was that companies often came up with too many measures. Kaplan and Norton (1992) acknowledge that a scorecard used to diagnose how well a company is doing will probably need more measures than one designed to set strategy. A recent development is the *Dynamic Balanced Scorecard* that allows managers to track the way financial performance feeds into investment in intangibles. Its attraction is that, properly designed, it should allow managers to view at a glance the key indicators of business performance and their linkages to financial measures. A possible cost is that by gathering this information in one tool, the organisation and its executives might be deprived of the variety of information flows a business needs to remain agile.

Barsky and Marchant (2000) report a study done by Ernst & Young in 1997, which found that the most valuable non-financial metrics to investors were: Strategy Execution, Management Credibility, Quality of Strategy, Innovation, Ability to Attract Talented People, Market Share, Management Experience, Quality of Executive Compensation, Quality of Major Processes and Research Leadership.

¹⁶ Sources of revenue growth include new products, new applications for existing products, new customers and markets, new relationships, new product and service mix, new pricing strategies. Potential cost management strategies include, increasing productivity, reducing unit costs, improving channel mix and reducing operating expenses. Improvements from asset utilisation may arise from improvements in cash-to-cash cycles and increasing the speed of returns from capital investments (Kaplan and Norton, 1996).

CEVITA™ (Consensus-Based Measures)

These measures use indexes with some amount of managerial judgement to provide valuations and performance measurements. The approach is to estimate the dollar-value of both tangible and intangible assets by identifying its various components. Once these components are identified, they can be directly evaluated. In the index based measures they are evaluated by using an aggregated coefficient. In this approach they are evaluated individually, by managers. Some approaches in this category are the *Technology Broker* (Brooking, 1996) and the *Intangible Asset Monitor* (Sveiby, 1997). The measure that is becoming increasingly recognised is the CEVITA™ which measures the *Capability Economic Value of Intangible and Tangible Assets* (Ratnatunga, et. al., 2004).¹⁷

Ratnatunga, et. al., (2004) state that the focus of attention in recent studies pertaining to the valuation of intangibles misses the point that it is the combination of both tangible and intangible assets that provide an organisation a true 'capability' that ultimately drives its economic value. The paper then reports on a research study conducted to value organisational capabilities; and develops a reporting framework comprising of a *Strategic Balanced Sheet* and *Strategic Income Statement*. Their approach is basically to calculate the CEVITA™ of an organisation, by leveraging its capability enhancing expenses to economic values by using specific *Expense Leveraged Value Indexes (ELVIs)*.

Ratnatunga, et. al. (2004) not only illustrates a technique that will make these strategic valuations more relevant, but also show how to report these tangible and intangible asset combinations in an organisation's financial statements. Their paper also argues that even if generally

¹⁷ This paper won the American Accounting Association - Management Accounting Section's *Impact on Management Accounting Practice Award* in 2008. The award is given annually to a paper published within the last five years in a refereed academic journal that has the greatest potential impact on Management Accounting Practice.

accepted accounting principles cannot accommodate such value-creating information for external reporting, the management accounting profession needs to develop them for internal reporting that is less constrained.

The CEVITA™ valuation approach recognizes that an asset may be a (tangible) factory, warehouse, sales booth or retail outlet. Or it could be an intangible website or internet-based channel exhibiting impressive traffic and/or sales. It could be a patent, a training program, a logo, a slogan or an advertising campaign. Therefore, in order to develop strategic value statements, one has to first recognize what the capability-based tangible and intangible assets are (some which are more easily identifiable than others).

At this point it is important to define and contrast the asset components that bring about organisational capability. An asset is “what one has”, much like a Ferrari F1 racing car (tangible asset) or Michael Schumacher’s driving skills (intangible asset). A capability is what can be achieved (or “what one can do”) when these asset categories are combined in a contextual situation, i.e., winning the World Championship. CEVITA™ is the economic value of the capability (i.e. the current and future monetary value to Ferrari in winning the world formula one championship).

Thus it is the highly context-dependent combinations of tangible and intangible assets that make-up an organisation’s capability, and often it is the marketing activities that provide the base of the contextual capability combinations that competitors find difficult to imitate. This is particularly the case in organisations that strive to leverage their marketing expenditures to create capability-related market values, especially in terms of their brand(s). This suggests that there is a strong and demonstrable link between what an organisation spends in a particular period on marketing and how such expenditure can increase (or if the spend is inadequate, decrease) brand value.

The relationship of the ELVI to the market consensus value is demonstrated using the following equation¹⁸:

Equation 5:

$$\frac{dS}{dt} = r.E. \left(\frac{M - S}{M} \right) - \delta S$$

The equation indicates that the change in the economic value (dS/dt) of a capability-enhancing asset at time ‘t’ is a function of five factors¹⁹:

- E the costs/expenses incurred to support the capability;
- r the value-increasing constant (ELVI No.1- defined as the value generated per expense dollar when S = 0);
- M the maximum consensus value of the capability;
- S the current value of the capability; and
- 1.
- δ the value-decay constant (ELVI No.2 - defined as the fraction of value lost per time unit when E= 0)

The equation states that the change (increase) in the capability value will be higher when r, E, and the untapped capability potential are higher, and the value-decay constant is lower.

It stands to reason that the more logistical and financial support is invested in a marketing channel (say a website) the more capable it becomes. But the difficulty lies in estimating the relationship between the cost and the resultant capability enhancement. As a hypothetical example, assume that an organisation is considering setting up a web-based communication and delivery channel for on-line promotion, customization and order entry for its

¹⁸ The theoretical underpinning of this model was derived from the Vidale-Wolf (1957) model employed to describe the sales response to advertising efforts.

¹⁹ Over time, and with experience, these co-efficient values should reflect the value-expense relationships that exist in most spending decisions, but remain largely un-quantified. The ELVI essentially attempts to quantify the ‘qualitative’ aspects of the cost-benefit approach.

products (i.e. similar to the Dell business model). The two fundamental objectives of this website would be related to the development of external relationships required for “order-generating” (brand building and sales) and “order-processing” (distribution). Due to the economics of diminishing returns, however, such external relationship assets, like all economic assets, would have a maximum capability potential, no matter how many financial and other resources are lavished on it. Assume also that this marketing channel has a maximum (consensus-based) capability potential of (say) \$25,000,000. Now assume that it has already had 10 years of support from the organisation, and that its current capability value is estimated as \$15,000,000 based on the financial, logistical and facility costs expended on it.

If the management in the organisation, based on its past experience, estimates the value-increasing constant (r) to be 6 if such support is continued, and the value-decay constant (δ) if such incremental support is withdrawn to be .02; then these “consensus values” can form the basis of a revised valuation of the organisation based on how much support expenditure the organisation provides in maintaining and enhancing the capability. Thus, if the organisation in year 11 expends \$160,000 (E) to support the communications-capability of the web-based channel via installing customer relationship management (CRM) software, the capability value of the channel will, using the equation presented earlier, be enhanced as follows:

$$\left(\frac{dS}{dT}\right) = 6 \cdot 160,000 \cdot \left(\frac{25,000,000 - 15,000,000}{15,000,000}\right) - 0.02 (15,000,000)$$

$$\left(\frac{dS}{dT}\right) = 6 (0.67) \cdot 160,000 - 300,000$$

$$= \$340,000$$

Thus, based on these ELVI constants, by spending only \$160,000 on capability support, the capability value has been leveraged up by a significant \$340,000 or a net- ELVI of 2.125.

If the objective of the organisation is merely to maintain the capability level of its distribution channel, then dS/dt can be set to zero, and thus the equation becomes:

$$0 = 6 (0.67) E - 0.02 (15,000,000)$$

$$300,000 = 6 (0.67) E$$

$$\frac{300,000}{4} = E = \text{approx. } \$75,000$$

This concept is no different to the expenses a company would need to spend on repairs and preventive maintenance of its tangible assets (e.g. delivery vehicles). Just to keep the vehicles running at its current level of economic capability, a certain level of expenses would need to be incurred.

Note that if the organisation in the preceding example spends only \$50,000 on capability support, by applying the capability-enhancing asset equation the change in economic value (dS/dt) works out to be a negative \$99,000, or a net- ELVI of minus 1.98. Thus, all organisations would have a range of net- ELVI, some greater than 1, some between 0 and 1, and some negative. So, the model is not biased only in the positive (capability enhancing) direction, nor is the resultant values linear to the amount of expenditure. That is, inputs to the model will not always produce a positive result, as a campaign that is not funded at the proper level may result in a weakened market position for the brand, due to the (poor) creative/design or (poor) execution/media strategy of that effort.

Note also that as the negative net- ELVI values reduce capability asset values, this is conceptually very similar to the depreciation/amortisation of assets under traditional financial reporting, whilst the positive net- ELVI related values are

similar to the revaluation of asset values under traditional financial reporting.

The Ratnatunga et. al. (2004) CEVITA™ approach provides an important strategic tool in planning for the organisation, as it now is able to determine what expense

levels must be included for the maintenance of that particular capability at a zero-base. The approach also provides a benchmark measure for subsequent performance evaluation.

Ratnatunga et. al. (2004) state that where relevant, the already established 'traditional' and 'new' valuation measures and metrics discussed earlier should be used and incorporated into the overall CEVITATM valuation. However, in situations where, for whatever reason, theoretical or practical, any one of the above measures cannot be used, then the consensus-based ELVI measure should be used. Thus using ELVI consensus-based values will often be the measure of last-resort.

Summary

Traditionally, corporate financial performance has been measured in terms of profitability or returns of capital invested (ROI). However, it was recognised that profitability, though critical, is not the only aspect of financial health. In 1968 Altman developed his z-score model that identifies the dimensions of Profitability, Liquidity, Leverage and Earnings Power as important in determining the financial health of organisations.

Through the 1990s and early 2000s, traditional accounting measures have been viewed as inadequate as firms began focusing on shareholder value as the primary objective and thus intangible assets became an important source of competitive advantage (Upton, 2001). Subsequently, value measures were devised based in varying degrees on cash flows and NPV and EP (such as Residual Income). These measures explicitly acknowledge that equity has a cost and thus incorporates risk into its calculation.

Whilst it is true that Net Profit, ROI, Residual Income, Net Income, Strategic Value and Economic Value, all do measure how a firm has performed; they however measure performance from differing perspectives. The traditional accounting based measures tend to measure financial

performance in terms of short-term profitability and subsequently need to be supplemented by other financial ratios measuring leverage and solvency. The value-based measures, on the other hand recognise that equity is not free, thereby taking a shareholder value maximisation perspective. Furthermore, it seems that maximising value-based measures is, in itself, consistent (but by no means infallible) with promoting overall financial health.

Though firms have long recognised the need to measure NFIs, Kaplan and Norton (1996) provided a Balance Scorecard framework that links NFIs through a cause and effect relationship to the financial outcomes of revenue growth, cost management and asset utilisation. Finally, Ratnatunga, et. al. (2004) developed the CEVITATM measure, based on the underlying premise that an organisation's value is not based on what it has (its assets) but what it can do with both its tangible and intangible assets (its capability) in the execution of its strategies.

References

- Altman, E.I. (1968), 'Financial Ratios, Discriminant Analysis and the Prediction of Corporate Bankruptcy', *Journal of Finance*, Vol. 23 (4), pp. 589-610.
- Ayadi, F., Dufrene, B. and Obi, P. (1996), "Firm Performance Measures: Temporal Roadblocks to Innovation", *Managerial Finance*, 22(8), pp.18 – 32.
- Barskey, N.P. and Marchant, G. (2000), "Measuring and Managers Intellectual Capital", *Strategic Finance*, February, pp. 59-62.
- Baye, M. (2003), *Managerial Economics and Business Strategy 4th Edition*, McGraw-Hill, New York.
- Beaman, I., Ratnatunga, J., Krueger, P. and Mudalige, N. (2006), *Financial Modelling 4th Edition*, Quill Press, Melbourne.

- Brealey, R. and Myers, S. (2000), *Principles of Corporate Finance 6th Edition*, McGraw-Hill, London.
- Brewer, P., Chandra, G. and Hock, C. (1999), "Economic Value Added (EVA): Its uses and limitations", *S.A.M. Advanced Management Journal*, Cincinnati, 64(2), pp. 4 – 11.
- Brooking, A. (1996), *Intellectual Capital: Core Assets for the Third Millennium Enterprise*, Thomson Business Press, London.
- Calabrese, V. J. (1999), "Economic Value Added: Finance 101 on Steroids", *The Journal of Bank Cost and Management Accounting*, 12(1), pp. 3 – 34.
- Carlin, T. (1999), "Simplifying Corporate Performance Measurement", *Australian CPA*, 69(11), pp. 48 – 50.
- Chen, S. and Dodd, J. (2001), "Operating Income, Residual Income and EVA: Which Metric is More Value Relevant?", *Journal of Managerial Issues*, 13 (1), pp. 65 – 86.
- Clarke, P. (2000), "Shareholder Value". *Accountancy Ireland*, 32 (5), pp. 10 – 11.
- Damodaran, A. (2008), "Value Creation and Enhancement: Back to the Future". <http://pages.stern.nyu.edu/~adamodar/> accessed November 15, 2008.
- Dodd, J. and Johns, J. (1999), "EVA Reconsidered". *Columbia Business and Economic Review*, 45 (3), pp. 13 – 18.
- Evans, F. (2002), "Valuation Essentials for CFOs". *Financial Executive*, 18 (2), pp. 63 – 64.
- Gallinger, G. W. (2000), "A Framework for Financial Statement Analysis Part 5: Prediction of Financial Distress", *Business Credit*, New York, 102 (8), pp. 30 – 33.
- Gardiner, M. and Bagshaw, K. (1997), "Financial Ratios: Can You Trust 'Em?", *Charter*, Sydney, 68 (11), pp. 33 – 34.
- Grant, R. (2002), *Contemporary Strategy Analysis: Concepts, Techniques, Applications 4th Edition*, Blackwell, Massachusetts.
- Hammond, R. (1998), "Minding the Business". *CA Charter*, 69(9), pp. 60 – 61.
- Ittner, C. and Larcker, D. (1998), "Innovations in Performance Measurement: Trends and Research Implications". *Journal of Management Accounting Research*, 10, pp. 205 – 235.
- Kaplan, R.S. and Norton, D.P. (1992), "The Balanced Scorecard-Measures that Drive Performance", *Harvard Business Review*, January-February, pp. 71-79.
- Kaplan, R. and Norton, D. (1996), *The Balanced Scorecard: Translating Strategy into Action*. Harvard Business School Press, Boston MA.
- Keef, S. and Roush, M. (2001), "Residual Income: A Review Essay". *Australian Accounting Review*, 11(1), pp. 8 – 14.
- Kelly, J. and O'Connor, J. (1997), "Profit v. Cashflow", *Charter*, Sydney, 68 (8), pp. 33 – 34.
- Kimball, R. C. (1998), "Economic Profit and Performance Measurement in Banking", *New England Economic Review*, July/August, pp. 35 – 53.
- Litman, J. and Welling, G. (2002), "Why Great Stocks Aren't Always Great Companies", *Strategic Finance*, 83 (9), pp. 8 – 12.
- Margret, J. (2002), "Insolvency and Tests of Insolvency: An Analysis of the "Balance Sheet" and "Cashflow" Tests", *Australian Accounting Review*, 12(2), pp. 59 – 72.
- MERITUM Guidelines (2002), *Guidelines for Managing and Reporting on Intangibles (intellectual capital report)*, Madrid: Vodafone Foundation. <http://www.eu-know.net>
- Miller, J. and Israel, E. (2002), "Improving Corporate Performance Measurement to

- Drive Results”, *Financial Executive*, 18 (5), pp. 51 – 52.
- Mills, R. (1995), “Strategic Value Analysis”. Linking Finance and Strategy”, *Management Accounting*, London, 73 (4), pp. 42 – 47.
- Mills, R. and Print, C. (1995), “Strategic Value Analysis”, *Management Accounting*, London, 73(2), pp. 35 – 39.
- Muse, D. J. (2000), “Consulting opportunity: Performance Measurement”, *Ohio CPA Journal*, 59 (3), pp. 35 – 37.
- Myers, R. (1996), “Metric Wars”. *CFO*, 12 (10), pp. 41 – 50.
- Player, S. (1997), “You Can’t Manage What You Can’t Measure”.
<http://bfmag.com/archives/appfiles/Article.cfm>
- Ramezani, C., Soenen, L. and Jung, A. (2002), “Growth, Corporate Profitability and Value Creation”. *Financial Analysts Journal*, 58 (2), pp. 58 – 67.
- Ratnatunga, J. (2002), “The Valuation of Capabilities: A New Direction for Management Accounting Research”, *Journal of Applied Management Accounting Research*, 1(1), pp. 1-15.
- Ratnatunga, J. Gray, N. and Balachandran, K. (2004), “CEVITA: The Valuation and Reporting of Strategic Capabilities” *Management Accounting Research*, 15(1), pp. 77-105.
- Sharma, D. (2001), “The Role of Cash Flow Information in Predicting Corporate Failure: The State of the Literature”. *Managerial Finance*, 27(4), pp. 3 – 27.
- Scott, M. (2001), “Economic Value Added: Joining Forces”, *Financial Management*, April, pp. 36 – 37.
- Stead, M. (1995), “Management Ratios: How They Fail The Shareholder”, *Management Accounting*, December, pp. 38 – 39.
- Sveiby, K.E. (1997) *The New Organizational Wealth: Managing and Measuring Knowledge Based Assets*, Berrett Koehler, San Francisco.
- Upton, W. (2001), *Special Report: Business and Financial Reporting, Challenges from the New Economy*, Financial Accounting Series (FASB), p. 219.

Appendix 1: Fundamental Problems of Accounting Based Measures

There are several fundamental criticisms of the traditional accounting based metrics. These are:

Accuracy of the Reported Numbers

As Brealey and Myers (2000) say, any measure that depends on accounting profitability measures had better hope those numbers are accurate.

Under the Generally Accepted Accounting Principles (GAAP) firms use footnotes to explain the figures that are presented. This provides companies with room to manipulate the figures that determine ROA. They do not reflect the different levels of risk among companies. They are static and based on historical data whereas markets have a long term firm of a company's current operations. Despite, International Financial Reporting Standards (IFRS) attempting to reduce the possibility of such manipulations valuation methodologies such as 'mark-to-market' tend to exacerbate the problem.

Behavioural Problems

It is generally accepted that the primary objective of a firm (after survival) is to maximise shareholder wealth (see Kimball, 1998; Stead, 1995; Soenen and Jung, 2002). Unfortunately, maximising ROI does not necessarily precipitate shareholder wealth maximisation. To illustrate, a manager that is measured on maximising ROI will be encouraged only to select projects that equal or exceed their current ROI regardless of the potential value of that investment in the longer term.

This behavioural problem is a symptom of short term-ism that is pervasive in current organisations and may be traced to manager's mistaken belief that shareholders, and subsequently the stock market, are only concerned about their

current earnings²⁰ (Calabrese, 1999; Evans, 2002; Litman and Welling, 2002).

Strategy Execution Problems

A principle requirement of Performance Measures is that they must be aligned with the organisational goal of maximising shareholder wealth (Carlin, 1999; Muse, 2000) to encourage managers to act in ways that are congruent to organisational objectives. However, accounting based measures of Net Profit, Net Income and ROI can be maximised at the expense of future growth and profitability.

For example, as mentioned above, the objective of maximising ROI may result in projects that will create wealth for shareholders not to be approved. Managers may take actions that maximise current net profits by reducing discretionary expenses such as office amenities reduce employee commitment that may adversely affect future profitability and/or plant and machinery maintenance that may result in higher future costs

The question that remains from using Net Profit and subsequently Earnings or ROI, as a performance measure is at what cost does a firm create current profits? Note that Net Profit has no relationship with the Balance Sheet and thus it is difficult to determine 'how good the profits are'. ROI, though accounting for a capital base, does not explicitly include the cost of capital. This latter point is important for performance measurement because shareholders (investors of capital) have different required rates of return (cost of capital) reflecting the risk of equity invested (Kimball, 1999).

However, one of the most disastrous results that could occur from using traditional accounting based performance measures is that R&D is not encouraged. It is stated as fact in most strategy textbooks (see Grant, 2002) that long-term survival of a firm is

²⁰ This is often compounded by the fact that share prices are punished should actual earnings not meet expectations (Litman & Welling, 2002) and thus further encourage executives to measure managers on accounting based measures such as ROI and Net Profit

dependent on its ability to innovate. However, ROI as a measure is poor in reflecting the financial gains from investing in R&D because R&D investments take time to translate into financial results (Ayadi, Dubrene and Obi, 1996).

Subsequently, the behavioural impacts of using ROI is that as a link to manager's remuneration it may result in decisions that are incongruent with the corporate objective of maximising shareholder wealth and that these measures fail to recognise the impact of investments for the future such as R&D. Subsequently, management does not realise that they are destroying value and may continue to allocate capital to sub-optimal endeavours. In marketing terms it is imperative for businesses to allocate capital to endeavours that would be classified as "stars" in the Boston Consulting Group (BCG) matrix, and put to sleep those that would be classified as "dogs". Traditional accounting performance measures may not enable management to identify between these and in fact may encourage dogs to be fed more (Calabrese, 1999).