

Corporate Performance Measurement : An Overview

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Abstract

Return on Investment (ROI) has been in use as an important performance measurement technique since its development in the early twentieth century. Afterwards, other important financial measurement techniques like *Residual Income* (RI) in the 1950s and *Economic Value Added* (EVA) in the early 1990s have been developed for evaluating divisional and overall organizational performance. More recently, *Balanced Scorecard*, a measurement system incorporating both financial and non-financial measures, has become popular for measuring total business unit performance.

Key-Words : Return on Investment, Residual Income, Economic Value Added, Balanced Scorecard.

Introduction

Performance measurement is one of the important means of controlling various activities in an organisation. The process of control usually involves setting a performance target, measuring performance, comparing performance with the target, finding out the differences between the actual performance and the target (i.e., variance), if any, and taking appropriate actions in response to the variance.

Organisations traditionally used financial measures for evaluating overall organisational performance and a few non-financial measures for supplementing financial measures. However, interest in non-financial measures of performance reflects an understanding that financial measures of performance are, by their nature, (i) short-run measures of results and (ii) neither familiar nor intuitive ways for people to manage operations (Kaplan & Atkinson, 1998). On the other hand, non-financial measures like quality, productivity, etc., not only provide an explanation to current performance but also are potential indicators of future performance. Unfortunately, very few organisations have undertaken a systematic consideration of how non-financial measures such as quality or productivity rates affect profitability levels (Buzzel, 1987).

The following sections of this paper have been designed to present an overview of the traditional performance measurement techniques as well as the techniques developed in recent times.

Background

The typical nineteenth century owner-entrepreneur usually concentrated on performing single type of economic activity efficiently. He did not have to choose among alternative types of activities in which to make investments. He only had to determine the appropriate scale of activity in his principal line of business. For this purpose, the operating ratio of costs to revenues

or the return on sales apparently provided an adequate guide for investment profitability (Kaplan & Atkinson, 1998). As a result, Net Earnings (*i.e.* Profit) as an absolute measure and Return on Sales or Cost of Operations as relative measures were used by the business organizations till 1900.

The DuPont Powder Company, formed in the early twentieth century, combining several previously separate and independently managed enterprises, had to face the challenges of coordinating and allocating organizational resources to manufacturing, purchasing, and selling activities of the units performing quite different activities. To guide their investment decisions, the DuPont Company developed the *Return on Investment (ROI)* ($\text{Income} / \text{Investment}$) criterion. Donaldson Brown, the chief financial officer, who joined later at General Motors, greatly extended the value of ROI showing how ROI may be shown as a product of 'Profitability' and 'Turnover' ($P \times T$), the two ratios which were commonly used in the nineteenth century organizations. P and T were further decomposed into their component parts incorporating the items from income statements and balance sheet to indicate how performance of individual activities contributed to the overall measure of organizational performance.

To overcome the limitations of a measure based on a ratio, *viz.*, ROI (Solomons, 1968; Dearden, 1969 & 1987), corporate managers started using an alternative performance measure, namely *residual income (RI)*, during 1950s. RI is the income after charging the cost of capital (capital charge). RI corresponds closely to the economist's measure of income. RI measure will always increase when investments earning above the cost of capital are added or investments earning below the cost of capital are eliminated. Therefore, it helps to achieve goal congruence between the evaluation of the sub-units and the actions that maximize the economic wealth of the sub-units and the firm.

In the late 1980s, RI as a measure, received greater attention due to several studies showing high correlation between the changes in companies' RI and changes in stock market valuation. These correlations were significantly higher than the correlations between changes in ROI and stock price changes (Kaplan & Atkinson, 1998). However, *Economic Value Added (EVA)*, a registered trademark of Stern Stewart consulting organisation of USA, though conceptually same as RI measure, became more popular when the ideas of EVA were publicized in the *Journal of Applied Corporate Finance* (1994) and also in a cover story in *Fortune Magazine* (1993) entitled 'EVA - the Real Key to Creating Wealth' describing the apparent success that many companies enjoyed using EVA to motivate and evaluate corporate and divisional managers.

During 1990s, the *Balanced Scorecard*, a new performance measurement approach, was developed by the study group of the Nolan Norton Institute of USA, the research arm of KPMG, under the leadership of David Norton, the CEO of the Institute and Robert Kaplan, an academic consultant, and some representatives from different companies. The Balanced Scorecard was organized around four distinct perspectives - financial, customer, internal business processes, and learning and growth. The name reflected the balance provided between short- and long-term objectives, between financial and non-financial measures, between lagging and leading indicators, and between external and internal performance perspectives (Kaplan & Norton, 1996).

Performance Measurement Techniques

I. Return on Investment (ROI) : ROI, also known as accounting rate of return, expressed as a ratio between accounting measure of income and accounting measure of investment, is the most popular approach to incorporating investment base into a performance measure. However, income (the numerator) and investment (denominator) may be defined in many ways. For example, income may mean earning before interest and taxes (EBIT) or net income after taxes. Similarly, investment may mean total assets employed or net assets employed (total assets employed minus current liabilities). For measuring the performance of the organization as a whole, EBIT and Net Assets may be taken into consideration and for measuring performance of a subunit, total assets employed in that subunit may be considered as investment base in order to obviate the possibility of inflating ROI by decreasing the investment base (through increasing current liabilities that may be influenced by the manager of the subunit concerned). However, to avoid confusion, two ratios - one based on total assets (ROTA) and the other based on net assets (RONA) may be used.

ROI measure, as mentioned earlier, originally developed in the DuPont Company, was further extended by Donaldson Brown, the chief financial officer of that company (who later joined General Motors). ROI was expressed as a product of *Profitability* (income divided by sales) and *Turnover* (sales divided by investment) with a view to providing more insight into performance recognizing the two basic ingredients in generating and increasing income: (i) increasing income per unit of sales value (*Profitability*) and (ii) using assets (investments) to generate more revenues (*Turnover*). The decomposition of ROI into P and T would help the organization in taking the appropriate measure for improving its ROI. For example, an organization may try to improve its ROI either by increasing *Profitability* or by increasing *Turnover* or by increasing both *Profitability* and *Turnover*.

ROI may be further decomposed into several components incorporating almost all the items of Income Statement and Balance Sheet in order to recognize that each and every item of the financial statements has its influence on ROI. Therefore, ROI may be considered as a means of controlling the activities of different subunits as well as organization as a whole. However, ROI suffers from certain limitations that must be kept in mind while using the measure for evaluating performance and controlling the activities of the subunits or managers of the subunits. ROI being a ratio between income and investment, the items/components with which the numerator and denominator are computed need careful consideration depending on the purpose for which ROI is calculated. For example, if the purpose is to evaluate the performance of the divisional manager then only those assets that can be directly traced to the division and controlled by the divisional manager should be included in the asset base. Similarly, any liabilities that are within the control of the divisional manager should be deducted from the asset base. The term *Controllable Investment* is used to refer to the net asset base that is controllable by the divisional manager. On the other hand, if the purpose is to evaluate the economic performance of the division, the investment base should include the corporate assets allocated to the division concerned because a division could not operate without the benefit of corporate assets such as buildings, cash and debtors managed at the corporate level. The empirical evidence (Skinner, 1990) indicates that most divisional organizations do not distinguish between managerial

performance of the divisional managers and economic performance of the divisions. A possible reason for including non-controllable assets in the investment base to evaluate managerial performance is that central management wish to signal to managers that, overall, they should earn a return that is also sufficient to cover the cost of capital on a share of corporate assets (Drury,1992).

While evaluating and controlling the performance of divisional managers through ROI, it must be kept in mind that overemphasis on ROI may lead to sub-optimal decisions. Divisional managers may be tempted to reject the new investment opportunities *giving a return more than the cost of such investments* but less than the *existing ROI* of the division as the acceptance of such investment project is likely to result in the decrease in ROI. Similarly, there is a possibility that divisional managers may make an attempt to dispose off any part of the existing investment giving a return less than the existing ROI, though earning more than the cost of investment, in order to improve its ROI. In both the situations, the optimum course of action would have been to accept or retain the investment opportunities giving a return higher than the cost of capital but the action of the divisional managers to improve its ROI, may result in sub-optimal decisions and consequently, the organization as a whole would suffer. For example, if current ROI of a division and cost of capital be 20% (Income of Rs.20,000 with an Investment base of Rs.1,00,000) and 12% respectively, and; If an investment opportunity comes before the divisional manager with an expected return of, say, Rs. 7000 on an investment requirement of Rs. 50,000, it is most likely that the manager will reject the offer simply because the acceptance of the new investment opportunity will result in the decrease of its existing ROI to 18% i.e., $(20000 + 7000) / (100000 + 50000)$. If the investment opportunity is rejected by the divisional manager, the organization will lose the opportunity of increasing its value by Rs. 1000 $(Rs. 7000 - 50000 \times 12\%)$ i.e., excess of the income over the cost of capital.

Businesses, such as General Electric in the 1950s and academics have demonstrated how to overcome such limitations of ROI measure by using an alternative performance measure, originally called Residual Income (RI) and further refined in the late 1980s / early 1990s as Economic Value Added (EVA).

II. Residual Income (RI) and Economic Value Added (EVA)

Origin of the concept of RI may be traced back to 1890s when economist Alfred Marshall stated, 'what remains after deducting interest on his capital at the current rate may be called his earnings of undertaking or management'. RI is the difference between Net Income before Taxes (NIBT) and Capital Charge. Capital Charge is usually taken as the product of Opening Capital Employed and the Risk-adjusted Cost of Capital (also known as Required Rate of Return). Therefore, RI may be expressed as follows:

$$RI = NIBT \text{ (or EBIT) } - \text{Required Rate of Return} \times \text{Opening Capital employed.}$$

The move towards the RI measure received even greater publicity when it was renamed into a far more accessible and acceptable term - Economic Value Added (EVA) - by the Stern Stewart Consulting organization, a prime advocate for the EVA concept. Their ideas were publicized in the Fortune Magazine (1993) and Journal of Applied Corporate Finance (1994) describing the success stories of many companies who used EVA as a measure of performance to motivate and evaluate corporate and divisional managers (Kaplan and Atkinson, 1998).

EVA is the difference between the Net Operating Profit after Tax (NOPAT) before interest and the Capital Charge. To arrive at NOPAT, after-tax but before interest accounting income is required to be adjusted for non-operating incomes and expenditures, and also for certain adjustments (like Research & Development Expenses, Employee Training Expenses, Business Re-structuring Expenses, Goodwill, Depreciation, Stock Valuation, etc.) as suggested by Stern Stewart & Co. Capital Charge for EVA is determined by taking the product of Weighted Average Cost of Capital (WACC) and Average Capital Employed (Avg. CE). Further, Cost of Equity is derived on the basis of Capital Asset Pricing Model. EVA may be expressed as follows:

$$\begin{aligned} \text{EVA} &= \text{NOPAT (before Interest on Debt)} - \text{WACC} \times \text{Average Capital Employed} \dots\dots (i) \\ &= \text{Avg. CE} \{ (\text{NOPAT} / \text{Avg. CE}) - \text{WACC} \} \\ &= \text{Avg. CE (Return on Capital} - \text{Cost of Capital)} \\ &= \text{Avg. CE} \times \text{Spread} \dots\dots\dots (ii) \end{aligned}$$

EVA may be considered as a refined version of RI, because the basic concept behind both the measures is difference between Income and Capital Charge. However, there are certain differences between these two measures:

- (i) RI is derived on the basis of 'Income before Taxes' while EVA is determined on the basis of 'After Tax Income';
- (ii) For determining Capital Charge under RI, usually Opening Capital Employed is used while Average Capital Employed is considered for EVA;
- (iii) In case of RI, 'Required Rate of Return' used for calculating Capital Charge may be WACC or may be somewhat different depending on the adjustment for risk factor; but only WACC is considered for EVA.
- (iv) Companies that employ ROI or RI, generally use total assets available as the definition of investment. When top management directs a subunit manager to carry extra assets, total assets employed can be more informative than total assets available. Companies that adopt EVA define investment as total assets employed minus current liabilities (Horngren, 2002)

The performance evaluation methodologies described above focus on the financial performance of the organizations. In order to develop a more comprehensive system of performance evaluation, the concept of Balanced Scorecard was developed in the 1990s to supplement the traditional financial measures with criteria that measure performance from the other perspectives like customer loyalty, business capabilities, employee skills, etc.

III. Balanced Scorecard (BSC)

The BSC was developed to communicate the multiple, linked objectives that companies must achieve to compete on the basis of capabilities and innovation, not just tangible physical assets. The BSC translates mission and strategy into objectives and measures, organized into four perspectives: financial, customer, internal business process, and learning and growth (Kaplan and Atkinson, 1998). The four perspectives of BSC permit a balance between (i) short-term and long-term objectives, (ii) external measures - for shareholders and customers - and internal measures of critical business processes, innovation, and learning and growth, (iii) outcomes desired and the performance drivers of those outcomes, and (iv) hard objective measures and softer, more subjective measures (ibid).

Financial measures in the Financial Perspective of the BSC indicate whether the company's strategy, implementation, and execution are contributing to bottom-line improvement. In the Customer Perspective, the customer and market segment in which the business unit competes, and the business unit's performance in the targeted segments are identified. The core outcome measures include customer satisfaction, customer retention, new customer acquisition, customer profitability, market share in the targeted segments, etc. In the Internal Business Process Perspective, executives identify the critical internal processes in which the organization must excel in order to deliver the value propositions that will attract and retain customers in targeted market segments and satisfy shareholder expectations of excellent financial returns. The fourth perspective, Learning and Growth, identifies the infrastructure that the organization must build to create long-term growth and improvement. Businesses must invest in re-skilling employees, enhancing information technology and systems, and aligning organizational procedures and routines in order to close the gap between existing capabilities of people, systems and organizational procedures - the three principal sources of learning and growth, and what will be required to achieve targets for breakthrough performance.

BSC is not only a comprehensive performance measurement system but it may also be used as the foundation of a strategic management system. According to Kaplan and Norton (1996), 'companies are using the scorecard to :

- Clarify and update strategy,
- Communicate strategy throughout the company,
- Align unit and individual goals with the strategy,
- Link strategic objectives to long-term targets and annual budgets,
- Identify and align strategic initiatives, and
- Conduct periodic performance reviews to learn about and improve strategy.

The balance scorecard enables a company to align its management processes and focuses the entire organization on implementing long-term strategy'.

Conclusion

Each of the financial measures - ROI, RI and EVA - discussed above, focuses on a different aspect of performance. *ROI* indicates which investment yields the highest return while *RI* and *EVA* produce goal congruence between evaluation of the division (sub unit) and the actions that maximize the economic wealth of the division and the organization as a whole. An organization always prefers the divisions to have a higher rather than lower *RI* or *EVA*. In this regard, *RI* or *EVA* offers significant advantages over *ROI* (it has already been discussed earlier that actions of the divisional manager for increasing the divisional *ROI* may make the organization worse off). Again, *EVA* explicitly considers tax effects while pre-tax *RI* measure does not. However, many managers favour *RI* because it is easier to compute, and in most cases it leads to the same conclusion as *EVA*. But financial measures alone may not be sufficient for guiding and evaluating how organizations in the present information age create future value through investment in customers, suppliers, employees, processes, technology, and innovation. The *Balanced Scorecard* helps measure how business units create value for current and future customers, how they must develop and increase internal capabilities, and the

investment in people, system, and procedures necessary to improve future performance. It incorporates both financial and non-financial perspectives into its fold and captures the critical value creating activities. Hence, a properly constructed Balanced Scorecard may be used in measuring total business unit performance in a meaningful way.

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