Part I

Performance measurement – functional analyses

By its nature performance measurement is a diverse subject. Researchers with functional backgrounds as diverse as accounting, operations management, marketing, finance, economics, psychology, and sociology are all actively working in the field. As discussed in the Preface this incredible diversity brings with it both challenges and opportunities. The diversity results in a fascinating richness, but makes it extremely difficult for generations of researchers to build on each other's work. A significant barrier stems from the fact that traditionally the way academic careers develop is through functional specialization. Accountants talk to accountants. Operations managers meet with operations managers. Marketing specialists network with other marketing specialists. The result is deep and rich streams of functionally specialized research, with little cross-fertilization. The aim of this first part is to begin the process of redressing this shortcoming by drawing together several functionally based reviews of performance measurement.

The part contains four chapters. The first by Professor David Otley reviews measurement from an accounting perspective and explores the different roles of measurement. Otley argues that implicitly the accounting community recognizes that measurement systems have three fundamentally different roles in organizations. First they provide a tool for financial management. Second they provide information on overall business performance. Third they provide a means of motivation and control. A key theme in Otley's contribution is that far too often academics and practitioners do not recognize these three different roles and the result can be confusion, especially when a measurement system designed to fulfil one role is used to fulfil another.

The second contribution comes from Professor Bruce Clark, who provides an extensive review of marketing performance measurement through the ages. He argues that, while the early work on marketing measurement concentrated on marketing productivity, more recent developments have resulted in massive interest in marketing orientation, customer satisfaction, customer loyalty, and brand equity. Clark ends his contribution by exploring some of the challenges facing marketing academics, including the difficulties of coping with feedback loops, the changing nature of reporting requirements, and the need to cope with the conflicting demands of multiple stakeholders.

The third contribution is based on the operations management perspective and is provided by Andy Neely and Rob Austin. They explore operations performance measurement and argue that three broad phases of evolution in the field can be identified. The first phase, which ran up until the late 1970s, was concerned with productivity measurement. The second, which ran from the early 1980s through to the late 1990s, was concerned with how to develop measures consistent with modern manufacturing management thinking. In the third phase, which is currently ongoing, Neely and Austin argue that the key operations management measurement issues are measures for the new economy and for inter- and intra-operational alliances.

The fourth, and final contribution, in this first part is provided by Professor Marshall Meyer, who argues that performance has the potential to become a new management discipline. Starting with the question – what is performance – Meyer argues that performance measurement, if used correctly, offers the potential for managers to understand which of the activities undertaken generate revenues that exceed costs. Building on this theme he introduces the notion of activity-based revenue as a measurement methodology and illustrates how this approach has the potential to overcome some of the shortcomings encountered in the measurement systems used by organizations today.

1 Measuring performance: The accounting perspective

David Otley

Introduction

Accounting measures of performance have been the traditional mainstay of quantitative approaches to organizational performance measurement. However, over the past two decades, a great deal of attention has been paid to the development and use of non-financial measures of performance, which can be used both to motivate and report on the performance of business (and other) organizations. The impetus for such developments has come from both the bottom and the top of the organization. Much performance management at the operational level is carried out using specific indicators of performance, which are usually not measured in financial terms. At the most senior levels, although financial performance is inevitably a major consideration, there has been increasing recognition that other important factors in the effective running of the organization cannot be well captured by such measures. Thus, non-financial performance measures have undergone significant development, to the relative neglect of the development of improved financial measures. However, the recent publicity surrounding the marketing of economic value added (EVA®) as an overall measure of company performance by management consultants Stern Stewart can be seen as a sign of a new emphasis on the financial aspects of performance.

The purpose of this contribution is to review the roles and functions of financial measures of organizational performance, and to outline the major features of their development, particularly in the latter half of the last century. It will be argued that there are three different major functions for financial performance measures, and that, although these functions overlap to some extent, major confusion can be caused by applying measures developed for one function to a different one. The three main functions involved are:

1 Financial measures of performance as tools of financial management. Here the focus is on the functional specialism of finance and financial management. This is concerned with the efficient provision and use of financial

resources to support the wider aims of the organization, and to manage the effective and efficient operation of the finance function.
2 Financial performance as a major objective of a business organization. Here an overarching financial performance measure, such as profit, return on investment, or EVA®, is used to signify the achievement of an important (perhaps the *most* important) organizational objective.
3 Financial measures of performance as mechanisms for motivation and control within the organization. Here the financial information provides a 'window' into the organization by which specific operations are managed through the codification of their inputs and outputs in financial terms.

Clearly, there is some overlap between these different functions. Efficient financial management is a component of efficient overall management, but it does not subsume the latter. Performance may be managed, in part, by the transmission of corporate objectives (in financial form) downwards as part of the process of strategy implementation, and financial measures may provide substantial insight into the overall impact of operational activities, but other, more specific, measures are generally needed to fully understand and manage the "drivers" of performance. This contribution will therefore first consider each of the major functions independently, and then examine the linkages between them.

What follows is by no means a comprehensive review of how functions of financial performance measures have been used over the past 50 years. Rather, it is a brief report on the highlights, which attempts to draw out the lessons that have been learned and to limit the confusion that can be caused by not recognizing the different functions involved.

A tool of financial management

Any organization, whether public or private, has to live within financial constraints and to deliver perceived value for money to its stakeholders. The role of the finance function is to manage the financial resources of the organization, and to ensure that the financial constraints it faces are not breached. Failure to do this will lead to financial distress, and ultimately, for many organizations, to financial failure or bankruptcy.

Thus, financial planning and control is an essential part of the overall management process. Establishment of precisely what the financial constraints are and how the proposed operating plans will impact upon them are a central part of the finance function. This is generally undertaken by the development

of financial plans[1] that outline the financial outcomes that are necessary for the organization to meet its commitments. Financial control can be seen as the process by which such plans are monitored and necessary corrective action proposed where significant deviations are detected.

There are three main areas of focus for financial plans. Most basically, cash flow planning is required to ensure that the cash is available to meet the financial obligations of the organization. Failure to manage cash flows will result in technical insolvency (the inability to meet payments when they are legally required to be made). For business organizations, the second area requiring attention is profitability, or the need to acquire resources (usually from revenues acquired by selling goods and services) at a greater rate than using them (usually represented by the costs of making payments to suppliers, employees, and others). Although over the life of an enterprise, total net cash flow and total profit are essentially equal, this can mask the fact that in the short-term they can be very different.[2] Indeed, one of the major causes of failure of new small business enterprises is not that they are unprofitable in the long term, but that growth in profitable activity has outstripped the cash necessary to resource it. The major difference between profit and cash flow is the time period between payments made for capital assets which will generate income in the future and the actual receipt of that income which is needed as working capital. This highlights the third area of focus, namely on assets and the provision of finance for their purchase. In accounting terms, the focus of attention is on the balance sheet, rather than the profit and loss account or the cash flow statement.

In overall terms, financial management therefore focuses on both the acquisition of financial resources on terms as favorable as possible, and on the utilization of the assets that those financial resources have been used to purchase, and on the interaction between these two activities. The single most powerful tool of reporting on these matters is the so-called "pyramid of ratios."

The apex of the pyramid of ratios (see figure 1.1) is an overall measure of profitability that divides profit by the assets used in generating that profit, namely return on capital employed. Traditionally, this is broken down into two major secondary ratios, namely the profit margin on sales and the capital turnover. Clearly, return on capital employed is equal to the product of these

[1] Such financial plans are often referred to as budgets and are widely used as a means of management control. However, this use is more concerned with management than financial control, and will be discussed in later sections.

[2] If "clean surplus" accounting is used, total net cash flow and total profit are identical, in aggregate.

two items. Each of the secondary ratios can be broken down into tertiary ratios based on the fact that profit is equal to sales revenue less cost of sales, and capital employed can be split into fixed assets (long term) and current assets (short term). However, it is evident that the concept becomes more strained the further down the pyramid one proceeds, and, although the pyramid provides a clear connection between the values of each of its component ratios, a more focused approach can be more beneficial than attempts to create a totally integrated "pyramid."

This can be provided by considering the purpose of calculating each ratio. Thus, if the concern is with cash flows and liquidity, a range of ratios based on working capital are appropriate. Thus, five key ratios are commonly calculated, i.e.

- current ratio, equal to current assets divided by current liabilities;
- quick ratio (or acid test), equal to quick assets (current assets less inventories) divided by current liabilities;
- inventory turnover period, equal to inventories divided by cost of sales, with the result being expressed in terms of days or months;
- debtors to sales ratio, with the result again being expressed as an average collection period;
- creditors to purchases ratio, again expressed as the average payment period.

Each of these ratios addresses a different aspect of the cash collection and payment cycle. There are conventional values for each of these ratios (for example, the current ratio often has a standard value of 2.0 mentioned, although this has fallen substantially in recent years because of improvements in techniques of working capital management, and the quick ratio has a value of 1.0) but in fact these values vary widely across firms and industries. More generally helpful is a comparison with industry norms and an examination of the changes in the values of these ratios over time that will assist in the assessment of whether any financial difficulties may be arising.

If the concern is more with long-term profitability than with short-term cash flows, a different set of ratios may be appropriate. Profit to sales ratios can be calculated (although different ratios can be calculated depending whether profit is measured before or after interest payments and taxation); value-added (sales revenues less the cost of bought-in supplies) ratios are also used to give insight into operational efficiencies. A general principle is that each part of the ratio should be relevant to the audience being addressed, and that the overall ratio should reflect the interests of the specific user of the information it provides.

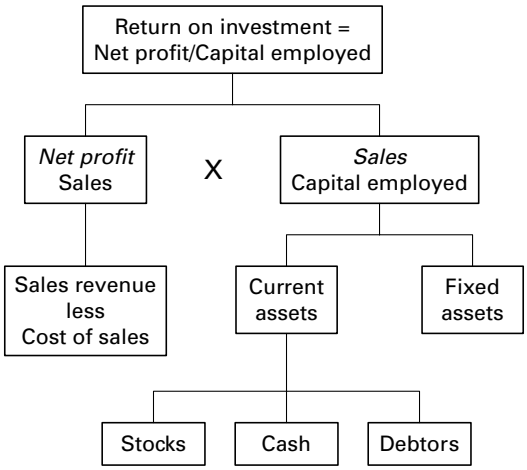

Figure 1.1. Outline pyramid of accounting ratios.

Finally, if it is desirable to consider the raising of capital, as well as its uses, a further set of ratios based on financial structure can be calculated. For example, the ratio of debt to equity capital (gearing or leverage) is an indication of the risk associated with a company's equity earnings (because debt interest is deducted from profit before profit distributable to shareholders is obtained). It is often stated that fixed assets should be funded from capital raised on a long-term basis, whilst working capital should fund only short-term needs. Again, this may seem to be a logical and prudent rule of thumb, but it is necessary to be aware that some very successful companies flout this rule to a very considerable extent. For example, most supermarket chains fund their stores (fixed assets) out of working capital because they sell their inventories for cash several times before they have to pay for them (i.e., typical inventory turnover is three weeks, whereas it is not uncommon for credit to be granted for three months by their suppliers). Thus, the values of these ratios indicate the potential riskiness of such an arrangement, but this does not necessarily preclude such a financial strategy being adopted.

It is of note that the overall return on investment ratio can be calculated in a variety of different ways. For example, return (profit) may be before or after payment of debt interest. Capital employed may be measured as total capital employed in the business, or just as the equity (shareholders') capital alone. Which measure is appropriate depends upon the use to which the ratio is being put. If the focus of interest is in the efficient use of financial resources by the firm as an entity, then profit before interest and taxation (PBIT) may

be appropriately divided by total capital employed. If the interest is in the use of shareholders' capital, then the return attributable to shareholders (i.e., profit after interest and taxes (PAIT)) divided by equity capital alone may be the more meaningful measure.

There is thus no definitive set of financial ratios that can be said to measure the performance of a business. Rather, a set of measures can be devised to assess different aspects of financial performance from different perspectives. Although some of these measures can be derived from annual financial reports, and can be used to assess the same aspect of financial performance across different companies, care needs to be taken to ensure that the same accounting principles have been used to produce the accounting numbers in each case. As company directors are well aware that such analyses may be performed, it is not uncommon for "window dressing" to occur so that acceptable results are reported. A considerable amount of such manipulation is possible within generally acceptable accounting principles (GAAP), although it will occasionally stray into the realm of more "creative accounting" which may fall foul of the auditors. More importantly, such ratios allow financial managers to keep track of a company's financial performance (perhaps in comparison with that of its major competitors), and to adjust the activities of the organization, both operating and financial, to keep within acceptable bounds.

From this perspective, the role of financial performance measurement is to help keep the organization on the financial "straight and narrow" track. The measures are used primarily by financial specialists, and the action taken as a result of such analysis may also be exclusively financial (e.g., raising more capital to ensure that debts can be paid on time). Nevertheless, it is also clear that evidence of financial problems may occur because of deficiencies in other areas of business operations. In this case, the ratios can provide the finance director with the information necessary to convince other managers that operating action needs to be taken in order to avoid financial distress. However, the primary role served by this type of performance measurement lies within the province of the finance function, and is concerned with the effective and efficient use of financial resources.

An overall business objective

The second major role of accounting performance measures is connected with the financial objectives of the business. In particular, measures are addressed

to meeting the needs of the external suppliers of capital, both debt and equity. It is this need that external financial reporting addresses. An organization's annual report and financial accounts are primarily produced for the shareholders, although some use may be made of them by bankers and other providers of debt capital. In some ways, these external financial reports can be seen as mirroring the internal measures and ratios discussed above, in that they cover the same three main areas of cash flow (rather obliquely), operating profit, and asset values. Also, the two differing foci of the performance of the business (financed by both debt and equity capital) and the return to its shareholders (i.e., the return on equity capital alone) are also apparent. However, by far the major attention is focused on reporting to shareholders.

The whole area of external financial reporting, in particular, and the debate surrounding corporate governance, more generally, is structured around the usefulness of audited financial statements (and other mandatory disclosures) to shareholders. At one level, this is captured by the agency theory formulation whereby owners (shareholders) seek to control managers, but are restricted in their ability to do this because they possess much less detailed information than the managers. Mandatory accounting statements represent one means of attempting to redress this balance by providing shareholders with an annual externally audited review of the financial outcomes associated with the business activities undertaken. This is very much of a "backstop" position, and active investors (e.g., institutional shareholders, for example) generally seek to obtain more frequent and prospective information than financial reports can provide. However, the acquisition of prospective information is restricted by the need to make all such information public, in order to preserve an equitable trading market in which all players have similar access to information. The whole area of "insider trading" and the legislation governing stock market operations is an example of the complexity of the rules needed to preserve such an open market. Thus, this brief review will restrict itself to information provided by annual financial accounts to the shareholders of a business, and the measures of performance that are used in this respect.

The legal constitution of shareholder-owned enterprises puts the shareholders in the position of being the residual owners of any financial benefits (profit) that the organization may create through its activities. The profit and loss account eventually arrives at a figure of profit after the deduction of all expenses including debt interest and taxes (PAIT). There may be other parties who have a legal right to certain fixed payments (e.g., supplier invoice payments, employees wages) but any excess over these expenses represents profit,

without any upper limit. This profit will generally be partly distributed in the form of a dividend to shareholders, and partly retained in the business (retained earnings) to finance future expansion. If an organization fails to make a profit, dividends may still be paid out of previously retained earnings, but ultimately this will become exhausted and the business will become bankrupt. In such a case, it is likely that the shares will be valueless, and the shareholders will lose their investment, up to the amount they invested. There is no provision for the recovery of any further losses from shareholders (i.e., their liability is limited to the amount they paid for their shares).

Thus earnings (profit) is the central performance indicator for shareholders. A very common measure of performance is EPS (earnings per share) which divides total annual earnings by the number of shares in issue. Earnings essentially represent the (cum dividend) increase in the accounting book value of the company due to its previous year's activities. However, the share price of a company depends not only on its past achieved performance, but also on expectations of its future prospects. In technical terms, the share price "impounds' such information and conceptually represents both the historical value of the assets it possesses and the expectation of future performance, discounted by an appropriate time-value of money. The results of these future expectations is illustrated in the commonly calculated price/earnings (P/E) ratio, which divides the current share price by the last reported earnings figure. A high value of this ratio indicates an expectation of a high level of growth in future earnings; a low value an expectation of stability or even decline.

Annual reported earnings thus represent only one component of the return to shareholders, and one of only secondary importance. More formally, in any period of ownership, the return to a shareholder is comprised of the dividends received plus the increase in share price (or minus the decrease in share price) that has taken place during the period, divided by the initial share price. By way of a practical example, the average growth in share price over the past five years on the UK stock market has been somewhat in excess of 15 percent per annum, whereas dividends have been paid at a rate of around 3–4 percent per annum. Thus, the bulk of the return to shareholders is generally in the form of capital growth rather than dividend payments, and a period's dividend payment is only loosely related to the earnings in that period. Furthermore, the computation of actual returns to shareholders require no accounting information whatsoever, being comprised of cash dividend payments and the change in the market price of the shares.

What is a reasonable rate of return that may be expected by shareholders in a particular business? This question can only be answered by reference to past