

## CHAPTER 1

### INTRODUCTION

#### 1.1 INTRODUCTION AND PROBLEM STATEMENT

It is widely accepted that the primary objective or goal of a firm is to maximise the value of its shareholders' equity. While there may be legitimate differences of opinion as to whether this is the sole motivation of a firm's management, it should without a doubt be a dominant variable in management's decisions.

This objective manifests itself especially when capital budgeting and investment decisions are undertaken. An increase in wealth increases the satisfaction of any financial market participant, or in this case, of any shareholder.

In management's attempts and decision-making to increase shareholder value, they continuously influence, directly or indirectly, those variables that affect shareholder wealth.

It is thus of the utmost importance that those variables that influence shareholder value are stimulated in the best positive way in order to increase shareholder value to the highest possible value.

The value drivers which influence shareholder wealth can be identified from an initial literature study. Management should know what these variables entail. However, in order to increase shareholder wealth in the most efficient way, it becomes necessary to **quantify** the effect that each of these relevant variables has on shareholder wealth.

In the business world where the actions and decisions of the managers are judged and evaluated using terms such as "productive", "effective" and "efficient", it is demanded of managers to adhere to the objective of the firm in a manner that will satisfy the shareholders (owners) of the firm.

## 1.2 JUSTIFICATION OF THE STUDY

If the value created from the assets under the control of management is to be improved, the answer lies partly in determining the real drivers of value and focusing management attention on these. The objective and value of this study lies in the fact that a meaningful mathematical relationship between these variables and shareholder value is developed.

Some models have already been developed in South Africa which calculate and present the value of a firm's Economic value added (EVA) as well as methods to rank firms which have had the biggest increases in EVA, but no one has as yet attempted to **quantify** just from **where** has that EVA originates.

The importance of this study is thus that it is the first attempt in South Africa to identify and **quantify** those variables that result in a firm's EVA.

The benefits of this study includes its provision for managers of an indication of which variables may provide the largest change in a firm's EVA. In other words, the study provides guidance which managers can use in their decision-making in order to provide their shareholders with the most efficient increase in value.

## 1.3 RESEARCH OBJECTIVES

The main objective of this study is to provide guidelines to help the decision-makers in a firm to maximise the value of shareholder equity. The results of the study therefore provide a tool which management can use in order to attain the goal of the firm, i.e. the wealth maximization of the shareholders.

As a starting point, the theoretical background of the historic methods of determining shareholder value is illustrated. This lays the foundation for the concept of EVA. The study demonstrates that EVA is arguably a superior method of determining shareholder value.

EVA is then "analyzed" in order to identify and classify those variables that determine and influence EVA, and hence shareholder value.

Whilst the value drivers might be relatively straightforward, the problem is to turn these value drivers into a meaningful and predictive mathematical relationship. Hence, this is the primary goal of this study: a stepwise regression analysis of those variables that determine shareholder value in order to, *inter alia*, quantify and establish a relationship between management's actions and shareholder value.

#### 1.4 FRAMEWORK OF THE STUDY

The concept of creating shareholder value is not new and has been well documented in literature over the past decades.

The problem arises that the views in the traditional or accounting-based methods of determining shareholder value contrast with the so-called economic-based methods of determining shareholder value.

The first accounting-based approach is the use of the balance sheet. The simplest balance sheet valuation procedure calculates the values of the company's assets less liabilities and divides then by the number of issued shares to get a book value per share. The drawback of this approach is that it reflects the **historical** values of assets and liabilities as recorded by accountants. Because book and market values frequently diverge, appraisers typically adjust balance sheet entries in order to be able to approximate market values more accurately.

The second accounting-based method is to estimate the value of a company by summing the market values of its assets and liabilities. Its theoretical foundation is the efficient market hypothesis, which states that the prices of public traded securities accurately reflect the true underlying value of a company.

The third accounting-based approach is to appraise a company by comparing it with comparable companies whose value is known. It consists of calculating ratios such as market value to earnings (the P/E ratio) for the comparable companies and then multiplying the ratio by the appraisal target's earnings. This seemingly straightforward procedure, which is widely used in practice, raises a host of thorny valuation issues.

The fourth accounting-based approach to appraisal is to project the future cash flows that a company will earn for its shareholders and then to discount those cash flows to present value. This approach is based on the assumption that a shareholder invests in a company's shares because a future return (dividends or earnings) is expected as a result of holding on to these shares. The more cash is expected to be received, and the sooner the cash is expected to be received, the more highly investors will value the company's shares.

Traditionally, earnings per share is regarded as an essential accounting measure of performance.

As long ago as October 1974, the *Wall Street Journal* proclaimed in an editorial that "a lot of executives apparently believe that if they can figure out a way to boost earnings per share, their stock prices will go up even if the higher earnings do not represent any underlying economic change".

Rappaport (1986) contends that earnings per share and related accounting ratios and methods as discussed above have a number of shortcomings as standards by which to evaluate company performances. These above traditional measures of company performance are inadequate for the job in the sense that none of them isolate the most important concern of shareholders, namely is management adding or subtracting value from capital? There has to be a better way.

According to Fruhan (1979:7), managers create economic value by undertaking investments which produce returns in excess of capital costs. This process is

ongoing and if the performance of the company is perceived to be optimal, the market price of its shares should react favourably. It is generally accepted that as long as a company places itself above the cost of capital line, economic value that will be created as a result thereof will benefit all the shareholders.

Copeland, Koller and Murrin (1994) as well as Weston and Copeland (1991) call their attempts to explain and quantify value, value-based management. With their approach, value is defined as the present value of a future stream of benefits, but the approach takes into consideration:

- a) maximising the difference between the return on invested capital (ROIC) and the weighted average cost of capital (WACC)
- b) the amount of the investment; and
- c) the time span for which  $ROIC > WACC$ .

Various combinations of these variables as well as sub-variables work together to create value.

The measure of financial performance that this study concentrates on is Economic Value Added (EVA) as developed by a New York based consulting firm, Stern Stewart.

In his book, *The quest for value*, Stewart (1986) maintains that EVA is the one measure that accounts properly for all the complex trade-offs involved in creating value. In essence, EVA is calculated by taking the spread between the rate of return on capital and the cost of capital and multiplying that by the **total** capital committed to the business:

$$EVA = (\text{rate of return} - \text{cost of capital}) \times \text{capital}$$

EVA is residual income, or operating profits, less a charge for the use of capital:

$$\text{EVA} = \text{operating profits} - \text{a capital charge.}$$

The above equations are a short way of describing what EVA entails. From the literature study, it is clear that EVA is arguably a superior model to determine whether shareholders benefit in the form of value created by the managers of a firm or not.

The next phase of this study calls for an analysis of the variables or drivers that determine a firm's EVA. It became clear that these variables can be classified in two groups, as "external" and as "internal" to the firm. Whilst one must recognize that both types of variables do have an influence on a firm's EVA, some **external** variables (such as a country's macro economic and political outlook, regulations, free trade regulations, inflation rate, exchange rate, economic growth rate, etc.) can only be quantified using considerable numbers of assumptions and must therefore be **excluded** from the statistical analysis. (A more in-depth discussion of these factors, as well as the reason for their exclusion, is provided in the study).

The **internal** variables, however, must be included in the statistical calculations, due to the fact that they can be quantified relatively easily. These variables can be identified from the firm's published annual financial statements. They are the variables that determine a company's EVA, and therefore shareholder value.

At this stage in the study, the empirical analysis is included, a data base is set up, the relevant statistical techniques are applied and the results are interpreted.

## 1.5 RESEARCH DESIGN AND METHOD

One of the problems in undertaking this study was to limit the field of the study and the volume of the data to be processed, in order to produce a relevant, meaningful and useful model to predict changes in shareholder value.

The following limitations are placed on the data to be gathered:

- a) only the top 200 listed industrial companies on the Johannesburg Stock Exchange (as indicated by the latest *Financial Mail* survey) are used in the initial sample;
- b) the company must have been listed for at least ten years; and
- c) thinly traded shares are excluded from the sample.

After identifying those variables that influence EVA from the literature study, EVA values of the chosen sample can be obtained from the data base of the Bureau of Financial Analysis at the University of Pretoria. Correlation and stepwise regression analyses are used in the analysis of the data. The output from the latter analysis provides the answers that are needed to reach the objective of this study. Meaningful predictions can then be made.

## 1.6 STRUCTURE OF THE STUDY

The study follows a logical path discussing the various models that determine shareholder value, then identifying the variables of the models and finally making recommendations based on the empirical results.

In **Chapter 2**, accounting-based methods or models to determine shareholder value are discussed. The book value approach the equity and debt approach and the use of price earnings ratios depend in the main on the accountants' figures as set out in the financial statements. The use of dividends in different scenarios to place an intrinsic value on the firm's share is also dealt with. The chapter concludes with an evaluation of two of the most used tools to indicate shareholder wealth or share price, namely earnings per share (EPS) and return on equity (ROE).

**Chapter 3** introduces the economic-based methods of determining shareholder value. Firstly, a number of factors which can distort accounting data are discussed

to finally put the accounting-based methods to rest. Three economic-based methods are discussed before the reader is in **Chapter 4** pointed towards arguably the best method, namely Economic Value Added (EVA). This method is analyzed in detail and illustrated with examples. Market value added (MVA), which is closely related to EVA, is also discussed. The chapter is concluded with a discussion of some criticism of EVA as well as the benefits of the EVA system.

After an evaluation of the various models to determine shareholder wealth, **Chapter 5** identifies the various variables that these models are made up of. The variables are firstly classified either as external (not under the control of management) or as internal to the firm. The internal variables are those that management can influence, change or manage to affect a change in shareholder wealth. In conclusion, the variables that determine EVA are identified. It is these variables (some of which, of course, can also be found in other models to determine shareholder value) that are used in the statistical analyses that follow.

**Chapter 6** sets out the research methodology, stating how the data was collected and the final sample selected. A correlation analyses and a stepwise regression procedure are used to obtain the results to test the hypotheses.

**Chapter 7** deals with the results obtained from the statistical analyses. The results of the various statistical runs are compared, not only to each other, but also to the theoretical principles involved. Where the empirical results are confirmed by the theory, this is noted. On the other hand, where a divergence from the theory is found, possible explanations are advanced.

In the last chapter, **Chapter 8**, the topic of value-based management is addressed. The results from the statistical analyses are used in a value-based management system to make recommendations as to how management can manage the variables that determine shareholder value in order to increase the wealth of the shareholders in the most efficient way.

## CHAPTER 2

# ACCOUNTING-BASED METHODS TO DETERMINE SHAREHOLDER VALUE

## 2.1 INTRODUCTION

There are many ways or methods to determine shareholder value. There is also an ongoing debate on exactly how to express or what to measure as shareholder wealth. These topics are addressed in this study.

All the methods that are deployed to measure shareholder wealth created or destroyed by a firm's management can be classified under two headings: accounting-based methods and economic-based methods. The accounting-based methods are addressed in this chapter, and the economic-based methods in Chapter 3 and Chapter 4. It is impossible to cover all the methods and their variations, but a discussion of a few well-known methods or variations is sufficient to show that the accounting-based methods differ substantially from the economic-based methods.

The first accounting-based method of calculating shareholder value is the book value approach, where the balance sheet forms the basis of the calculations. Certain adjustments can be made to the balance sheet amounts to reflect replacement cost or liquidation value, and although these adjustments can be subjective, they do have a use in some cases.

The equity and debt approach is another accounting-based method and an important new dimension, namely that of market values is introduced. Using the efficient market hypothesis as well as price earnings ratios are two further ways of calculating shareholder value.

Another way to place a value on shareholder interest is to apply the principle that

the value of an asset is the present value of all future cash flows which will be received from that asset. The discounted cash flow models use a number of variations in dividends to calculate the intrinsic value of a share.

Finally, two frequently used methods to indicate shareholder value, namely earnings per share (EPS) and return on equity (ROE), are investigated. These two methods are revealed to be full of accounting flaws and to be inferior to the more prudent economic-based methods.

## 2.2 THE BOOK VALUE APPROACH

One of the easiest ways to value a company is to use the information contained in the company's balance sheet. Two methods can be used to appraise a company by means of the balance sheet. Both methods rely on the fact that the value of a company is the sum of the values of all the claims that shareholders have on a firm. First, the book values of investor claims, including debt preference share capital and ordinary shareholder's interest can be added up directly. Second, the net assets can be added and liabilities other than investors' claims can be deducted.

The obvious weakness of the balance sheet approach is that the book values of the assets and liabilities as reported in the balance sheet by accountants may not equal their market values. Because book values are based on historical costs, they fail to take into account factors such as inflation and obsolescence that cause book values to differ from market values. In addition, the **synergy effect** of the combination (or organization) of the firm's assets and liabilities cannot be accounted for in the balance sheet. According to Cornell (1993:15) **organization capital** represents the value created by bringing employees, customers, suppliers and managers together in a cohesive unit and, in so doing, creating an asset that is not reflected in a company's balance sheet.

The most striking evidence of the weakness of an unadjusted balance sheet

shareholders' interest and the market value per share of ordinary shares for most listed (industrial) companies.

In spite of factors such as inflation and obsolescence, it is not always necessary to abandon the book value approach. In some situations, book values can be adjusted so that they reflect market values more accurately. The most common adjustments involved replacing the book values of a company's assets by estimates of the replacement cost or liquidation value of those assets. Such adjustments also have their drawbacks, namely, firstly that the **adjusted book values** may not be accurate estimates of the **market value**, and, secondly, that the adjustment process does not take assets, that do not appear on the balance sheet, into account properly.

Appraising a company purely based on unadjusted book values literally amounts to merely reading and interpreting a balance sheet.

From the balance sheet, the value of the firm can be calculated directly, by adding up the book values of the shareholders' claims, or indirectly, by adding up net assets and subtracting current liabilities (other than debts owed to shareholders) and deferred taxes. Both methods, the **shareholder's claims** approach and the **asset-liability** approach, are illustrated using the balance sheet information from South African Breweries Limited for the financial year ending 31 March 1996:

### Shareholder's claims approach

	<b>Rm</b>
Ordinary share capital	59.3
Non-distributable reserves	3 399.2
Distributable reserves	3 252.9
LESS: Intangible assets	<u>36.6</u>
Ordinary shareholder's interest	6 675.1
Minority interest	2 247.7
Preference share capital	<u>226.1</u>
Total shareholder's interest	9 150.9
Total long-term debt	2 416.9
Interest-bearing short-term debt	<u>1 998.4</u>
<b>TOTAL VALUE</b>	<b>R13 566.2</b>

### Asset-liability approach

	<b>Rm</b>
Total net fixed assets	8 480.0
Total long-term investments	1 836.3
Current assets	<u>10 667.6</u>
Total assets	20 993.9
LESS Current liabilities	9 426.1
Interest-bearing short-term debt	<u>1 998.4</u>
<b>TOTAL VALUE</b>	<b>R13 566.2</b>

The deficiencies of the book value approach are most easily observed by looking at the indirect calculation of value. Because current liabilities have short maturities, their book value is close to their market value. From the above, it is clear that the accuracy of a book value appraisal depends on how well the net book values of the assets approximate their market values.

There are three reasons why the book value of a company's assets commonly diverge from their market value. Firstly, inflation drives a wedge between the market value of an asset and its historical cost, less depreciation. Secondly, technological change renders some assets obsolete before their depreciable life ends. Thirdly, assets may be combined in such a way that their value as part of a going concern exceeds the sum of their values as individual assets. Each of these points is fundamental to understanding valuation theory and is worth exploring in some detail (Cornell 1993:18).

### 2.2.1 Inflation

Inflation is measured by the rate of increase in a price index such as the consumer price index (CPI) or the producer price index (PPI). People naturally associate inflation with widespread **increases** in the cost of goods and services. But this is the wrong way to think about inflation. Instead, inflation represents a **decline** in the value of one set of goods: the Rand. When the value of the Rand declines, the prices of all other goods and services rise, because those prices are measured in terms of Rands.

One weakness of historical cost accounting and, therefore, of valuation techniques based on historical cost, is that it ignores the impact of changes in the purchasing power of a Rand. The value of the assets on the balance sheet is presented in terms of nominal Rands for the year in which the assets were purchased.

It is, however, important to note that data from the financial statements can be adjusted to take inflation into account. The database of the Bureau of Financial Analysis (BFA) at the University of Pretoria makes provision for inflation adjustments of other fixed assets as well as their depreciation. This is done by calculating the average age of the assets (accumulated depreciation divided by depreciation for the year) and applying this to the inflation index of machinery, non-electrical, as published by the Central Statistical Services of South Africa. The adjustment to depreciation is done in a similar way: an additional amount must be subtracted from the book value of the other fixed assets in order to provide for the

higher replacement value.

It is important to note that the impact of inflation extends beyond the adjusted book value approach to valuation. For instance, the discounted cash flow approach is based on the forecast of cash flows to be earned in future years. Cash flows received in future years are stated in different Rand values, so account must be taken of inflation. In addition, inflation affects interest rates on debt and required returns on equity and thereby alters the cost of capital.

### **2.2.2 Obsolescence**

Because of technological change, some assets become obsolete before the end of their depreciable lives. This phenomenon is an important factor in industries subject to rapid changes in technology, such as the electronics industry and computer companies. Copper wiring may be made obsolete by optical fibre lines, and analog switches can be made obsolete by digital switches, and so on.

The most direct way to measure obsolescence is to observe the difference between the market value of an asset and its net book value. Unfortunately, this is not possible in many cases, because there might not be an active market for the company's assets.

The fact that obsolescence and inflation may have a significant impact on the valuation process may not be evident from a simple examination of book values, due to the fact that the two forces tend to offset each other. Whereas inflation causes book values to understate the market value, obsolescence causes book values to overstate the market value. However, it is beyond the scope of this study to discuss these factors and their possible effects in greater detail.

### **2.2.3 Organizational capital**

Modern finance teaches that corporate investment decisions should be based on a simple common sense rule: buy an asset if the value of that asset exceeds its

cost. So, for example, if calculations show that a machine that costs R1m will produce benefits with a present value of R1.5m to the company, the company should buy the machine.

For a corporation to create value for its shareholders, the value of its assets as part of an ongoing concern must exceed the value of the assets in isolation. Cornell and Shapiro (1987:5-14) call that which creates this added value "organizational capital".

Organizational capital, which includes intangible assets such as goodwill, takes a variety of forms. Some key components of organizational capital include:

- a) long-term relationships between managers and employees that allow them to work together effectively and do their jobs efficiently;
- b) the company's reputation with its customers and suppliers, including the very important link between customers and a specific brand name, which makes it easier to sell products;
- c) the company's opportunities for profitable investment that grow out of the specialized skills of its management, its work force and relationship with its customers (these opportunities, which are sometimes referred to as investment options or growth options, can account for a significant fraction of a company's value); and
- d) a network of suppliers, distributors, and repairmen that know the company's products and are willing to support and enhance them.

An important attribute of a firm's organizational capital is that it is difficult to separate it from the firm as a going concern. The value of a brand name is typically not reflected in the replacement cost or liquidation value of the fixed assets. The value of the brand name like the value of most other forms of

organizational capital, can be estimated only by examining the earning power of the company. Nevertheless, it has been said that if Coca Cola burns to the ground, banks will, on the strength of the brand name lend the company \$60 Billion to rebuild.

By focusing on the balance sheet entries as individual items, the adjusted book value approach ignores organizational capital (or non-quantifiable variables). In some cases, the resulting error can be huge. The issue of these non-quantifiable variables is dealt with in more detail in Chapter 5 of this study.

#### **2.2.4 Adjusting book value to reflect replacement cost**

The earning power of an asset is unlikely to be a function of the net historical cost of the asset. It is more likely related to the current replacement cost.

Thus, one way to adjust the balance sheet entries is to substitute estimates of replacement cost for the net book value of the assets. Unfortunately, there is some disagreement among appraisers and economists about how to measure replacement cost. Using a price index in order to inflate the book value to replacement cost, fails to take into account obsolescence. It also fails to reflect changes in the prices of specific (especially imported) assets.

A better approach, therefore, is to adjust each asset separately to reflect its own replacement cost today. If done properly, such an adjustment would take into account both inflation and obsolescence, as both these factors influence the cost of replacing assets today. Unfortunately, this process is, to a great extent, problematized by the subjectivity of the appraiser, with its disadvantages.

The greatest deficiency of the replacement cost approach is that it ignores organizational capital. Appraisals based on replacement cost, even when replacement cost is measured perfectly, ignore this value-creating synergy.

### 2.2.5 Adjusting book value to reflect liquidation value

A better way of determining the market value of the assets on a company's balance sheet, than the book value method, is to determine what they would sell for if the company were to be liquidated today. The appraiser must attempt to estimate the hypothetical price at which the assets could be sold in the market. Often he would have to rely on management's estimates of liquidation value. However, appraising the liquidation value of the assets is difficult even for senior managers, because they focus on the value the assets produce as part of a going concern. In most cases, therefore, it is not worth the time and expense to estimate the liquidation value of all of a company's assets independently, unless the appraisers are convinced that liquidation value provides a valid indication of market value.

The key deficiency of the liquidation value approach is that, like the replacement cost approach, it ignores organizational capital (Cornell 1993:31). Instead of valuing the firm as a going concern, it values the firm as a collection of assets to be sold piecemeal.

It is worth noting that there are situations in which the liquidation approach can be combined successfully with other appraisal methods. Consider, for example, a conglomerate firm consisting of a variety of loosely related subsidiaries. If each of the individual subsidiaries has significant organizational capital, then an approach that takes account of a subsidiary's earning power is required to appraise each of the subsidiaries separately. If the corporate headquarters only add a little organizational capital, the value of the firm can be calculated by estimating the value of each of the subsidiaries and adding the values as if the subsidiaries are individual assets that can be liquidated.

### 2.2.6 Concluding remarks

Only in rare situations can the **unadjusted book value** be a reasonable value

indicator. Its main use is comparisons, where the book value is compared, for example, with the market value to determine a market value premium to book value (net asset value). **Adjusted book values** are more useful. If replacement cost or liquidation value can be accurately estimated, **and** if there is reason to believe that the earning power of the company's assets is tied to their replacement cost or liquidation value, then the adjusted book value will be approximately equal to the market value.

Book value approaches to appraisal are particularly inappropriate for any industry or company that uses a reasonable level of technology in its processes, or for firms that derive much of their value from organizational capital. The only way to assess the impact of this synergy effect is to determine how effectively a company's assets work together as part of a going concern by examining the **earning power** of the company or by comparing the performance of the company with comparable firms in the same line of business. But in each case, that requires an altogether different approach to valuation.

Thus, in most practical situations, the book value approach to valuation should be given little weight by appraisers.

## 2.3 THE EQUITY AND DEBT APPROACH

### 2.3.1 Introduction

When a listed company is appraised, there is a straightforward valuation procedure: add up the market values of the equity and the debt. This technique is also referred to as the **market approach** because it is based on the observation of the market prices of the firm's shares.

Consider the following example of South African Breweries for the financial year ending 31 March 1996:

### Market value of equity and debt

	Number of shares issued	296 400 000
multiplied by	JSE price at financial year end	<u>R 133.75</u>
		<b>R'000</b>
	MARKET VALUE OF EQUITY	R3 964 350
	Minority interest	R2 249 700
	Preference share capital	R 226 100
	Total long-term debt	R2 416 900
	Interest bearing short-term debt	<u>R 1 998 400</u>
	MARKET VALUE OF DEBT AND EQUITY	R10 855 450

Although the equity and debt approach is straightforward, debate has arisen over what prices to use in the valuation procedure, particularly with regard to **equity**. The relationship between the information possessed by investors and share prices, is the subject of the **efficient market hypothesis**.

#### 2.3.2 The efficient market hypothesis

The efficient market hypothesis (EMH) is one of the foundations of modern finance. Because of the central role it plays in both the equity and debt approach as well as in the general principles on which valuation theory is based, a few comments regarding the EMH are necessary.

According to the most widely accepted definition, **an efficient market is a market in which the price of a share reflects all publicly available information**. It is thus the best possible estimate, on the basis of public information, of the share's true value.

It is important to distinguish between market efficiency and market clairvoyance. The EMH maintains that the market processes publicly available information as well as any professional investor can; it does not say that the market processes

information **perfectly** or that it can predict the future without error. Highly valued companies have, on occasion, performed very poorly, to the surprise (and dismay) of many. The EMH recognizes that both markets and well-informed investors can make mistakes, but it predicts that, on average, market forecasts and market valuations are **at least** as accurate as those produced by individual investors and appraisers.

### 2.3.3 The EMH and appraisal practice

The efficient market hypothesis has two important implications for appraisal practice. First and most importantly, it is connected to the equity and debt approach: in situations where the equity and debt approach can be used, this approach will produce the most reliable indicator of value. This does not mean that the sum of the market values of a company's shares represents a fair value of the firm. Some investors perceive the current (market) price as too high, while others believe it is too low and this difference in perceptions is the very reason for trading.

The EMH states that the market assessment of value is, on average, more accurate, than the subjective view of any individual appraiser. For this reason, appraisers should not substitute their own judgement for that of the market, even if it is not uncommon for appraisers to reject the market's opinion when it conflicts with their own views.

The EMH also implies that a firm's shares should be valued at market prices prevailing on the **lien date** (the day on which the appraiser is attempting to estimate value). Despite this implication, some appraisers, when calculating equity and debt values, average share prices over periods ranging from a month to a year preceding the lien date of the appraisal.

The efficient market hypothesis states that such averaging yields inaccurate estimates. Share price fluctuations, including movements in interest rates, result

from the arrival and discounting of new information. The correct price to use in an appraisal is the price that reflects all available information on the lien date. According to the EMH, that price is the market price on the lien date. Averaging earlier prices, which are based on past information, reduces the accuracy of the appraisal.

## 2.4 THE DIRECT COMPARISON APPROACH

### 2.4.1 Introduction

It is commonly held economic knowledge that assets of a similar nature **should** sell (trade) at similar prices. Based on this principle, a straightforward way to value an asset is to find an identical, or at least closely comparable, asset that has traded recently. This principle implies that the value of the asset being appraised should be comparable to that of the other (traded) asset.

According to Cornell (1993:56) the direct comparison approach involves two quantities: a **value indicator** and an **observable variable** that is related to value. For direct comparisons to be possible, data on both the value indicator and the observable variable must be available for the comparable asset, and data on the observable variable must be available for the appraisal target.

The direct comparison approach can also be expressed mathematically, which provides further insight into how the method works and the assumptions on which it depends. The **value indicator** is defined as **V** and the **observable variable** as **x**. The ratio of V to x for the company to be appraised must be approximately equal to the ratio of V to x for comparable firms:

$$\frac{V (\text{Target})}{x (\text{Target})} = \frac{V (\text{Comparables})}{x (\text{Comparables})}$$

This equation can be rewritten to solve the one unknown variable, the value indicator for the company to be appraised, as follows:

$$V (\textit{Target}) = x (\textit{Target}) * \frac{V (\textit{Comparables})}{x (\textit{Comparables})}$$

A critical step in applying the direct comparison approach is choosing observable variables  $x$  that have a consistent relation to value,  $V$ . In the case of a company, variables such as cash flows and earnings are good choices because the ultimate sources of value is the net benefits received by shareholders.

One way to apply the direct comparison approach is to calculate the average price-earnings ratio (P/E ratio) for a sample of comparable firms and multiply this average P/E ratio by the earnings (or **expected** earnings) of the firm to be appraised.

#### 2.4.2 Selecting comparable companies

There are two main obstacles to overcome when one attempts to value companies by direct comparison. Firstly, it could be difficult to find comparable companies to serve as a basis for comparisons. Second, the concept of a **comparable** company is nebulous. Corporations are complex entities characterized by a wide variety of traits. What (and how many) characteristics of companies must be similar in order to make a meaningful comparison possible?

The first problem can be overcome by using published data for listed companies. Shares in these companies are traded on a daily basis, and using this publicly available information, the P/E ratios are calculated on a daily basis by a variety of institutions.

Regarding the second problem, one common solution is to rely on industry classifications. The assumption behind this approach is that if companies are in the

same industry, many of their characteristics should be the same. In the case of the Johannesburg Stock Exchange (JSE), industrial classification alone provides only a rough estimate of comparability. Companies within any given sector vary considerably in terms of their size, capital structures, ability to produce and sell different products, distinct management philosophies, and markedly disparate corporate histories.

One excellent source regarding information on comparability is found in research reports compiled by stockbroking firms. Reports prepared by leading firms, in addition to offering a wealth of data about the target company, often contain a detailed list of comparable firms. Furthermore, in some cases, the list of comparables is accompanied by a discussion of the factors which led the analysts to conclude that these specific companies were considered comparable. Relying on independent information such as analyst reports and studies produced by investment research companies can also add credibility to an appraisal.

Finally, financial ratio analysis can also be applied to assess comparability. Suppose a number of companies have been selected on the basis of their industry classification, an examination of analyst reports, and discussions with management. Presumably, these companies should have financial ratios similar to those of the company to be appraised. If a financial ratio analysis (with the normal liquidity, solvability, leverage and profitability ratios) indicates that one or two comparables are found to differ significantly from the target company, they can be deleted from the sample.

#### **2.4.4 An application of direct comparison : the use of P/E ratios**

As mentioned previously, one of the most common and widely used applications of the direct comparison approach is the valuation of the equity of a firm on the basis of an analysis of P/E ratios. This method is frequently used by investment banks when they are evaluating potential acquisitions, spin-offs or restructurings.

P/E ratio = Market price per share/Earnings per share

therefore: Market price per share = P/E ratio x Earnings per share.

In order to use this method for valuing the equity of a firm, one needs to have the P/E ratios of the specific sector in which the company is listed, or the P/E ratios of similar companies. The P/E ratio, together with the expected earnings per share of the firm, can then give an indication of what the firm's **intrinsic** market price should be, which in turn can be compared with the **actual** market price per share.

Although the use of P/E multiples provides one illustration of the direct comparison approach, it is not the only or necessarily the best way in which direct comparisons can be developed. In many situations, price per share might not be the best value indicator, nor might earnings per share be the appropriate financial variable.

In the P/E analysis presented above, the value of the equity was used as the value indicator. Consequently, the result of the analysis is a valuation of the **equity** of the firm, and not of the **total value** of the firm. The value of the **debt** and **preferred stock**, if any, must also be calculated in order to arrive at the total value of the firm.

However, the subject and scope of this study is focused on the value for the **ordinary shareholder** (and the ways to measure this), and not so much on the total value of the firm. It is therefore unnecessary to diverge into further discussions of P/E ratios.

#### 2.4.5 Adjusting the financial data

For the direct comparison approach to produce relevant and usable outputs, the ratios and the financial data to which the ratios and data are going to be applied, must be carefully calculated. The inputs into the valuation process must be sound, otherwise the outputs will be unusable.

There are basically two reasons why a firm's financial data as published in the annual financial statements should sometimes not be used in this specific valuation process. Firstly, a company may use accounting practices or procedures that differ from those used by another company, even if the compilation of financial statements is regulated by a central body or guidelines, as is the case in South Africa. Secondly, short-term economic conditions may be such that the current earnings do not reflect the true (underlying) earning power of the company.

Procedures for adjusting financial data in order to make provision for inequalities, fall into two categories. One type of approach is the application of statistical techniques. For instance, five-year averages of a particular amount to be used in calculations are commonly calculated. The second type of approach involves studying the financial statements of the firm and then making selected adjustments according to pre-set guidelines.

It is this second approach that is employed in this study, due to the fact that the data used originated from the data bases of the Bureau of Financial Analysis (BFA) of the University of Pretoria. Certain figures in the financial statements of a firm are adjusted when the BFA compiles its databases.

#### **2.4.6 Concluding remarks**

It is possible to extend the concept of direct comparison valuation by using other value indicators and additional financial variables. The temptation to use a shotgun approach must, however, be avoided. It is better to select a limited group of variables that financial analysis suggests should produce accurate appraisals.

In closing, it is worth reiterating that **comparability** is the key to the successful use of the direct comparison approach. It is, however, in the search for comparability that the drawback of the direct comparison approach lies. Extensive manipulation of the data can create an illusion of comparability when, in fact, it does not exist. According to Cornell (1993:99), even highly dissimilar companies can be made to

appear similar if the data are "massaged" enough. Thus, the fewer the adjustments to the data, the greater the confidence (and value) possible in a direct comparison approach.

## 2.5 DISCOUNTED CASH FLOW MODELS

### 2.5.1 Introduction

During the mid 1950s, Gordon and Shapiro established the principle that the price or value of a share must be equal to the discounted present value of the cash flows that shareholders expect to receive (Franks, Broyles & Carleton 1985:228).

The discounted cash flow approach is, in many ways, an improvement on the methods discussed above. One of the biggest differences lies in the fact that **cash flow** (in the form of dividends) is now being introduced into the valuation process.

A number of problems may arise when one tries to apply the discounted cash flow approach for valuation purposes. The benefits to the shareholders must be defined. At this stage, one can safely say that this entails the cash flow from their shareholding, namely dividends and capital gains. It is, however, the **estimation** or **forecasting** of these inputs that is difficult and subject to subjectivity.

Unlike bonds and preferred shares, where the cash flows are contractually stated, much more uncertainty surrounds the future stream of returns connected with ordinary shares.

A rate must also be selected for discounting the predicted cash flows. Cornell (1993:101) states that the selection of the discount rate is complicated by a combination of two facts. Firstly, the cash flow forecasts are uncertain, so that the disbursements to investors are risky; and, secondly, investors demand a premium for risk. Moreover, different investors demand different risk premiums.

The dividend discounted cash flow approach to corporate valuation is conceptually identical to the investment decision based on net present value. In the context of the valuation of shareholders wealth, this approach can be regarded as the present value rule applied to the share. The value of an ordinary share can thus be viewed as the discounted value of all expected future dividends provided by the issuing firm for the time span that the investor (shareholder) wants to hold on to that share. This can be expressed by means of the following formula:

$$\begin{aligned}
 V &= \frac{D_1}{(1 + k_e)} + \frac{D_2}{(1 + k_e)^2} + \dots + \frac{D_\infty}{(1 + k_e)^n} \\
 &= \sum_{t=1}^{\infty} \frac{D_t}{(1 + k_e)^t}
 \end{aligned}$$

where

- V = the value of the share;
- $D_t$  = the cash dividend at the end of time period  $t$ ; and
- $k_e$  = the investor's required rate of return, or discount rate for this equity investment.

An important feature of ordinary shares is that they have no fixed maturity. If the shareholder/investor plans to own the share for only two years, the model becomes:

$$V = \frac{D_1}{(1 + k_e)} + \frac{D_2}{(1 + k_e)^2} + \frac{P_2}{(1 + k_e)^2}$$

where

- $P_2$  = the expected selling price of the share at the end of the second year.

Equation 2.2 assumes that future investors will be willing to buy the share two years from now. These future investors will base their judgements of what the share is worth on their expectations of future dividends and a future selling price

(in this case in the second year) (Van Horne & Wachowicz 1995:74).

Note that, as explained above, it is the **expectation of future dividends** and a **future selling price** (which itself is based on expected future dividends), that gives value to the share. Cash dividends are the only reward that shareholders receive from the issuing company and therefore the foundation for the valuation of ordinary shares must be dividends. This model was first developed by Williams, and in his 1938 book, *The Theory of Investment Value*, he aptly put the principle into verse:

"A cow for her milk  
A hen for her eggs  
And a stock, by heck  
for her dividends" (Van Horne & Wachowicz 1995:73).

## 2.5.2 Dividend discount models

Dividend discount models are designed to calculate the intrinsic value of ordinary shares under specific assumptions with regard to the expected growth pattern of future dividends and the appropriate discount rate required by the investor. A number of variations are discussed below.

### 2.5.2.1 No growth in dividends

It is highly unlikely that ordinary shareholders would expect or receive no nominal growth in dividends, especially in an economy where there is inflation. It is, however, possible that a stable dividend is expected to be maintained for a long period of time. The present value of the share, according to the constant dividend model, is simply the current dividend divided by the discount rate:

$$V = \frac{D}{k_e}$$

Note that there is no subscript to the "D". That is because  $D_0 = D_1 = D_2 =$  a constant dividend.

The model accurately describes the cash flow and valuation of preferred shares, as they pay a constant dividend and can thus be valued as a perpetuity. However, this model is too simplistic, because most companies often change the dividend that they pay.

### 2.5.2.2 Constant growth in dividends

Although the dividends that a company pays might vary from time to time, it might be more realistic to assume a constant growth rate in dividends over time. The constant growth in dividends model assumes that dividends grow at the same rate in each period. Ordinary shares that offer dividends that grow at a constant rate can be valued as a **constant growth perpetuity** (Chambers & Lacy 1993:152):

$$V = \frac{D_1}{k_e - g}$$

where

- $D_1$  = next year's dividend;
- $k_e$  = the discount rate; and
- $g$  = the constant growth rate in the cash flow.

This formula also provides an insight into the discount rate, or the shareholder's required rate of return. If one rewrites the above formula to make  $k_e$  the subject, one gets the following formula:

$$k_e = \frac{D_1}{V} + g$$

The first term of this formula is called the dividend return or dividend yield, and is readily available from historic information. The second part of the equation,  $g$ , the growth rate, is much more difficult to estimate. Whilst one can obtain information on the past performance in the growth rate, some analysts estimate future growth by using the following formula:

$$g = b \times \text{ROE}$$

where

$b$  = the percentage cash flow retained and reinvested by the firm for future growth; and

ROE = the historic accounting rate of return on the firm's equity.

The above equation implies that future growth in dividends will be based upon the amount of funds reinvested or retained for growth purposes and the rate of return the firm earns on equity (Chambers & Lacy 1994:153).

Van Horne and Wachowicz (1995:75) developed this formula further. They did not base their valuation on dividends, but called it an **Earnings Multiplier Approach**. This approach is very similar to what we called the Direct Comparison Approach using P/E ratios in Section 2.4.4 above.

The idea is that investors often think in terms of how many rands they are willing to pay for a rand of future expected earnings. If  $b$  represents a constant retention rate, then the dividend-payout ratio would also be constant at  $(1-b)$ . Therefore,

$$(1 - b) = \frac{D_1}{E_1}$$

and

$$D_1 = (1 - b) * E_1$$

where

$E_1$  = the expected earnings per share in period 1.

If one substitutes the above formula into the constant growth model (equation 2.4 on the previous page), one obtains the following formula:

$$V = \frac{(1 - b) * E_1}{k_e - g}$$

The value is now based on the expected earnings in period 1 and not on the expected dividends *per se*.

One must, however, keep in mind that this alternative approach originated from the constant growth dividend discount model and therefore is not new, based on the same principals and with similar advantages and disadvantages attached to it.

### 2.5.2.3 Non-constant growth in dividends

The final dividend discount model considers the situation where there is a non-constant growth in dividends. Although one can apply the general dividend discount model (discounting each year), one can also assume that the dividends are expected to grow at an abnormal rate for a number of years, after which growth will taper off to a more normal rate.

The value of a share that experiences such growth can be expressed as follows:

$$V = \begin{matrix} \text{(PV of dividend} \\ \text{for each year} \\ \text{of abnormal growth)} \end{matrix} + \begin{matrix} \text{(PV of value} \\ \text{at end of period} \\ \text{of abnormal growth)} \end{matrix}$$

This can be illustrated by means of the following example:

Suppose that a firm's most recent dividends amounts to R2,00 per share. It is expected that the growth rate in dividends will be 25% per year for the next 3 years, after which the growth rate will drop back to a normal rate of 5% for the foreseeable future. The value of the share can be calculated for a shareholder who

has a required rate of return of 12%.

Year	Growth rate	Total dividends	PV factor @ 12% ( $k_e$ )	Total PV
1	25%	R2,50	0.893	2,233
2	25%	R3,13	0.797	2,495
3	25%	R3,91	0.712	2,784
4	10%	R4,30 ÷ (0,12 - 0,05) = R61,43	0.712	<u>43,738</u>
				51,250

The calculation is set out in the following formula:

$$\begin{aligned}
 V &= \sum_{t=1}^3 \frac{2(1,25)^t}{(1,12)^t} + \frac{1}{(1,12)^3} \times \frac{4,30}{(0,12 - 0,05)} \\
 &= 7,512 + 43,738 \\
 &= 51,250
 \end{aligned}$$

As the example demonstrates, the process of determining the value of shares where non-constant growth in the dividends occur, is greatly simplified by assuming constant growth in dividends from the third year onward. One can, however, generate much more plausible scenarios on a simple computer spreadsheet, bearing the general principle in mind.

#### 2.5.2.4 Concluding remarks

The cash flows that an investor in ordinary shares will receive take on the form of dividends. Investors are able to value their shareholding by means of the dividend discount models. This involves discounting the expected cash flows by applying a discount rate that takes into account the cost of the equity funds invested, as well as a risk premium that reflects the investors' risk profiles.

Nagorniak (1985:13), however, caution investors against using this model. He states that, while the dividend model can be a useful tool for determining the relative attractiveness of shares, it is not a "black box" that ensures instant wealth. The dividend discount model can be used well or it can be used badly. It is especially the time horizon assumption and the risk-adjustment procedures that can cause problems or skewed results. A share's beta has very little to do with the structure of a typical dividend discount model.

Most of the issues raised above have been addressed in some form or another by practitioners. The scope of the study does not allow further discussion of these issues here.

## **2.6 THE RELEVANCE OF EARNINGS PER SHARE AND RETURN ON EQUITY**

Many practitioners and managers of businesses still rely on earnings per share in order to explain value creation. Traditionally, earnings per share is regarded as an essential accounting measure of performance.

As far back as October 1974, the *Wall Street Journal* proclaimed in an editorial that "a lot of executives apparently believe that if they can figure out a way to boost earnings per share, their stock prices will go up even if the higher earnings do not represent any underlying economic change".

In order to contrast expected cash flows with earnings per share, Copeland, Koller and Murrin (1990:73) use the following example (overleaf) in Tables 2.1 and 2.2.

Consequently, sales less cash expenses and depreciation equals earnings before interest and tax (EBIT) which is then equal to net income (NI).

**TABLE 2.1 PROJECTED INCOME STATEMENTS (Rm)**

<b>LONGLIFE COMPANY</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>	<b>YEAR 6</b>	<b>TOTAL</b>
SALES	1,000	1,050	1,100	1,200	1,300	1,450	7,100
CASH EXPENSES	(700)	(745)	(790)	(880)	(970)	(1,105)	(5,190)
DEPRECIATION	(200)	(200)	(200)	(200)	(200)	(200)	(1,200)
EBIT = NI	100	105	110	120	130	145	710

**TABLE 2.2**

<b>SHORTLIFE COMPANY</b>	<b>YEAR 1</b>	<b>YEAR 2</b>	<b>YEAR 3</b>	<b>YEAR 4</b>	<b>YEAR 5</b>	<b>YEAR 6</b>	<b>TOTAL</b>
SALES	1,000	1,050	1,100	1,200	1,300	1,450	7,100
CASH EXPENSES	(700)	(745)	(790)	(880)	(970)	(1,105)	(5,190)
DEPRECIATION	(200)	(200)	(200)	(200)	(200)	(200)	(1,200)
EBIT = NI	100	105	110	120	130	145	710

Source: Copeland, Koller and Murrin (1990:73)

To keep the example as simple as possible, we omit debt(interest) and taxes.

One can ask oneself which company has the better value-maximizing strategy? The answer is that it is impossible to make a correct decision or evaluation based only on the above information. There is obviously not enough information in the income statement alone to make value-based decisions. Both companies have exactly the same net income. Earnings or earnings growth are inadequate measures of performance because they ignore critical balance sheet information.

Consider the projected cash flows of the companies as given in the Tables 2.3 and 2.4 overleaf.

In the example in Tables 2.3 and 2.4, the cash flows are calculated by taking net operating income (after tax) plus depreciation, minus capital expenditures and allowing for changes in working capital. It is therefore the operating cash flows less cash flows needed to grow the balance sheet (Weston & Copeland 1992:705).

The key differences between Longlife and Shortlife companies are found in the balance sheet, where Longlife uses manufacturing equipment that must be replaced every three months, while Shortlife uses equipment that must be replaced every year but costs only one third as much. Also, Shortlife does a much better job of collecting its receivables. For simplicity's sake, the movements of no other balance sheet items were considered.

Tables 2.3 and 2.4 showing the net present values indicate that, assuming that the two companies are exposed to equal risk, anyone who has a 10% required rate of return would find *Shortlife* the superior company. This simple numerical example demonstrates why management should (can) not base valuation decisions on earnings (per share) or the growth thereof. The method does not take **risk** nor **cash flow** into consideration

TABLE 2.3 PROJECTED CASH FLOW (Rm)

LOGLIFE COMPANY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	TOTAL
NET INCOME = EBIT	100	105	110	120	130	145	710
DEPRECIATION	200	200	200	200	200	200	1,200
CAPITAL EXPENDITURE	(600)	0	0	(600)	0	0	(1,200)
INCREASE IN RECEIVABLES	(250)	(13)	(13)	35	45	(23)	(219)
CASH FLOW	(550)	292	297	(245)	375	322	491
<b>NPV @ 10%</b>	<b>(500)</b>	<b>241.32</b>	<b>223.14</b>	<b>(167.34)</b>	<b>232.85</b>	<b>181.76</b>	<b>211.73</b>

TABLE 2.4 PROJECTED CASH FLOW (Rm)

SHORTLIFE COMPANY	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	YEAR 6	TOTAL
NET INCOME = EBIT	100	105	110	120	130	145	710
DEPRECIATION	200	200	200	200	200	200	1,200
CAPITAL EXPENDITURE	(200)	(200)	(200)	(200)	(200)	(200)	(1,200)
INCREASE IN RECEIVABLES	(150)	(8)	(8)	(15)	(15)	(23)	(219)
CASH FLOW	(50)	97	102	105	115	122	491
<b>NPV @ 10%</b>	<b>(45.45)</b>	<b>80.17</b>	<b>76.63</b>	<b>71.72</b>	<b>71.41</b>	<b>68.87</b>	<b>323.35</b>

Another commonly used method to measure performance is that of return on equity (ROE). Weston and Copeland (1992:707) use the following example to demonstrate why ROE could differ from value-creating potential. Table 2.5 below shows the return on equity of four business units of a conglomerate.

**TABLE 2.5 ROE and value-creation potential**

BUSINESS UNIT	ROE	VALUE	VALUE CREATION	VALUE CREATION AS A % OF VALUE
STEEL COMPANY	10.6%	R510m	R163m	32%
BANK	41.1%	R787m	R 75m	10%
BUILDING MATERIALS	2.2%	R204m	R 24m	12%
DEVELOPMENT AND CONSTRUCTION	5.6%	R258m	R 82m	32%

If one were to use ROE as a measure to allocate resources to the different business units, then the bank will be the top candidate, a choice which is also supported by the fact that the bank has the biggest value. The correct approach, however, would be to evaluate the business units on the basis of **value creation** potential. A different picture emerges, with the steel company receiving top honours. This example also illustrates the fact that ROE and, in fact, any accounting-based value creation model, uses historical information as input, and therefore tends to be backward-looking.

Although we have focused on the most common accounting measures of performance, namely earnings per share and ROE, other measures are also flawed. Companies that use return on sales completely ignore the cash flow effects stemming from their balance sheets, for example, changes in working capital. Return on assets (ROA) is also a method subject to factors that may distort its

decision-making value. For example, the ROA for a business or business unit may be artificially high because the assets of the business unit are depreciating (at a high rate) or the business does not require many assets in the first place. This subject is discussed in more detail in the next chapter of this study.

## 2.7 CONCLUSION

In the sections above, various models that can measure and determine shareholder value are discussed. The methods discussed here are by no means all the options that are open to appraisers. As mentioned in the introduction to this chapter, these methods are the "traditional" methods. They are distinguished by means of a further common denominator, namely that they are all **accounting-based methods**.

Copeland, Koller and Murrin (1990:76) have developed a more sophisticated accounting model which improves on the above models in the sense that it adds investment and risk to the equation. This refined model (which is not discussed here) works fairly well in a simplified world, but, like the other models discussed above, it begins to break down once one adds real world complications. The following factors can cause the accounting models to be less than satisfactory as ways to determine shareholder value (a more detailed discussion of the economic models used to determine shareholder value follows in the next two chapters):

- a) companies use a differential accounting treatment for items such as stock, depreciation and assets. This makes it difficult to measure and to compare accounting ratios between companies consistently;
- b) very few companies practice inflation-accounting, and even if one adjusts the financial data in order to allow for inflation, the adjustment distorts the relationship of accounting earnings to cash flow;
- c) cyclicity is not dealt with by the accounting model, which attempts to capture an entire cycle in a P/E ratio;

- d) the pattern and returns of investments (and dividends) are not simple: investments are not made in one year and do not result in constant returns in all succeeding years; and
- e) the base level of earnings must be standardized in order to eliminate any abnormal or extraordinary items which might appear or re-appear.

To conclude the discussion of the relevance of earnings, it is possible to say that the market is not fooled by cosmetic earnings increases; only long-term earnings increases, that correspond with improved long-term cash flow, increase share prices. There is substantial evidence supporting the view that the market uses a sophisticated approach to assess accounting earnings. Copeland, Koller and Murrin (1990:79) classify this evidence into three classes:

- a) evidence that accounting earnings are not well correlated with share prices;
- b) evidence that earnings window dressing does not improve share prices; and
- c) evidence that the market evaluates management decisions based on their expected **long-term cash flow** impact, not on their short-term earnings impact.

As a detailed discussion of this evidence falls outside the scope of this study, the reader is referred to Copeland, Koller and Murrin's book.

This chapter on accounting-based methods has not only introduced the reader to these methods, but has exposed the shortcomings of these methods and set the scene for the economic-based models which are discussed in Chapter 3 and Chapter 4.