Value-based management for small and medium enterprises in South Africa

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Abstract

The new millennium is the time for entrepreneurship both nationally and internationally because the new millennium has many opportunities, afforded by technology and global communications, as it is filled with challenges and uncertainty. The South African government has identified the important role small- and medium-sized enterprises have to play in employment creation. The first step towards economic development is creating new businesses; the second step is ensuring sustainability through value creation.

Value-based management can be defined as a management approach that maximises long-term shareholder value, which is incorporated in the business' strategy and goals, through the identification and management of key value drivers, whereby all employees think and act like shareholders. To ensure value creation takes place, some form of control mechanism is required. Managerial decisions and actions to create shareholder value, therefore, are measured through a metric, and employee performance is linked to the value created. Value-based management is not a staff-driven exercise but focusses on better decision making at all levels. Value-based management metrics are based on the idea of comparing cash flows generated by a company against the cost of capital in generating these flows, and thereby measuring shareholder value. Understanding what drives value in a company is essential for creating shareholder value, as well as how these drivers affect one another. This will enable all stakeholders, from senior management right down to the shop floor, to make the right informed decision that will result in creating and increasing shareholder value.

Entrepreneurship can be defined as a dynamic goal-oriented process whereby an individual combines creative thinking to identify marketplace needs and new opportunities with the ability to manage secure resources, and adapt to the environment to achieve desired results, while assuming some portion of risk for the venture. Entrepreneurship is about the exploitation of perceived opportunities by individuals, based solely on personal judgement and visions. These are either not seen by other individuals, or they are unable to bear the risks of acting upon them. Without effective and efficient management by objectives, and management of projects, a small business cannot function.

The decision to invest in an entrepreneurial business can be viewed as a hard evidence-oriented, substance-based process and investors discount the figures in a

business plan, as these figures are wildly optimistic as well as padded by entrepreneurs. A venture capitalist sometimes chooses to invest in a new venture, even if the discounted cash flow (DCF) analysis results shows that the net present value is a negative reason, being that the DCF approach does not take into account the flexibility obtained by active management. The environment faced by the venture-backed firm is highly uncertain, making overlooking this flexibility a particularly serious problem. Private equity is potentially one of the most expensive forms of capital financing. New and emerging firms are usually the issuers of private equity, as these firms cannot raise money in the public markets, or they are public firms going private that require massive amounts of private financing. Smaller unlisted companies regard the Johannesburg Securities Exchange's Alternative Exchange (AltX) as a stepping-stone to bigger things, including graduating to the main bourse of the JSE. Capital structure is arguably at the core of modern corporate finance, and a simple capital structure as a form of competitive strategy, as fewer physical assets contribute to organisational flexibility, and as a result, small firm owners often weigh the benefits of expansion against the benefits of remaining small.

Performance evaluation is an important tool in continuously improving performance in order to stay competitive. Performance evaluation and benchmarking positively forces any business to constantly improve and evolve. Benchmarking a firm's financial results against its own peers or industry averages enables management to identify the relative strength and weaknesses of the firms and as a result, ensure better future planning.

Data envelopment analysis (DEA) is a non-parametric linear programming technique that computes a comparative ratio of outputs or inputs for each unit, which is reported as the relative efficiency score. DEA assists in identifying areas in which a firm has strengths and weaknesses (relative to competition) and when improvements are needed (relative to peers). DEA can indicate the level of improvement required, and provides a consistent and reliable measure of managerial or operational efficiency.

A two-stage DEA model was developed to benchmark performance in terms of value creation in the first stage, and in the second stage, share price performance. The study was designed to evaluate companies at operating level (day-to-day activity) as well as company level. In addition to the two-stage model, a single stage model was developed as a separate analysis in terms of output maximisation regarding share prices. As far as could be determined, it was the first time this type of research was done on South African companies listed on the AltX. Furthermore, the study is the first to apply a

benchmarking technique to determine the relative efficiency of companies to convert resources into value-based performance measures and to convert the same measures into share-value.

The majority of companies listed on the AltX are not efficient in reflecting company performance in share prices by means of value-based management principles. A very limited number of companies were able to be efficient simultaneously in creating value and reflecting the value created in the share price. Based on the efficiency frontier in terms of value creation, a very limited number of companies listed on the AltX are deemed efficient. The majority of the companies are not able to create value at the levels of the efficient companies. A small fraction of the companies listed on the AltX is deemed efficient based on the efficiency frontier for reflecting value creation in share prices. AltX companies' share prices have the potential to increase significantly in value, if all companies were efficient in reflecting created value in share prices. Small and medium enterprises should give more attention to value-based management principles in the process to create shareholders' wealth.

In light of the evidence that the value creation process must start with educating the management of small and medium enterprises on the concepts and principles of value-based management, it would also be highly recommended that small and medium enterprises should make value-based management part of the business' strategies and goals. Small and medium enterprises must identify and manage key value drivers. This process is not a generic process, as each business is unique in its own way. It is important for management to understand the key value drivers in order to get employees to understand them. The management of small and medium enterprises are warned against a short-term value maximisation focus at the expense of long-term shareholder value creation. Any reward and recognition system should not reward short-term benefits, but rather should focus on long-term, sustainable initiatives, that will create value in the long run to the benefit of all stakeholders involved.

Keywords: Value-Based Management, Long-Term Shareholder Value, Entrepreneurship, Small and Medium Enterprises, Benchmarking, Data Envelopment Analysis, Share Price

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Table of Abbreviations

Acronym	Term
ABC	Activity-based costing
ABM	Activity-based management
AICPA	American Institute of Certified Public Accountants
ALSI	All Share Index
APS	Average price per share
BOP	Bottom (or base) of the pyramid
BPM	Business process management
CEO	Chief executive officer
CFO	Chief financial officer
CFO	Cash from operations (as used in Table 2.3)
CFROI	Cash flow return on investment
CIPC	Companies and Intellectual Property Commission
CLV	Customer lifetime value
CRS	Constant return to scale
CVA	Cash value added
DCF	Discounted cash flow
DEA	Data envelopment analysis
DERO	Discounted equity risk option
DMU	Decision making units
EBDIT	Earnings before depreciation, interest and tax
EBIT	Earnings before interest and tax
EBITDA	Earnings before interest, tax, depreciation and amortisation
EE	Equity equivalents
EP	Economic profit
EPS	Earnings per share
EVA	Economic value added
FCF	Free cash flow
FGV	Future growth value
FIFO	First in first out
JSE	Johannesburg Securities Exchange
LIFO	Last in first out
MVA	Market value added
NDP	National Development Plan
NOPAT	Net operating profit after tax

Acronym	Term
NOPLAT	Net operating profit less adjusted taxes
NPC	National Planning Commission
NPV	Net present value
OCF	Operational cash flow
OCFD	Operational cash flow demanded
PCD	Product-capital dependence
PE	Price earnings ratio
PMMS	Performance measurement and management system
ROA	Return on assets
ROCE	Return on capital employed
ROE	Return on equity
ROI	Return on investment
ROIC	Return on invested capital
RONA	Return on net assets
SVA	Shareholder value added
TSR	Total shareholder return
URL	Uniform Resource Locater
VBM	Value-based management
VRS	Variable return to scale
WACC	Weighted average cost of capital
YPS	Year-end price per share

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

The new millennium is being defined as much by the enormous opportunities afforded by technology, global communications, as it is by the worldwide challenges and uncertainty (Spinelli & Adams, 2012:ix). It is the time for entrepreneurship, both internationally and nationally (Maas & Herrington, 2007:4). The United States of America has moved beyond big firm capitalism into an era of entrepreneurial capitalism (Schramm & Litan, 2008:32). Schramm and Litan (2008:35) are of the opinion that policy makers' central task is to ensure that the entrepreneurial revolution continues, thus maximising chances for economic growth at higher rates. Not only are entrepreneurial solutions essential for sustained rapid growth, but they also help to meet various domestic challenges (Schramm & Litan, 2008:36).

Why should South African companies, investors, entrepreneurs and policy makers pay attention to the statements in the first paragraph? It can be concluded that factors such as corruption, skills shortage, an underperforming education system, regulated labour market, political uncertainty, weak governance and insufficient infrastructure has placed South Africa at a disadvantage against other emerging markets. South Africa's export performance during 2014 was dented severely by structural impediments, prolonged industrial action, a moderation in global demand and declining commodity prices (South African Reserve Bank, 2014:34). The result of the poor export performance was widening in the balance of payments from R75 billion in the first quarter to R101 billion in the second quarter of 2014.

In 2008, the South African economy was going through a period of stagflation (Steyn (2008:52). It is a term coined during the 1970s oil shock to describe a period of stagnation in economic growth combined with high inflation. In 2008, South Africa's economic growth was hit by a triple set-back: the lagged effects of higher interest rates, weaker global economic growth and unplanned electricity blackouts (Steyn, 2008:52). The real GDP, according to the South African Reserve Bank (2009:5), was 5.1 percent for 2007, and 3.1 percent for 2008. The negative global sentiments in 2008 also had a negative impact on the All Share Index of the Johannesburg Securities Exchange (JSE). The index dropped from a high of about 33 000 in May 2008, to below 19 600 in January 2009.

In 2014, the All Share Index almost doubled in value, rising above the 50,000 level. While the All Share Index showed phenomenal growth since 2008, the same cannot be said of South Africa's real GDP. In 2013, real GDP was at 1.9 percent. (South African Reserve Bank, 2014:5). In the first half of 2014, real GDP contracted by 0.6 percent in the first quarter (annualised rate), and rose by 0.6 percent in the second quarter. Even though the real GDP numbers were flat after six months, in the first half of 2014 they were still 1.3 percent higher than the corresponding period in 2013.

According to Statistics South Africa Quarterly Labour Force Survey (2014:v) the official unemployment rate of South Africa for Q2:2014 was 25.5 percent, compared to 25.2 percent for Q1:2014. Year-after-year, the unemployment rate increased from 25.3 percent to 25.2 percent. In the same report, the working age population (people between the ages of 15 and 64) rose to 35.332 million in Q2:2014, up from 35.177 million in Q1:2014 (Statistics South Africa, 2014:v). The 35.332 million is made up of a labour force of 20.248 million people, and 15.084 million people that are not economically active. Of the 20.248 million, 15.094 million are employed, while the balance of 5.154 million are unemployed.

The National Planning Commission (NPC) (2012:38) describes the South African economy as an economy that displays features a low-growth, middle-income trap. South Africa is characterised by large numbers of work seekers who cannot enter the labour market, a poor skills profile, low savings, and lack of competition. The National Development Plan (National Planning Commission, 2012:26) sets out six interlinked priorities of which one is the bringing about faster economic growth, higher investment and greater labour absorption. The National Development Plan (NDP) requires an economy that is more inclusive, dynamic and sharing the fruits of growth equitably. By 2030, the economy should be close to full employment and people must be equipped with skills that they need (National Planning Commission, 2012:38). New jobs are likely to be sourced in domestic-orientated business and in growing small- and medium-sized firms (National Planning Commission, 2012:39).

In order to transform the economy, the economy needs to grow more than 5 percent a year, on average. More emphasis is needed to support small enterprises and government and the private sector is encouraged to procure from small firms (National Planning Commission, 2012:42). In terms of small- and medium-sized, the NDP (National Planning Commission, 2012:40) proposes that:

- The cost of regulatory compliance for small- and medium sized firms is reduced
- Small businesses are supported through better coordination of relevant agencies, development finance institutions, and public and private incubators
- The regulations and standards for small and medium enterprises are reviewed.

1.2 SMALL AND MEDIUM ENTERPRISES

Classic entrepreneurship means new venture creation, and it is arguably the single most powerful force to create economic and social mobility (Spinelli & Adams, 2012:11). In order to understand entrepreneurship better it is important to highlight the following generally accepted entrepreneurial principles (Maas & Herrington, 2007:7):

- Entrepreneurship can facilitate employment creation and economic growth
- Entrepreneurs are involved in exploiting new opportunities, which necessitates a high degree of personal creativity and innovation
- Entrepreneurship is different from a normal business, for example a normal business, it is argued, focusses mainly on maintaining a fixed quality of life whereas entrepreneurship is a risky enterprise and, therefore, calls for the ability to work with ambiguity.

In a study conducted across 104 developing economies by Ayyagari *et al.* (2014:95), it was found that small firms with less than 20 employees make the smallest contribution to the aggregate employment. Ayyagari *et al*. (2014:95) found that small firms with less than 20 employees employ just over 20 percent of the total permanent full time workers in the average country. Small and medium enterprises with less than 99 employees, however, as a whole, employ nearly half the workforce in the average country.

Ayyagari *et al*. (2014:95) also found that even though small firms contribute a relatively small portion of cumulative employment, small firms in fact generate most new jobs across country income groups. Small firms with less than 20 employees generate 45.34 percent of the jobs in countries that had a net positive job creation, while in countries with a cumulative net job loss; small firms with less than 20 employees still create 36.54 percent of the jobs. The opposite happens during downturns – large firms cause almost all job destruction (Ayyagari et al., 2014:95).

Post the global financial crisis in 2008, job creation has been on the top of the agenda for policymakers and regulators (Ayyagari *et al*., 2014:99). Disturbingly though,

Ayyagari *et al*. (2014:96) concluded that small firm's sales growth and higher employment is not accompanied by productivity growth, but larger firms have higher growth. Ayyagari *et al*. (2014:96) attributes the fact that job creation does not translate into faster growth to small firms that have lower productivity growth. With these findings, Ayyagari *et al*. (2014:96) cautions that the challenge for policymakers is to create better quality jobs and not just more jobs in order to promote growth.

According to the National Small Business Act (102 of 1996), small business means a separate and distinct business entity, including cooperative enterprises and non-governmental organisations managed by one owner or more, which including its branches and subsidiaries, if any, is predominantly carried on in any sector or subsector of the economy mentioned in column 1 of the schedule in the act. A small business can be classified as a micro-, a very small, a small or a medium enterprise by satisfying the criteria mentioned in columns 3, 4 and 5 of the schedule. The National Small Business Amendment Act (26 of 2003), amended the schedule, and the amended version is available in Annexure A. The expression small business was changed to small enterprise in the National Small Business Amendment Act (29 of 2004).

In the 2013 Global Entrepreneurship Monitor's South African report, Herrington and Kew (2014:36) stress the importance of understanding that small changes can improve the entrepreneurial climate significantly in South Africa. Herrington and Kew (2014:36) warn that these small changes will have little long-term effect unless the following three main inhibiting constraints are addressed and rectified to an acceptable level:

- Education
- Health
- Crime and corruption.

Herrington and Kew (2014:36) are of the opinion that the quality and direction of education needs to be addressed and rectified. If the quality and direction of education is not addressed, South Africa will have a population that is not correctly educated and, therefore, very little will happen to the economy from its current low status. In terms of health, Herrington and Kew (2014:36) stress the fact that an unhealthy society cannot start and run businesses successfully and, therefore, regard the good health of a nation's population as vital. Businesses at all levels, from micro-enterprises to large corporations, are suffering from the dramatic adverse effects of crime, and the massive impact corruption, from the very top, has on economic development (Herrington & Kew,

2014:36). Unless crime and corruption is brought under control, they will continue to have a major negative impact on early-stage entrepreneurial activity.

A sub-optimal regulatory environment, it seems, severely hampers the performances of small, medium, and micro enterprises. Factors such as the administration of tax, the planning system, municipal regulations, the administration of labour law and specifically the sectorial environment hamper the development of businesses (South Africa, 2007:5). Klapper, Laeven and Rajan (2004:33) did research on the barriers to entrepreneurship for western and eastern Europe firms, and found that regulations, which protect intellectual property and develop financial markets, tend to have favourable effects on entry into business, and growth. It was found also that excessive bureaucratic regulation of entry into business and/or labour tends to have adverse effects on entrepreneurial activities. According to Maas and Herrington (2007:4), a positive entrepreneurial environment is also dependent on a system that effectively balances government and private sector needs and interventions. Maas and Herrington (2007:4) conclude that entrepreneurship will only come into its own in a stable and positively geared environment.

South Africa's National Development Plan (2012:140) identified the import role small- and medium-sized enterprises have to play in creating employment. With this in mind, the NDP (2012:142) contains the following key proposals to support small business development:

- Public and private procurement
- Regulatory environment
- Access to debt and equity finance
- Small-business support services
- Addressing the skills gap.

Altman (2007:7) lists a number of points learned through the employment scenarios research and roundtables, of which the following three pertain to entrepreneurial companies:

- Economic policy may have more impact on employment if efforts were concentrated primarily on reducing the risk/reward relationship for investing in newer activities.
- Easing the movement of people in and out of South Africa, more supportive Research & Development incentives for services industries, and more emphasis on

services trade arrangements enabling market access and movement of people, are levers available to government to promote newer industries

- Some of the barriers that contribute towards the relative small informal economy in the context of such high unemployment are lack of access to capital or skills, high crime rates, and lack of entrepreneurial skills.

In 2010, small firms accounted for all the new jobs created in the United States of America (USA) (Spinelli & Adams, 2012:11). Spinelli and Adams (2012:11) describe the far-reaching changes in employment patterns caused by the explosion of new companies: in the 1960s, a Fortune 500 company employed roughly 25 percent of the workforce, in the 1980s, it was still 20 percent. This number dropped to below 9 percent in 2010. Not only does the explosion of new companies lead to massive job creation, but it also drives the growth of new regions and centres of technology and entrepreneurship throughout the USA (Spinelli & Adams, 2012:11).

The Kauffman Index of Entrepreneurial Activity is a leading indicator of new business creation in the USA and captures new business owners in the first month of significant business activity (Fairlie, 2014:2). In the 2013 Kauffman Index of Entrepreneurial Activity, it is reported that on average, 0.28 percent of the adult population created a business each month, which translates into 476,000 new businesses being created each month during the year (Fairlie, 2014:4). Fairlie (2014:4) comments that the 2013 entrepreneurship rates returned to the pre-recessionary levels of 2006, most likely due to improving economic conditions. Fairlie (2014:2) ascribes this change in entrepreneurship rates to the change in labour markets and as a result, less pressure is on individuals to start their own businesses out of necessity. In South Africa, according to the 2012/13 annual report of the Companies and Intellectual Property Commission, 222,146 new companies were brought into the formal economy for the year ending 31 March 2013 (CIPC, 2014:15).

Creating new businesses, however, is just the first step towards economic development. The second step is to manage entrepreneurial businesses in order to be sustainable over the long term. An almost precondition for sustainability, it can be argued, is the ability of the business to create value on a long-term basis.

Mohanty (2006:265) states that for years, economists have been arguing that a firm earns true profit only if it earns more than what the investors expects. Kramer and Pushner (1997:41) define the economic profit of a firm as the accounting profit minus

the cost of capital. According to Koller (1994:87), the only true measure of management actions to create wealth, is when capital is invested at returns higher than the cost of the capital. This is known as value-based management (VBM). Ryan and Trahan (1999:47) define value-based management as the adaptation of a corporate strategy to maximise shareholder value by the management of a company. The concept of value-based management appeared in the USA in the 1980s and since the 1990s has been pursued in western enterprises (Wang *et al.,* 2006:36).

Due to the increased popularity of value-based management systems, companies have started to align management compensation with shareholder wealth (Mohanty, 2006:265). It is designed to link employee performance to shareholder value, and it can span all levels of the corporation, as well as having an impact on all employees (Ryan & Trahan, 1999:47). Ryan and Trahan (1999:47) list the following metrics that have been developed by consulting firms designed to help corporations implement value-based management systems: discounted cash flow (DCF), cash flow return on investment (CFROI), return on invested capital, and economic value added (EVA). According to Ryan and Trahan (1999:48), all of these firms link these metrics upwards to shareholder value and link them down to a series of value drivers.

In today's business world, the primary aim of most firms is to maximise shareholders' wealth (Brigham & Ehrhardt, 2011:67). Creating value is one of the critical issues and problems that entrepreneurs face, and it has a bearing on the financing of entrepreneurial ventures (Spinelli & Adams, 2012:376). The entrepreneur must identify who the constituencies are for whom value must be created or added in order to achieve a positive cash flow.

Companies claim through statements by the CEO, or in the annual financial statements, that the company's goal is to create value for its shareholders, but translating the goal into practice is far from easy (Martin & Petty, 2001:2). Value is created only when managers are engaged actively in the process of identifying good investment opportunities and taking steps to capture the value potential of these opportunities. Value creation requires management to be effective in identifying, growing, and harvesting investment opportunities (Martin & Petty, 2001:2).

Any potential investor will, as part of the investment decision-making process, investigate and analyse the prospective company's future income and growth potential.

Libby *et al.* (2009:712) suggest that the following three factors should be considered as part of the investigation and analysis process:

- Economic factors: Investors should consider the overall health of the economy, unemployment rate, general inflation rate, and changes in interest rates, as the economy has a direct impact on any business
- Industry factors: All companies within a specific industry will be affected by certain major events, but companies outside the industry will not be affected in the same way
- Individual company factors: Analysing a company is more than just looking at the information contained in the financial statements; it also includes buying the company's products, reading about it in the media, and even visiting the company.

Spinelli and Adams (2012:494) define the stages or phases (estimated times that may vary somewhat) that companies experience as follows:

- Research and development phase: three years before start-up
- Start-up phase: first three years
- Early-growth phase: years four through ten
- Maturity: years ten through 15, and
- Stability stage: years 15 and onwards.

The start-up phase is by far the most perilous stage that requires the drive and talent of a lead entrepreneur. The early-growth or high-growth stage is characterised by the rate of growth or the slope of the revenue curve that is continually increasing. During this stage, the failure rate of new ventures is above 60 percent (Spinelli & Adams, 2012:280). With this in mind, can value-based management be used in entrepreneurial organisations?

What vehicles are available for entrepreneurs to acquire the desired financing for the new business venture as well as for the expansion of existing small and medium enterprises? Entrepreneurs can utilise their own savings, bank loans, funding from venture capitalist, and government funding to name but a few possible sources. One other possible option is listing on the AltX.

The JSEs board for good quality, small- and medium-sized high-growth companies is called the AltX and it provides smaller companies with access to capital. In addition, the AltX provides investors with exposure to fast-growing smaller companies in a regulated

environment (JSE, 2013). A company can join the AltX to issue new shares, raise funds, widen its investor base and have its shares traded on a regulated market (JSE, 2013). Since its inception in 2004, over a 100 companies have listed on the AltX. The AltX appeals to a diverse range of companies in all sectors:

- Young and fast-growing businesses including start-ups
- Management buy-outs and buy-ins
- Family-owned businesses
- Black economic empowerment companies
- Junior mining companies (JSE, 2013).

1.3 PROBLEM STATEMENT

In order for South Africa to get out of an endemic state of high levels of unemployment, low skill levels and social problems, the economy must grow much faster than what it has grown over the last couple of years. It has been established that small businesses can and do contribute significantly towards the economic growth of a country. It is concluded that the sustainability of a new or small business venture is of critical importance because the real benefit from small businesses would come from the long-term sustainable contribution towards economic growth. At the same time, a small business must also be able to create value for all its stakeholders.

According to Koller (1994:87), value-based management entails managing the balance sheet as well as the income statement, as well as balancing both the long term and the short-term perspective. One possible conclusion about value-based management is that it is, in general, a vague concept but with definite clear underpins that culminate in the concept of value-based management.

It is not clear from the preceding sections if the basic principles of value-based management could fit just as well in a SME as in an established big corporate organisation even if the underlying mechanisms are the same. In general, what is applicable to big corporate organisations should also be applicable to smaller entrepreneurial companies, even though the space in which these companies operate is vastly different. Where big corporate organisations have vast resources, decision making takes very long, and is hampered by red tape and corporate bureaucracy, while smaller entrepreneurial companies have limited resources, but the decision-making process is short and uncomplicated.

In its most basic form, value-based management involves transforming behaviour in a way that encourages employees to think and act like owners (Martin & Petty, 2001:2). Based on this statement by Martin and Petty (2001:2), value-based management possibly can be used as a management tool in entrepreneurial companies.

The problem is that at this stage it is unknown to what extent companies listed on the AltX apply value-based management principles in order to create wealth, improve share price performance, and as a result, attract investors. The reason for this study is to determine if value-based management can be used in small and medium enterprises, as represented in AltX companies, to create shareholder wealth.

1.4 GOALS AND OBJECTIVES OF THE STUDY

1.4.1 Main goal

The main goal of this study is to investigate and determine how efficient companies listed on the Johannesburg Securities Exchange's Alternative Exchange are in reflecting company performance in share prices by means of value-based management principles.

1.4.2 Sub-objectives

The sub-objectives of this study are the following:

- To develop an efficiency frontier to serve as a benchmark for AltX companies' ability to create value
- To develop an efficiency frontier to serve as a benchmark for AltX companies' ability to reflect value creation in share prices
- To investigate and determine what the optimal share price could be should AltX companies be efficient in reflecting value creation ability in share prices.

1.5 RESEARCH METHODOLOGY

The proposed research methods that will be used within this study are the following:

1.5.1 Literature study

A literature study will be done to provide a conceptualisation of value-based management. This study will focus on the origins, concept, and the underlying principles of value-based management. Secondly, it will focus on how the various financial variables that must be managed in order to create value. This section will also

explore how organisations can benefit from value-based management, as well as critique thereof in order to develop a better understanding of value-based management. Finally, the link between value-based management and share price performance will be explored.

Furthermore, a literature study will be performed to develop a general understanding of the dynamics of small and entrepreneurial firms. The lack of skills development for entrepreneurs and small business owners will be explored to establish a better understanding of the role it plays in the success of an entrepreneurial firm or small business. The literature study will explore the differences between small and entrepreneurial firms, and corporate organisations. This will be done to develop an understanding of whether value-based management can be applied in organisations other than big corporate organisations.

A further literature study will also be performed on investor activities. The study will investigate what potential investors are looking for in entrepreneurial firms or small firms. Finally, the literature study will focus on what tools, and/or metrics potential investors are utilising in order to make investment decisions. Resources that will be utilised include scientific journals, articles, books, and electronic databases.

1.5.2 Empirical study

Value-based management entails managing the balance sheet as well as the income statement, and the only true measure of management actions to create wealth is when capital is invested at returns higher than the cost of the capital (Koller, 1994:87).

In order to address the main goal of this study, an empirical study will be done through data analysis. The data analysis will be done based on historical financial data obtained from INET BFA. This data will be analysed by means of data envelopment analysis (DEA) in order to benchmark performance amongst peers listed on the AltX. A two stage model will be developed first, to benchmark performance in terms of value creation, and secondly, to benchmark performance in terms of share price performance. The output of stage one (VBM metrics) of the developed model will serve as the inputs of stage 2. Such combinations, where one stage's outputs are the next stage's inputs are called intermediate measures. Through DEA, an efficiency index for each stage will be established as well as optimal values for the intermediate measures.

The first sub-objective regarding the development of an efficiency frontier to serve as a benchmark for companies' ability to create value will be addressed by the results of the data analysis. Also, the second sub-objective regarding the development of an efficiency frontier to serve as a benchmark for companies' ability to reflect value creation in share prices will be addressed by the data analysis. The third sub-objective will be addressed by the results of the data analysis as well. The results from the DEA will indicate what the optimum values must be in terms of value creation to reflect company performance in share prices. A separate output-based DEA model will address the fourth and last sub-objective regarding the optimal share price.

1.6 SCOPE OF THE STUDY

The field of study for this research is financial management. The research focusses on whether entrepreneurial and small firms listed on the AltX, can utilise value-based management principles as a management tool in order to improve share price performance. The study will also investigate the possibility of including wealth creation as part of the business plan in order to improve access to funding. The focus will be on the income statement and balance sheet, as well as the underlying principles and values that contribute towards value-based management.

By following a two-stage model, the study will attempt to identify the optimal value to be created for companies to be able to reflect company performance in share prices. The study will accomplish this by developing an efficiency frontier to serve as a benchmark in order to suggest what the optimal value created must be. It will also indicate to the management team and investors what the share price could be, should all companies listed on the AltX be able to reflect value creation in share prices

1.7 LIMITATIONS OF THE STUDY

There are certain limitations to this research. The findings of the research are only based on entrepreneurial and small firms listed on the AltX. Therefore, it might not be possible to determine if value-based management as a management tool can be applied to entrepreneurial and small firms not listed on the AltX. The relative size and age of the AltX can also be seen as a limitation of the study. The reason for this is that the AltX has only been in existence since 2004 and, therefore, financial information from INET BFA might be limited.

1.8 LAYOUT OF THE STUDY

Chapter 1: Introduction

Chapter 1 sets the context of why the specific research topic was chosen. In this chapter, the problem statement is formulated and the research goals, research methods, and limitations are given.

Chapter 2: Literature study on value-based management

Chapter 2 contains the literature study to establish the theoretical basis for value-based management in general. The study will focus on the origins, concept and underlying principles of value-based management. The benefits, critique, and the link between value-based management and share price performance will be investigated.

Chapter 3: Literature study on entrepreneurial firms

Chapter 3 contains the literature study to establish the theoretical basis for entrepreneurial firms as well as small firms. The chapter will also be focussing on the difference between entrepreneurial firms, small businesses, and established corporate companies. The purpose of this focus is to determine if and how value-based management can be utilised in entrepreneurial and small firms. The study will also focus on the dynamics of entrepreneurial and small firms in terms of management and financial performance. This will develop an understanding of how the various balance sheet and income statement financial variables are managed in order to create wealth.

Chapter 4: Literature study on investment activities

Chapter 4 will investigate the general use of value-based management principles and values from an investor's perspective. This will give an insight into the processes and various parameters that are used to make investment decisions. The results will also enable entrepreneurial and small firm owners to make better-informed decisions to attract prospective investors.

Chapter 5: Data envelopment analysis models

In Chapter 5, the data analysis of the financial data obtained from INET BFA will be conducted by means of DEA. The optimal values in terms of value creation will be determined. DEA will also be used to establish an efficiency frontier for benchmarking purposes in terms of value creation ability and the ability to reflect value creation in share prices.

Chapter 6: Conclusions and recommendations

Chapter 6 assesses the results of both the literature and empirical studies in order to determine to what extent companies listed on the AltX are efficient in reflecting company performance in share prices by means of value-based management principles.

CHAPTER 2: VALUE-BASED MANAGEMENT

2.1 INTRODUCTION

This chapter will start with a brief discussion on the history of accounting. It will be followed by looking at the history of value-based management and its origins. The concept of value-based management will be explored in terms of concepts and process as well as the benefits of value-based management. Shareholder value and ethics will be discussed, and the difference between wealth and value will be explored.

The following value-based metrics will be discussed in this chapter:

- Cash flow return on investment (CFROI)
- Discounted cash flow (DCF)
- Du Pont analysis
- Economic profit (EP)
- Economic value added (EVA)
- Market value added (MVA)
- Return on invested capital (ROIC)
- Shareholder value added (SVA)

The chapter will examine what criticism there is against value-based management, as well as how to improve the results of value-based management. Finally, the drivers of value will be examined.

2.2 A BRIEF HISTORY OF ACCOUNTING

Accounting has been part of human life for thousands of years. Ezzamel (2009:348) examined the link between accounting and order during the New Kingdom era (1552-1080BC) in ancient Egypt. Ezzamel (2009:378) argues that in the context of ancient Egyptian culture, a symbiotic relationship was forged between the cosmic/supernatural and accounting. It was done to construct notions of cosmic order, which directly affected the meaning of social, political, and economic order. During the Acheamenid era in ancient Iran (500 BC), all public incomes and costs were held and kept soundly and punctually. The economy was well regulated and organised, especially during the reign of Darius the Great (Mashayekhi & Mashayekh, 2008:70).

During the Middle Ages, charge and discharge accounting was the most prevalent system of its time of which the first can be identified in the English Exchequer around 1110 (Jones, 2008**b**:355). The Exchequer system appears to have been devised in the reign of Henry I (1100-1135) by the king's Justiciar, Roger of Salisbury (Jones, 2008**b**:357). From 1100, the reign of Henry I was known as one of administrative consolidation, and of particular concern was the administration and collection of royal finances. The complexity of administering the kingdom was steadily growing and with it the need to distinguish between the king's personal finances and those of the nation (Jones, 2008**a**:447). The English Exchequer was documented for the first time in 1179 by Richard Fitz Nigel in the *Dialogus de Scaccario* (Dialogue of the Exchequer) (Jones, 2008**a**:445). Charge and discharge accounting proved remarkably pervasive, as it appears to have gradually spread from state governments to religious institutions, to lay institutions and to local government (Jones, 2008**b**:369).

According to Rabinowitz (2009:12), the earliest discovered records (dating back to 1340) based on the double-entry bookkeeping was prepared in Genoa, Italy. While these records date back to 1340, it would only be printed in a book for the first time in 1494. This was when Luca Pacioli's *Summa de Arithmetica, Geometria, Proportioni et Proportionalita* was published in Venice (Rabinowitz, 2009:12). Included in the *Summa* was a 27-page treatise on bookkeeping, *Particularis de Computis et Scripturis* (Sangster *et al.* 2008:111). Accountants have named Pacioli the "father of accounting" (Gleeson-White, 2012:50). Luca Pacioli wrote that creditors must appear on the right-hand side and debtors on the left side. In addition, Pacioli stated that all entries must be double entries, whereby, if a creditor is made, someone must be made a debtor. (Gleeson-White, 2012:50). As a point of interest, the *Summa* was also the first printed work to discuss algebra (Rabinowitz, 2009:12).

Around 1800, the requirement for information for the purpose of decision-making and control lead to the development of internal accounting information in the mechanised, multi-process cotton textile factories in England and in the United States (Johnson, 1981:511). The industrial revolution in the nineteenth century also had an impact on the accounting profession. According to Matthews (2006:521), industrialisation led to the growth of capitalist enterprises, which generated demands for the skills of the accountant. It started with the handling of bankruptcies of family firms, and increasingly from the 1860s, auditing of the growing number of joint stock companies. The nineteenth century also saw the formal institutionalisation process of modern public

accountancy in the English-speaking world when eight public accountants started it on 20 January 1853 in Edinburg, Scotland (Lee, 2006:925).

In the USA, the early development of industry (1887-1903) saw the replacement of manual labour with steam-powered machinery, which spurred the growth of a capital-intensive industry, especially on the eastern seaboard (Davidson & Anderson, 1987:110). According to Davidson and Anderson (1987:110), this rapid development required substantial amounts of capital, and at that time, the United States could not supply all of the needed capital domestically. The great bulk of the imported capital came from Great Britain, and consequently, many British investors insisted on sending accountants from England and Scotland to vouch for the reported results of these undertakings. At the beginning of the twentieth century, the path of accounting was narrow; it focussed on the entry of transactions, auditing, and preparing reports. Brundage (1951:71) described it as a focus on mathematical correctness, and very little consideration was given to the nature and potential use of the information.

The period from 1903 to 1938 saw the growth of many a large corporations, financed primarily by individuals and institutions acquiring corporate securities on organised security markets, which demanded more effective accounting and auditing standards (Davidson & Anderson, 1987:113). The First World War provided a new use for accounting, namely taxation. The progressive improvement of accounting techniques were due to the new tax laws implemented in the USA, which encouraged the extension and improvement of accounting records and reports (Brundage, 1951:73). During the Second World War, accounting was used extensively to regulate prices (Brundage, 1951:78).

New demands were placed on the accounting profession during the mid 1950s, namely that financial statements were required to provide information for decision making (Velayutham & Perera, 1993:289). The roles of accountants and accounting firms, up to the 1970s, were mainly defined by each national government and operated almost entirely within the boundaries of national economies (Jang, 2005:302). Jang (2005:303) also described how the growth of international business and the expansion of international financial markets from the early 1980s led to large accounting firms becoming operators on a global scale, rather than simply on a national basis.

2.3 HISTORICAL BACKGROUND TO VALUE-BASED MANAGEMENT

Wang *et al.* (2006:36) stated that the concept of value-based management appeared in the USA in the 1980s but this section will show that the concept of value creation has a far longer history. According to Howell (2008:520), the commercial revolution of Europe began around the turn of the millennium, with long-distance trades that brought luxury goods to the European elites. Commerce during 1200 to 1700 was embedded into a toxic tale about the evils of wealth, to bestow honour on tradesmen, because the claims of wealth's dangers were explicitly linked to commerce. Freedom from feudal domination of the major cities in northern Italy allowed the free flow of capital in international trade from the fourteenth century (Bryer, 2000:331).

During the commercial revolution of the sixteenth and seventeenth century, there was a flowering of socialised capital in exploration and privateering (Bryer, 2000:336). There was feudal domination of the most lucrative eastern trades, leaving North America and the Caribbean as nurseries in which socialised merchant capital and production continued to mingle and foster the capitalist mentality (Bryer, 2000:336). Bryer (2000:328) is of the opinion that the commercial revolution made the rate of return on capital the purpose of economic life, and in Marx's theory, provided the essential ingredients for the emergence of modern capitalism from capitalistic agriculture. Bryer (2000:328) also refers to Marx's theory that predicts that feudal merchants only became capitalistic through the use of double-entry bookkeeping to calculate the feudal rate of return on capital, when these feudal merchants' capital was socialised.

Adam Smith's An Inquiry into the Nature and Causes of the Wealth of Nations, was first published in 1776, and contained the following sentence, "As every individual, therefore, endeavours as much he can both to employ his capital in the support of domestic industry, and so to direct that industry that its produce may be of the greatest value" (Smith, 1776:349). Smith realised that value must be created from the capital invested. Smith (1776:349) is also known for the so-called invisible hand, whereby individuals in the free market are guided by this invisible hand to produce the right amount and variety of goods.

Scorgie (1996:237) did research on the significant steps in the evolution of the application of discounted cash flow (DCF) for the valuation of non-monetary resources. Scorgie's research findings challenge the generally accepted legend that the

application of discounting to economic problems involving non-monetary resources did not occur until the nineteenth century. Scorgie (1996:246) concluded the following:

- Evidence from the 1540s showed clearly that the concept of a years' purchase was used to determine the selling price of estates confiscated by Henry VIII. During the reign of Henry VIII, land values were valued by multiplying the annual rental by 20, this factor is referred to as "20 years' purchase" (Scorgie, 1996:240).
- Investors used the concept of ready money in the analysis of investment opportunities in land and buildings arising in the aftermath of the execution of Charles I (1649), and the great fire of London (1666).
- The use of DCF was extended to semi-monetary resources in the mid-seventeenth century and to non-monetary resources in 1730.

Brackenborough, Mclean and Oldroyd (2001:137) examined the origins of DCF in the Tyneside coal industry (North East England) from 1700 through to 1820. Brackenborough *et al.* (2001:140) summarised the surviving instances of DCF found in the viewers' records and found a sudden upsurge in its usage around 1801, with subsequent peaks occurring in 1804, 1810, 1811 and 1815. Brackenborough *et al.* (2001:152) concluded that even though there were many different factors, such as educational, customary, personality, political, geological, technological and economic, involved in the adoption of DCF around 1801, the prime motivation was economics. According to Brackenborough *et al.* (2001:152), DCF was a specific wealth-maximisation response to earning opportunities available to investors compared to the cost of capital. DCFs adoption is a clear case of accounting and engineering technologies combining to facilitate the exploitation of deep coal reserves, where accounting acted as a determinant of industrial expansion (Brackenborough *et al*. 2001:152).

In the 1920s, Donaldson Brown, a senior officer of General Motors, applied the concept of economic profit as a guide to allocate resources among multiple divisions (Weaver & Weston, 2003:10). Miller and Napier (1993:640) are of the opinion that the absorption of DCF within the domain of modern accounting practice was primarily a question of tradition, and not just an educational innovation of the 1960s, even though it was used for valuation purposes rather than for the ranking of investment opportunities. In 1985, Johnson, Natarajan and Rappaport (1985:53) stated that although corporate resources sometimes are deployed in order to achieve other purposes, the dominant economic goal of a firm is the creation of shareholder wealth.

In the late 1990s, Bromwich (1998:387) attempted to provide a research-orientated appraisal of a then hot topic – the value-based approach. Bromwich (1998:387) discussed the apparent simplicity of the value-based approach, and that managers are encouraged to maximise the economic worth of companies. Managers are given incentives to maximise the market value of the company relative to investment cost. In 1998, Bromwich (1998:387) referred to the preceding two decades during which management accounting was under increasing challenges to adopt new approaches designed to correct perceived inefficiencies. During the 1950s and 1960s, debates focussed on the character of information for decision-making as well as to whether the contribution margin approach was superior to systems that fully allocated overheads. During the 1970s, the use of residual income and the optimal control of relatively autonomous divisions was the topic of interest (Bromwich, 1998:387).

2.4 VALUE-BASED MANAGEMENT DEFINED

The following is a non-exhaustive list of VBM definitions, and based on these definitions, a general definition is formulated.

- VBM provides a precise and unambiguous metric value, upon which an entire organisation can build. Value creation takes place when a company invests capital at higher returns than the cost of that capital and the value is determined by the company's discounted future cash flow. When it is executed properly, the company's overall aspirations, analytical techniques, and management processes are aligned in order to focus the management's decision-making on the key value drivers (Koller, 1994:87).
- VBM is a framework for creating superior long-term shareholder value that satisfies both capital (where value is realised and extracted) and product markets (the source of value), through measuring and, more importantly, managing businesses (Ronte, 1998).
- The creation of superior long-term shareholder value through a framework of measuring and managing is known as VBM, whereby enhanced share price performance and dividend growth is measured and rewarded (Marsh, 1999:58).
- The impact on shareholder value through the linking of business goals and managerial decisions is defined as VBM (May & Bryan, 1999:36).
- When the management of a company adopts a corporate strategy of maximising shareholder value it is refer to as VBM, and when it is comprehensive, it can span all levels of the corporation and have an impact on all employees. In theory, VBM is all-encompassing, whereby corporate strategy, management compensation issues,

and detailed internal control and reward systems are included, and it is designed to link employee performance to shareholder value (Ryan & Trahan, 1999:47).

- At the essence of VBM is the transformation of behaviour in a way that encourages employees to think like owners, and when employee-level performance is tied to owner-level rewards, the foundation is laid for building a capital-market-focussed measurement and reward system (Martin & Petty, 2001:2).
- The process used to determine the drivers of a particular strategy, understanding the link between these drivers and value creation, and breaking it down into actionable steps and activities that can be pushed throughout an organisation, all the way down to the shop floor is known as VBM (Frigo, 2002:6).
- Defining VBM is not easy, and the reason for this is twofold. First, it can be seen in a broad context, because generating shareholder value is at the heart of the market economy. Secondly, VBM can be narrowed down to a management approach, or even a philosophy, which is characterised mainly be the metrics used to measure performance (CIMA, 2004:3).
- VBM brings all staff together to act like shareholders and as a result make decisions that maximise value that should ultimately lead to improvements in stock market performance over the long run. VBM is a management philosophy that uses analytical tools and processes to focus an organisation on the single objective of creating shareholder value. Included in this is an alignment of corporate strategy, performance reporting and incentivised compensation (Athanassakos, 2007:1397). VBM is the use of external value creation, or total return to shareholders, as a simple and objective yardstick for managing a company. The theoretical core of VBM is the cash flow-based concept of corporate valuation and that the connection between external value creation and internal controlling metrics is provided by a number of different VBM management concepts, for example cash value added (CVA) or economic value added (EVA) (Pidun & Wolff, 2007:32).
- VBM diminishes agency conflict because it provides an integrated management strategy and financial control system intended to increase shareholder value, and thereby revealing value-increasing decisions to employees. VBM allows for easier monitoring of manager's decisions, and provides a method to tie compensation to outcomes that create shareholder value (Ryan & Trahan, 2007:111). A firm must build on the core concept of value and this is achieved by consistently aligning everything the firm does, including the strategy, processes and communication to the key value drivers (Moskalev & Park, 2010:49).

- VBM is a complete financial management and incentive system, whereby decision making is guided at every level and companies that adopt VBM use it as a guide in financial planning, monitoring and controlling operations (Kamalaveni & Kalaiselvi, 2010:228)
- Value Based Management.net (2014b) defines VBM as a "management approach that ensure corporations are run consistently on value (normally: maximising shareholder value)".

From the above definitions, the following definition can be formulated:
Value-based management is a management approach that maximises long-term shareholder value, which is incorporated in the business' strategy and goals, through the identification and management of key value drivers, whereby all employees think and act like shareholders.

From the various definitions listed, it is concluded that there must be some sort of control mechanism to ensure that value creation does take place. Managerial decisions and actions to create shareholder value, therefore, are measured through a metric and employee performance is linked to the value created.

2.5 CONCEPT OF VALUE-BASED MANAGEMENT

2.5.1 Concepts and process

Techniques such as total quality management (TQM) and process engineering are used to decentralise units, increase the efficiencies of the units, and the subsequent efficiencies are used to justify the downsizing of the units in order to build excellent organisations (Anderson, 1997:38). By being mean and lean, these organisations are positioned to create growth for the future. Anderson (1997:38) highlights the inability of organisations to challenge people in independent operating units to create growth as among the most troublesome of organisation problems. People in the independent units do not seem to be able to invent specific responses to competition. At the same time, organisations seem unable to glue units together in order to take advantage of the created synergies. The missing piece, according to Anderson (1997:38), is a coherent method of considering and resolving value dilemmas. Both the market force doctrine and VBM are necessary for effective decision-making. VBM shifts the attention to the connection between compassion, justice, and frugality, while the market force doctrine aims at understanding, manipulating, and capitalising on things (Anderson, 1997:38).

Copeland, Koller and Murrin (1995:93) state that VBM is very different from the 1960s planning systems style. VBM is not a staff-driven exercise and it focusses on better decision making at all levels in an organisation. Frontline managers must learn to use value-based performance metrics for better decisions because the top-down command-and-control style decision-making does not work well, especially in large multi-business corporations. The corporate benefits from a well-implemented VBM system are tremendous, and can be seen as restructuring to achieve maximum value on a continuing basis (Copeland *et al.*, 1995:94). In the early 1980s, Rappaport (1981:139) listed the following questions to which the conventional accounting-oriented approach for evaluating the strategic plan does not provide reliable answers:

- Will the corporate plan create value for shareholders, and if so, how much?
- Which business units are creating value, and which are not?
- How would alternative strategic plans affect shareholder value?

Since the economic downturn in 2000, it became clear that external indicators, as well as indicators of performance in relation to stakeholders, such as employees and consumers are useful and constitute an important part of VBM. VBM requires multiple performance measures with top executive support. Modern day computers also assist with the employment of these multiple performance measures and with the communication of financial goals and performance throughout the organisation. This continuous exchange of information stimulates managers and informs top executives (Weaver & Weston, 2003:26). Capital allocation within companies is required to become more efficient due to the increased efficiency of the capital markets, and as a result, a VBM framework that better reflects opportunities and pitfalls has become a necessity (Weissenrieder, 1998:3). Cant (2006:33) states that through a value focus, managers are offered the insight that the use of capital is not free. The cost of capital is defined as the expectation of earning a return, and that a company only creates shareholder value if it achieves returns in excess of the cost of the company's capital. Weissenrieder (1998:36) describes the VBM process as successful if the total return to the shareholders (share value plus dividends) increases.

Lee (1999:414) is of the opinion that accounting systems are crucial to valuation. This is due to the following three important roles that accounting systems play:

- It provides a language for forecasting. GAAP earnings are conceptually defensible and a reasonably objective measure of firm performance, due to revenue recognition and the matching principle. It is for this reason that financial analysts

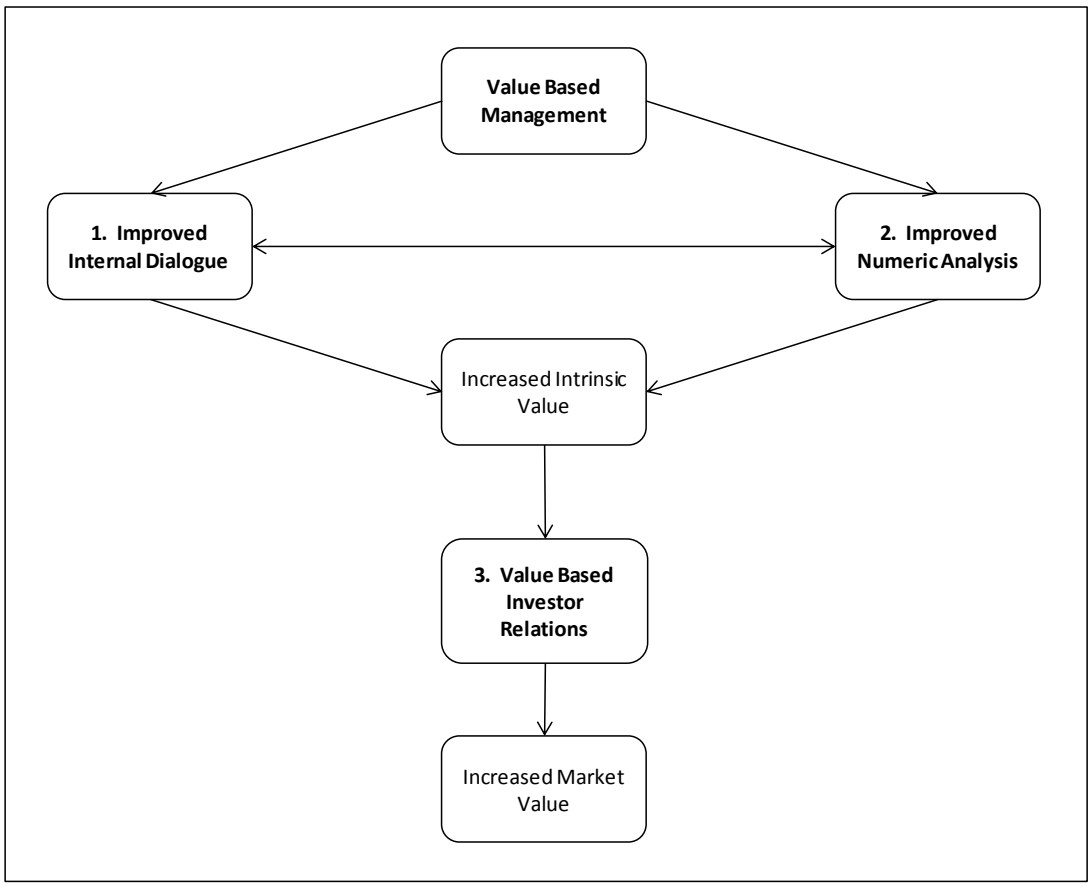
typically express forecasts in terms of expected earnings, not cash flows or dividends.

- It provides helpful information for forecasting future payoffs to shareholders.
- It serves as an ex post settling-up mechanism. Present day earnings forecasts by analysts are compared to the actual and audited earnings reported in the future. The integrity of ex ante forecasts are ensured by the existence of the ex post settling-up process.

The process is illustrated in Diagram 2.1, which requires the following three existing functions, which must be improved:

- A VBM concept that is correctly focussed has the organisation focussing on the relevant issues, which is based on four value-determining factors, strategic investments (tangibles or intangibles), the operating cash flow generated by these investments, the economic life and the capital cost of these investments.
- The quality of financial analysis will have the possibility to be increased by a VBM concept based on financial theory. When the company's knowledge within value theory and VBM is increased, the possibility will turn into ability.
- The intrinsic value of the company will be increased by the two functions, and in the long run will have an effect on the market value. If the investor relations function is also value based, the intrinsic value of the company will equal the company's market valuation over time. This requires the company to communicate issues such as the capital allocation in terms of strategic investments, information of profitable growth areas, operating cash flow analysis and all other relevant issues.

Diagram 2.1: The value-based management process



Source: Weissenrieder (1998:36)

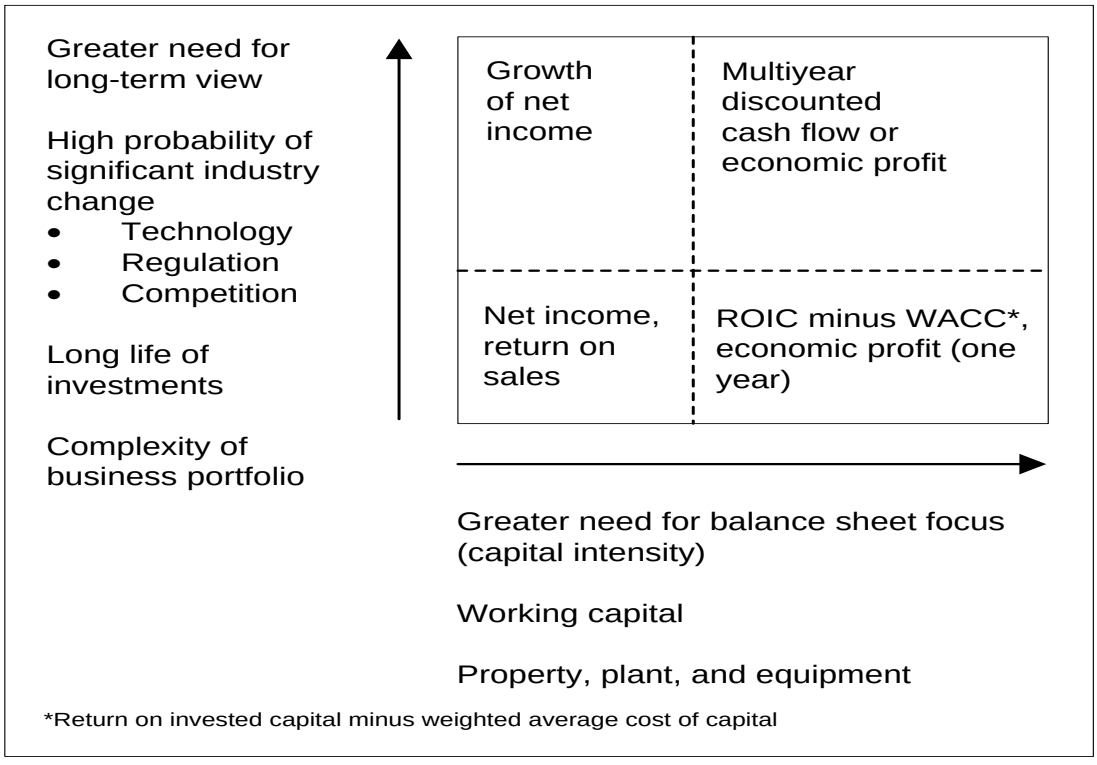
VBMs focus should not be on the methodology, but on the why and how of changing the corporate culture, because a value-based manager is equally interested in using valuation as a performance metric (and decision-making tool), and the subtleties of organisational behaviour (Copeland *et al.*, 1995:95). Other principles listed by Koller (1994:87) are:

- VBM focusses on better decision making at all levels, and it is not a staff driven exercise
- VBM requires the management of both the income statement and balance sheet while balancing the long- and short-term outlook
- Decision makers at all levels are provided with the right information to make value-creation decisions, and are incentivised accordingly
- Incentives are set by senior management and have specific financial targets, which are evaluated and compensated through systems that reinforce value-creation

- Senior managers are fully aware that the ultimate financial objective is maximising value and that clear rules are set regarding decisions on aspects that outweigh this objective
- Understanding what the value drivers are within the organisation is of utmost importance and that the organisation's strategy provides the necessary supports by focussing resources and attention on these drivers
- All systems within the organisation, such as planning, target setting, performance measurement and incentive systems must be linked closely to value creation.

Various measures of corporate performance are compared against the need to take a long-term view and the management of the balance sheet in Diagram 2.2. The only measure that handles both dimensions adequately is a multiyear discounted cash flow (top right quadrant). Koller (1994:90) regards companies that only focus on the current year's net income or return on sales as myopic and might overlook major balance sheet opportunities, such as improvements in working capital or the efficiency of capital expenditure. VBMs purpose is to distribute the given resources to the most valuable investments (Ameels *et al.*, 2002:9).

Diagram 2.2: Measuring corporate performance



Source: Koller (1994:91)

Investment decisions are based on the overall performance of a firm as a whole, which will lead to investment in the firm, continue with the firm, or exit from the firm. It is also critical to the firm's success that the correct measure is selected, as management compensation is often linked with responsibility centres and firm performance. A simple method for correctly measuring value created or enhanced in a given period is required (Bhattacharyya & Phani, 2004:3). Commonly used measurements of financial performance are often poor surrogates for economic performance, when financial accounting performance criteria is used to judge corporate excellence (Johnson *et al.*, 1985:61).

Shanmuga (2009) warns companies that failure in the task of value creation will be a competitive disadvantage in the race for global capital resources. The language of value creation is defined as a means of persuading capital providers that the funds provided will be employed productively and profitably employed in a company.

2.5.2 Benefits of VBM

VBM brings tremendous benefits when it is implemented well. According to Koller (1994:87), VBM is similar to restructuring in order to achieve maximum value on a continuing basis, and it has high impact, often realised in improved economic performance. A value-based metric combines the three essential financial characteristics of an organisation:

- Cash flow generated by the organisation
- The capital invested to generate those cash flows
- The cost of capital of the investment (Francis & Minchington, 2000:46).

Value-Based Management.net (2014) lists the following aspects for which VBM provides consistency:

- The corporate mission (business philosophy)
- The corporate strategy (course of action to achieve corporate mission and purpose)
- Corporate governance (who determines the corporate mission and regulates the activities of the corporation)
- The corporate culture
- Corporate communication
- Organisation of the corporation
- Decision process and systems

- Performance management processes and systems
- Reward processes and systems.

Advantages listed by Cooper *et al.* (2000:38) are:

- A common language is provided that is usable externally as well as internally
- A powerful comparative tool in terms of benchmarking competitive performance
- Useful for resource allocation between value creating and value destroying investments
- By reducing the capital base it has a positive effect on financial performance
- Powerful strategic tool
- Help management focus on value drivers
- More accountability for discrete business units helps to create more shareholder value.

Utilising EVA techniques to assess employee performance can contribute greatly to success, as human capital represents a critical aspect of all firms' success (Lander & Reinstein, 2005:437). The following are some key competencies that can be used to differentiate superior performers in almost every position using EVA:

- Concern of quality – monitor work, systems and process and to act to ensure that standards are met or exceeded
- Flexibility – respond quickly to change and easily consider new approaches
- Influence – effectively impact organisations, persuade and gain others' support
- Initiative – proactively identify and act on problems and opportunities
- Integrity and truth – gain the trust of others by taking responsibility for personal actions and telling the truth
- Service orientation – commit to satisfying internal and external customers
- Teamwork – work together with others and helping to work cooperatively to accomplish objectives
- Result orientation – focus on achieving desired results, and setting and achieving challenging goals.

Rapp, Schellong, Schmidt, and Wolf (2011:190) found that German firms earned abnormal stock market returns within a two-year adoption phase of a VBM system. The stock market returns are robust against endogeneity regarding the timing of adoption, and are not jeopardised by poor post-adoption returns. Rapp *et al*. (2011:190) concluded that a VBM system actually improves shareholder value, and that

shareholders consider the adoption of a VBM system as a credible signal whereby management will focus on shareholder interests.

2.6 SHAREHOLDER VALUE

"We work hard to remember that the wonderful things our company is capable of - serving our customers, creating jobs, positively impacting society – happen only as long as we fulfil our vision of creating value for our shareholders" Robert Goizueta, former CEO of Coca Cola (as quoted by Lander & Reinstein, 2005:434).

The attention of executives worldwide is being captured rapidly by shareholder value due to the globalisation of competition, capital markets and a tidal wave of privatisations (Kaviani, Seyednezhad Fahim, Kheyrkar Keshavarz & Imeni, 2014:103). Shareholder value is slowly becoming the standard for performance measurement across the globe, and by keeping shareholders happy, other stakeholders are served as well (Kaviani *et al.,* 2014:103)

2.6.1 Shareholder value and ethics

Erasmus and Lambrechts (2006:14) state that the maximisation of shareholder's wealth is described often as the primary financial objective of corporate finance and microeconomic theory. This primary objective, therefore, is applicable to the owners of large, medium-sized, and small enterprises. It is deemed prudent to start with looking at the ethical side of creating and maximising shareholder wealth. If it is accepted that managers have a moral duty to maximise shareholder wealth, it is logical to accept that managers must settle on business policies that do not contravene the four moral principles upon which economic activities and agency relationships are founded (Quinn & Jones, 1995:36). The four moral principles are avoiding harm to others, respecting the autonomy of others, avoiding lying and honouring agreements (Quinn & Jones, 1995:34).

Quinn and Jones (1995:22) refer to two normative views that are common in the business policy and management literature about what principles ought to guide management decision making:

- The first view is that, because executive-level managers are agents for shareholders, maximising the present value of the firm is the appropriate motivating principle for management. Quinn and Jones (1995:23) call this view instrumental ethics and the advocates of this view employ the language of ethics to

serve the goal of firm value maximisation. Managers, who fall under the instrumental ethics view, might do what is morally proper, but do it in order to increase shareholder wealth.

- The second view is that principled moral reasoning ought to motivate management decisions. This view assumes that morality is intrinsically, not instrumentally, good and is called non-instrumental ethics by Quinn and Jones (1995:23). Morality is, therefore an end in itself and cannot be justified with reference to the gain of a firm or its shareholders alone. When wealth and principles are in conflict, wealth considerations are not precluded from the analysis, but it cannot trump moral principles.

At present, the focus is excessively on money, a case of profit at all costs. Harung (2010:173) highlights how the media is reporting on a daily basis on unethical behaviour and unacceptable pollution. Value-based management also includes being profitable, but research suggests that value-based or visionary companies perform significantly on a higher level (Harung (2010:173). Where organisational values are defined and applied in leadership in terms of increasing motivation of personnel, commitment and rewarding, organisation values are used to foster better communication, reinforce decision-making and preferred actions (Viinamäki, 2012:39). Viinamäki (2012:44) identifies the following critical success factors, which are also essential for successful leadership in the twenty-first century organisations:

- In flat and professional organisations, traditional power is becoming powerless.
- Stakeholder participation is suggested to be intensive and extensive.
- New forms of control and feedback are needed.
- Communication regarding values must be straightforward and clear.
- Leadership stands for fostering a good image and perception.

2.6.2 Wealth versus value

It is important to distinguish between the notions of wealth and value. Stock market performance is a direct external measure of wealth whereas value is an internal performance measure that derives from internal company reports. Measuring wealth is less problematic than measuring value as well as the amount of value added because there is more disagreement on what value is (Lander & Reinstein, 2005:434). Valuation research emerged as a central theme in accounting research during the 1990s. Valuation research focusses on the use of accounting information to estimate shareholder value (Lee, 1999:413).

In the early 1990s, shareholder value was seen as a common topic in the USA, but in Europe and Japan, during that period, it was regarded as a controversial topic (Copeland *et al.*, 1995:3). In the USA, management was expected to maximise value, while in Europe and Japan, intricate weightings were given to the interest of customers, suppliers, workers, the government, debt providers, equity holders, and even society in general. In Europe and Japan, the maximisation of shareholder value was often seen as short-sighted, inefficient, simplistic, and possibly even antisocial. Copeland *et al.* (1995:4) states that the creation of shareholder wealth does not come at the expense of other stakeholders. In companies that are outperforming the competition, the increase in productivity and shareholder wealth, is greater and the company has a higher employment rate. Johnson *et al*. (1985:52) argues that the most appropriate criterion for evaluating corporate economic performance is shareholder value creation.

The average holding period for stock in professionally managed funds has dropped from about seven years in the 1960s to less than one year currently (Rappaport 2006:68). As a result, executives argue that the only option is a short-term focus as there are no long-term shareholders anymore. Rappaport (2006:68) regards this argument as flawed. Stock prices reflects the market's long view and what matters is the market's valuation horizon, which is the number of years of expected cash flows required to justify the stock price, and not the investors holding periods. Rappaport (2006:68) refers to studies that suggest that it takes more than ten years of value-creating cash flows to justify the stock prices of most companies.

Investors who purchase shares do so with an expectation of the return on the investment to be higher than depositing the money almost risk-free at a bank. The higher risk of equity ownership is tolerated because of the potentially higher return, which is at the heart of Anglo-Saxon capitalism. Within this premise is a simple yet often forgotten notion – there is a minimum acceptable return on investment. Debt capital is costly due to the interest paid to the lender, but the cost of equity capital is equally expensive. The difficulty with equity capital is that it is seen as an opportunity cost, which is difficult to express in simple terms and, therefore, it is ignored when calculating profits. Bearing this in mind, shareholders will eventually disinvest should the desired return on investment not materialise (CIMA, 2004:5). Organisations face increasingly impatient and even hostile boards of directors and shareholder activists when the share prices do not keep pace with market expectations (Lander and Reinstein, 2005:434). Share prices and managerial actions can be greatly affected by even small deviations from expectations.

Fernández (2013:8) states that a company creates value when the shareholder return exceeds the equity's cost (the required return to equity). Martin and Petty (2001:2) recommend that if an organisation wants to manage for shareholder value, the organisation must identify the drivers of shareholder value in the capital market. When managers are engaged actively in the process of identifying good investment opportunities as well as taking steps to capture the potential value, value is created (Martin & Petty, 2001:2). By being effective at identifying, growing, and harvesting opportunities, value is created. Shareholder value comes from internally generated growth through new products, services, and new business, or through increased efficiencies of cost and capital (Koller & Peacock, 2002:105).

According to Koller (1994:90), the ultimate financial objective of a company is the maximisation of value, which is also the first step of VBM. Armitage and Jog (1996) state that maximising shareholder wealth is not a myopic, self-serving goal, and that many believe that accomplishing this goal is the only effective, most efficient way to maximise the well-being of other stakeholders, including customers, employees, suppliers and society at large. Koller (1994:90) recommends that a company should set goals in terms of discounted cash flow value, and the reason for this is that the traditional financial measures (earnings or earnings growth) are not good proxies for value creation.

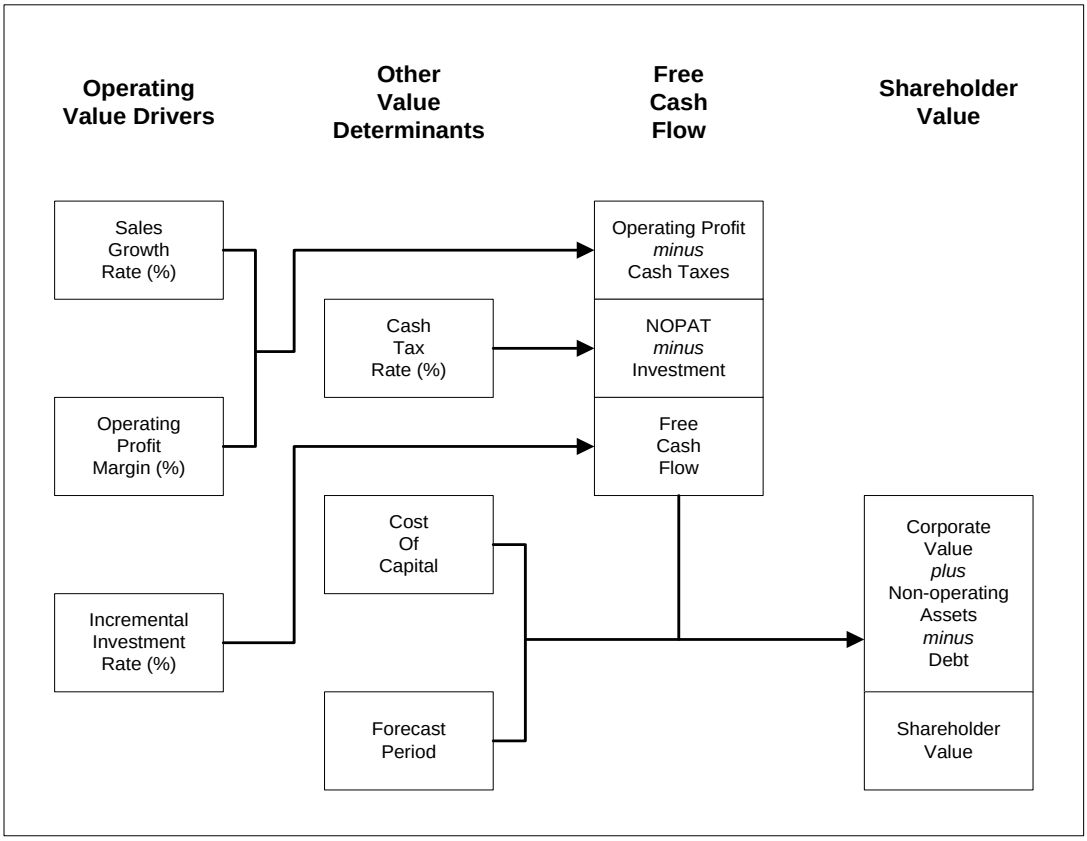
All organisations also require non-financial goals, such as customer satisfaction, product innovation and employee satisfaction, and when organisations excel at these non-financial goals, the result is usually financial prosperity. The different levels within an organisation must have tailored objectives but the only criterion for performance must be value creation. Lander and Reinstein (2005:434) are of the opinion that there are several dimensions to the shareholder value debate. One view holds that it is not cost beneficial to focus exclusively on shareholder value. It is argued that a firm can enjoy long-term success if equal attention is paid to all stakeholders, including employees, customers, the community and shareholders.

A shareholder value road map (Diagram 2.3) was developed by Rappaport and Mauboussin (2001:21), which shows the following relationships:

- The growth in sales and the operating profit margin determines the operating profit
- Net operating profit after taxes is calculated by subtracting cash taxes from the operating profit

- NOPAT less working capital and fixed capital investments is equal to free cash flow
- Corporate value is determined through the discounting free cash flow at the cost of capital value
- Shareholder value is the sum of corporate value and non-operating assets less the market value of debt.

Diagram 2.3: Shareholder value road map



Source: Rappaport and Mauboussin (2001:21)

When the shareholder return has been poor over a period of several years this signifies a company that has failed to learn from the past. This implies that failure to learn from the past results in the same poor strategic investment decisions being made repeatedly. If the company learns from the past, and the connection is made between historic and future development on the stock market, the possibility occurs to improve the situation for stockholders. This is also applicable to management's historic strategic investment decisions and plans for future strategic investments (Ottosson & Weissenrieder, 1996:4).

Shanmuga (2009) lists the following ways to create the greatest value for shareholders:

- Excellence in operations that is closely related to profitability
- The optimum financial structure, which is the closest to free cash flow among the fundamental drivers
- Choosing to be focussed, which is most closely linked to profitability
- Credible earnings growth, which matches the fundamental driver of growth.

2.7 VALUE-BASED MANAGEMENT METRICS

The minds of corporate managers around the globe have been occupied for the last three decades by the value-based management paradigm. Without the appropriate performance measures, it is impossible to put these concepts into practice (Cheremushkin, 2008:2). VBM metrics are based on the idea of comparing cash flows generated by a company against the cost of capital in generating these flows, and thereby measuring shareholder value (Francis & Minchington, 2000:46). An organisation's value is based on the organisation's future cash flows, which is used by capital markets as the source to determine value. VBM models are built on this belief of future cash flows as source of an organisation's value and, therefore, reject the basic thesis that the key determinants of shareholder value are accounting-based measures, such as quarterly earnings and earnings growth (Martin & Petty, 2001:2). Johnson *et al*. (1985:53) lists the following reasons why earnings-based financial performance statistics fail to measure change in economic value for shareholders:

- Earnings figures vary with the choice of different accounting methods, such as LIFO versus FIFO
- Earnings numbers do not reflect differences in systematic risk faced by various companies
- Earnings figures do not account for investments in working capital and fixed capital needed to support sales growth
- Reported earnings do not incorporate changes in a company's cost of capital due to shifts in inflationary expectations.

According to Rappaport (1981:140), EPS and related accounting ratios such as return on investment and return on equity, have shortcomings as financial standards by which to evaluate corporate strategy. The following six reasons are listed:

- Alternative and equally acceptable determinations are possible for the EPS figure. Examples are the various methods of calculating depreciation and FIFO or LIFO approaches of calculating the cost of sales.
- The differences in risk among strategies and SBUs are not reflected in the earnings figures. The nature of the business investment and the relative proportions of debt and equity used to finance investments are both conditioning risk.
- The working capital and fixed investment needed for anticipated sales growth are not taken into account by earnings.
- Projected earnings ignore potential changes in a company's cost of capital due to inflation and the shifting of business and financial risk even though estimates of future revenues and expenses are included.
- Dividend policy is ignored by EPS. It can be argued that if a company wants to maximise EPS, it should never pay any dividends as long as it expects to achieve a positive return on new investments. If a company invested shareholders' funds at below the minimum acceptable market rate, the value of the company would be bound to decrease.
- No time preference rate is specified for the EPS stream. No value of a dollar of EPS is established for the current year compared with a year from now, two years from now, etcetera.

Ryan and Trahan (1999:46) ascribed the heightened pressure on maximising shareholder value to the increased competition in the capital as well as the managerial labour markets. Organisations are responding to this pressure by searching for better ways to manage shareholder value and this has lead to the development of VBM systems by various consulting firms.

Shanmuga (2009) summarised the differences among 14 of the most important financial metrics in table form, which can be seen in Table 2.1. In terms of the table, Shanmuga (2009) notes the following:

- EVA and CVA are distinguished from other residual income measures, as it is not bound by accounting principles, thereby offering the potential advantage of producing more economically valid figures. However, the computational complexity does come at a cost
- RONA and EBITDA, are attractive residual income components, as they are easy to calculate and observe at divisional and sub-divisional levels of a firm

- The important advantage of market based measures, are that they incorporate market expectations of future growth, and are easy to calculate
- Cash flow measures are easy to calculate, plus they offer the additional advantage of tying performance measurement to the ability of a business to generate cash flow
- EPS, PE and ROCE have the important virtue that they are already available through the normal financial reporting process, and are closely scrutinised by the capital markets.

Table 2.1: Comparison of important financial metrics

Measure	Rand/ Percentage	Includes cost of debt	Includes cost of equity	Measurable at divisional level	Ease of calculation	Includes value of future investment
EVA	R	Yes	Yes	Yes	Low	No
CVA	R	Yes	Yes	Yes	Low	No
EBIT	R	No	No	Yes	High	No
EBITDA	R	No	No	Yes	High	No
NOPAT	R	No	No	Yes	High	No
RONA	%	No	No	Yes	High	No
TSR	%	*	*	No	High	Yes
MVA	R	*	*	No	High	Yes
FGV	R	No	No	No	High	Yes
CFO	R	No	No	Yes	High	No
FCF	R	No	No	Yes	Low	No
EPS	R	No	No	No	High	No
PE	Times	No	No	No	High	No
ROCE	%	No	No	Yes	High	No

Source: Adapted from Shanmuga (2009)

**Capital cost are not explicitly included in market-based measures but are reflected indirectly in the discount rates the market inputs to the expected stream of future cash flows or EVAs.*

Frigo (2002:9) warns that one metric does not fit all situations, because no single metric is ever best for every analysis, and performance metrics must be flexible to adapt to the purpose of the analysis required. This analysis includes resource

allocation, executive compensation, business valuations, or other decisions. The choice of metric will be driven by the company's individual characteristics and a trade-off between accuracy and complexity (Ronte, 1998). Ryan and Trahan (2007:136) did not find evidence that one metric is better than the others, even though every consultancy touts the benefits of its respective VBM performance metric. Weaver and Weston (2003:25) concur that even though there are similarities in the various methodologies, each proponent of a metric will tout its benefits, and will emphasise the defects or limitations of the competitors' metrics.

Investors have become more mindful of the scarcity of liquidity and the importance of fortress balance sheets, and as a result, more and more companies are revisiting capital allocation frameworks (Zenner *et al.,* 2009:89). Zenner *et al.* (2009:89) poses the question – what is the best way to measure financial performance? Some companies rely on accounting measures (for example ROA, EPS, and profit margins), while other companies choose market-based measures (for example long-term stock performance). Some of the advantages and disadvantages of accounting measures and market-based measures are summarised in Table 2.2. Through accounting measures, managers are provided with a straightforward method for calculating returns, and can be easily applied to any division of a company. These accounting measures fail to account for the risk associated with the investment, meaning that an investment might increase these metrics, but still destroy value when accounting for risk.

Assessing financial performance based on these accounting measures may encourage a myopic view. The result of such a view is that it might discourage managers from making long-term, value enhancing investments. Stock returns are tied to shareholder value, but are noisy measures of performance by individual business segments. Long-term stock returns as performance measures depend on the company's capital structure, and is not adjusted for risk, and stock returns are affected by macro factors beyond the management's control. Zenner *et al*. (2009:90) believes that a hybrid measure that combines both market and book information are tied more closely to value creation.

Table 2.2: Return metrics comparison

		Not affected by leverage	Long-term focus	Can break-down by division	Can be compared to a hurdle rate	Not dependent on measurement of capital	Does not require projections	Ease of use	Ranking tied to value creation
Accounting/book values	ROE			√√	√		√	√	
	ROIC	√		√√	√		√	√	
	ROA			√√			√	√	
	EPS growth			√√		√	√	√√	
	EBITDA margins	√		√√		√	√	√√	
	Top-line growth	√		√√		√	√	√√	
	Market share	√		√√		√	√	√√	
Market values	IRR	√	√	√	√			√	
	EVA	√		√	√		√		√
	MVA	√	√	√	√				√√
	Total stock return		√		√	√	√	√√	

(Source: Zenner *et al*., 2009:91)

Lee (1999:414) states that valuation is as much an art as it is a science. No valuation technique can be expected to deliver a single correct value measure; it is a case of peering into an uncertain future, and making an educated guess. Even if better models are developed, which may reduce the degree of imprecision, value estimates will remain subjective and imprecise. VBM metrics seek to focus on financial performance and shareholders, whereas the balances scorecard seeks to broaden measurement of non-financial areas and to consider a range of stakeholders (Francis & Minchington, 2000:46).

Ameels *et al.* (2002:12) divides VBM metrics into two segments. The first segment is called the listed perspective, where stock market data is used to calculate the value of a company unambiguously. Typical metrics are total shareholder return (TSR) and market value added (MVA). The second segment is called the not-listed perspective, whereby companies use an alternative valuation model to estimate the warranted value of the common stock indirectly. Metrics included in this group are EVA, equity spread approach (ESA), cash flow return on investment (CFROI) and shareholder value added (SVA). The not-listed perspective is used by non-listed organisations, and in addition, can also be used to assess divisional performance as well as to provide support for decision making on corporate or divisional level.

Athanassakos (2007:1410) did research on the extent to which Canadian companies embraced VBM, and found the following:

- The most popular VBM metric is discounted cash flow (DCF)
- DCF is the most common metric used in investment decisions
- Economic value added (EVA) is most commonly used for long-term planning
- Return on invested capital (ROIC) is the most common when it comes to performance measurement
- Except for EVA, all VBM methods are developed internally
- The most recently adopted method is EVA
- Younger executives tend to be more willing to initiate and introduce VBM, due to a background in accounting or finance, and a higher level of education.

The following metrics will be discussed in detail:

- Cash flow return on investment
- Discounted cash flow
- Du Pont analysis
- Economic profit
- Economic value added
- Market value added
- Return on invested capital
- Shareholder value added

2.7.1 Cash flow return on investment (CFROI)

Cash flow return on investment (CFROI) is used mainly by portfolio managers and corporations and is an economic profit-based corporate performance/valuation framework on economic profit basis (Value Based Management.net, 2014a). CFROI, according to De Wet (2010:24), discounts the net cash receipts (in real terms) at a rate, which is called the market discount rate. The net cash receipts can be determined from both the company and the supplier of capital's point of view. CFROI states the estimated single-period cash flow of a company as a percentage of total investment (Ryan & Trahan, 2007:113). To adjust for inflation, both assets and cash flow are stated at the current dollars. In South Africa, it will be stated at current rand value. Operating leases are included in the asset base and then the cash flow to cash invested ratio is converted to an internal rate of return measure over the normal economic life of the assets involved.

Laschinger (2004:81) is of the opinion that CFROI can be compared to an after-tax internal rate of return on a company's existing asset base. The rate that sets the current value of the asset after tax cash flow equal to the asset's investment cost is known as CFROI. CFROI, in its more sophisticated form, incorporates the internal rate of return (IRR) principle, which is more often associated with the appraisal of capital investment opportunities (Cooper & Davies, 2004:13).

IRR is defined by Watt (2009:58) as a discount rate at which the present value of a series of investments is equal to the present value of the returns of those investments. The discount rate, that discounts the expected annual future cash flows over the average life of a business' assets, back to the current cash value of the business' net operating assets, is represented by CFROI. CFROI measures the cash profitability of a business for a specific year, and represents the average projected rate of return from all the organisation's existing projects at a specific point in time (Cooper & Davies, 2004:13).

The three important stages of calculating CFROI as described by Cooper and Davies (2004:13) are as follows:

- The conversion of accounting profit into real cash flow for the period, by adjusting for non-cash profit and loss account items, as well as for non-operating items.
- The conversion of capital invested, as per the balance sheet, into an inflation-adjusted measure of investment in the business, expressed as the gross assets at current cost. Off-balance sheet assets are included, but not goodwill. The inflation adjustment returns assets to the full historical cost, and is then adjusted for the effects of general price inflation.
- The value of non-depreciating assets (for example, land and working capital), which is released at the end of the business' life must be estimated and the average life span of the business' assets must be known. By using IRR, the annual cash performance is converted into a measure of economic performance over the assets' average life span.

CFROI reflects the way in which the stock market judges a company's performance the most accurately of all the metrics available. CFROI, as a measure of performance, is not distorted by the effect of inflation and depreciation, unlike EP and EVA (Cooper & Davies, 2004:13). Cooper and Davies (2004:14), however, list the following practical difficulties with the CFROI calculation:

- The calculations are time consuming

- It is expensive to apply
- The determination of the appropriate inflation adjustment requires an estimation of the average age of assets as well as an appropriate inflation factor
- The normal life of assets is very subjective.

Value Based Management.net (2014) lists the following advantages:

- CFROI can compare across companies with disparate asset compositions, across borders and time
- CFROI ties performance measurement to the ability of generating cash flow
- CFOI is adjusted for inflation
- CFROI can be calculated at strategic business unit or divisional level, and
- CFROI can be used for privately held companies.

2.7.2 Discounted cash flow (DCF)

DCF can be defined as the present value of forecasted cash flows (Phillips, 2014:26). Ryan and Trahan (2007:113) define DCF as the market value of a company expressed as the present value of the expected future cash flows discounted back to the present time at the company's cost of capital. The net present value (NPV) calculation of the value of an asset or a firm, which is a collection of assets, by discounting future streams of cash flow, is the surplus that the investment is expected to generate over the cost of capital (Bhattacharyya & Phani, 2004:5). Vélez-Pareja (2001:2) describes NPV as the residual net amount that the firm receives in dollars today, after discounting the net benefits at the discount rate and after subtracting the initial investment. The value generated by the investment, after subtracting the amount invested at period zero, and the amount the firm would receive or pay for its money before it decided to invest is measured by NPV. It is what remains after subtracting the investment and interest payments that have to be paid to the stockholders and debtors by the firm.
In 2013, Imam *et al.* (2013:16) conducted a study on which models – cash flow based, or accrual based, European investment analysts prefer. Imam *et al*., (2013:16) found that DCF and earnings multiples continue to be the two most popular valuation models, at least in non-financial sectors.

Ottosson and Weissenrieder (1996:2) wrote that most companies realised years ago that methods based on DCF must be used for investment analysis or when valuing the future. Management must be able to evaluate consistently the company from the investor's perspective where profitability and value creation in companies are a function

of the funds initially invested in one or many ventures, the operating cash flows, the economic life, and the capital cost of these ventures. Rappaport (1981:141) highlights the one essential feature of DCF – it takes into account that a dollar of cash received today is worth more than a dollar received a year from now. This is due to the fact that today's dollar can be invested to earn a return during the intervening time.

Static DCF has one main advantage – it is simple to implement in a systematic way and, therefore, the results are easy to communicate (Guthrie, 2013:259) A major strength of DCF models, according to Weaver and Weston (2003:7), is that the models seek to identify the underlying determinants of value. Weaver and Weston (2003:7) list the following instances where DCF can be applied:

- As a valuable management planning and control system
- In an information flow system through the ongoing monitoring of expectations compared with changing estimates of the value drivers
- During a feedback process where policies and decisions can be revised in order to improve performance
- As part of a strategic planning process to estimate the valuation consequences of alternative strategic plans.

The valuation tool of choice for many practitioners remains static DCF, even though static DCF fails to incorporate the effects of managerial flexibility (Guthrie, 2013:259). Managerial flexibility for example is the ability to delay beginning construction of a planned project or complicated sequencing, for example, large developments that span several years, or several distinct stages of completion (Guthrie, 2013:259). The entire sequence of decisions regarding the completion of a project is made before actual construction commences. Static DCF, therefore, assumes that the process of decision-making is adhered to regardless of what might happen post commencement (Guthrie, 2013:259)..

2.7.3 Du Pont analysis

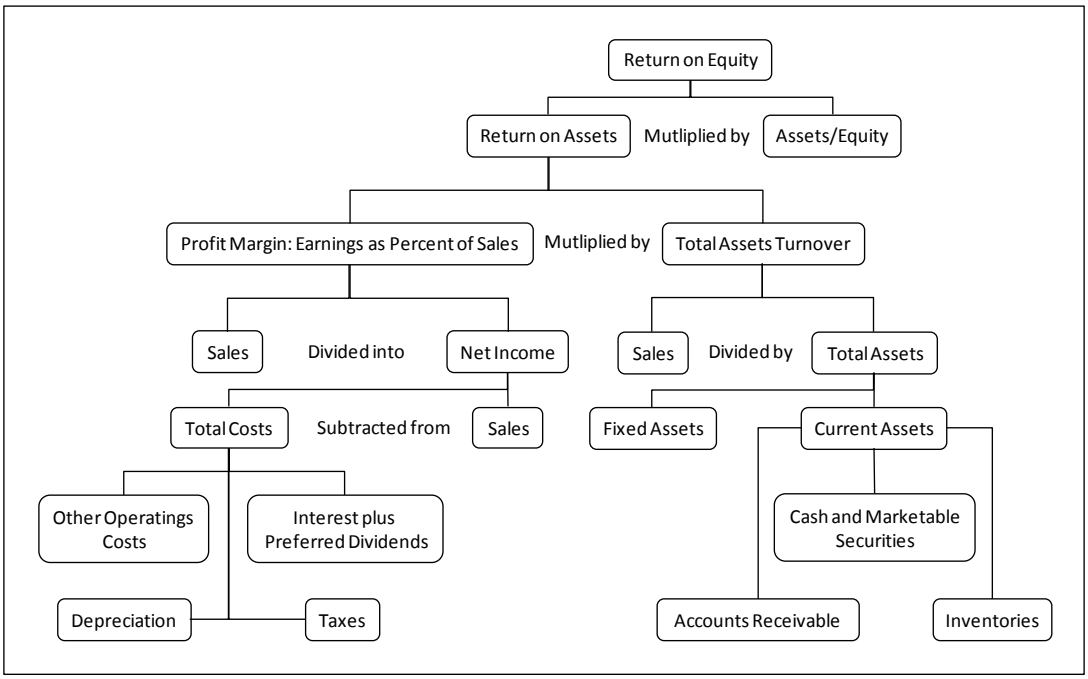
Gunderson *et al.* (2005:48) regard the Du Pont analysis as a straightforward method for assessing the factors that influences a firm's financial performance. The profitability of the firm is measured by the return on equity and the Du Pont analysis identifies three levers – margins or return on sales, asset turnover, and financial leverage.

Diagram 2.4 depicts the modified Du Pont chart, so called because the managers at Du Pont developed this approach for evaluating performance. The working of the chart

(working from the bottom up) is described by Brigham and Ehrhardt (2005:460) as follows:

- The left side of the chart develops the profit margin on sales
- The various expense items are listed and then summed to obtain the total cost
- The total cost is subtracted from sales to obtain the company's net income
- Dividing net income by sales, the percentage left for each sales dollar (Rand) is left over for stockholders
- If the profit margin is low, or trending down, the individual expense items can be examined to identify and correct the problem
- The right side list the various categories of assets
- Asset turnover is calculated by dividing sales by total assets
- The profit margin times the total assets turnover gives the rate of return on assets (ROA)
- The Return on Equity (ROE) is calculated by multiplying the ROA with the assets to equity ratio (equity multiplier).

Diagram 2.4: The modified Du Pont chart



Source: Adapted from Brigham and Ehrhardt (2005:461)

The working of the Du Pont analysis is described by Gunderson *et al*. (2005:48) as follows:

- The model allows business to understand and manage the drivers (levers) that have the most bearing on profitability
- The profitability is generally impacted by two streams – the investment stream and the income stream
- The key driver of the investment stream is leverage, which is calculated by dividing total assets with owner's equity
- The income stream is driven by the earnings and turning levers
- Earnings refer to managing revenues and costs in order to control margins through raising prices, managing input costs and/or improving production efficiencies
- The turning levers refer to the company's ability to generate larger amounts of sales out of fewer resources than the competition
- Asset turnover can be improved by improving sales while holding the asset base constant and/or by maintaining or improving revenues while the asset base is reduced.

The extended Du Pont equation to determine ROE, as per Brigham and Ehrhardt (2011:107), is the combination of the profit margin, assets turnover ratio and the equity multiplier. It can be expressed as follows:

$$ROE = \frac{Net\ Income}{Sales} X \frac{Sales}{Total\ Assets} X \frac{Total\ Assets}{Common\ Equity}$$

Brigham and Ehrhardt (2011:107) regard the insight provided by the Du Pont model as very valuable and can also be used for "quick and dirty" estimates of the impact that operating changes have on returns. An accurate income statement and balance sheet will provide all the numbers required by the Du Pont analysis (Gunderson *et al*., 2005:48).

2.7.4 Economic profit (EP)

EP describes the surplus earned in a period after deducting all expenses, including the cost of capital. The basic EP approach can be traced back to the work of Alfred Marshall in 1890 (Cooper & Davies, 2004:11). While the accounting measure of net profit deducts the charge on debt capital, it ignores the cost associated with using equity capital. Using the net profit measure can be misleading, because companies can

be profitable, based on accounting profit, but economically unprofitable using the EP measure (Cooper & Davies, 2004:11). Hawawini *et al.* (2003:5) define EP. as a version of the residual income method that measures operating performance. The principle feature of EP is that it reduces income by a charge for the cost of capital that is employed to produce the income, unlike traditional accounting measures such as ROA. EP is expressed as follows:

EP = NOPAT – WACC x CE

where:

NOPAT is the net operating profit after tax
WACC is the weighted average cost of capital
CE is the capital employed.

Cooper and Davies (2004:11) list the following to two methods of calculating EP:

- EP = Invested Capital x (Return on Capital - WACC)
  This approach clearly demonstrates the amount of capital invested multiplied by the performance spread, which is the difference between the return achieved on the invested capital and the weighted average cost of capital.

- EP = Operating profits after tax less capital charge
  With this approach, the capital charge (invested capital multiplied with weighted cost of capital (WACC)) is deducted from operating profits after tax. Operating profit is the profit before deducting non-operating items, such as interest receivable, investment income, and interest payable.

It might appear that EP is a single-period, short-term measure, but an important feature of this approach is the direct link it has with long-term value, based on the free cash flow approach (Cooper & Davies, 2004:12). According to Cooper and Davies (2004:12), EP is influenced by the following three key factors:

- The return on capital achieved
- The cost of capital
- The growth of new capital.

Cooper and Davies (2004:12) list the following advantages of EP:

- Can be used to value businesses
- Can be used to measure and evaluate performance
- Can be used to fulfil a more strategic role
- The introduction of EP would be relatively straight forward
- Requires two adjustments to reported operating profit – adjustment of the tax charge and deduction of the cost of capital charge
- EP can be used to set performance targets of the business
- Performance against above targets can be tracked via the established accounting systems, if the relevant balance sheet information exists.

A significant drawback is the use of traditional accounting numbers to calculate the EP of a firm. This is due to the rules, conventions, and policies that are applied to, and that govern the production of published accounts. An example is the distortion that inflation and depreciation brings to the accounting numbers, and as a result, it could undermine the validity of the calculations (Cooper & Davies, 2004:12).

2.7.5 Economic value added (EVA)

Xuefeng *et al.* (2014:21) describe EVA as the net operating profit after tax minus the cost of all the invested capital. Taylor *et al.,* (2014:55) describe EVA as the net operating profit after tax less an appropriate capital charge for the opportunity cost of all assets employed to generate the profit. EVA measures both the cost of equity and the cost of debt capital whereas existing financial accounting regards the cost of equity capital as income distribution and only confirms the cost of debt capital (Xuefeng *et al.,* 2014:21). When net profit after tax exceeds the capital cost (EVA is positive), value is created and when the net profit after tax is less than the capital cost (EVA is negative), value is destroyed (Xuefeng *et al.,* 2014:22). EVA can focus a company on pursuing the optimal capital structure by reducing the cost of capital by means of disposing of idle assets and accelerating cash flow. (Xuefeng *et al.,* 2014:25)

When the excess earnings are measured over a capital charge based on investment opportunities of similar risk, it is known as residual income (RI). A successful firm should earn at least its cost of capital. Firms earning higher returns than the financing cost benefit shareholders and, therefore, account for increased shareholder value (Lander & Reinstein, 2005:435). Stern (2011:57) defines EVA as a measure of operating income that provides a measure of economic profit by including a charge for

the cost of capital employed in the enterprise. EVA is defined as the NOPAT less a capital charge, computed by multiplying the company's adjusted book value of capital items with the company's market-determined cost of capital (Ryan & Trahan, 1999:48).

Primarily, according to Mohanty (2006:266), EVA serves three purposes:

- It is a performance measurement tool
- It is a valuation tool
- It is a reporting tool.

EVA measures the difference between the return on a company's capital and the cost of that capital (Lawrie, 2009:1). Kramer and Pushner (1997:41) define EVA as the firms accounting profit minus the cost of capital and list the following two methods of calculating EVA:

- $EVA_t = (r_t - k_t)C_{t-1}$

  where:

  r_t*= the return on capital*
  k_t *= the cost of capital*
  C_{t-1} *= the company's economic book value of capital.*

- $EVA = NOPAT_t – (k_t)(C_{t-1})$

  where:

  NOPAT = the net operating profit after taxes
  (k_t) *= the cost of capital*
  (C_{t-1}) *= the company's economic book value of capital*
  $(k_t)(C_{t-1})$ *= represents the company's total cost of capital.*

Lander and Reinstein's (2005:435) calculation of EVA is as follows:

- *EVA = NOPAT – (Capital x Cost of capital)*

  where

  NOPAT = the net operating profit after taxes
  Capital = total net operating capital
  Cost of capital = WACC.

EVAs supporters argue that EVA provides more useful information on the value of operations' prior periods than other accounting measures of performance, and when EVA changes are linked to a reward mechanism, it acts to align employee interests with those of shareholders. Sanningammanavara, Lakshmi & Ramya (2014:12) regard EVAs primary purpose as that of shaping management behaviour and by setting goals, EVA becomes a motivational tool at various levels of management. EVA can assist with communication and by doing so coordination within an organisation is enhanced.

Athanassakos (2007:1410) referred to the observed discrepancies between USA and Canadian stock markets during the 1990s, and attributed this to the use and non-use of EVA as VBM method. The statistical analysis of Athanassakos' (2007:1410) indicates that companies using EVA have a better performing stock price than those that did not use EVA. Canadian companies as argued by Athanassakos (2007:1410), tend to primarily use non-EVA methods, tends to have an underperforming stock price compared to companies that does use EVA, especially at corporate level. USA companies do use EVA more extensively, especially at corporate level. Based on the research findings (even though it does not prove causality), Athanassakos (2007:1410) recommends that Canadian companies should use EVA more aggressively if these companies are to experience better value creation and stock market performance than what was seen in the 1990s.

De Aguiar *et al.* (2014:151) found that if a greater weight were placed on an accounting-return measure, such as EVA, sales managers would consider the long-term consequences of the sales tasks performed within a company. In addition, De Aquiar *et al.* (2014:151), found that both EVA and nonfinancial metrics are more sensitive than traditional accounting measures in terms of longer-term decision-making.

Anderson, Bey and Weaver (2005:15) did statistical tests for significant differences between adjusted and unadjusted EVA. The adjustments refer to the series of accounting adjustments made to residual income that subsequently was labelled EVA (Anderson *et al*., 2005:2). The statistical test for significance yielded very mixed results, or little or weak support that there are significant differences between adjusted and unadjusted EVA. Regression results indicated a very strong relationship between adjusted and unadjusted EVA, and even when statistical significance occurred, the evidence was minimal for economic significance. Anderson *et al*. (2005:16) concluded that there is little justification for corporations to move from GAPP-based accounting metrics to a non-GAPP-based metric.

EVA, according to Bhattacharyya and Phani (2004:8), is regarded by proponents as a superior measure as compared to other performance measures on four counts:

- It is nearer to the real cash flow of the business entity
- It is easy to calculate and understand
- Is has a higher correlation to the market value of the firm
- Its application to employee compensation leads to the alignment of managerial interests with those of the shareholders, thus minimising the supposedly dysfunctional behaviour of the management.

EVA calculations, in theory, are able to be decomposed into subsidiary components that collectively add up to the overall total figure. This allows the localisation of value generation to the specific groups of employees or to particular facilities (Lawrie, 2009:1). Therefore, it is possible to allow for the fair distribution of differential rewards within an organisation. Forecast versus actual EVA can be used as a basis for post-hoc investment appraisal, and the use of components of the EVA calculation as the basis of comparison between or within organisations.

2.7.6 Market value added (MVA)

Kamalaveni and Kalaiselvi (2010:229) define MVA as the excess of market value of a company over the company's invested capital, and MVA cumulatively measures the value created by management in excess of the shareholders' investment. Vélez-Pareja (2001:24) defines MVA as the value in excess of what the market assigns to the stock of a firm, over its book value and can also be calculated as the present value of the future EVAs.

Kramer and Peters (2001:42) define MVA as a cumulative measure of the value created by management in excess of the capital invested by shareholders. Ameels *et al.* (2002:14) define MVA as the difference between a company's equity market valuation and the sum of the invested equity and adjusted book value of the debt, by taking account of the debt and equity invested in a company. Value is created for shareholders when a company has a positive MVA. When MVA is negative, shareholder value is diluted (Narang & Kaur, 2014:850).

Kramer and Pushner (1997:42) agree that MVA may provide a useful market indication of present and future value creation even though it is depended on the book value of capital, which is influenced by inflation. This is because MVA represents the difference between capital invested and the present value of the cash flows expected from the

capital. Kamalaveni and Kalaiselvi (2010:229) concur by stating that while MVA is dependent on the book value of capital and is influenced by inflation, it may provide a useful market indication of present and future value creation.

Kramer and Peters (2001:42) argue that while MVA is calculated based on the book value of capital, which is subject to inflationary distortions, it provides an excellent measure of a company's ability to create wealth. MVA is a performance metric that captures shareholder value creations without being subjected to accounting measure shortfalls (Hillman & Keim, 2001:130). MVA is a measure that captures the relative success of firms in maximising shareholder value through efficient allocation and management of scarce resources (Hillman & Keim, 2001:129).

MVA becomes more than just a representative of the future stream of income (Hillman & Keim, 2001:130). Hall (2002:17) describes MVA as a method to quantify the value that has been added or subtracted from the total capital employed by the shareholders and is an external performance measure, which uses the share market as a basis. Kramer and Pushner (1997:42) described MVA as a market-generated number and calculated as follows:

$MVA_t = V_t - C_t$

where:

(V_t) = is the sum of the total market value of the firm's equity and the book value of its debt, and
(C_t) = is the capital invested in a firm.

Grant (2011:28) expresses MVA in a generalised EVA valuation model as follows:

$MVA = NPV = \sum EVA_{(t)} / (1+WACC)^t$
$(t = 1 \text{ to } \infty)$

where

MAV = current market-assessed NPV

$EVA_{(t)}$ = expected economic earnings at period (t), and

WACC = weighted average cost of capital.

From a valuation point of view, MVA is, in principal, equal to the present value of all the expected future EVA a company will generate (Kramer & Pushner, 1997:45). Hillman and Keim (2001:129) also share this point of view – MVA is in essence the stock market's estimation of net present value. Kramer and Pushner (1997:43) are of the opinion that it is an accomplishment to maintain a high MVA level due to the fact that it requires the satisfaction of both present and future earnings expectations.

Baum *et al.* (2004:82) analysed the relationship between a company's performance – measured by EVA and/or MVA – and the compensation of the chief executive officer (CEO). Baum *et al*. (2004:86) found that MVA had a significant positive association with each measure of CEO compensation while EVA had no significant relation to CEO compensation.

2.7.7 Return on invested capital (ROIC)

Lloyd and Davis (2007:56) state that value creation relies on two critical components – revenue growth and return on invested capital (ROIC) in excess of the cost of capital. The calculation of ROIC, according to Lloyd and Davis, is done by dividing the company's after tax net operating profits by the sum of working capital and fixed assets. Ryan and Trahan (2007:114) define ROIC as the ratio of net operating profits less adjusted taxes to invested capital. Ryan and Trahan (1999:47) define invested capital as the sum of operating working capital, net fixed assets, and the net of other assets. Rudzki (2005:56) defines ROIC as the profits of a business divided by the total capital invested in the firm. Economic value is created when ROIC exceeds the WACC of the company.

According to Rudzki (2005:56), the ROIC of a company will determine the long-term success or even viability, of a company. Tortoriello (2009:10) describes ROIC as a company's after-tax operating income over the past twelve months, divided by the capital invested in the business. Capital invested consists of equity, long-term debt, and minority interest. It can be concluded that companies that generate high levels of ROIC are applying invested funds profitably. When a company's absolute level of profitability is compared to its cost of capital, the economic profit is calculated and, therefore, it can also be expressed as ROIC less WACC. According to Tortoriello (2009:10), the cost of capital rate can be viewed as the basic rental charge paid to investors for the use of the invested capital.

Zenner et al. (2009:94) highlights a common misconception about ROIC – new investments should be adopted only if it leads to a higher average ROIC – and that this approach can lead to two common capital allocation pitfalls:

- Over-allocation and migration towards riskier projects. ROIC should not be focussed on as a stand-alone metric, but rather on ROIC in excess of the cost of capital. Mature cash-flow generating businesses are evaluated with the same ROIC hurdle rate as new and riskier ventures, and as a result, capital ends up being over-allocated to high-risk ventures. This leads to a riskier profile for the company with cost of capital and capital structure implications.

- Under-allocation because historic ROIC hurdle is too high. Certain companies have successful prior investments and as a result a high average ROIC. Companies often end up not investing in projects with positive risk-adjusted returns, when the focus is on average ROIC. A potential project might have a lower ROIC than the company's average ROIC, even if the ROIC is higher than the cost of capital. This problem can be rectified when the strategic decision-makers focus on returns relative to risk to create shareholder value, and not on a project's ROIC, or on the company's ROIC.

2.7.8 Shareholder value added (SVA)

Shareholder Value Added (SVA) is calculated by applying standard discounting techniques to forecast operating cash flows that are driven by sales growth and operating margins, then subtracting the investments made during the period (Rappaport, 2006:73). SVA has a clear advantage over other traditional measures because it is based entirely on cash flow and is not influenced by accounting distortions. The performance evaluation period should be extended to a rolling three-year cycle to ensure that the metric captures long-term performance.

Improving leading-indicator performance is the foundation for achieving superior SVA, but the identification of it can be challenging (Rappaport, 2006:74). Leading indicators include time to market for new product launches, employee turnover rate, customer retention rate, and timely opening of new manufacturing facilities or new stores. Most business focus on three to five leading indicators and capture an important part of the long-term value-creation potential. Superior SVA serves to increase long-term shareholder returns (Rappaport, 2006:74).

The single biggest obstacle identified by Hope (2002:27) to the practical application of SVA as a management and decision-support tool is determining an appropriate cost of capital. At the centre of the economic principles in SVA applications are the cost of capital factor and this ultimately drives decision around pricing, product and business-line investments, risk management and mitigation, resource allocation, and capital management. Capital is regarded as a limited resource, and in order to achieve or exceed the equilibrium, business managers must allocate resources and make decisions on investments and pricing that will meet or exceed the shareholders' required return. These decisions must deliver a return that meets or exceeds the cost of capital and, therefore, as a result, meet or exceed the shareholders' required return. Financial Management (2012:16) recommends improving the present value of future cash flows whereby shareholder value will be increased. Alternatively, debt must be reduced, whereby shareholder value will increase (Financial Management, 2012:216).

2.8 CRITIQUE OF VALUE-BASED MANAGEMENT

Copeland *et al.* (1995:95) warns that VBM can become a staff-captured exercise that has no effect on operating managers at the front line or on the decisions that are made at these levels. As in the 1960s corporate planning style, VBM can conjure images of large numbers of corporate staff or specialists that have no line management experience and spend most of the time worrying about how to predict macroeconomic variables like GDP. At the same time, these armies of employees have no understanding of the competitive strategy at the business-unit level, and as a result, companies in such a situation end up with value veneering, and not value-based management.

Rappaport (2006:66) refers to a fashionable occurrence of blaming the pursuit of shareholder value creation as the reason for the ills besetting corporate America. Ills listed are managers and investors obsessed with next quarter's results, failure to invest in long-term growth, and accounting scandals. Executives blame stock market pressure for the destruction of shareholder value. Rappaport (2006:66), states that management has betrayed the principles of shareholder value, and not the shareholder value principle that has failed management.

With the increase in popularity of VBM, management compensation has been linked to shareholder value (Mohanty, 2006:265). Rappaport (2006:66) uses stock options introduced in the 1990s as an example of management's short-term focus. Stock

options were introduced as a major component of executive compensation with the idea of aligning the interest of management with those of shareholders. The design of these stock options had the opposite effect – the short vesting periods and a belief that short-term earnings fuel stock prices, resulted in executives managing earnings, exercising options earlier and cashing out opportunistically. Another incentive that added to the focus on short-term performance was the acceleration of the vesting date of a CEOs options at retirement.

It is impossible to use accounting-based measures to measure value creation because accounting data only reflects historical data. The income statement explains what happened during the year, and the balance sheet reflects the state of a firm's assets and liabilities at a certain point in time. The changes in expectations regarding growth of the cash flow, and changes in risk, which lead to changes in the discount rate, determine a company's value, as well as the increase in the company's value over a certain period (Fernández, 2013:2). El Mir and Seboui (2006:243) state that accounting values are affected largely by managerial practices aimed at improving the looks and image of the firm to stakeholders, and particularly to current and potential shareholders. Some of the practices listed are disclosure timing, window shadowing and earnings management.

Bhattacharyya and Phani (2004:9) also share this critique. Measures such is ROE, ROA and Operating Profit are based on current accounting practices whereby most of the assets in the balance sheet are based on historical costs. Revenue and expenses (other than depreciation) are recognised at current value. While EVA proponents claim that accounting based measures are not good proxies for value creation, EVA is not removed from the limitations of accounting profit, as it forms the basis for computing EVA (Bhattacharyya & Phani, 2004:11). McIntyre (1999:72) shares this critique − both EVA and ROA suffer from the same problem. Accounting statements primarily report unamortised historical costs, not value or changes in value, and the amounts reported can be influenced severely by the accounting methods used.

Disadvantages and difficulties of VBM listed by Cooper *et al.* (2000:38) are:

- Different forms of VBM and methodologies complicate the task
- Relatively disappointing at the subordinate business level due to difficulties in forecasting value
- Managerial cost of implementation
- The degree of complexity in the calculation of value creation

- Translating financial measures into operating customer measures are difficult
- The difficulty of technical measurements, such as cost of capital.

According to Cooper *et al*. (2000:39), the implementation of VBM techniques also causes difficulties. The following are listed:

- Extent of the difficulties depends on both the technique chosen and the degree of rigour with which it is applied
- Choosing the technique itself is also a problem – all the techniques purport to improve shareholder wealth, but through different measures
- Selecting the single best technique is, therefore, a lengthy and difficult task
- The degree of acceptance throughout the organisation is important, and a bottom-up approach can be required in certain instances
- The need to change the behaviour and philosophy of employees is of paramount importance, which are issues of implementation and change in management and not so much of VBM, but no less important.

Francis and Minchington (2000:47) found that VBM metrics are too complicated to apply and that non-financial managers could not easily understand it. They also found that VBM is used at head office level, but not at divisional level, where traditional profit measures were retained. Cooper *et al*. (2000:39) suggests that companies should rather focus on the underlying philosophy than on the detailed techniques of VBM (Francis & Minchington, 2000:47). Training is essential if the technique is to be understood and accepted, but it can be very costly, especially across a large multinational organisation.

Francis and Minchington (2000:47) list the following aspects of VBM that are regarded as negative:

- It is difficult to implement, particularly at divisional level
- Technical barriers to implementation include the need to establish the cost of capital and the value of the capital employed
- Dealing fairly with the synergies between divisions
- Detailed adjustments required to profit and capital employed figures in order to move away from historical profits to economic profits
- Greater burden is placed on accountants to calculate the adjustments, and for managers to interpret these adjustments

- Potential increase in audit cost due to the numerous adjustments and the increased auditing requirements associated with it.

Calculating or estimating the cost of capital remains a problem. In 1999, Lee (1999:422) stated that even after the development of the capital asset pricing model (CAPM) three decades earlier, the field of finance is still struggling with the practical and elemental problem of estimating a firm's cost-of-equity-capital. Bhattacharyya and Phani (2004:5) concur that none of these measures truly reflect the complete picture by themselves but have to be seen in conjunction with other metrics. Firm level inconsistencies in the accounting figures and in valuation methods (used by accountants in measuring assets, liabilities, and income of the firm) plague these measures.

VBM ignores important constituencies other than the firm's shareholders, such as employees, customers, suppliers, the environment, and the local community (Shanmuga, 2009). Firms only deliver value to shareholders, when value is delivered to the other constituencies. The opposite also rings true - when customers are not satisfied, the competition will be supported. It is the same for employees – if employees feel that talents are unappreciated and undervalued, new avenues will be pursued.

One problem with VBM, as highlighted by the Buttonwood Group (2004:44), is that it tends to be stuck at the senior management level. The reason for this is that it is the everyday decisions made by workers on the front lines that drive shareholder value. The decision-making process, as described by The Buttonwood Group (2004:44), takes place on the frontline, by supervisors and employees, for example, to throw away, or to remake a problem part, how hard to pursue the new prospect, and whether to get maintenance to investigate the funny noise the truck motor is making, or just to wait until it breaks. Another problem highlighted is the risk of not understanding VBM or how it is impacted on. If managers do not understand VBM, or what to do to influence it, managers will stop caring about it and will only do what is needed to get by.

Kramer and Pushner (1997:47) found no clear evidence that EVA is the best internal measure of successful shareholder value adding investments. The reasons given were that markets seem to be focussed more on profits than on EVA, and that the media reports on earnings, not EVA. Kramer and Pushner (1997:47) also do not see a clear advantage to shareholders looking at EVA, as NOPAT is the accounting return on the shareholders' investments. The argument put forward is that while investors should be

aware of the capital structure, investors should already be familiar with the opportunity cost of the investment, and may not need to incorporate this in the measure of performance. Kramer and Pushner (1997:47) caution against an overemphasis on either EVA or NOPAT as currently defined, as both are simply single-period accounting measures, but think that it is important for management to understand its cost of capital.

Biddle, Bowen & Wallace (1999:8) examined a sample of 6,174 firm-years over a ten-year period, and found that current period accounting earnings is significantly more highly associated with market-adjusted annual stock returns than what RI and EVA. Biddle *et al.* (1999:11) also found, from the tests done on stock returns, that the results did not support the contention that EVA outperforms earnings in explaining firm values. The evidence suggested that earnings more often dominated EVA in value-relevance to participants in the market. Bhattacharyya and Phani (2004:21), who state that EVA fails to provide better signals to the capital market as compared to conventional accounting measures like ROI, also share this point of view. The authors also regard the calculation of EVA as being significantly subjective and as a result reduce the informative value.

Beneke (2007:65) did research to develop an understanding of whether investors can use VBM measurements to determine corporate performance, as well as share price movement. The conclusion made from the study, is that the only metric that can be used to predict share price movement in non-mining and non-financial South African companies listed on the JSE is earnings per share (EPS). It was also found that while VBM was developed as a means to measure value creation, it could only explain a very small variation in share price movement.

Worthington and West (2004:220) used pooled time-series, cross-sectional data of 110 listed Australian companies to evaluate the usefulness of EVA and other accounting-based performance measures. It was found that over the period 1992 to 1998, EVA and other accounting-based performance measures would explain some 27 percent of the variation in the level of stock returns and 44 percent of the variation in returns defined as year-to-year changes.

Biddle, Bowen & Wallace (1997:333) found that EVA does not dominate earnings in its association with stock market returns and the evidence suggests that earnings generally dominate EVA in value-relevance to market participants. EVA was found by

Farsio *et al*. (2000:118) to be one of the poorest measures available to indicate stock performance, and only explains a fraction of the variability in stock return fluctuations. Ferguson, Rentzler and Yu (2005:111) used event study methodology to investigate why firms adopted Stern Stewart's EVA. This was based on two scenarios, one where firms adopt EVA due to poor stock performance and secondly whereby adopting EVA leads to better stock performance. Due to insufficient evidence, it could not be concluded that stock performance lead firms to adopt EVA or that by adopting EVA it improves stock performance. Firms with apparent above average profitability relative to its peers, have this advantage before and after adopting EVA.

Cooper and Davies (2004:15) draw the following conclusions about VBM metrics:

- There is a great deal of consistency between the various metrics
- However, there are significant differences as well between the various metrics
- Each metric is argued to be superior in explaining how the stock market actually measures shareholder wealth
- Importantly, independent studies generally show lower levels of correlation than suggested by the consultants, which makes the empirical evidence inconclusive
- Each metric suffers from a potential lack of objectivity in calculating the cost of capital as well as the other key value drivers
- The level of understanding of the metric by managers can be a potential problem
- The implementation and measurement costs should not outweigh any benefits from a metric.

EVA, as a metric is often criticised as an incorrect measure of corporate performance and Mohanty (2006:266) puts the following arguments forward to substantiate this statement:

- The market forms expectations based on the market value of the company and not on its book value, as EVA seems to indicate
- EVA does not seem to capture the two effects of expected returns, namely periodic cash flows and capital gains
- EVA does not accurately capture the true performance of the companies due the fact that EVA is an accounting based performance measure
- EVA is often criticised on the grounds that it may lead to dysfunctional behaviour on the part of management
- Forward-looking expenditures like capital and R&D may be discouraged by EVA-based compensation systems.

2.9 IMPROVING VBM

2.9.1 Implementation

VBM is described by Copeland *et al.* (1995:94) as an integrative process designed to improve strategic and operational decision-making throughout an organisation. The focus of VBM should be on the why and how of changing the corporate culture, and not on the methodology. Success starts with successful implementation. Copeland *et al.* (1995:120) identified ten traits that are common to successful implementation and can be seen in Table 2.3. Copeland *et al.* (1995:125) states that VBM cannot be successfully implemented unless line managers embrace it and use it on a daily basis to make better decisions.

Table 2.3: Key factors for successful implementation

No	Key factor
1	Establish explicit, visible top-management support
2	Focus on better decision making for operating (not just financial) personnel
3	Achieve critical mass by building skills in a wide cross-section of the company
4	Tightly integrate the VBM approach with all elements of planning
5	Underemphasise methodological issues and focus on practical applications
6	Use strategic issue analyses that are tailored to each business unit rather than a canned or generic approach to communicate concepts
7	Ensure the availability of crucial data (e.g. business-unit balance sheets, external performance benchmarks)
8	Provide common, easy-to-use valuation templates and management report formats to facilitate the submission of management reports
9	Tie incentives to value creation
10	Require capital and human resource request be value based

Source: Copeland *et al.* (1995:120)

A successful VBM program is all about introducing fundamental changes to a big company's culture. This is also the reason for most failures – the most difficult of all managerial challenges is transforming the beliefs in a large organisation (Haspeslagh *et al.* 2001:66). It is argued by Lander and Reinstein (2005:437) that many positions also require innovation, analytical and conceptual thinking as critical competencies,

and as a result, firms should, therefore, analyse competencies by job function and level in order to determine key strengths and weaknesses. With this in mind, managers should be strong at:

- Establishing focus – align people and allocating resources consistent with entity objectives
- Developing others – use a variety of approaches to help others with developing capabilities
- Motivating others – enhance others commitment to work, and
- Organisational savvy – understand and use organisational dynamics to achieve objectives.

Koller and Peacock (2002:106) list the following four principles that can assist with developing and implementing the most appropriate measurement system:

- **Understand how the company creates value.**

  Companies' Executives surprisingly lack the understanding of what drives value within the business units. Understanding how the company creates value is not conceptually difficult, however, it requires a disciplined approach.

- **Integrate financial and operational measures.**

  Short-term financial measures form the basis of most planning- and performance-management systems. A system such as EP only tells where the company has been, not where the company is going. Most systems also do not identify the value drivers behind financial performance, and these identified drivers must be easy to convey to first line managers. The identified drivers must also be reviewed and updated periodically. Short-term metrics (EVA, EP etcetera) and long-term performance indicators (market share) should be used together in order to avoid decisions that may improve value temporarily but destroy it in the long run.

- **Keep the measurement system transparent and uniform.**

  Performance measurement systems can take a life of its own, whereby a company can employ a group of people to do all the financial calculations accurately. The end result might be an array of measurements and results, but business units might not make use, believe, or understand, or even utilise these measures. This is most likely because the managers are not involved in developing or adapting the system. While financial performance measurement systems are an imprecise discipline, any system should focus on the true drivers of growth and return on investment. It is recommended that a company start with a simple, directionally correct measurement, with figures from standard financial statements. It is also

recommended that a company should only use one system and language for budgeting, performance measurement, capital budgeting, and incentive compensation in an effort to avoid sending conflicting signals to managers.

- **Focus on the dialogue.**

  Planning and performance management's real purpose is to help a company make better strategic and operational decisions. Through a superior understanding of the business, the best decisions are made. This superior understanding comes from an effective dialogue within the management team or between business unit managers and corporate managers. Business unit managers will get a better understanding of how the business unit is being managed, as well as to assist with understanding the business as a whole, and to negotiate ambitious but realistic targets. Business unit managers will be assisted through a precise metric to understand why business units do or do not meet performance targets and what should be done as a result.

Haspeslagh *et al*. (2001:67) found the following five elements that successful VBM companies shared in achieving the desired cultural transformation:

- An explicit commitment is made to shareholder value
- An environment is created through training, which is receptive to the changes the program will engender
- Training is reinforced with broad-based incentive schemes. The incentive schemes are tied to the VBM performance measures, which gives the employees a sense of ownership throughout the company in both the company and the program
- All employees are allowed to make value-creating decisions, which are accomplished through major organisational changes
- Changes are broad, inclusive, and not narrowly focussed on financial reports and compensation.

2.9.2 Ten principles of value creation

Rappaport (2006:68) set out ten basic governance principles for value creation that will collectively help any company with a sound, well-executed business model to better realise its potential for creating shareholder value. For most companies, following these ten principles serves the long-term interest of shareholders. The strategic challenge for most companies is value-creating growth, and in order to succeed, companies must be good at developing new, potentially disruptive businesses. Stock prices are based on expectations, and to deliver superior long-term returns, management must either

repeatedly exceed market expectations for its current business or develop new value-creating businesses (Rappaport, 2006:76). The fact that investors keep on raising the bar makes it almost impossible to repeatedly beat expectations for current businesses, and the only reasonable way to deliver superior long-term returns is to focus on new business opportunities.

Companies that take shareholder value seriously are more likely to become first movers in a market and erect formidable barriers to entry through scale or learning economies, positive network effects, or reputational advantages. The management of such companies are forward-looking and sensitive to strategic opportunities and get better over time to seize opportunities in order to achieve a competitive advantage over its competitors (Rappaport, 2006:77).

Principle 1: Do not manage earnings or provide earnings guidance.

Virtually all public companies play the earnings expectations game and as a result fail to embrace the first principle, and almost certainly will be unable to follow the other principles. Focussing on earnings has the following negative aspects:

- The accountant's bottom line approximates neither a company's value nor its change in value over the reporting period
- By investing at rates below the cost of capital (over-investment) or forgoing investment in value-creating opportunities (under-investment) in an attempt to boost short-term earnings, a company compromises value
- Stretching permissible accounting to the limit or operating decisions that destroy value eventually catch up with companies.

Principle 2: Make strategic decisions that maximise expected value, even at the expense of lowering near-term earnings.

Companies should be evaluating and comparing strategic decisions against the expected incremental value of future cash flows and not as most companies do, in terms of the estimated impact on reported earnings. A company's operating units should produce informed responses to the following three questions when doing a sound strategic analysis:

- How do alternative strategies affect value?
- Which strategy is most likely to create the greatest value?

- How would the selected strategy shift company dynamics and assumptions about technology life cycles, the regulatory environment, and other relevant variables?

Executives at corporate level must also address three questions:

- Do any of the operating units have sufficient value-creation potential to warrant additional capital?
- Which units have limited potential and, therefore, should be candidates for restructuring or divestiture?
- What mix of investment in operating units is likely to produce the highest overall value?

Principle 3: Make acquisitions that maximise expected value, even at the expense of lowering near-term earnings.

Most value is created through day-to-day operations and a major acquisition can create or destroy value faster than any other corporate activity. Merger and acquisitions have been used increasingly to expand companies due to the record levels of cash and relatively low debt levels. Real value creation merger and acquisitions are based on the ability to create value and not on the immediate EPS impact. By estimating the present value of the resulting incremental cash flows and subtracting the acquisition premium, the real performance gains can be identified. Another risk that needs careful evaluation is that the anticipated synergies may not materialise. While the companies are dealing with post- merger integration issues, the competitors, most likely, are not standing by idly while the synergies are being generated.

Acquiring companies will pay cash, if it is financially feasible, as well as when there is confidence that the synergies achieved will be greater than the acquisition premium. By paying cash, the acquiring company's shareholders will not have to give up any anticipated merger gains to the selling company's shareholders. When confidence is lacking that the synergies will be generated, it can be hedged by offering stocks. This will reduce the potential losses for the acquiring company's shareholders and as a result, it will dilute the ownership interest in the post merger company.

Principle 4: Carry only assets that maximise value.

This principle has two parts. The first part entails the regular monitoring of whether there are buyers willing to pay a meaningful premium over the estimated cash flow

value for the company's business units, brands, real estate and other detachable assets. For businesses that are performing relatively well against projections or a competitor, such an analysis is clearly a political minefield but is more valuable in the hands of others. Shareholder value can be compromised seriously if such an analysis is not done.

The second part entails the reduction of capital employed and increasing value in two ways, by focussing on high value-added activities where a comparative advantage is enjoyed and by outsourcing low value-added activities.

Principle 5: Return cash to shareholders when there are no credible value-creating opportunities to invest in the business.

When companies have large amounts of excess cash, and only limited value-creating investment opportunities, returning the cash to the shareholders allows the shareholders the opportunity to earn better earnings elsewhere. This giving back of cash can be done through dividends or share buybacks. By giving back the cash, it reduces the risk that management will use the excess cash to make value-destroying investments. This principle does not apply to companies that engage in share buybacks purely to boost EPS. When a company's stock is trading below the management's best estimate of value and no better return is available from investing in the business it makes sense to repurchase shares in order to create value. Paying dividends is the best option when a company's shares are expensive and there is no good long-term value to be had from investing in the business.

Principle 6: Reward CEOs and other senior executives for delivering superior long-term returns.

Principles 6 through to 8 set out the appropriate guidelines for top, middle, and lower management compensation. Standard stock options are an imperfect vehicle for motivating long-term, value-maximising behaviour. The reason for this is threefold – first, any increase in share price is rewarded, even if the gains are below the competition's gains or against the market as a whole. Secondly, the relative short-term vesting period contradicts the long-term motivation that the options are intended to provide. Finally, when the options are underwater, it loses its ability to motivate.

The shortcoming of stock options can be overcome by adopting either a discounted indexed-option plan or a discounted equity risk option (DERO) plan. Executives are only rewarded through indexed options when the company's peers are outperformed in terms of an index and not simply because the market is rising. Management can be motivated to maximise value by lowering the exercise prices for indexed options and thereby allowing executives to profit from performance levels modestly below the index.

Principle 7: Reward operating-unit executives for adding superior multiyear value.

A metric such as SVA must be developed for operating units. Refer to 2.6.8 for a more detailed description of SVA. The program can retain a portion of the incentive payouts to cover possible future under performance. The need for two plans is eliminated by combining the annual and long-term incentive plan. Companies can develop standards for superior year-to-year performance improvement, peer benchmarking, and even performance expectations implied by the share price, and thereby eliminating the need for setting budget-based thresholds for incentive compensation.

Principle 8: Reward middle managers and frontline employees for delivering superior performance on the key value drivers that they influence directly.

Middle and frontline managers need day-to-day guidance on what actions need to be taken in order to increase SVA. Leading indicators of value need to be developed for frontline managers that are quantifiable and easily communicate current accomplishments. These indicators must be influenced directly by frontline employees and must have a significant positive impact on the long-term value of the business. Possible examples are, time to market for new product launches, employee turnover rate, customer retention rate, and timely opening of new manufacturing facilities or new stores.

Principle 9: Require senior executives to bear the risks of ownership just as shareholders do.

In most cases, stock ownership plans fail to expose executives to the same levels of risk that shareholders bear. Companies seeking to align the interest of executives and shareholders must find a proper balance. This entails balancing the benefits of

requiring senior executives to have meaningful continuing ownership stakes and the resulting restrictions on the companies' liquidity and diversification. The possibility exists that without equity-based incentives, executives may become excessively risk-averse to avoid failure and possible dismissal. Too much equity may entice executives to avoid risk in order to preserve the value of mainly undiversified portfolios. Shareholders' and executives' risk can be equalised by extending the period before the unloading of shares and excluding restricted stock grants as shares.

Principle 10: Provide investors with value-relevant information.

Better disclosure has the potential to reduce the cost of capital and to increase the share price. Better disclosure also offers an antidote to short-term earnings obsession and to lessen investor uncertainty. An unprecedented opportunity exists for value-driven companies to create value by simply improving the form and content of corporate reports. Rappaport (2006:74) specifically refers to a "Corporate Performance Statement" as one possible way of improving disclosure. The "Corporate Performance Statement" does the following:

- It separates cash flows and accruals, providing a historical baseline for estimating a company's cash flow prospects and enabling analysts to evaluate how reasonable accrual estimates are
- Long cash-conversion cycle accruals are classified into medium and high level uncertainty
- For each accrual, a range is provided and the most likely estimate for each accrual rather than traditional single-point estimates that ignore the wide variability of possible outcomes
- Arbitrary, value-irrelevant accruals such as depreciation and amortisation are excluded
- The assumptions and risks for each line item, as well as key performance indicators that drive the company's values are detailed.

2.9.3 Various other methods

Armitage and Jog (1996) list the following ways to improve VBM:

- Increase return on existing projects
- Invest in new projects where the return is greater than the cost of capital
- Use less capital to achieve the same return
- Reduce the cost of capital.

According to Harung (2010:173), the following uncommon success principles are prevalent in VBM organisations:

- High-performing organisations, usually promote CEOs from within. This is done to preserve the tight culture of the organisations thereby showing that it is not necessary to employ external CEOs in order to stimulate fundamental change.
- Successful organisations focus on beating themselves, not beating their competitors, even if the successful organisations are strides ahead of the competition.
- Visionary companies focus on building the entire organisation, and not on promoting the leader.

Activity-based initiatives, cost of quality, benchmarking procedures, re-engineering and performance measurement systems can be used by organisations to assist in achieving positive economic value creation (EVC) (Armitage & Jog, 1996). Operations managers and senior executives can make more informed decisions regarding the allocation of scarce resources and the initiatives and partners that are best for the overall supply chains by tying manufacturing and supply chain activities (Pohlen & Coleman, 2005:45). It is suggested that managers across the entire supply chain must collaborate to improve performance and obtain the greatest mutual benefit. Lambert and Pohlen (2001:1) developed a framework for developing metrics that measure the performance of key supply chain processes, identify how each firm affects overall supply chain performance, and can be translated into shareholder value.

The proposed framework aligns performance at each link (supplier-customer pair) within the supply chain (Lambert & Pohlen, 2001:8). This framework is different from other approaches in that it measures and analyses inter-firm performance simultaneously (Pohlen & Coleman, 2005:46). Operational performance measures are also directly linked to the drivers of shareholder value. Pohlen and Coleman (2005:57) conclude that the configuration of firms, processes, and activities composing the supply chain drives value creation. The framework employs a dyadic EVA analysis and activity-based costing (ABC). The dyadic EVA analysis does the following:

- Evaluate how process changes simultaneously drive value in each firm
- Develop measures that align operations performance with supply chain objectives.

Operations managers can be helped by this framework to achieve supply objectives such as increasing shareholder value and improving customer service. In order to increase shareholder value for each firm in the supply chain, within company and

cross-company links must be established between actions and profits. The framework, according to Pohlen and Coleman (2005:46), enables senior executives to:

- Determine whether operational-level actions did indeed create value
- To demonstrate what requires measurement, to focus attention
- To align behaviour within each firm with supply chain objectives.

EVA can increase with the income before interest and after tax, capital cost and the assets employed can be decreased (El Mir & Seboui, 2006:244). McIntyre (1999:72) warns that even if EVA can be improved in the short run, it should not be detrimental for the firm's future years. Measures to improve EVA immediately can include postponing or eliminating outlays for R&D, maintenance, advertising or training. However, it can have devastating long-term effects, regardless of whether the aforementioned costs are expensed, capitalised or amortised.

Lloyd and Davis (2007:62) regard a ROIC that exceeds the WACC and growth in revenues as well as cash flows as the critical ingredients for increasing shareholder value. The lower the WACC of a company, the more value is created because of the resulting increased spread between it and the ROIC. The two most effective ways to improve WACC, is by lowering the cost of equity or by changing the capital structure to include more debt (Lloyd & Davis, 2007:57). Growth in top-line revenue is necessary, therefore, Lloyd and Davis (2007:62) suggest using the 80/20 rule of thumb (Pareto principle) to analyse the business, and by doing so, it often uncovers opportunities to increase the company's growth and profitability.

The 80/20 rule of thumb in this case implies that 80 percent of gross profit is generated by 20 percent of the product and services and that 20 percent of the customers' produces 80 percent of the revenue. The ability to generate positive cash flow on a long-term basis is critically important from a value perspective, as it is necessary to fund daily operating expenses, future growth initiatives and distributions to investors. Increasing the volume of units sold and decreasing the related cost per unit is regarded by Lloyd and Davis (2007:62) as one of the best ways to grow cash flow on a long-term, sustainable basis.

2.10 THE DRIVERS OF VALUE

2.10.1 Value drivers

If a company understands its key value drivers, developing a performance measurement system is relatively uncomplicated. With this in mind, Phillips (2014:26) identified the following key values:

- Each business unit must have its own tailored performance measure it can influence itself.
- A business unit must have short- and long-term targets, and the performance measurements must be linked accordingly. While it sounds obvious, most performance measurement systems are often limited to accounting results.
- An integrated report, combining both financial and operating performance would better serve managers' needs, and not report financial and operating results separately.
- Early warning performance indicators must be identified, such as market share, sales trends, or results from focus group interviews. Financial indicators only report on what has happened in the past,

Copeland *et al*. (1995:94) describes VBM as an integrative process designed to improve strategic and operational decision making throughout an organisation by focussing on the key drivers of corporate value. Hall (2002:2) describes that an understanding of the performance variables that drive shareholder value creation is required for VBM. A value driver is defined as any variable that affects the value of the company, and to be useful, value drivers need to be organised in such a way that those that have the greatest impact can be identified. Responsibilities must then be assigned to individuals for the performance of these value drivers in order to assist the organisation meeting set targets for shareholders. The level of detail regarding value drivers must be developed all the way down to line management in order to align the value driver with the decision variables of line management (Copeland *et al*., 1995:94).

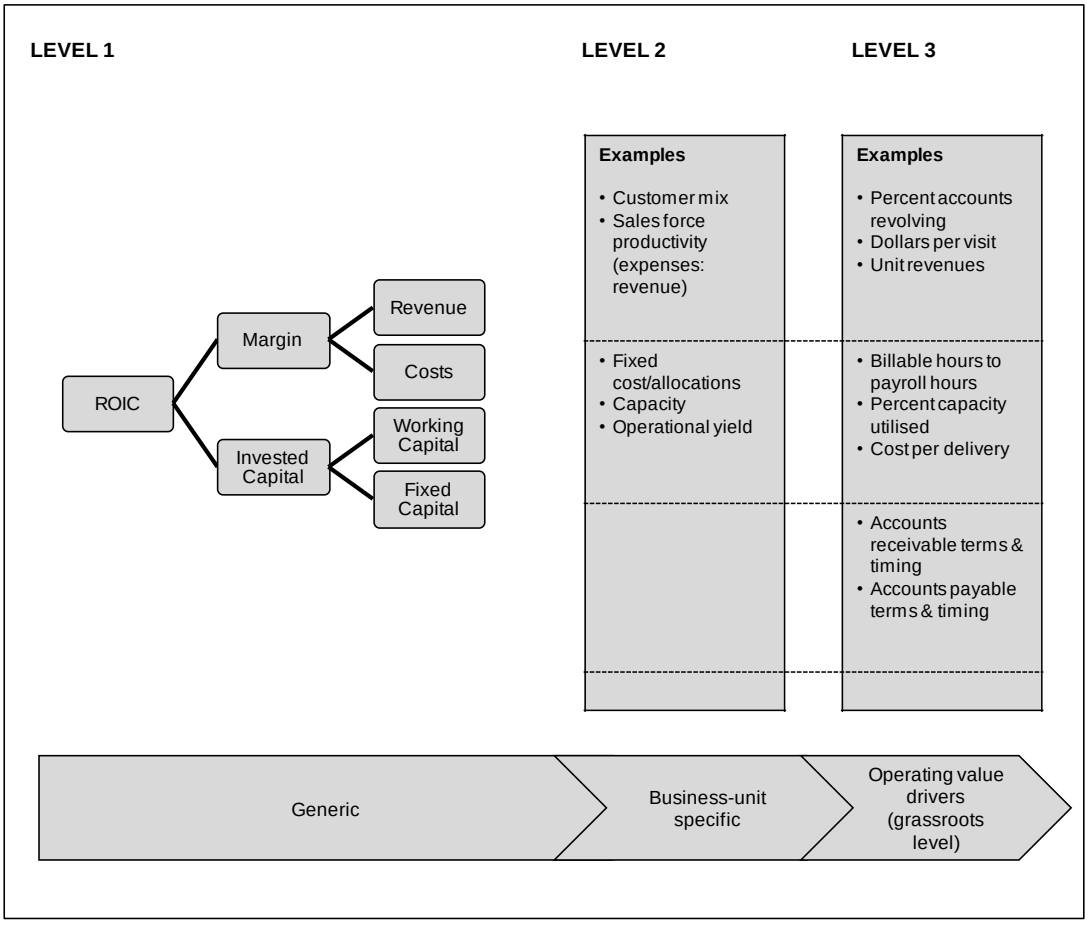
By identifying the variables that can be controlled, changed, managed or even manipulated by management, changes in shareholder value can be examined (Hall, 2002:3). Hall (2002:18) concluded that the initial profitability ratios, which are based on the income statement, are the key value drivers in determining shareholder value. However, as companies become more established, the focus shifts from the income statement to the balance sheet, where efficiencies in financing of the balance sheet,

fixed assets and working capital management become the top priorities in driving shareholder value.

Diagram 2.5 shows that value drivers can be useful at three levels:

- The generic level – operating margins and invested capital are combined to compute ROIC
- The business-unit level – variables such as customer mix are particularly relevant
- The grassroots level – vast detail is needed to tie value-drivers to specific decisions that are under frontline manager control.

Diagram 2.5: Various levels of value driver identification



Source: Copeland *et al*. (1995:105)

Rappaport (1986:50) lists the following seven value drivers, which if one of these drivers is improved, it will lead to an increase in shareholder value:

- Sales growth rate
- Operating profit margin

- Income tax rate
- Working capital investment
- Fixed asset investment
- Cost of capital
- Forecast duration (value growth duration).

Hall (2012:1035) conducted a study on South African manufacturing firms listed on the JSE between 2006 and 2010, in order to determine shareholder value drivers. The findings of Hall (2012:1046) are as follows:

- Management must concentrate on cost control including control on wage costs and effective purchasing methods.
- Careful monitoring of the capital intensity of a company is required. Examples of grass roots decisions to create shareholder value are efficient use of assets to generate sales and “make or buy” decisions regarding component inputs.
- Optimal inventory levels can play a role in efficient manufacturing operations.

Hall (2002:20) warns that the key value drivers are not static and must be reviewed periodically. These drivers cannot be considered on isolation and gives the example that an increase in price might have a large impact on value through an increased profit margin, but might result in a substantial loss of market share. The recommendations made by Hall (2002:19) to improve the identified value drivers are summarised in Table 2.4.

Table 2.4: Improving identified value drivers

VALUE DRIVER	IMPROVEMENT
Income statement or profitability ratios	• Increase gross profit margin by lowering cost of sales through more efficient production • Optimise inputs • Substitute inputs without affecting quality • Reduce operating expenses by calculating and monitoring the ratios of various operating costs to output • Achieve relevant economies of scale for each of the value activities • Introduce mechanisms to improve the rate of learning • Eliminate overheads that do not add value to the product

VALUE DRIVER	IMPROVEMENT
WACC	• Target an optimal capital structure • Select least-cost debt and equity instruments • Reduce business risk factors that are consistent with overall company strategy
Company tax rate	• Company tax rate is set by fiscal authorities but tax burden can be minimised • All available tax incentives and deductions are used to the fullest extent
Working capital investment	• Minimise cash balances • Manage accounts receivable in order to reduce the number of days debt is outstanding • Increase inventory turnover • Maximise the use of non-interest bearing current liabilities such as creditors and taxes
Fixed capital investment	• Promote policies to increase utilisation of fixed assets • Obtain productivity-increasing assets by means of prudent project or investment evaluation techniques • Sell unused or underutilised fixed assets if possible • Set levels of utilisation or return on assets employed

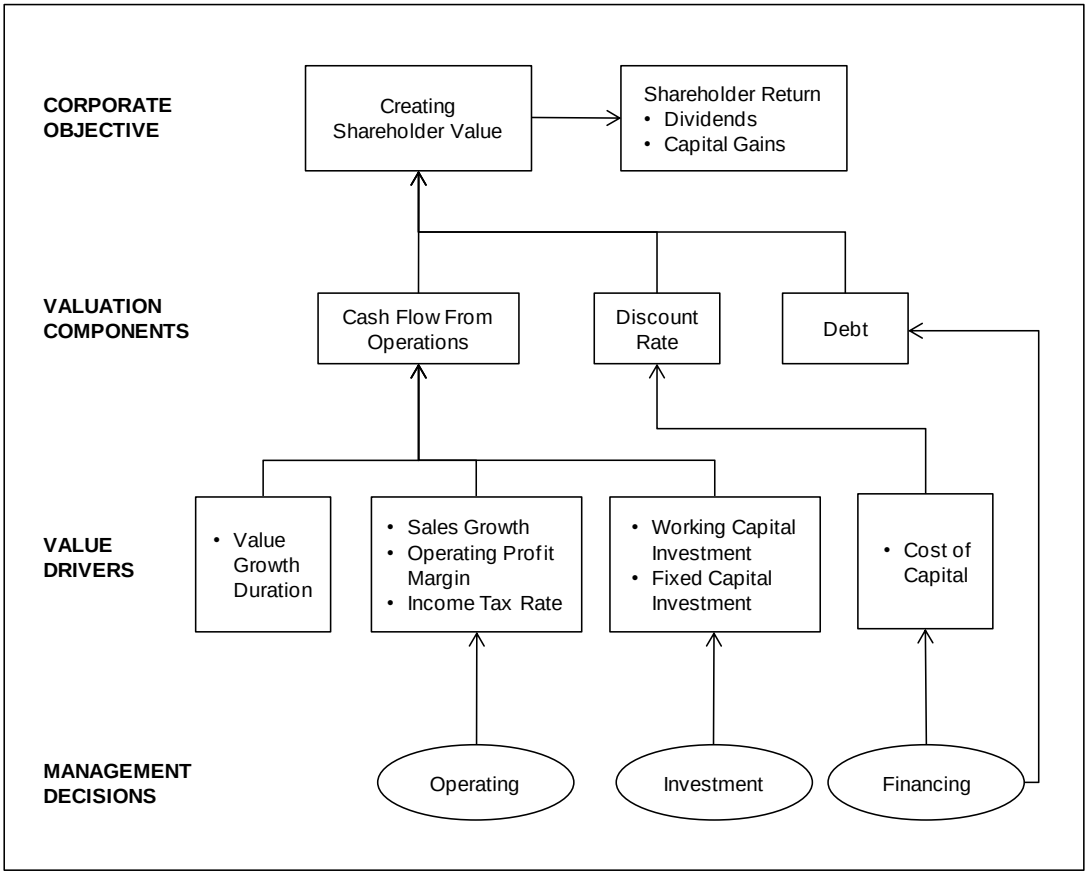
2.10.2 Shareholder value network

The shareholder value network (Diagram 2.5) depicts the essential link between the corporate objective of creating shareholder value and the seven value drivers (Rappaport, 1986:76). Product mix, pricing, promotion, advertising, distribution, and customer service levels are operating decisions and are impounded primarily in sales growth, operating profit margin and income tax rate value drivers. Increasing inventory levels and capacity expansion forms part of investment decisions and are reflected in the two investment value drivers – working capital and fixed capital investment. Financing decisions include addressing the proper proportions of debt and equity required in funding the business as well as the appropriate financing instruments. Financing decisions and the business risk govern the cost of capital value drivers. Management's best estimate of the number of years that investments can be expected

to yield rates of return greater than the cost of capital is the value growth duration value driver.

From Diagram 2.6, it can be seen that value growth duration, operating and investment value drivers determined the first valuation component – cash flow from operations. The discount rate, which is the second component, is based on an estimation of the cost of capital. Corporate value is generated by discounting cash flows from operations, and in order to obtain shareholder value, debt is deducted from corporate value. The foundation for providing shareholder returns from dividends and capital gains is shareholder value (Rappaport, 1986:77).

Diagram 2.6: The shareholder value network



Source: Rappaport (1986:76)

Executives are used to thinking of strategy in terms of what can be done better with the existing assets and capabilities to beat the competition. This is also known as comparative advantage, and the literature on strategy reflects this framework with terms such as competitive advantage and core competencies. It is, therefore, implied

that not all of a company's assets and activities create value, and that the more companies focus on the value-adding ones, the better the performance will be (Merton, 2005:86). Merton (2005:86) warns that executives seem to forget that the same comparative advantage distinction can be made about a company's risks. Regardless of whether a company's risks are value adding or not, the risks still require a cushion of risk capital, most of which is usually provided by the holders of a company's liabilities, primarily the holders of equity (Merton, 2005:87). The larger the risk a company has to bear directly, the larger the cushion that is required. A company's ability to bear risks is limited largely by the size of the cushion, unless the company can hedge or insure against risks in other ways.

Merton (2005:88) recommends that once a company has identified its risks and determined which are value adding, it can draw up a risk balance sheet and determine how much equity can be eliminated by hedging, selling or insuring the passive risks. The risk balance sheet, according to Merton (2005:89), reports assets in terms of both value and risk, and identifies what proportion of total value and risk each type of liability is cushioning. All assets and risks faced by the firm whether off or on the balance sheet and all significant liabilities are included in the risk balance sheet.

Kothari and Lackner (2006:243) state that enterprises, which understand how customers define value across product performance, access, experience, and cost, consistently achieve superior long-term profitable growth. Customers, according to Kothari and Lackner (2006:243), do not buy products and services, but buy value, which is the total package of product performance, access, experience, and cost. Kothari and Lackner (2006:244) describe the three steps of the value creation cycle as follows:

- Develop a complete understanding of how value is created for customers today, and how best value can be created in the future. Successful companies not only define customer needs, but also quantify the value provided to customers.
- Develop a deep understanding of how value is delivered through the value chain. The true drivers of demand, the current profit pools at each value chain step and most importantly, the steps where profits will pool tomorrow are understood.
- A disciplined approach to capture as much value as possible for shareholders must be followed. First, optimise the share of profit per transaction. Secondly, maximise the share of the customers' wallet, or the share of like transactions in which customers participate. Lastly, the company must increase its market share to increase shareholder value.

2.11 SUMMARY

It must be noted, that this chapter focusses on the underlying theory of value-based management, which was developed during the 1990s and early 2000s, and as a result, most of the sources used are from that time-period. Literature that is more recent focusses mainly on implementation issues, which is not the main aim of this chapter.

Accounting has formed part of human life for thousands of years. While value-based management was regarded as the hot topic during the 1990s, it has a far longer history as the concept of value creation dates back to the 1700s. VBM is not a staff-driven exercise and it focusses on decision making at all levels within the organisation. Companies that fail to create value will not be able to compete in the global race for capital resources.

While the maximisation of shareholder value is regarded often, as the primary objective of any organisation whether is a small, medium or corporate business, it should be done in an ethical manner. Value is created when managers are actively engaged in the process of identifying good investment opportunities while steps are taken to capture the potential value. Thus, value is created when the identification, growing and harvesting of opportunities are done effectively. One of the main problems with VBM is that it tends to be stuck at senior management level and is not driven down to the lower levels even though it is the everyday decisions made by workers on the front lines that drive value. VBM should not be used solely as a management compensation tool; it should form part of the day-to-day way of doing things within an organisation.

There is currently a wide variety of metrics available to an organisation to assist in creating shareholder value. The metrics discussed in detail were cash flow return on investment, discounted cash flow, the Du Pont analysis, economic profit, economic value added, market value added, return on invested capital and shareholder value added. It must be stressed that it is not a case of one solution fits all. The choice of metric will be driven by the need, individual characteristics and based on a trade-off between accuracy and complexity. The level of success in implementing VBM plays a very important role in the ability to create value on a sustainable basis.

Ten basic governance principles were listed and discussed that collectively will help any company with a sound, well-executed business model to better realise its potential for creating shareholder value. Understanding what drives value in a company is

essential for creating shareholder value, as well as how these drivers affect one another. This will enable all stakeholders, from senior management right down to the shop floor, to make the right informed decision that will result in creating and increasing shareholder value.

CHAPTER 3: SMALL AND MEDIUM ENTERPRISES

3.1 INTRODUCTION

Big businesses are downsizing and merging in order to survive and to become more competitive, and as a result, many employees are being retrenched. Many of these unemployed ex-employees are establishing SMEs in order to survive and to generate wealth within local communities (Ladzani & Van Vuuren, 2002:154). Ladzani and Van Vuuren (2002:154) welcome the proliferation of SMEs, as they are contributing significantly to job creation, social stability, and economic welfare across the globe.

This chapter will start by focussing on entrepreneurship in general, as it is the foundation of all SMEs. The chapter will also focus on the differences between SMEs and corporate companies. In Chapter 2, the following definition of VBM was formulated:

Value-based management is a management approach that maximises long-term shareholder value, which is incorporated in the business' strategy and goals, through the identification and management of key value drivers, whereby all employees think and act like shareholders

Based on the above definition, the following aspects will be discussed further in terms of value-based management and SMEs:

- Management
- Long-term shareholder value
- Strategy
- Value drivers
- Employees.

3.2 ENTREPRENEURSHIP

Smart and Conant (1994:29) define entrepreneurship as the dynamic goal-oriented process whereby an individual combines creative thinking to identify marketplace needs and new opportunities with the ability to manage secure resources define entrepreneurship. Furthermore, entrepreneurship adapts to the environment to achieve desired results while assuming some portion of risk for the venture. Entrepreneurship as defined by Spinelli and Adams (2012:87) as a way of thinking, reasoning, and acting

that is opportunity-obsessed, holistic in approach, and leadership-balanced. Entrepreneurship has evolved beyond the classic start-up notion, and now includes companies and organisations of all types, in all stages. Therefore, entrepreneurship can occur or fail to occur, in firms that are old and new, small and large, fast and slow growing, in the private, non-profit, and public sectors. It can occur in all geographic points, and in all stages of a nation's development, regardless of politics (Spinelli & Adams, 2012:87).

Entrepreneurship is about the exploitation of perceived opportunities by individuals, based solely on personal judgement and visions not seen by other individuals, nor able to bear the risks of acting on it. Entrepreneurial traits, such as the need for achievement, internal locus of control, social skill, and opportunity sensitivity provide the perspective of the quality of the entrepreneur through which entrepreneurship is measured (Ong, Ismail & Goh 2010:386). According to Ács and Szerb (2009:352), entrepreneurship is considered an important mechanism for economic development through innovation, employment, and welfare. Bart, Yago & Zeidman (2006:1) note that it, therefore, is not surprising that there is a growing interest among governmental policymakers in the promotion of entrepreneurship and entrepreneurial-friendly conditions, particularly in low- and moderate-income communities.

"A significant difference between the growth- and equity-minded entrepreneur and the traditional small business owner is that the entrepreneur thinks bigger" (Spinelli & Adams, 2012:129). Formaini (2001:2) defines an entrepreneur, in accordance to modern economic theory, as an individual taking on certain tasks solely based on perception of market opportunities and the exploitation of it. The entrepreneur has many roles − a risk taker, resource manager, innovator, arbitrager, and both creator and destroyer. Entrepreneurs tend to have a higher propensity for risk, but are very analytical in decision-making and resource allocation. This ability enables entrepreneurs to identify customer needs and have a strong tendency to engage in strategic planning activities.

There is ample evidence that demonstrates the importance of entrepreneurship for advancing social welfare, yet uncertainty persists about the most important determinants of entrepreneurship. The uncertainty also exists around the policies that best support entrepreneurial activity, or at least do not impede on it, and there is even greater confusion about how to foster entrepreneurship in low- and moderate-income communities (Bart *et al*., 2006:1). Robertson, Collins, Medeira and Slater, (2003:308)

regard the identification of barriers to entry as well as the strategies to minimise the impact of these barriers as very important.

The three pillars of promoting entrepreneurship in South Africa are strengthening the enabling environment of SMMEs, enhanced competitiveness and capacity at the enterprise level. The key strategic elements identified in supporting these three national pillars are better access to finance, skills and leadership training and increased flexible regulations (Rogerson, 2008:62). Dreisler *et al.* (2003:383) recommend that entrepreneurship should be presented wherever potential entrepreneurs are found − in schools, at all levels. Ong *et al.* (2010:386) advise policy makers to take measures that encourage the development and growth of entrepreneurial traits among citizens, especially the younger members of society. A long-term solution suggested by Ong *et al*. (2010:386) is to review the education system with the intention to incorporate the development of entrepreneurial skills.

3.3 DIFFERENCES BETWEEN SMEs AND CORPORATE COMPANIES

SMEs are not like many state-owned enterprises, “big, bureaucratic, and corrupt”, nor like transnational corporations, “big, profit seeking, and exploitative” (Jeppesen, 2005:463). SMEs are viewed as a means to achieving a dynamic and flourishing private sector through increased exports and enhanced industrial competitiveness, as well as to ensure development that is more equitable. Equitable development is the result of a broader distribution of assets, through job creation resulting in increased income, and in the end, improving the well-being of poor and marginalised groups. SMEs and entrepreneurial micro-enterprises are credited as agents of innovation, wealth creation and employment generation (Wang & Poutziouris, 2010:332).

Some of the advantages of large firms are economies of scale, the experience curve, bargaining power with suppliers and buyers, reputation, and market power (Fiegenbaum & Karnani, 1991:101). Large firms achieve static efficiency by being more capital-intensive in order to exploit economies of scale and large firms mostly are more integrated vertically than small firms. In contrast, small firms gain a competitive advantage through output flexibility (Fiegenbaum & Karnani, 1991:103). Small firms would exploit this advantage by varying output over time in response to the changing market conditions, while large firms are more likely to maintain a relatively constant level of output (Fiegenbaum & Karnani, 1991:104).

Ethical behaviour and indiscretion in business is a concern for all companies, regardless of size (Longenecker *et al.,* 2006:168). While there is a significant difference between large corporations (where ownership and management are separated) and small owner-managed firms, there does not appear to be a difference in perception about ethical behaviour. The small business owner's ethical values and inclinations should have a far more direct consequence on the practices of the business as a whole. Even with this in mind, it does not seem to be fundamentally different from large companies (Longenecker *et al*., 2006:180).

SMEs are renowned for a more cohesive culture and simpler organisational structure, therefore, diminishing the coordinating benefits of a strong market orientation culture. The need for formal activities designed to gather and process market information for marketing decision-making by SMEs is reduced due to the fewer product lines and customers (Pelham & Wilson, 1996:28). The management practices of large corporations have long been recognised as being different to those of small firms (Longenecker *et al.,* 1989:27). According to Longenecker *et al*. (1989:27), small companies employ fewer professional specialists, operate with less formality and reflect to a greater degree the personality and attitude of the entrepreneur.

Neilsen (1974:378) argues that the diffuseness of interaction among departments in small firms is an important feature, which distinguishes it from large firms. There seems to be an important relationship between organisational size and the critical behavioural problems managers must cope with. In a small firm, there is a high rate of interaction among all managers and, therefore, the desired departmental responses to the environment in terms of structural, goal, and time orientation are easy to ascertain. In large firms, this is not the case. In a small firm, managers are familiar with different task environments while in a large firm, the interaction between departments is less ubiquitous (Neilsen, 1974:376). Pelham and Wilson (1996:31) state that small firms have fewer built-in barriers to communication and a reduced tendency to foster subcultures based on functional speciality.

In most small businesses, the top manager alone does business planning (Shrader *et al.*, 1989:59). This is due to top managers that think planning is costly and time consuming, and as a result, strategic planning may be an all or nothing activity for small firms. Small firms, in contrast to large firms, do not have the resources for planning and most forego strategic planning altogether. Shrader *et al*. (1989:59) is of the opinion that small firms might have been neglecting a potentially beneficial activity

by not performing strategic planning. The Buttonwood Group LLP (2004:39) ascribe a more powerful foresight, more focussed execution, and improved operational results to better planning.

Hudson *et al.* (2001:1112) found that SMEs have limited resources and that the strategy styles are more dynamic and emergent. The management style in SMEs also tends to be reactive, which is triggered by the problems that are being experienced at that time (Hudson *et al.*, 2001:1108).

Hammann *et al.* (2009:37) refer to a widespread assumption in corporate social responsibility literature that various types of socially responsible management practices make good business sense and that it may enhance the competitive strengths of an enterprise. It is not just relevant for large corporations, but even more so for SMEs.

3.4 VALUE-BASED MANAGEMENT AND SMEs

3.4.1 SME management

Lind, Sepúlveda and Nuñez (2000:36) attribute the lack of knowing what constitutes critical success factors for a thriving business in many developing countries to the shortcomings in the management education system. The shortcomings are manifested in areas such as poor cost accounting, lack of quality awareness, rudimentary or non-existing business planning and performance monitoring. While improvement in the aforementioned areas are imperative for competitiveness, many managers are not used to considering information as a significant asset in decision making, as decisions are often made incrementally from previous commitments with limited analysis (Lind *et al*., 2000:36).

Verboncu, Nicolescu and Ceptureanu (2011:101) state that without effective and efficient management by objectives, and management of projects, a small business cannot function. Shrader *et al*. (1989:46) conducted a study that examined the planning/performance relationship for a stratified random sample of small firms in three major industry sectors over a three-year time period. The study also investigated the degree to which environmental uncertainty affects both strategic and operational planning. Planning recommendations, according to Shrader *et al*. (1989:59), would be invaluable due to the number of small businesses as well as the high failure rate amongst small businesses. The study found that operational planning was generally very important, while marketing planning was very important with respect to the

performance of small firms. Two explanations offered by Shrader *et al*. (1989:59) are first, that market planning seeks to tie a firm closely with customers, with possible customer satisfaction as a result, and secondly, that market planning resolves market uncertainty.

Operational planning and strategic planning provide managers with the means to cope with uncertainty, improve performance, and ultimately ensure the survival of the firm (Shrader *et al*., 1989:60). The study conducted by Schwenk and Shrader (1993:60) strengthens the case for recommending the use of strategic planning in small firms. The study provides support to the general assertion that strategic planning improves small firms' performance by promoting long-range thinking, reducing the focus on operational details, and by providing a structured means for identifying and evaluating strategic alternatives.

Hammann *et al.* (2009:48) conducted a study to determine whether SME entrepreneur's or owner-manager's personal values expressed by certain management practices can lead to economic value creation. Results from the research support the notion that employees, customers, and society are the most important stakeholders for an SME and that value orientation towards employees is very important. Hammann *et al*. (2009:49) proposes a model that combines the personal value of an entrepreneur with specific management practices. These specific management practices must be directed towards the relevant stakeholders and it will eventually lead to favourable financial outcomes. Zahra and Pearce (1989:310) believe that board characteristics, structure, and process exert a significantly stronger influence on board roles and company performance than the actual composition of the board. The study of Borch and Huse (1993:32) supports the proposition that the attributes of the board should reflect the need for networking activities in small firms and that size is negatively related to network involvement. Borch and Huse (1993:32) are of the opinion that the personal involvement of a few directors may be of greater importance than having many directors.

Matzler *et al.* (2008:148) identified a substantial positive relationship between transformational leadership and performance. Matzler *et al*. (2008:141) is of the opinion that transformational leadership may be particularly relevant in the context of SMEs. Matzler *et al*. (2008:141) provides the following arguments to substantiate the statement:

- The dominant role of the entrepreneur can assist top management in carrying out transformational leadership. The entrepreneur is often the one who provides the vision and direction, and is able to communicate personally to each employee the expectations of the entrepreneur.
- Transformational leadership explicitly addresses the intrinsic motivation of the employees, making it a particularly useful tool in the context of SMEs. In order to maintain extraordinary performance, the level of monetary incentives may have to be increased. SMEs might not have enough financial leeway to follow a transactional leadership style continuously. This is based on the idea that SMEs are particularly low on excess resources, and it may be difficult to give employees an ownership stake in sole proprietorships without extensive evaluations.
- The SMEs business environment is characterised by unpredictable opportunities and threats. In order to deal with these opportunities and threats, a high degree of flexibility is needed, and a leadership style that administers rewards to ex-ante specified actions could be too unwieldy. A leadership style that is more flexible may be more effective given the task environment of SMEs.

Spence (2004:69) identified efficiency and personalisation as two sources of value creation. These two areas are interdependent and the coexistence appears to create competitive advantages for firms. Spence (2004:71) regards creating and delivering value as a process, not just an aim and, therefore, decisions have to be made as to the identification of core competencies. In addition, the choice of strategic activities kept in-house and those outsourced to the constellation of partners, while the choice of partner is also critical. Value is created though innovation, which sometimes results in the development of disruptive technologies, and these new technological solutions were generally more affordable than existing ones and changed the competitive playing field (Spence, 2004:71).

Manufacturing effectiveness is another area of value creation. The choice of manufacturer is based on several considerations, including product lifecycle state and availability of required competencies (Spence, 2004:73). Spence (2004:73) found that the manufacturing of production generally was sub-contracted overseas, as maintaining full-scale manufacturing facilities or manufacturing locally was not deemed economic due to lack of either cost competitiveness or competencies.

Small business owner-mangers often exhibit an antipathy against external interference and are sceptical about employee's participation on decision-making in order to

safeguard the ownership control and independence from outsiders (Wang & Poutziouris, 2010:333). It implies, therefore, that the directive leadership style may be more prevalent. In such a style, the owner-managers are likely to exercise authority alone for policy determination and subordinates are only expected to follow instructions (Wang & Poutziouris, 2010:334).

Given the general conservative and inward-looking culture of small family business entrepreneurs, the achievement-oriented leadership may be observed rarely (Wang & Poutziouris, 2010:334). The achievement-oriented leadership, as defined by (Wang & Poutziouris, 2010:334), is where managers consciously set goals for subordinates and allow freedom of action. Wang and Poutziouris (2010:349) concluded that the virtues of utilising formal management schemes are obvious and may incentivise leaders to consider allocating more resources to design and construct management system and operate the business with formalised procedures and processes.

3.4.2 Long-term shareholder value

Many enterprises, due to adverse global economic conditions, have been focussing on its core business, downsizing, and outsourcing but there is a growing consensus that this tactic might have run its course (Loh & Koh, 2004:3433). By obtaining and maintaining a diachronically long-term competitive advantage, it is possible to achieve the main and long-lasting objective of a firm – maximisation of wealth (Zaridis, 2009:917).

O'Regan, Ghobadian and Gallear (2006:39) question the sustainability of high growth firms that have increased sales by over 30 percent during the past three years (or longer) through a sales-orientated business strategy, by asking if it will continue to work. There is a limit to be gained from incremental improvements in the technical and functional properties of existing products. The longevity of the high performance firm appears to be questionable when small high growth firms have an apparent lack of concern with meeting technological changes in processes. In addition, the technologies enabling e-commerce and transactions on the Internet are becoming relatively cheaper, quicker and more easily accessible to all firms. The sustainability of the competitive advantage is also questionable if manufacturing firms do not allocate resources to greater research and development, and innovation in the longer term (O'Regan *et al*., 2006:39).

In a continuously altering and evolving environment, a long-term competitive advantage will render the firm unique or a leading force in an inexorable competition that is extended continuously in a globalised market (Zaridis, 2009:917). The development of SMEs has been affected in two ways through the globalisation of economic activities (Chew & Yeung, 2001:432). First, new opportunities have been created for outward expansion and growth. This has been the growing trend for local SMEs in Asia's newly industrialised economies (NTEs) that are venturing into such neighbouring countries as China, South and Southeast Asia, to seek new business and lower production cost opportunities. Secondly, SMEs in their own countries faces competitive challenges through inward direct investments by foreign transnational corporations. If local SMEs are not able to keep up with the increased competition, the outcome may become negative. However, local SMEs may be driven to become even more competitive in the quality and pricing of products and services.

Loh and Koh (2004:3433) propose that SMEs within a supply chain that involves larger enterprises, in particular, must now turn to more outward-looking approaches if these SMEs are ready to improve performance and competitiveness. Outward-looking approaches, as suggested by Loh and Koh (2004:3433) are providing higher added value to customers, develop better working relationships and partnerships. Appiah-Adu and Sing (1998:391) warn that if a business dwells too heavily on the impact of competitive environmental forces, there is the risk of ignoring an enterprise's unique capabilities. These unique capabilities are what give firms a sustainable competitive advantage. It is very important for small firms where administrative capacity is scarce to have strategic networking as part of organisational development (Borch & Huse, 1993:33). If the manager and/or board do not support this activity, the rest of the staff will not give strategic networking high enough priority.

There is no quick and easy way to improve business performance, Deshpandé, Farley and Webster (1993:32) describe best performers as firms with a market culture, and who are both highly customer-orientated and innovative. Deshpandé *et al*. (1993:28) uses the term business performance to mean global output measures such as share of market, profitability, growth rate, and size of a business in relationship to its most significant competitors. A culture of only being highly customer-orientated or only being innovative does not alone produce best performance. Deshpandé *et al*. (1993:32) describes poor performers as non-innovative, internally orientated bureaucracies and that various other combinations produce intermediate-level performance. A great deal of uncertainty is generated because the structure of today's business context is

changing quickly, therefore, forcing SMEs to be innovative and constantly review processes and practices in order to survive on the market (Bahri, St-Pierre and Sakka, 2011:603). Greenley (1995:9) observed that there is a turning point where, beyond a certain level of technological innovation, additional customer benefits from technology are not achievable. Attempting to improve new product success by exceeding this turning point to achieve customer benefits will be ineffective.

Wall and Greiling (2011:96) warn against differing time horizons, as it is a problem to be considered in shareholder value based management in order to avoid short-term decisions at the expense of the long-term firm value. A long-run perspective cannot be avoided for the long-term survival in the presence of competition. A business must constantly discover and implement additional value for its customers in order to prevent the competition from overcoming whatever buyer-value superiority has been created and, therefore, a range of appropriate tactics and investments are necessary (Narver & Slater, 1990:22). By creating superior value for the target customers, a business can maximise long-run profits. Continuous superior value is created by being customer-orientated, competitor-orientated and inter-functionally coordinated (Narver & Slater, 1990:22). If early movers treat sustainability as a goal, competencies will be developed that rivals will find hard to match, and the competitive advantage will stand in good stead, as sustainability will always be an integral part of development (Nidumolu *et al.,* 2009:59).

According to Loh and Koh (2004:3436), it is important that SMEs recognise the elements for a successful enterprise resource planning (ERP) implementation, which are usually restricted by knowledge and resources constraints. If this software is implemented correctly, it can have a remarkable payback, as it brings about a general reduction of error occurrence (Loh & Koh, 2004:3434). Cohen (2008:43) states that BI and CRM have become more relevant to SMEs, as SMEs have realised that deriving more granular information from financial systems and interaction with clients in a more valuable way, provides SMEs with a vital differentiator in tough economic times.

Borch and Huse (1993:23) explored the associations between board composition, board-management relations, and director incentives as well as the boards' networking involvement. The results (Borch & Huse, 1993:32) indicate that stockholders play an important role in networking and, therefore, it is important that stockholders are active in securing the best relations to the environment when it is presumed that network development is important to the results of the firm. The involvement of stockholders in

network development will increase the profit of the firm, and result in increased value for stockholders in the end.

3.4.3 SME strategy

Managers and other key stakeholders have access to the key coordinates of future development through the strategy and through strategic management. Small business firms must consider how to get the information necessary for choosing strategies due to increased environmental changes and complexities (Borch & Huse, 1993:23). Small firms constantly deal with limited resources and are constantly grappling with the issue of having insufficient resources to be competitive. A culture and philosophy that is market-orientated can be a tremendously important resource for SMEs (Spillan & Parnell, 2006:239).

According to Appiah-Adu and Singh (1998:387), smaller firms are often characterised by ad hoc and short-term decision-making tactics and, therefore, suggest a customer-orientated strategy. Such a strategy could provide the smaller firms with an organisation-wide focus for formulating objectives, guiding decisions, and directing actions. A business is only market-orientated when the entire organisation embraces the values implicit therein, and when all business processes are directed at creating superior customer value (Slater, 2001:232). Slater (2001:230) states that market orientation is the aspect of business culture that motivates employees throughout the organisation whereby the highest priority is placed on the profitable creation and maintenance of superior customer value. The superior value creation takes place by sharing the knowledge broadly throughout the organisation, as well as acting in a coordinated and focussed manner (Slater, 2001:231). When a business culture is valuable, rare, and difficult to imitate, it can be regarded as a source of competitive advantage (Slater, 2001:230).

Pelham and Wilson (1996:28) argue that market orientation should be a significant determinant of SMEs performance success, as most SMEs lack the financial resources to seek other sources of business success, such a low-cost producer status, R&D competitive edge, and staffing to provide adequate planning. Even if increased low levels of formalisation, control systems, and coordinating systems may improve internal efficiency, it cannot increase revenue without an increased emphasis on market-oriented behaviours (Pelham & Wilson, 1996:30). In addition, a market-oriented firm can better use these structural characteristics as a way to provide higher levels of customer service and value consistently.

According to Fiegenbaum and Karnani (1991:102), it is accepted generally that small firms should seek viable market niches that are big enough for the small firm, but at the same time unattractive to large firms. This would enable small firm to utilise the limited resources available and avoid head-on competition with the large companies. Qian and Li (2003:886) conclude that SMEs in the high tech industry should adopt an innovator strategy, focus on niche operations and internationalisation to improve profitability. Appiah-Adu and Sing (1998:392) are of the opinion that well-conceived and properly targeted new products should generally lead to sales growth in selected niches, which in return, should provide the SME with extra funds to strengthen its position within the marketplace.

It has long been recognised that one of the major competitive advantages SMEs have over large firms has been SMEs flexibility (Narula, 2004:153). Small firms are more willing to use output flexibility as a strategic weapon, and that firm size and output flexibility interact to impact firm performance. The advantage of output flexibility is a more viable source of competition for small firms in industries characterised by high fluctuating demand, high capital intensity, and low profitability (Fiegenbaum & Karnani, 1991:109).

The modern market environment has been transformed by new product development and differentiation, and as a result have become important aspects of many firms' business development. Therefore, innovation orientation has become very relevant for smaller businesses (Appiah-Adu & Singh, 1998:387). A low cost strategy adopted by smaller firms is characterised by an internal orientation that focusses on cost effectiveness and production efficiency. A strategy that focusses on new product introduction will tend to emphasise the need for an overall customer orientation (Appiah-Adu & Singh, 1998:388).

A sustainable competitive advantage in the market place is achieved through constantly delivering high quality products and services to customers (Appiah-Adu and Singh, 1998:391). Deshpandé et *al.* (1993:31) sums it all up by simply stating that innovative, customer-orientated firms do perform better. It is important to understand the organisational forces that determine the degree and shape the direction of a customer-orientated culture due to the impact it has on SME performance. High levels of customer orientation and external focus will provide the business with the ability to identify more prospects in the marketplace compared to the competition that is

characterised by low levels of customer orientation and an internal focus (Appiah-Adu & Singh, 1998:392).

Firms can obtain above-normal returns from acquiring the resources necessary to implement strategies in one or a combination of two ways according to Barney (1986:1238). First, economic losses are avoided and economic profits are obtained when firms with consistently more accurate expectations about the future value of a strategy can use these insights when acquiring resources to implement these strategies. Secondly, through luck, firms can obtain above-normal returns when the true future value of a strategy is underestimated.

A scarcity in resources might limit SMEs to implement various types of strategies compared to larger enterprises and, therefore, SMEs need to remain flexible and adaptable to seek good fortune from unexpected changes in the environment (Ong *et al.*, 2010:387).

Bahri *et al.* (2011:603) propose a performance measurement and management system (PMMS) for SMEs, based on an analysis of the connection between a firm's business practices and performance measured by EVA. The proposed system remains connected to the firm's strategy and, therefore, requires that the financial measures, business practices and firm strategy are consistent, which is essential for performance management (Bahri *et al.,* 2011:605).

3.4.4 Value drivers

Shareholder value-related management approaches found a prominent position among management and accounting scholars and in practice by the mid-1990s (Wall & Greiling, 2011:92). Managerial decision-making is directed at maximising a firm's value through management accounting techniques, which forms the core elements of these management approaches (Wall & Greiling, 2011:92). Regarding activity-based costing (ABC), the literature highlights what role the increased understanding of cost drivers can play in reducing non-valued-added activities. It can reduce efficiency while adding little or no value to the customer.

The value-based management process goes a step further, as per Ittner and Larcker (2001:68), by focussing on the identification of the financial and operational value driver that leads to increased shareholder value. The value drivers, which are specific actions or factors that cause costs to arise and revenues to change, are identified. The benefits

of identifying these value drivers and their interrelations lead to improved resource allocation, performance measurement, and the design of information systems. Volume is not the only cost driver as, according to Ittner and Larcker, (2001:368), there are other cost drivers besides volume that explain a significant proportion of overhead costs.

In order for an enterprise to create more value than the competition, an enterprise must produce either greater benefits for the same cost or same benefits for a lower cost (Peteraf & Barney, 2003:314). Competitive advantage as defined by Peteraf and Barney (2003:314) is the ability of an enterprise to create more economic value than the marginal competitor in its product's market. For an enterprise to create more value than its rivals, it must produce greater net benefits through superior differentiation and/or lower costs. The marginal competitor is the least efficient competitor capable of breaking even in any given industry, and to have a competitive advantage, an enterprise must generate value superior to the marginal competitor (Peteraf & Barney, 2003:315). It does not have to be the best performer in all dimensions to have a competitive advantage.

SMEs cope with new market conditions by developing products and improving manufacturing systems. Zengin and Ada (2010:5603), therefore, regard an understanding and use of cost management techniques as essential and are of the opinion that manufacturers that cannot use an appropriate cost management strategy will be forced out of the market. Zengin and Ada (2010:5603) recommend that SMEs operating in the manufacturing industry keep track of and manage costs more accurately than before, due to market volatility and fierce competition. When a firm is very small, it tends to be influenced more easily by its more powerful stakeholders. In order to generate stakeholders' capacity for management, small firms should rather be balancing and integrating external influences (Martín-Tapia *et al.,* 2010:269).

High-growth firms, however, still see the potential of existing products to satisfy current and future customer needs. The findings of the study into the drivers of high growth in manufacturing SMEs by O'Regan *et al.* (2006:39) suggest that high growth firms are sales-orientated, rather than innovation-orientated.

A study conducted by Dibrell *et al.* (2008:212) that investigated the mediating effects of information technology (IT) on the relationships among products and process innovations and firm performance found the following:

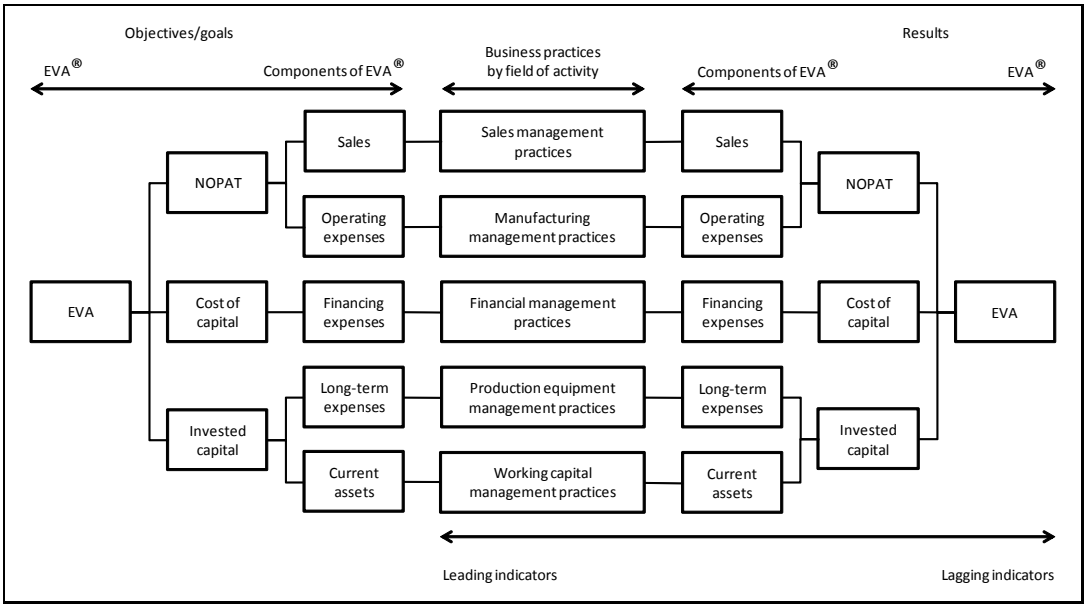
- The impact of product and process innovation on profitability and growth in terms of performance is primarily indirect and instead fuelled by IT and is rather complementary
- The competitive playing field between large firms and SMEs can be levelled by utilising IT
- An SMEs overall effectiveness of the strategy can be enhanced by applying IT to other strategic initiatives, such as customer responsiveness
- Failure to invest in innovation makes an SME slower to acquire necessary innovative capabilities than other SMEs, thereby reducing the ability to respond to changing technological and competitive market expectations and opportunities
- Failure by a SME to continually invest in innovation puts them at greater risk of having products and services marginalised by technologically superior competitors
- Profitability and growth can be enhanced through the integration of either a product or a process-orientated innovation strategy with investments in IT
- IT has a positive and significant effect on current profitability and future growth.

The performance measurement and management system for SMEs as proposed by Bahri *et al.* (2011:603) can be seen in Diagram 3.1. From the diagram, SMEs can use the financial components of EVA, combined with the organisational activities that influence it, to identify areas where value can be created. The model proposed by Bahri *et al.* (2011:605) takes into account, both quantitative and qualitative aspects of performance and includes sales management practices associated with the sales component of EVA. It also includes the manufacturing management processes associated with the operating expenses component, financial management practices associated with the financing expenses component. In addition, production equipment management practices related to net capital assets, and working capital management practices associated with the current assets component are also included..

Bahri *et al.* (2011:606) presents the following example on how Diagram 3.1 can be used to improve value creation in a firm. In the first stage, the value creation goal should be established as a monetary amount or as a percentage, for example EVA growth of ten percent over the previous year. In the second stage of the process, in order to achieve this goal, the managers explore the various options available to achieve the EVA goal by considering the various factors and limitations affecting the firm. These factors include human and financial resources, market conditions etc. Depending on the option chosen, the managers then establish the amounts of

percentage improvements to be achieved in the different EVA components, for example, 15 percent growth in sales, and four percent reduction in operating expenses. In the third stage, business practices (value drivers) and associated measures are identified that are likely to help achieve the goal for each EVA component. In doing this, the managers must apply judgement and experience, and may examine industry practices to identify those of relevance to the firm.

Diagram 3.1: EVA, performance management tool



Source: Bahri St-Pierre and Sakka (2011:606)

Once these practices have been introduced, managers can move onto the fourth stage, where results achieved (lagging indicators) are compared with the goals. A negative difference means a review of either the practices of the goals. The time between introduction of the third stage (practice) and the fourth stage (review of results) will depend on a number of factors, including the nature of the practice, the employees' level of competency with it, and some exogenous disturbances over which the firm has no control, such as unexpected market conditions. Bahri *et al.* (2011:606) regards an annual comparison of results with goals, when financial statements are produced, as reasonable.

Bahri *et al.* (2011:607) regards identifying the business practices likely to affect the chosen EVA component, as indicated in Diagram 3.1, as one of the most challenging steps in the process of developing the performance measurement and management

system (PMMS). Market and competition analysis, innovation management and customer relationship management are practices related to sales management Bahri *et al.* (2011:608). Business practices related to manufacturing management, production equipment suitability and production integration, advanced manufacturing technologies use and production staff management affect operating expenses such as cost of equipment maintenance and quality control. Working capital management practices relate to the three main components of current assets, which are cash, inventories and accounts receivable. Cash-related practices ensure that the firm has enough cash reserves to honour financial commitments and for this cash, budgets are commonly used. Practices potentially affecting the extent or value of accounts receivable require account management tools such as the aging method and payment quality analysis for new customers (Bahri *et al.* (2011:609)

3.4.5 SME employees

The future of the firms rests heavily on the entrepreneur's vision as the human resources of small firms consist of entrepreneur-founders and a small number of employees (Yu, 2001:188). Small firms will tend to recruit staff who can be easily communicated with, as well as staff that are socialised in the same social construction that facilitates organisational efficiency (Yu, 2001:190).

Yu (2001:189) attributes the development of a small firm to the charismatic entrepreneur, who portrays a parental image to the employees, and as a result will convince members to comply with the goals of the firm. The result of employees feeling part of the company is less opportunistic actions and may lead to engagement in creative acts, which are beneficial to the firm. Yu (2001:189) lists the following, which if in place, will take care of a great deal of co-ordination within an organisation:

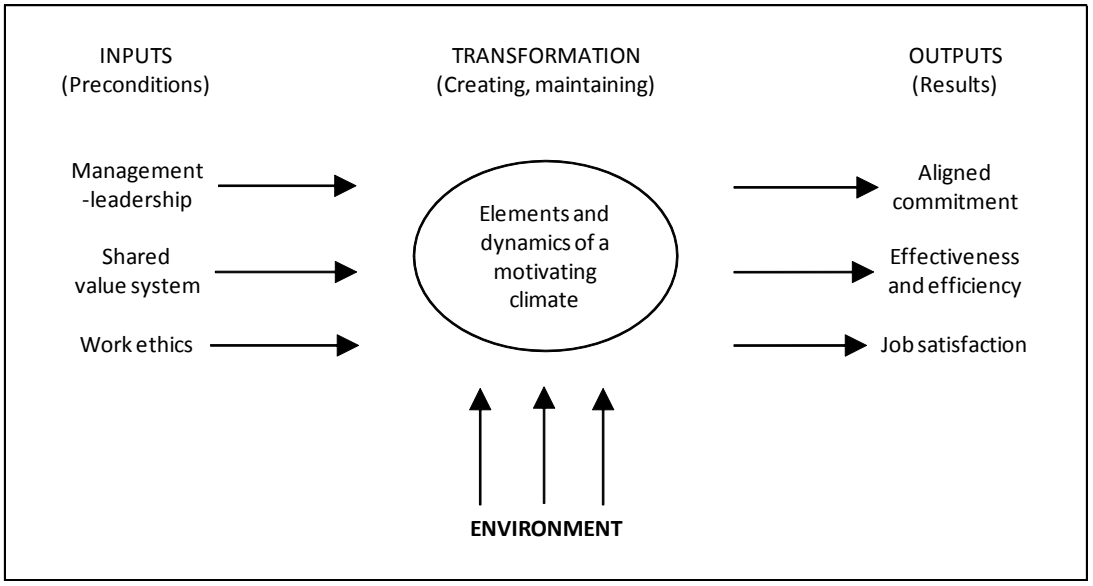
- Members can identify strongly with the organisation's goal
- Key people in the organisation are all dedicated to the accumulation of the company's wealth
- It is the hidden rationale behind much decision making.

Kotey and Folker (2007:231) observe that it is not economically sound to spend on long-term value creation when the firm is struggling with raising adequate capital to keep afloat on the short-term. Training programmes that are specific to the job, low cost, short-term oriented and aimed at developing a multi-skilled workforce may be more relevant to building competitive advantage and providing adequate flexibility to

respond to the rapid changes. This is done given the high level of vulnerability and uncertainty among small firms and the SMEs short-term orientation.

Coetsee (2002:2) regards the creation of a motivating climate as the key to unlocking, improving and enhancing employee motivation, commitment and attaining peak performance in an organisation. An over-managed or controlling climate with too many rules, regulations, restrictions, dysfunctional bureaucracy and punitive behaviour characterises an environment where a motivating climate is lacking. Such a non-motivating climate causes de-motivation, and non-commitment, which in turn limits individual and team efforts and performance, and consequently organisational performance and effectiveness. Coetsee (2002:24) defines a motivating climate as an inspirational environment in which people align themselves with and make a commitment to achieve the vision of the company. An illustration of a motivating climate can be seen in Diagram 3.2.

Diagram 3.2: Open system model of a motivating climate



Source: Coetsee (2002:25)

One of the outputs/results of a motivating climate is aligned commitment (Coetsee, 2002:27). If alignment and commitment is linked, then aligned commitment implies that all members of a work team are in line with regards to commitment, and it implies that all members are focussed on the same goal and are committed to it (Coetsee, 2002:29). True aligned-commitment entails more – it means that people's work is done according to certain behavioural guidelines or values. Both work ethics and values, as

per Diagram 3.2, are preconditions for creating a motivating climate. Aligned-commitment consists of five elements, which as part of a multiplication formula, implies that if one of the elements is missing, the product will be zero. “All five elements must be present” (Coetsee, 2002:30). The aligned-commitment equation is as follows:

Aligned-commitment = K x I x E x R x S

where:

K = knowledge
I = information
E = empowerment
R = rewards and recognition
S = shared goals and values.

3.5 SUMMARY

Smaller firms are often characterised by ad hoc and short-term decision-making tactics and, therefore, suggests a customer-orientated strategy. Such a strategy could provide the smaller firms with an organisation-wide focus for formulating objectives, guiding decisions and directing actions. It is accepted generally that small firms should seek viable market niches that are big enough for the small firm, but at the same time unattractive to large firms. This would enable small firms to utilise the limited resources available and avoid head-on competition with the large companies. It has long been recognised that one of the major competitive advantages SMEs have over large firms has been SMEs flexibility.

The value-based management process goes a step further by focussing on the identification of the financial and operational value driver that leads to increased shareholder value. The value drivers are specific actions or factors that cause cost to arise or revenues to change are identified. The benefits of identifying these value drivers and their interrelations lead to improved resource allocation, performance measurement, and the design of information systems

The future of the firms rests heavily on the entrepreneur’s vision as the human resources of small firms consist of entrepreneur-founders and a small number of employees. An over-managed or controlling climate with too many rules, regulations, restrictions, dysfunctional bureaucracy and punitive behaviour characterises an

environment where a motivating climate is lacking. Aligned commitment implies that all members of a work team are in line with regards to commitment, and it implies that all members are focussed on the same goal and are committed to it.

CHAPTER 4: THE ROLE OF FUNDING OF SMEs IN VALUE-BASED MANAGEMENT

4.1 INTRODUCTION

Chapter 4 will be focussing on funding for small and medium enterprises. The purpose of the chapter is to develop and understanding of how investors go about making investments decisions. The chapter looks at some of the general aspects of funding followed by a section on the various sources of funding. By creating an awareness of investment decisions, entrepreneurs would be in a better position to attract potential investors. Combining this awareness with the knowledge on how to create value puts the entrepreneur at a far greater advantage than the entrepreneur who is not armed with this knowledge.

The chapter looks at some general aspects of entrepreneurial funding. The chapter investigates three different types of investors, and how these investors go about making investment decisions. The AltX is discussed as well as the roll a business' capital structure plays in creating value.

4.2 GENERAL ASPECTS OF FUNDING

"Success comes to those who quickly identify and systematically eliminate risks in the right order, using the right level of resources and the right methods." (Gilbert & Eyring, 2010:94). In addition, new ventures are full of risks, and if managers attempt to eliminate all these risks, the product or service would never get to the market. Riding (2008:355) describes the development of innovation-oriented new firms as the engine of regional and national economic development. Riding (2008:355) cautions that access to financing is critical if new firms are to commercialise new products and technologies successfully. The unpredictable process of launching a new venture can be made as efficient as can be, by identifying and prioritising risks correctly, then conceiving, and funding experiments to resolve the risks systematically (Gilbert & Eyring, 2010:97).

The push towards entrepreneurship is determined by social and environmental factors, the presence of role models, and the availability of capital for investment. Individuals in a developed country might feel that too much is given up by taking the road less trodden and the more risky path of entrepreneurship, especially if salaries are

comfortable. In addition, the cost of setting up a company is also high in developed countries. While easy access to capital and bank loans may encourage some individuals to make bolder investments in business, the ultimate psychological impact is the presence of role models. Individuals are propelled to look up to those that have succeeded and feel challenged to outperform role models (Tjan, 2004:71).

A large corporation with deep pockets should have an advantage over bootstrap entrepreneurs when it comes to the financing a new venture (Gilbert & Eyring, 2010:96). A large corporation would typically allocate all the money at once for a new venture, hoping for a large payoff fairly soon and the more money allocated, the less patience the company tends to have. Venture capitalists invest in a far more effective way by providing capital to start-ups in multiple rounds as the value of the venture increases (Gilbert & Eyring, 2010:96).

Funding is never easy to come by for entrepreneurs, but during the credit crunch of 2008-2009, it was even more difficult (Cleaver, 2008:40). During tough economic times, funding is still available but Cleaver (2008:40) advises entrepreneurs to be persistent. It will take longer to find capital and the pot of gold at the end of the rainbow will not be so big. Entrepreneurs with a lot of personal debt will be especially hard hit. The credit identity of small-business owners is often also the credit identity of the small business, and as a result, personal financial stress, therefore, can hit the business hard, and vice versa. In the present risk-averse environment, a bad personal credit rating will make it even harder to find a loan for a business (Cleaver, 2008:40).

Equity financing takes place when part of the ownership of a business is transferred to a third party in order to persuade the third party to provide financing for start-up or expansion (Southern, 2010:102). With equity financing, the risk is borne by both the investor (usually referred to as a venture capitalist) and entrepreneur and if the business is successful both parties win. The venture capitalist gets the loan repaid but retains part of the ownership and, therefore, will receive a share of any future profits and increases in the net worth of the business.

In the case where a business is financed through a loan, the loan is usually repaid in instalments, which requires detailed planning on how the funds will be used (Southern, 2010:103). If, for example, the loan is to be used for the purchase of land, buildings, or equipment (fixed cost), the chance is good that there will be no quick cash return on this investment. Such a debt investment will limit the growth of the business, as a debt

investment needs to generate a cash inflow, and Southern (2010:103) recommends that the money be invested in variable cost items that are more likely to create a positive cash flow. Southern (2010:103) warns that financing through a loan is dangerous in the beginning of a new venture, as the venture will have a low income, or be making losses. Debt will be more advantageous when the venture has grown and is more profitable, as the venture will face a higher tax rate thus offsetting part of the interest rate of the borrowed funds. Cash flow will also be more predictable at this stage, thereby decreasing the risk of bankruptcy.

Funding for a start-up in the early stages comes from internal sources. The entrepreneur would provide the initial capital, together with funds from family and friends. Firms would also rely on bootstrapping and business alliances. With growth comes additional capital requirements, which is usually in the form of a bank loan, government sponsored programs/grants, angel investors, venture capitalists, and corporate investors, initial public offering (IPO) and the equity markets (Markova & Petkovska-Mirčevska, 2009:598). In order to secure sustainable growth, it is essential to understand the financing options in the different stages of a venture's lifecycle (Markova & Petkovska-Mirčevska, 2009:600). Entrepreneurs should take the most appropriate investment offer and not just the first offer.

Bootstrapping, according to Markova and Petkovska-Mirčevska (2009:599) are highly creative acquisitions and use of resources without borrowing money from a bank or raising capital from traditional sources. The reliance is on internally generated retained earnings, credit cards, home mortgages, and customer advances. One of the benefits is that funding is obtained at better returns, as the need to require equity financing is delayed as long as possible. This also allows the entrepreneur to retain a greater share of the ownership, greater authority, and overall control. Time and resources are spent on growing the business, and not on courting potential investors. Problems associated with raising too much money are also avoided. A disadvantages associated with bootstrapping is that the growth rate of the firm is constrained due to a lack of funding. Performance against financially endowed competitors is poor and limited support is offered to high-growth prospects.

Entrepreneurs who use early funding to reduce the greatest risks, follow the approach of the lower the risk, the greater the value. The greatest risks, as described by Gilbert and Eyring (2010:96), are the "deal-killer risks" and the "path-dependent risks". Once the big risks are reduced, the entrepreneur would then continue to squeeze the most

value out of the scarce resources by systematically working through the remaining risks according to the principle of spend a little to learn a lot.

4.3 SOURCES OF FINANCE

The decision to invest in an entrepreneurial business has been viewed largely as a hard evidence-oriented, substance-based process (Clark, 2008:258). Investors discount the figures in a business plan, as these figures are wildly optimistic as well as padded by entrepreneurs (Sahlman, 1997:98). Hsu (2010:266) found that a venture capitalist sometimes chooses to invest in a new venture even if the DCF analysis results show that the net present value is negative. The reason for this is that the DCF approach does not take into account the flexibility obtained by active management. The environment faced by the venture-backed firm is highly uncertain, making overlooking this flexibility a particularly serious problem.

Financiers not only benefit from the success of the projects financed, but also because of the synergies with the existing lines of business of the investment portfolios (Arping & Falconieri, 2010:691). Arping and Falconieri (2010:691) provide an example of such a synergy whereby a corporation provides financing to a downstream start-up firm in an attempt to spur demand for the corporation's own products. Another example provided is where a supplier extends a loan to a customer to finance the purchase of products whereby the financier benefits from the customer's success in terms of possible repeat business as well a greater likelihood that the loan will be repaid.

Tortoriello (2010:24) found that most investment strategies that are predictive quantitatively fall into seven major categories. The seven categories are:

- Profitability
- Valuation
- Cash flow
- Growth
- Capital allocation
- Price momentum
- Red flags or risk.

Tortoriello (2010:24) calls these categories the basics, as these categories are fundamental to achieving excess returns in the stock market. The most important

basics, from a quantitative point of view, are valuation, cash-flow generation, profitability, and price momentum (Tortoriello, 2010:24).

The delivery of an oral presentation is one of the ways entrepreneurs seek funding for a business venture from potential investors (Clark, 2008:257). The most common objective of such a presentation, according to Clark (2008:258), is to successfully persuade investors into requesting a copy of the business plan, and agree to a subsequent meeting to discuss the investment opportunity in detail. The economic impact of such a presentation can be enormous to the success of an entrepreneur's business venture as the chances of reaching the traditional first screening stage of the investor decision-making process (evaluation of the business plan) is likely to be seriously compromised (Clark, 2008:258). Clark (2008:274) warns that entrepreneurs who do not sell the substance of the investment opportunity and themselves effectively are less likely to succeed in convincing investors to consider and pursue the investment opportunity seriously.

4.3.1 Private equity

Anson (2007:7) regards the acquisition of information as the single most important competitive advantage in the private equity market. Private equity is, according to Anson (2007:7), one of the most expensive forms of capital financing. New and emerging firms are usually the issuers of private equity, as these firms cannot raise money in the public markets or public firms going private that require massive amounts of private financing. Van Niekerk and Krige (2009:1) ascribe the strong growth in private equity predominantly to the superior risk-adjusted returns and portfolio diversification benefits offered by this asset class. Bent *et al.* (2004:46) concluded that the involvement of multiple firms in the management of investment is a value-adding exercise. This is due to syndicated investments that generally have higher rates of return than stand-alone investments.

Van Niekerk and Krige (2009:10) concluded that investors who would have bought companies from private equity firms usually place considerable emphasis on future cash flows when evaluating a company for investment. Private equity managers were able to sell companies with higher earnings potential growth at higher multiples, as higher earnings growth translates into higher future cash flow. The study by Van Niekerk and Krige (2009:11) suggests that private equity managers are able to extract short-term value from investments, and sell much healthier and better companies than when they were bought in the first place.

Van Niekerk and Krige (2009:6) attribute this to the lack of managerial knowledge and skills that prevent many private companies from performing optimally. In addition, Van Niekerk and Krige (2009:10) made the following conclusions about private equity:

- Private equity investing is a highly specialised arena
- Private equity is as much an art as it is a science
- A myriad of interdependent methods is employed to take a business to a higher level and to extract the maximum from an investment
- The individual techniques employed by private equity managers to achieve superior returns will not be consistent, as every investment is unique and calls for an individualised approach
- The value-adding function of private equity managers lies in the ability to assess each investment and each problem on its own merits in the ex-post management process
- Private equity managers use superior knowledge, relationships, experience and exceptional management in an interrelated artful way to achieve a better outcome than public market managers do.

4.3.2 Venture capital

Varshney (2003:84) regards any kind of money given to start a new business or commence a new venture as venture capital (VC). Varshney (2003:84) refers to Queen Isabella, who gave Columbus money to find a new route to India, as an early example of VC. Avdeitchikova *et al.* (2008:37) regard this as a highly profitable investment for the Spanish, and state that examples of entrepreneurs raising capital from private investors can be found in the Babylonian era and in early medieval Europe. Avdeitchikova *et al*. (2008:371) put forward the argument that the development of the industrial revolution during the nineteenth and early twentieth century can be attributed to the investments made by private individuals.

VC, according to Gompers and Lerner (2001:145), has developed as an important intermediary in financial markets as venture capitalists provide capital to firms that otherwise might have difficulty in attracting financing. Venture capitalists finance high risk, potentially high-reward projects, purchasing equity, or equity-linked stakes while the firms still are held privately. These firms, as described by Gompers and Lerner (2001:145), are typically small and young, plagued by high levels of uncertainty. There are also large differences between what entrepreneurs and investors know and these

small firms typically possess few tangible assets and operate in markets that change rapidly.

Kaplan and Lerner (2010:2) refer to four of the current twenty largest US companies (in terms of market capitalisation) that have been funded partially by VC in the last 30 years - Microsoft, Apple, Google and Cisco. Kaplan and Lerner (2010:3) list Gilead, eBay, Amazon, Yahoo, Amgen, Adobe, Celgene, Starbucks, Gensyme, Juniper, Symantec, Stryker, and Intuit as some other highly valuable companies that have also been funded by VC.

The problem that venture capitals attempt to solve is to connect entrepreneurs with good ideas, but with no money, with investors who have money but are looking for good ideas (Kaplan & Lerner, 2010:1). Kaplan and Strömberg (2001:429) concluded after theoretical analysis and empirical studies of venture capitalist that this problem is mitigated through pre-investment monitoring, sophisticated contracting and advising. VC firms scrutinise young firms intensively before providing capital and mentoring afterwards (Gompers & Lerner, 2001:154). Tools available to VC firms to gather information and monitor these firms are meting out financing in discrete stages over time, syndicating investments with other VC firms, taking seats on firm's board of directors, and compensation arrangements including stock options (Gompers & Lerner, 2001:155).

A venture capitalist has a greater responsibility than just providing the capital. The venture capitalist should nurture, constantly guide, advise and hold the investee company's hand. The venture capitalist must use experience and knowledge to enable the investee company to realise its full potential (Varshney, 2003:87). This fits in with the venture capital cycle, as described by Gompers and Lerner (2001:152). The cycle starts with raising a venture fund, proceeds through the investment in, monitoring of, and adding of value to the firm. The cycle continues as the venture capital firm exits successful deals and returns capital to its investors, and renews itself with the venture capitalist raising additional funds.

Broome (2009:31) advises that it is important to understand the exit strategy of a VC structure. Broome (2009:32) advises to pay very close attention to the fine print of the VC agreement to ensure that the entrepreneur maintains control over the eventual liquidity event that will constitute the exit strategy of the investor. The VC provider will be looking for a liquidity event to be paid completely out of the investment in the

venture (Broome, 2009:31). Such a liquidity event could come from a refinance with a bank or asset-based lending company. The liquidity event is often triggered by the sale of the venture, and particularly if the venture capitalist takes control of more than 50 percent of the venture's equity.

4.3.3 Angel investors

Wiltbank *et al.,* (2009:118) define an angel investor as a wealthy individual who acts as an informal venture capitalist, placing money directly into early stage new ventures. Business angles invest more funds in more firms than the formal venture capital industry, particularly in early-stage enterprises (Riding, 2008:357). According to Markova and Petkovska-Mirčevska (2009:599), business angels generally fund ventures that have an early stage, high-risk money requirement to be able to run a firm with 10 to 20 employees. The firm can grow to a middle-market firm with 50 to 100 employees with annual sales ranging from $10 to $20 million. Business angels expect an average annual return of 26 percent at the time of investment and expect that 33 percent of investments are likely to result in a substantial capital loss.

Mason and Harrison (2008:325) describe the role of business angels in supporting an entrepreneurial economy as critical. In addition to the aforementioned critical role, Mason and Harrison (2008:325) also note the following about business angels:

- After family and friends, business angels are the largest external source of start-up finance
- The investment by business angels fills the size, stage and sector gap left by VC funds
- In many regions, business angels are virtually the only source of risk capital
- Young companies that achieve fast growth are often funded by business angels
- Many business angel syndicates have the capability to do multiple rounds of financing, sufficient to take the company to a trade sale or an IPO. This is done without the need to move to venture capital funds
- Business angels often contribute valuable non-financial assistance, as many business angels are also successful entrepreneurs themselves.

On the last point above, Politis (2008:128) concurs that one of the general assumptions about business angels is the expectation that the investment is value adding, as many of the business angels have a genuine entrepreneurial background. The value adding comes into play through the support of new venture development through the

professional, personal knowledge and skills of the business angel, and not only by supplying financial capital. Wiltbank *et al*., (2009:118) concurs that in addition to the financing role played by business angels, business angels also play a significant role in strategic decision-making. The influence stems from the authority associated with formal participation on the firm's board of directors, and from the business angel's knowledge and expertise.

4.4 THE ALTX

Initial public offerings (IPOs) are used typically by companies to raise capital, or as a means to allow the original entrepreneur to "cash out" the entrepreneur's investment (Dalbor & Sullivan, 2005:227). Smaller unlisted companies regard the JSEs AltX as a stepping-stone to bigger things, including graduating to the main bourse of the JSE. With less strenuous listing requirements, some as an inferior market that attract discounted valuations mistake the AltX. Once the naysayer realise what it can do for a business to be a quoted company, executives tend to want to acquire the full benefit of being listed and seek a main board listing (Finweek, 2009a:81).

The AltX, which is for smaller and entrepreneurial companies was launched 2003 after previous attempts by the JSE to attract small entrepreneurial ventures in the form of the Venture Capital and Development Capital Market was unsuccessful (Finweek, 2008:43). Hasenfuss (2010a:26) states that from the outset, the AltX stressed quality over quantity. Hasenfuss (2010a:26) continues by stating that the notion of attracting only top quality companies was always an ideal that would be rattled by the odd corporate setback.

A listing boom, according to Hasenfuss (2009a:10), occurs when there is an opportunity for knowledgeable sellers to peddle stock to less knowledgeable buyers, and implies that buyers can pay a premium price to participate in a newly listed venture. The sellers are able to cash in a part of the shareholding or raise capital for the business. The sellers constitute the business owners or vendors and the buyers include retail or ordinary investors (Hasenfuss, 2009a:10). Hasenfuss (2009a:10) describes a delisting boom as a period where knowledgeable buyers have an opportunity to buy back the company's shares from less knowledgeable buyers. In this case, the knowledgeable buyers are the controlling shareholders or company founders and the less knowledgeable buyers are disgruntled, disillusioned, or disappointed shareholders.

Hasenfuss (2010b:32) describes delisting as being contentious as there is usually suspicion around the entity or person making the offer to buy out shareholders. The buyer knows that substantial value can be unlocked in the company away from the eyes of public shareholders. The market is also prone to cynicism when companies that have recently listed suddenly opt for a delisting. Hasenfuss (2010b:32) simply states this sequence of events as “float in the boom and sneak off in the gloom”.

During the credit crunch in 2008/2009 market values of most AltX listings took a serious tumble as market conditions, both globally and locally, took a turn for the worse (Hasenfuss, 2008:34). Since mid-2008, the rank of newly listed companies on the JSE have been scattered by imploding investment sentiment (Hasenfuss, 2009a:10). The sentiment for AltX listings has shifted from “wide-eyed and wonderful” to “jaundiced and jittery” and the AltX collective market cap dropped from R26bn in 2008 to less than R11bn in 2010 including the value of suspended counters (Hasenfuss, 2010a:26). Even though the listings on the AltX have come to an abrupt halt due to the economic recession, a de-listing boom, as happened with the technology boom of the 1990s has not followed it (Finweek, 2009b:46).

Hasenfuss (2009b:18) is of the opinion that the JSE has probably created a market with sufficient “quality critical mass” to ensure the AltX catches the next wave of positive investment momentum. Therefore, it is safe to assume that the AltX is not going to disappear as the venture capital market in the late 1990s (Hasenfuss, 2009b:20). A handful of AltX companies have moved on to the main board of the JSE, including Wescoal, Esor, Pan African, Infrasors, Mazor and Sanyati with a combined market value of around R4,5bn (Hasenfuss, 2010a:26).

4.5 CAPITAL STRUCTURE

“Capital structure is arguably at the core of modern corporate finance” (Drobetz & Wanzenried, 2006:941). Yu (2001:187) regards a simple capital structure as a form of competitive strategy, as fewer physical assets contribute to organisational flexibility, and as a result, small firm owners often weigh the benefits of expansion against the benefits of remaining small. Companies’ business strategy and financial strategy are linked inextricably, and according to Passov (2003:128), capital policies must be developed in light of business risk. Balance sheet management is viewed as a form of risk management to be coordinated with the other ways in which companies manage business and financial risk.

Investments by firms are financed by selling debt and equity securities and the security values reflect the consumption benefits to be derived at the end of the period from ownership of those securities (Bosshardt, 2003:242). Stockholders, bondholders, and government all share in the output of the firm. Taxes (both corporate and personal) represent deadweight losses to investors – an explicit theme of the traditional capital structure and investment literature (Bosshardt, 2003:256).

Nengjiu, Parrino, Poteshman and Weisbach (2005:269) define an optimal capital structure as the debt value that maximises the total levered value of the firm and calculate optimal capital structures for various firm characteristics. The optimum capital structure for a firm may be selected by considering the potential financial; costs related to default and the trade-off between tax credits from coupon payments to debt holders (Chen & Kou, 2009:343). Bhaduri (2002:664) lists growth, cash flow, size, uniqueness and industry characteristics as factors that can influence the optimal capital structure. The calibrated continuous-time contingent claim model of Nengjiu *et al.* (2005:262) indicates that in addition to the tax shields, important determinants of capital structure include:

- The underlying risk of the firm's assets
- The maturity of debt
- The ability of debt holders to force default for a given level of firm value
- The incremental bankruptcy costs conditional on default.

Miao (2005:2649) analysed comparative static properties of changes in technology growth, technology risk, entry distribution, entry cost, fixed cost, bankruptcy cost, and tax policy. This analysis revealed that the interaction between financing and production decisions is important in industry equilibrium. Industries with high technology growth or good starting distributions of technology have relatively lower average leverage, lower turnover rates, and higher output. Industries with risky technology have relatively lower average leverage, higher turnover rates, and higher output. Industries with high bankruptcy costs have relatively lower leverage, lower turnover rates and lower output. Industries with high fixed operating costs have relatively lower average leverage, higher turnover rates, and lower output, while industries with high entry costs have relatively higher averages leverage, lower turnover rates, and lower output.

Passov (2003:119) states that most large companies with healthy revenues can unlock remarkable shareholder value by increasing its leverage or the amount of debt carried. The value is derived from both the tax benefits (tax shields from high levels of debt)

and from the market's well-documented perception that mangers with less money to spend it will spend it more wisely.

Intangible assets can also not be hedged easily against risk in terms of not meeting commitments on these intangible assets. Therefore, once a company recognises that its intangible assets are capable of causing financial distress, a key input variable into the calculation of optimal capital structure changes. Passov (2003:126) states that intangible assets tend to be more volatile than tangible ones, and as a result, companies with substantial intangible assets are expected to suffer more financial distress than companies with largely tangible assets do.

Berk *et al.* (2010:891) regard corporate income taxes and bankruptcy costs as the two important aspects in the capital structure decision. The level of debt determines the amount of risk sharing between investors and employees, where higher debt levels imply a higher probability of bankruptcy or financial distress, and hence less risk sharing (Berk *et al*., 2010:893). The traditional method of determining the optimal capital structure, as per Passov (2003:122), is to calculate the point at which the expected costs of financial distress from the likelihood of defaulting on the debt begin to outweigh the tax benefits of debt. Traditional capital structure theory, according to Bosshardt (2003:251), assumes value maximisation as the appropriate goal of the firm and that taxes are deadweight losses to investors. Based on these assumptions of the traditional capital structure theory, an increase in debt levels is beneficial to investors as the increased interest payable reduces profits and as a result, taxes are reduced.

Companies that tend to build huge cash reserves on the balance sheet do it for traditional reasons such as a safety cushion to carry the company through lean times and as a war chest to fund new internal initiatives or to do acquisitions (Pozen, 2007:80). The alternative to keeping excess cash is to buy back shares from shareholders, thereby returning the cash to shareholders. Pozen (2007:81) warns that share buybacks do not automatically increase shareholder value, but only makes sense if the directors conclude that company's shares currently are underpriced by the market. Pozen (2007:81) recommends raising cash dividends as a more reliable way to increase shareholder value.

Lin and Chang (2011:127) suggests that financial managers should use financial leverage wisely in order to maximise the firm's value and before any investment decisions are made, investors should carefully take a firms' debt ratio into account.

Bhaduri (2002:655) lists two reasons why the capital structure issue has remained neglected in developing countries, while it has received importance in developed countries. First, development economies until recently have given little importance to the role of firms in economic development. Secondly, the corporate sector in many less developed countries faced several constraints on the choice regarding sources of funds until the eighties.

Due to the underdeveloped stock market of these less developed countries, access to equity markets were either regulated or limited and corporate finance was dominated by development of financial institutions. These institutions virtually monopolised the supply of debt finance to the corporate sectors through direct lending and refinancing arrangements. The widening and deepening of various financial markets, including the capital market, plus the move towards the free market has provided the scope for the corporate sectors to optimally determine its capital structure (Bhaduri, 2002:656).

4.6 SUMMARY

The unpredictable process of launching a new venture can be made as efficient as can be, by identifying and prioritising risks correctly, then conceiving, and funding experiments to resolve the risks systematically. Funding is never easy to come by for entrepreneurs, but entrepreneurs must be persistent. Funding for a start-up in the early stages comes from internal sources. The entrepreneur would provide the initial capital, together with funds from family and friends. With growth comes additional capital requirements, which is usually in the form of a bank loan, government sponsored programs/grants, angel investors, venture capitalists, and corporate investors, initial public offering (IPO) and the equity markets. Venture capitalists sometimes choose to invest in a new venture even if the DCF analysis results show that the net present value is negative. The reason for this is that the DCF approach does not take into account the flexibility obtained by active management.

Private equity is one of the most expensive forms of capital financing. Venture capitalists finance high risk, potentially high-reward projects, purchasing equity, or equity-linked stakes while the firms still are held privately. One of the general assumptions about business angels is the expectation that the investment is value adding, as many of the business angels have a genuine entrepreneurial background. Smaller unlisted companies regard the JSEs AltX as a stepping-stone to bigger things, including graduating to the main bourse of the JSE.

Capital structure is arguably at the core of modern corporate finance and a simple capital structure as a form of competitive strategy as fewer physical assets contribute to organisational flexibility, and as a result, small firm owners often weigh the benefits of expansion against the benefits of remaining small. Growth, cash flow, size, uniqueness, and industry characteristics are factors that can influence the optimal capital structure.

CHAPTER 5: DATA ANALYSIS AND RESULTS

5.1 INTRODUCTION

Among the most important and oldest approaches used for evaluating the performance of companies have been financial evaluations, which are based mainly on financial statements (Tehrani *et al.,* 2012:8). Valuable information is provided by financial performance regarding procedures, qualities, correlations, dividends, quality of financial position, and corporate strengths and weaknesses (Tehrani *et al.,* 2012:8).

Zhu (2009:1) regards performance evaluation as an important tool in continuously improving performance in order to stay competitive. In order to survive and prosper in a business environment facing global competition, performance evaluation and benchmarking positively forces any business to constantly improve and evolve (Zhu, 2009:1). The following is listed by Zhu (2009:1) as the outcome of performance evaluation:

- The strength and weakness of business operations, activities, and processes can be revealed
- Prepare the business better to meet customers' needs and requirements
- Opportunities can be identified to improve current operations and processes, and create new products, services, and processes.

In this chapter, the research methodology will be discussed in terms of the study design, the statistical method use, how data was collected and prepared for statistical analysis. Finally, the results are published.

5.2 RESEARCH METHODOLOGY

5.2.1 Background to the research

Benchmarking a firm's financial results against its own peers or industry averages enables management to identify the relative strength and weaknesses of the firms and as a result, better future planning (Malhotra & Malhotra, 2008:25). Investors and creditors can develop a better understanding of the relative position of a firm in the industry by means of benchmarking. Therefore, investment or lending decisions can be made based on economic factors instead of a lending officer's intuition (Malhotra & Malhotra, 2008:25).

A fundamental method in performance evaluation and benchmarking is single-measure-based gap analysis (Zhu. 2009:2). Ratio analysis is used in traditional financial statement analysis techniques in order to compare a firm's performance against its peers and against its historical performance. Analysts will then recommend whether this company is doing well or underperforming relative to its peers or relative to its own past performance, based on the aforementioned ratio analysis (Malhotra & Malhotra, 2008:25).

Zhu (2009:2) regards a single measure that suffices for the purpose of performance evaluation as rare. The single output to input financial ratios are deemed unsatisfactory discriminates of best-practice and, therefore, is insufficient to evaluate operating efficiency. Zhu (2009:2) argues further, that the use of single measures ignores any interactions, substitutions, or tradeoffs among various performance measures as each business operation has specific performance measures with tradeoffs.

Zhu (2009:3) notes that the objective of performance evaluation is to evaluate the current business operation internally. The current business operations are also valuated externally by means of benchmarking against similar business operations to identify the best practice. Zhu (2009:3) by means of DEA, is able to empirically estimate the efficient frontier based upon observations on one business operations/process over time or similar business operations at a specific time-period.

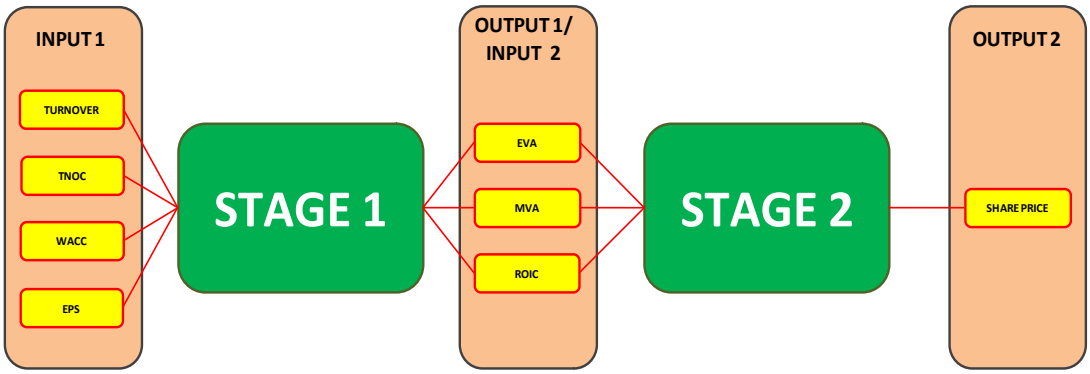
5.2.2 Study design

It was decided to utilise DEA as a benchmarking tool. In order to facilitate the benchmarking study, a two-stage model was developed. The reason for a two-stage design was to benchmark performance in terms of value creation in the first stage, and in the second stage, share price performance. The model was so designed, that the outputs of the first stage would be the inputs of the second stage. A company would be evaluated across the two stages in order to establish an overall efficiency score for the particular company. All the companies listed on the AltX in a particular year would be benchmarked against an efficiency frontier. The evaluation will be done per year, for all the years identified. The process will be discussed in detail later on in the chapter.

The next step was identifying which variables would be utilised in the two-stage model. The selection was done based on the literature in Chapter 2 and as pre-requisite, variables must best represent company performance. It was also important to limit the number of variables bearing in mind the small population. This could have an adverse

effect on the data analysis, as it could result in a case of the model following the data. The first stage has turnover, net operating capital (TNOC), weighted average cost of capital (WACC), earnings per share (EPS) as the inputs, and economic value Added (EVA), market value added (MVA) and return on invested capital (ROIC) as outputs. The same EVA, MVA and ROIC is then used as the inputs for the second stage, and then the company's share price is used as output. The model design can be seen in Diagram 5.1.

Diagram 5.1: Two-stage model design



In Chapter 2, it was established that there are various methods to calculate EVA. The method used for calculating EVA in this quantitative research is that of Lander and Reinstein (2005:435):

EVA = NOPAT – (Capital x Cost of Capital)

where

NOPAT = the net operating profit after taxes
Capital = total net operating capital
Cost of capital = WACC

The reason for selecting this specific EVA was due to its simplicity and ease of use. The author is of the opinion the method used in calculating EVA must be of a simplistic nature to enable any user to calculate an EVA value. Most organisations, therefore, should be able to group their financial variables accordingly, in order to calculate EVA. The reasons for selecting the various input and output variables are summarised in Table 5.1.

Table 5.1: Input and output variables

Item	Reason
Turnover	Turnover represents the income statement in the study. Turnover is the first item in the income statement and all other items in the income statement are in one way or the other related to, or representative of turnover.
Total net operating capital (TNOC)	Managerial performance is judged by comparing managers' ability to generate EBIT with the operating assets under its control. Modigiliani & Miller's first proposition asserts that a firm's total market value is independent of a firm's capital structure (Megginson, Smart, & Graham, 2010:418)..
Weighted average cost of capital (WACC)	WACC represents the way in which the firm is funded and how the mix of debt and equity affects the ability to create wealth. Indicates what the required return of investors would be. According to Modigiliani & Miller's second proposition, even though debt is less costly than equity, issuing debt causes the required return on the remaining equity to rise (Megginson *et al*., 2010:421). The change in leverage causes an offset change in the required return on equity. If WACC is unrelated to leverage then so is the value of the firm (Megginson *et al*., 2010:422)
Earnings per share (EPS)	Stock value is derived from expected dividends, and growth in dividends occurs primarily because of growth in EPS. Therefore, EPS was selected in order to determine to what extend does a company's EPS affects it value creation potential.
Economic value added (EVA)	EVA is one method to measure a firm's true profitability and focusses on managerial effectiveness in a given year.
Market value added (MVA)	MVA represents the difference between the market value of a firm's shares and the amount of equity capital supplied by shareholders. It measures the effect of managerial actions since the very inception of a firm.
Return on invested capital (ROIC)	Companies that generate high levels of ROIC are applying invested funds profitably and ROIC is used to determine if a company's growth is profitable or not.
Share price	Main goal of this study is to determine if AltX companies can effectively utilise value-based management principles as a management tool in order to improve share price performance.

The study was designed to evaluate companies at operating level as well as company level. Operating level is defined as day-to-day operations, while company level includes long-term investment assets and investment income. The average share price as well as the year-end share price was used as output for both operating and company performance levels. Average share price is defined, as the average share price for the month (up to and including the day before year-end) preceding the financial year-end.

The result is four models:

- Company level with average share price as final output
- Operating level with average share price as final output
- Company level with year-end share price as final output
- Operating level with year-end share price as final output.

The study design at model level with the inputs and outputs per stage can be seen in Table 5.2.

Table 5.2: Model summary

MODEL	INPUT 1	OUTPUT 1/INPUT 2	OUTPUT 2
Company level with average share price as final output	• Turnover • TNOC • WACC • EPS	• EVA Company • MVA • ROIC Company	• Average share price
Operating level with average share price as final output	• Turnover • TNOC • WACC • EPS	• EVA Operating • MVA • ROIC Operating	• Average share price
Company level with year-end share price as final output	• Turnover • TNOC • WACC • EPS	• EVA Company • MVA • ROIC Company	• Year-end share price
Operating level with year-end share price as final output	• Turnover • TNOC • WACC • EPS	• EVA Operating • MVA • ROIC Operating	• Year-end share price

The study is designed to evaluate efficiency on an annual basis. The four models will be calculated for each year. The purpose behind calculating it for each year is to establish if there are any trends developing over time. The results will also be used to determine what effect the financial crisis had on the companies.

In addition to the two-stage model, a single stage model was developed for use as a separate analysis in terms of output maximisation. The reason for this single stage model was to establish, in terms of benchmarking, what the share price should be if all companies in the study were to be efficient in terms of reflecting value creation in share prices. The same variables of the second stage of the two-stage model were used – EVA, MVA and ROIC as inputs, and Share Price as output. These models were calculated as Output-Oriented, VRS models. VRS acknowledges the often-different scale of operations found in business units and VRS permits translation invariance (Avkiran, 2011:324). This separate analysis will also be done on a yearly basis to establish it there are any trends developing over a period. The DEA methodology and the various DEA models will be discussed in the next section.

5.2.3 Data envelopment analysis (DEA) – a theoretical model

This section will start with the theory behind DEA, followed by a discussion on the various output-oriented models and concludes with a discussion on how DEA is applied in a two-stage model. DEA is defined by Avkiran (1999:206) as a non-parametric linear programming technique that computes a comparative ratio of outputs or inputs for each unit, which is reported as the relative efficiency score. *A priori* definitions of the relationship between the input and output parameter are not required, nor is it necessary to assign weights prior to modelling (Pätäri et al., 2012:788). The concept of relative efficiency is employed by DEA and as a result, a comparison of companies with a pool of known efficient and inefficient companies is possible (Malhotra & Malhotra, 2008:27).

DEA can assist in identifying areas in which a firm has strengths and weaknesses to competition and when improvements are needed (relative to peers). DEA can show how much improvement is needed (Malhotra & Malhotra, 2008:25). A consistent and reliable measure of managerial or operational efficiency is provided through DEA (Malhotra & Malhotra, 2008:25). Through DEA, multiple inputs and outputs can be selected in accordance with a managerial function. DEA works with variables of different units (*inter alia*, monetary value, percentage, number of employees, and so on) without the need for standardisation (Theunissen & Oberholzer, 2013, 1512)

The advantage of using DEA compared to financial ratios, according to Halkos and Salamouris (2004:221) is that DEA provides the user with an overall, objective numerical score. In addition to the score, DEA also provides a ranking and efficiency potential improvement targets for each one of the inefficient units. DEA assists in efficiency comparisons with the simultaneous use of multiple criteria, which determines efficiency for each decision-making unit (Halkos & Salamouris, 2004:221). The result is a rounded judgement on decision-making unit (DMU) efficiency, as it takes into consideration a variety of efficiency dimensions and combines it into a single performance measure.

Efficiency can be divided into two categories – technical and allocative. Avkiran (1999:206) defines allocative efficiency as the "effective choice of inputs *vis-à-vis* costs with the objective of minimising production cost". Technical efficiency, as defined by Avkiran (1999:207), investigates "how well the production process converts inputs into outputs". In terms of the production process, allocative efficiency is concerned with the selection of an effective production plan, while technical efficiency is concerned with the effective implementation of the selected production plan.

Feroz *et al.* (2003:48) argue that DEA can complement traditional ratio analysis to provide information regarding operating and technical efficiency of the firm. Feros *et al.* (2003:48) demonstrate that there is a correspondence between the measurement of efficiency using ratios and the direction of the relative efficiency trends of firms as captured by DEA.

Zhu (2009:3) describes the following two properties that will ensure the development of a piecewise linear approximation to the efficient frontier, and the area dominated by the frontier:

Property 1: Convexity: $\sum_{j=1}^{n} \lambda_j \, x_{ij} (i = 1,2, \dots, m)$ (possible inputs) and $\sum_{j=1}^{n} \lambda_j \, y_{rj} (r = 1,2, \dots, s)$ (possible outputs) achievable by the DMU_j, where $\lambda_j \, (j = 1, \dots, n)$ are nonnegative scalars such that $\sum_{j=1}^{n} \lambda_j = 1$.

Property 2: Inefficiency: The same y_{rj} (as above) can be obtained by using $\hat{x}_{ij}$ where $\hat{x}_{ij} \geq x_{ij}$ (for example, using more inputs can produce the same outputs), the same $\hat{x}_{ij}$ can be used to obtain $\hat{y}_{ij}$, where $\hat{y}_{rj} \geq y_{rj}$ (*inter alia,* less outputs can be produced with the same inputs) (Zhu, 2009:4).

For convexity, all inputs and outputs must be divisible and convexity is equal to the decreasing marginal rates of substitution between inputs, between outputs and between inputs and outputs (Cherchye *et al.,* 2000:2). The frontier points in DEA models form a convex or positive combination of efficient points, where inefficient DMUs are projected onto (Amirteimoori *et al.*, 2007:734).

One advantage of DEA is that the analyst is allowed, through DEA modelling, to select inputs and outputs in accordance with a managerial focus. DEA also works with variables of different units without the need for standardisation (Avkiran, 1999:207). An analyst has the model option of input minimisation and output maximisation. Avkiran (1999:211) describes input minimisation as the examination of the extent to which inputs can be reduced while maintaining output levels. Output maximisation, as described by the same author (Avkiran, 1999:211), investigates the extent to which outputs can be raised given the current input levels. The results under output maximisation suggest raising outputs as well as reducing inputs (for example input slacks) (Avkiran, 1999:211). If the results suggest reducing inputs, it implies that the inputs are over-utilised.

Theunissen and Oberholzer (2013:1512) highlight a feature of DEA for which the analyst should make some assumptions concerning the nature of the two types of returns to scale that best reflect the operations of the units in the sample. The two types are constant return to scale (CRS) and variable return to scale (VRS). CRS implies, according to Avkiran (1999:211), that there is a proportionate rise in outputs when inputs are increased, whereby the scale of operations does not influence the efficiency of the unit. VRS implies a disproportionate rise or fall in outputs when inputs are increased whereby as a unit grows in size, the unit's efficiency would be disproportionally affected (Avkiran, 1999:211).

Zhu (2009:3) makes use of decision-making units (DMUs) to represent business operations or processes whereby each DMU has a set of inputs and outputs, which represents multiple performance measures. In a set of n observations on the DMUs, each observation DMU_j $(j = 1, \dots, n)$ uses m inputs x_{ij} $(i = 1,2, \dots, m)$ to produce s outputs y_{rj} $(r = 1,2, \dots, s)$. It is these n observations that determine the (empirical) efficient frontier or best-practice frontier. The trade-offs inherent in the empirical efficient frontier are implicitly estimated by DEA through mathematical programming (Zhu, 2009:4). A DMU is deemed as efficient when the efficiency score equals one.

The input-oriented VRS envelopment model can be expressed, according to Zhu (2009:8) as:

$$\min\theta - \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right)$$

subject to

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta x_{io} \qquad i = 1,2,\dots,m;$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = y_{ro} \qquad r = 1,2,\dots,s;$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0 \qquad j = 1,2,\dots,n$$

This model is calculated in a two-stage process:

- First, θ is calculated by ignoring the slacks
- Secondly, the slacks are optimised, by fixing the θ^* in the following linear programming problem (Zhu, 2009:7):

$$\max \sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+$$

subject to

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = \theta^* x_{io} \qquad i = 1,2,\dots,m;$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = y_{ro} \qquad r = 1,2,\dots,s;$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0 \qquad j = 1,2,\dots,n$$

This model is calculated in a two-stage process due to the presence of the non-Archimedean ε in the objective function of the above formula, therefore, allowing the minimisation over θ to pre-empt the optimisation of the slacks (Zhu (2009:8). Slack is the excess input or missing output that exists even after the proportional change in the input or the outputs. DMU_o is efficient if, and only if, $\phi^* = 1$ and $s_i^{-*} = s_r^{+*} = 0$ for all i and r, while DMU_o is weakly efficient if $\phi^* = 1$ and $s_i^{-*} \neq 0$ and (or) $s_r^{+*} \neq 0$ for some i

and r. If weakly efficient DMUs are not present, then it is not necessary to calculate the above model and the slack can be obtained as follows (Zhu, 2009:10):

$$\begin{cases} s_i^- = x_{io-} - \sum_{j=1}^{n} \lambda_j x_{ij} \quad i = 1,2,\dots,m \\ s_r^+ = \sum_{j=1}^{n} \lambda_{rj} - \phi^* y_{ro} \quad r = 1,2,\dots,s \end{cases}$$

Zhu (2009:10) notes that $\phi^* \geq 1$, if and only if $\theta^* = 1$.

The output-oriented VRS envelopment model can be expressed as (Zhu, 2009:9):

$$\max \emptyset + \varepsilon\left(\sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+\right)$$

subject to

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = x_{io} \qquad i = 1,2,\dots,m;$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = \phi y_{ro} \qquad r = 1,2,\dots,s;$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0 \qquad j = 1,2,\dots,n$$

This model is calculated in a two-stage process:

- First, ϕ^* is calculated by ignoring the slacks
- Secondly, the slacks are optimised, by fixing the ϕ^* in the following linear programming problem (Zhu, 2009:10):

$$\max \sum_{i=1}^{m} s_i^- + \sum_{r=1}^{s} s_r^+$$

subject to

$$\sum_{j=1}^{n} \lambda_j x_{ij} + s_i^- = x_{io} \qquad i = 1,2,\dots,m;$$

$$\sum_{j=1}^{n} \lambda_j y_{rj} - s_r^+ = \phi^* y_{ro} \qquad r = 1,2,\dots,s;$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0 \qquad j = 1,2,\dots,n$$

This model is calculated in a two-stage process due to the presence of the non-Archimedean ε in the objective function of the above formula, therefore, allowing the maximisation over θ to pre-empt the optimisation of the slacks (Zhu (2009:8). Zhu (2009:10) states that DMU_o is efficient if and only if $\phi^* = 1$ and $s_i^{-*} = s_r^{+*} = 0$ for all i and r, while DMU_o is weakly efficient if $\phi^* = 1$ and $s_i^{-*} \neq 0$ and (or) $s_r^{+*} \neq 0$ for some i and r. If weakly efficient DMUs are not present, then it is not necessary to calculate the above model and the slack can be obtained as follows (Zhu, 2009:10):

$$\begin{cases} s_i^- = x_{io-} \sum_{j=1}^{n} \lambda_j x_{ij} & i = 1,2,\dots,m \\ s_r^+ = \sum_{j=1}^{n} \lambda_{rj} - \phi^* y_{ro} & r = 1,2,\dots,s \end{cases}$$

Zhu (2009:10) notes that $\phi^* \geq 1$, if and only if $\theta^* = 1$.

Consider a simple numerical example with five DMUs (Table 5.3). Each DMU generates the same profit of R2,000 with a different combination of supply chain cost and response time.

Table 5.3 Supply chain operations within a week

DMU	Cost (R)	Response time (days)	Profit (R)
1	100	5	2,000
2	200	2	2,000
3	400	1	2,000
4	600	1	2,000
5	400	4	2,000

Source: Zhu (2009:6)

An output efficient frontier is shown with four DMUs, which has two outputs. In Diagram 5.2, DMUs 1, 2 and 3 are efficient. If the output-oriented VRS envelopment model is calculated for DMU4 then

$$\text{Max } \phi$$

Subject to

$$\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 \leq 1$$

$$6\lambda_1 + 5\lambda_2 + 2\lambda_3 + 3\lambda_4 \geq 3\phi$$

$$2\lambda_1 + 3.5\lambda_2 + 5\lambda_3 + 3.5\lambda_4 \geq 3.5\phi$$

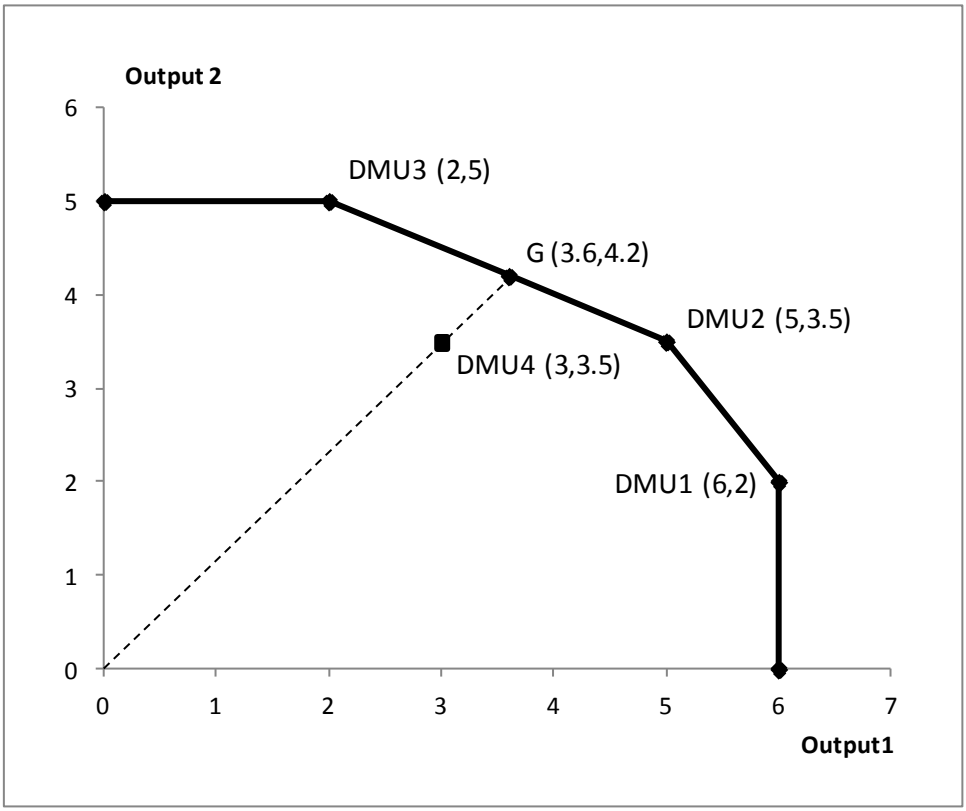
$$\lambda_1 + \lambda_2 + \lambda_3 + \lambda_4 = 1$$

$$\lambda_1, \lambda_2, \lambda_3, \lambda_4 \geq 0$$

DMU4 is inefficient compared to G in Diagram 5.2 and DMU4 should increase its two outputs to level G. This finding is based on the optimal solution of

$$\phi^* = 1.2,\ \lambda_2^* = 8/15, \text{ and } \lambda_3^* = 7/15.$$

Diagram 5.2: Output efficient frontier



Source: Zhu (2009:10)

The most important limitation as identified by Theunissen and Oberholzer (2013:1512) is that DEA assumes that the data is free of measurement error. Therefore, DEA results cannot be interpreted with confidence if the integrity of the data has been violated. This will result in the efficiency scores of units both on and under the frontier to be biased. Avkiran (1999:207) warns that those decision-making units (DMUs) indicated as being efficient are only efficient in relation to the other DMUs in the sample. Avkiran (1999:207) speculates that it may be possible for a unit outside the sample to achieve a higher efficiency score than the best practice DMU within the sample.

Theunissen and Oberholzer (2013:1513) describe DEA as a useful tool in setting targets for inefficient units to improve performance. The two authors, however, regard that fact that DEA does not indicate to the analyst how to reach those targets or why units are performing poorly, as a drawback. Theunissen and Oberholzer (2013:1513), therefore, recommend further analysis to identify specific problems within a unit.

Zhu (2009:305) refers to various settings where the DMUs can have a two-stage structure, whereby the outputs of the first stage generated, becomes the inputs of the second stage. Such first stage outputs are called intermediate measures (Zhu, 2009:305). The second stage then uses these intermediate measures to produce outputs. Zhu (2009:305) highlights the key feature of these two-stage structures − the first stage's outputs are the only inputs to the second stage.

The usual way to deal with such a two-stage structure, as per Zhu (2009:306) is to apply the standard DEA model to each stage. The problem with such an approach, as highlighted by Zhu (2009:306), is that such an approach may conclude that two inefficient stages lead to an overall efficient DMU with the inputs of the first stage and outputs of the second stage. An input- and output-oriented DEA model can measure the efficiency in each stage, but cannot deal with the two-stage efficiency with intermediate measures in a single implementation (Chen & Zhu, 2004:14). According to Chen and Zhu (2004:14), "an overall efficient performance does not necessarily indicate the efficient performance in stage 1 and 2". As a result, the improvement to the DEA frontier can be distorted because of the presence of intermediate measures (Chen & Zhu, 2004:14).

Chen and Zhu (2004:15) developed a programming solution, which is an efficiency model that identifies the efficient frontier of a two-stage production process linked by intermediate measures. It is a DEA type model (based on the VRS envelopment model), where a production possibility set is used to define each stage's own efficiency (Zhu, 2009:306). The intermediate measures link the two production possibility sets and are set as decision variables for each DMU under evaluation. When each stage is efficient, the model of Chen and Zhu (2004:15) guarantees an overall efficient two-stage process (Zhu, 2009:306). The model does not only provide an efficiency index, but also optimal values for the intermediate measures with which the two stages are efficient (Chen & Zhu, 2004:306).

The linear programming problem of a two-stage production process linked by intermediate measures as developed by Chen and Zhu (2004:15):

$min_{\alpha,\beta,\lambda_j,\mu_j,\tilde{z}}\ w_1 - w_2\beta$

subject to

(stage 1)

$$\sum_{j=1}^{n} \lambda_j x_{ij} \leq \alpha x_{ij_0} \quad i = 1, \dots, \mathrm{m}$$

$$\sum_{j=1}^{n} \lambda_j z_{dj} \geq \tilde{z}_{dj_0} \quad d = 1, \dots, \mathrm{D}$$

$$\sum_{j=1}^{n} \lambda_j = 1$$

$$\lambda_j \geq 0, j = 1, \dots, n$$

$$\alpha \geq 1$$

(stage 2)

$$\sum_{j=1}^{n} \mu_j z_{dj} \leq \tilde{z}_{dj_0} \quad d = 1, \dots, \mathrm{D}$$

$$\sum_{j=1}^{n} \mu_j y_{rj} \geq \beta y_{rdj_0} \quad r = 1, \dots, \mathrm{s}$$

$$\sum_{j=1}^{n} \mu_j = 1$$

$$\mu_j \geq 0, j = 1, \dots, n$$

$$\beta \geq 1$$

where w_1 and w_2 are user-specific weights reflecting the preference of the two stages' performance and symbol "~" represents unknown decision variables.

In the study, the impact of company performance on certain intermediate measures (VBM measures) was considered, which in turn is expected to reflect in the share prices. Diagram 5.1 describes the (indirect) impact of company performance on share prices where the first stage uses inputs x_i $(i = 1, \dots, m)$ to produce outputs z_d $(d = 1, \dots, \mathrm{D})$, and then these z_d are used as inputs in the second stage to produce outputs y_r $(r = 1, \dots, s)$. The intermediate measures, z_d are the outputs of stage 1, and the inputs for stage 2. The first stage is viewed as a company's ability to create value, and then used as the input to the second stage, where value creation is reflected in the share price.

The rationale of the two-stage model is twofold:

- When a company's ability to create value is evaluated, the input usage must be minimised, given the intermediate measure. In this study, the objective is to examine whether a company can achieve the same results with less inputs compared to best practices.
- When the company's performance is evaluated because of the intermediate measures, the performance must be maximised, given the intermediate measures. In this study, the objective is to examine if the value created can be reflected in the share price.

If the two stages are viewed as a whole, and if $\alpha^* = \beta^* = 1$, efficient performance is achieved. If $\alpha^* = 1$ and $\beta^* > 1$ (or $\alpha^* < 1$ and $\beta^* = 1$) it indicates that one of the stages can achieve, given a set of optimal intermediate measures, 100 percent efficiency. In order for a DMU to be a frontier point in both stages $\alpha^* x_{ij_o}$ $(i = 1, \dots, m)$, $\tilde{z}^*_{dj_o}$ $(d = 1, \dots, \mathrm{D})$ and ($\beta^* y_{rj_o}$ $(r = 1, \dots, s)$. (*) represents the optimal value in the two-stage model (Zhu, 2009:308).

5.2.4 Data collection

The data in this study were gathered from the data provider INET BFA. INET BFA is Africa's leading provider of financial data feeds and analysis tools (INET BFA, 2014). INET BFA provides published and standardised financial information. All data extracted was standardised financial results for statistical purposes to ensure that the data is comparable and all financial variables are calculated using a standardised method.

A comprehensive list of previously and currently listed AltX companies was obtained from the JSE, which constitutes the population of this study. Due to the small number of companies listed on the AltX, the population was used for the study, and no sample selection was required. This list formed the basis for extracting data from INET BFA. The list was scrutinised for duplications, as well as for companies that underwent a name change, for the same data might be duplicated under different names. Once all these duplications were removed, a master list was generated.

The sources of the data collected for this study are summarised in Table 5.4

Table 5.4: Data collection summary

ITEM	SOURCE	FORMULA
Turnover	INET BFA	
Total Net Operating Capital (TNOC)	Calculation	Net operating working capital + Operating long term assets
WACC	INET BFA	
EPS	INET BFA	
EVA	Calculation	NOPAT – (TNOC x WACC)
MVA	INET BFA	
ROIC	Calculation	NOPAT/TNOC
Share Price	INET BFA	

The weighted average cost of capital (WACC) percentage was used as calculated by INET BFA. The WACC data variables as used by INET BFA were as follows:

- Financials: Standardised
- Risk-free rate: R186
- Market Risk Premium: 6

5.2.5 Data preparation

In Section 5.2.2, the four models were listed. For ease of use in the modelling process, the groupings were coded and can be seen in Table 5.5:

Table 5.5: Model coding

Model	Code
Company level with average share price as final output	AV_Company
Operating level with average share price as final output	AV_Operating
Company level with year-end share price as final output	YE_Company
Operating level with year-end share price as final output	YE_Operating

The data were further refined to contain only companies that had a value other than zero for the variables to be used in the two-stage model. The master list subsequently was refined to contain the relevant companies. Data were collected for the period 2004 up to and including 2012. The year 2013 was excluded from the data, as many of the companies had not published annual results at the time of extraction, and as a result,

the 2013 data set would have been incomplete. The data were extracted and is summarised in Table 5.6. Table 5.6 indicates the number companies per year per level grouping, for example, there are 15 companies for the year 2004, for the Company level with average share price as final output model.

Table 5.6: Number of companies per year

	2004	2005	2006	2007	2008	2009	2010	2011	2012
AV_Company	15	18	26	50	73	77	71	70	62
AV_Operating	15	18	26	50	73	77	71	70	62
YE_Company	14	16	25	50	71	75	67	70	60
YE_Operating	14	16	25	50	71	75	67	70	60

The ratio of DMUs to the product of number of inputs and outputs for all the models was calculated as per Avkiran (1999:210). Stern, Mehrez and Barboy (cited by Avkiran, 1999:208), prescribe a ratio of three as an appropriate sample size. The results can be seen in Annexure D. If the ratio of DMUs to product of inputs and outputs is low, DEA will not discriminate well, and most branches will appear efficient (Avkiran, 1999:214). Applying this rule of thumb, the two-stage models for 2004, 2005, and 2006 are excluded from the results. For the single stage, output maximisation model, all the years were included in the results as the ratios for all the years were above three. As previously discussed, the entire population was used, as the number of listed companies on the AltX is small.

In order to address the issue of relevance, the data were indexed. The data points per variable were summed, and divided by an index value of 100, resulting in an index divisor. The individual data points were divided by the index divisor, creating an indexed value. This indexing was done for all the data in the four models, for the data from 2004 to 2012. This was done in line with the JSEs method of indexing the ASI (JSE Limited, 2013b:3). These results were subsequently scrutinised for negative values. To negate negative values, the data were transformed, by adding a constant to all the indexed data values of a variable. This is in line with previous research conducted utilising DEA methodology.

Bowlin (1999:295) handled negative values in two output variables by adding a constant to the specific output for each entity in the analysis in order to have value greater than zero for every organization. In the presence of negative data, efficiency

assessment cannot be used without transforming the data, as negative inputs/outputs are moved in the wrong direction (Silva Portela *et al.,* 2004:1120). Cook & Seiford (2009:6) render all negative numbers positive by adding a fixed number to the value of each DMU thereby rendering all values positive. The data used for the DEA models are the variables post transformation.

The software used for solving the DEA models was the student version of DEAFrontier, which was supplied with the book written by Zhu (2009:35). The models were computed as two-stage (VRS) models with both Stage 1 and Stage 2 weights set as one. Both stages carry the same weight in this study, as it is equally important to create value and to reflect the value created in the share price.

5.2.6 Results

In total, 24 two-stage models were calculated – the four models were calculated for each year (2007 – 2012) separately. The number of companies who were deemed efficient in both Stage 1 and Stage 2 of the model were extracted from the results, and summarised in Table 5.7. In Table 5.7, the "1" in the row AV_Company row, in the 2007 column, represents one company in 2007 that was deemed as efficient across both the stages at company level with average share price as final output. In 2009, three companies were deemed as efficient over the two stages at company level with average share price as final output.

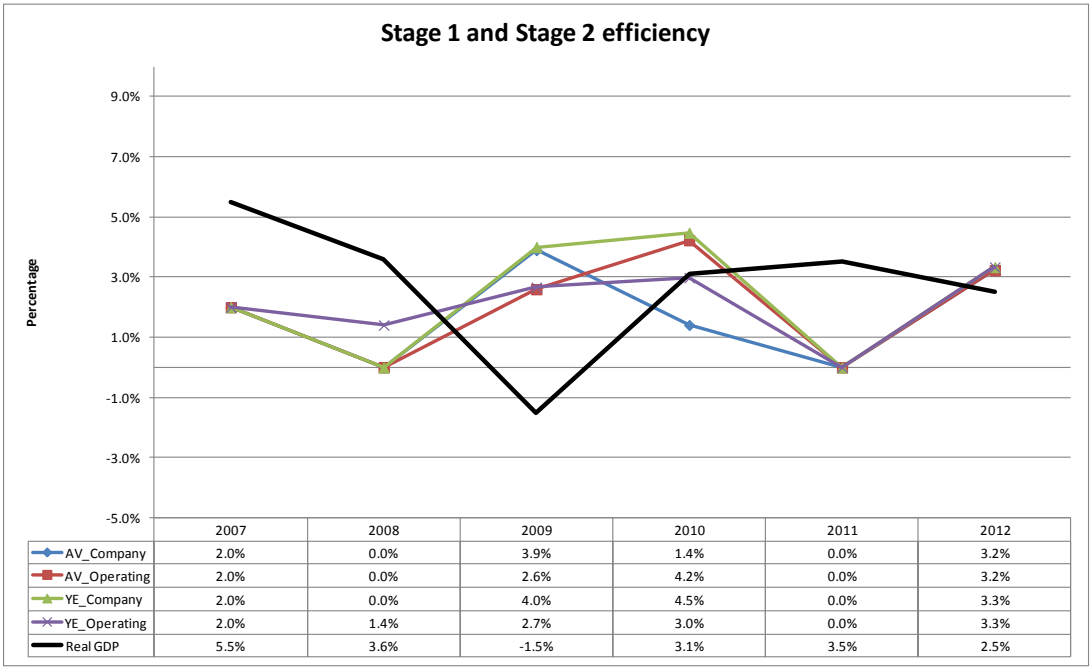
Table 5.7: Overall efficiency

Model	2007	2008	2009	2010	2011	2012
AV_Company	1	0	3	1	0	2
AV_Operating	1	0	2	3	0	2
YE_Company	1	0	3	3	0	2
YE_Operating	1	1	2	2	0	2

From the information in Table 5.7, it is clear that a very limited number of companies were able to achieve an efficiency score of one in both stages of the model. In 2011, not a single company scored an efficiency score of one for any of the four main model groupings. A very limited number of companies were able to reflect company performance in the share price

In order to put the results in perspective, the number of overall efficient companies was expressed as a percentage of the total companies examined for each of the years (2007-2012). The results can be seen in Diagram 5.3. In addition to the results, South Africa's real GDP was also plotted on the same graph in order to compare overall efficiency against economic growth (or decline).

Diagram 5.3: Overall efficiency percentages



	2007	2008	2009	2010	2011	2012
AV_Company	2.0%	0.0%	3.9%	1.4%	0.0%	3.2%
AV_Operating	2.0%	0.0%	2.6%	4.2%	0.0%	3.2%
YE_Company	2.0%	0.0%	4.0%	4.5%	0.0%	3.3%
YE_Operating	2.0%	1.4%	2.7%	3.0%	0.0%	3.3%
Real GDP	5.5%	3.6%	-1.5%	3.1%	3.5%	2.5%

In Diagram 5.3, the percentage of successful companies over two stages is very low. In terms of economic growth, the results show a decline in overall efficiency a year prior to the actual decline in real GDP numbers.

The number of companies that were identified as being efficient in Stage 1, with input variables being Turnover; (TNOC); WACC and EPS and output variances being EVA; MVA and ROIC is shown in Table 5.8. The table shows the number of companies per year for each of the four models. A DMU is regarded as being efficient when the efficiency score for a particular DMU equals one. In Table 5.8, the value of 7 in the AV_Company row in the 2007 column represents seven companies in 2007 that were deemed as efficient in Stage 1 at company level with average share price as final output. In 2009, ten companies were deemed as efficient in Stage 1 at company level with average share price as final output.

Table 5.8: Number of efficient companies in Stage 1

Model	2007	2008	2009	2010	2011	2012
AV_Company	7	4	10	8	15	11
AV_Operating	9	4	8	8	7	8
YE_Company	7	4	10	8	15	11
YE_Operating	9	4	8	6	7	8

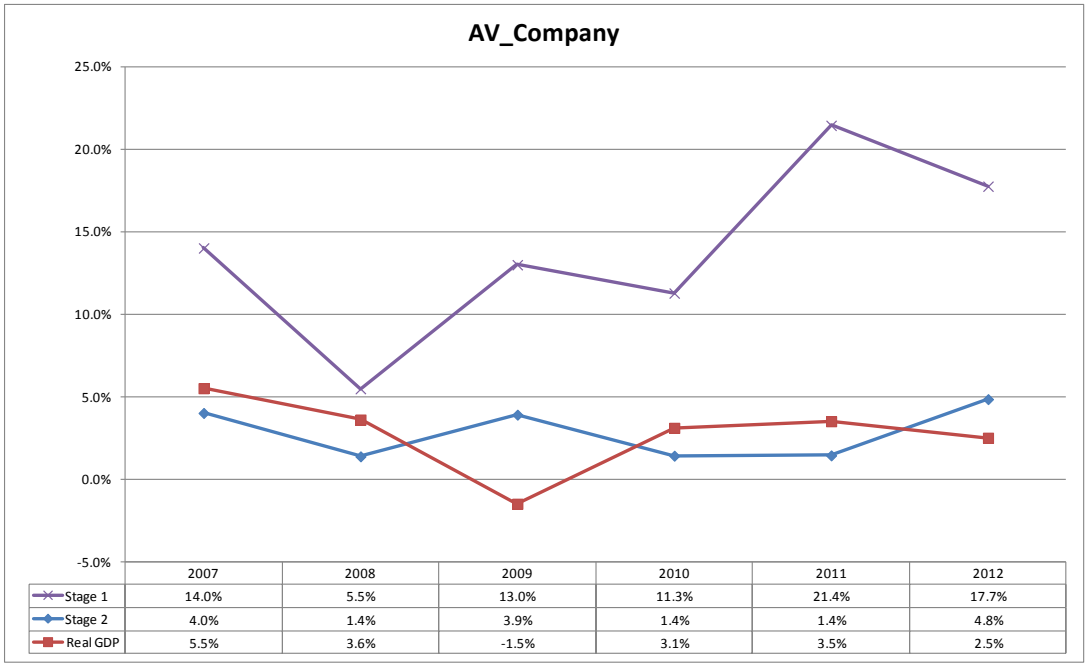
The number of companies that were identified as being efficient in Stage 2, with input variables being EVA; MVA and ROIC and output variable being share price is shown in Table 5.9. The table shows the number of companies per year for the four models. A DMU is regarded as being efficient when the efficiency score for a particular DMU equals one. In Table 5.9, the "2" in the AV_Company row, in the 2007 column, represent two companies in 2007 that were deemed as efficient in Stage 2 at company level with average share price as final output. In 2009, three companies were deemed as efficient in Stage 2 at company level with average share price as final output.

Table 5.9: Number of efficient companies in Stage 2

Model	2007	2008	2009	2010	2011	2012
AV_Company	2	1	3	1	1	3
AV_Operating	2	1	2	3	1	3
YE_Company	2	1	3	3	1	3
YE_Operating	2	2	2	2	1	3

In order to give the results some relevance, the number of efficient companies per year was expressed as a percentage of the total number of companies per year. Stage 1 and Stage 2 percentages were plotted on the same graph. For example, the seven companies in Table 5.8 (AV_Company, 2007) were divided by the fifty from Table 5.6 (AV_Company, 2007). In addition to the results, South Africa's real GDP was also plotted on the same graphs. The reason for doing this was to compare economic growth (or decline) against the number of efficient companies per year. The results at company level with an average share price as final output can be seen in Diagram 5.4.

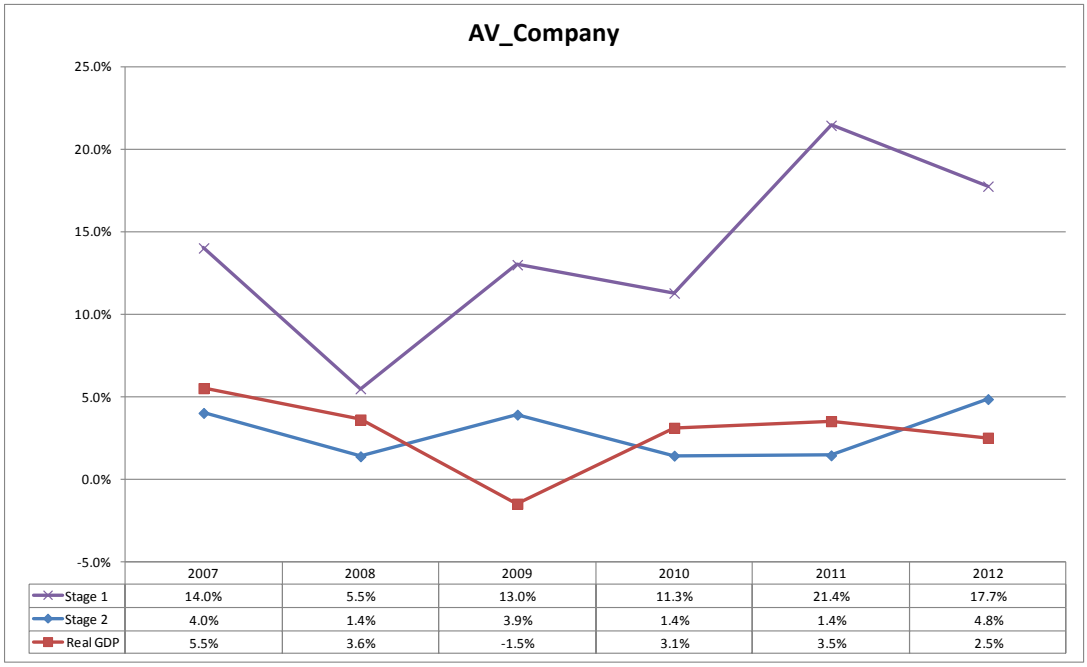
Diagram 5.4: AV_Company percentage efficient companies



	2007	2008	2009	2010	2011	2012
Stage 1	14.0%	5.5%	13.0%	11.3%	21.4%	17.7%
Stage 2	4.0%	1.4%	3.9%	1.4%	1.4%	4.8%
Real GDP	5.5%	3.6%	-1.5%	3.1%	3.5%	2.5%

In order to give the results some relevance, the number of efficient companies per year was expressed as a percentage of the total number of companies per year. Stage 1 and Stage 2 percentages were plotted on the same graph. For example, the seven companies in Table 5.8 (AV_Operating, 2007) were divided by the fifty from Table 5.6 (AV_Operating, 2007). In addition to the results, South Africa's real GDP was also plotted on the same graphs. The reason for doing this was to compare economic growth (or decline) against the number of efficient companies per year. The results at operating level with an average share price as final output can be seen in Diagram 5.5.

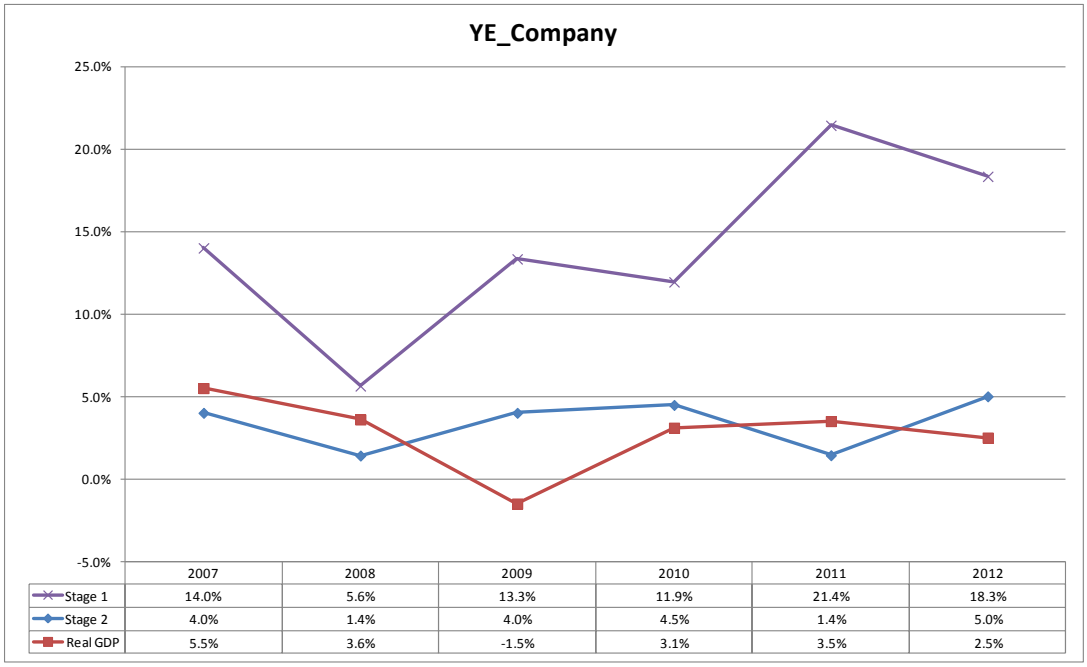
Diagram 5.5: AV_Operating percentage efficient companies



	2007	2008	2009	2010	2011	2012
Stage 1	14.0%	5.5%	13.0%	11.3%	21.4%	17.7%
Stage 2	4.0%	1.4%	3.9%	1.4%	1.4%	4.8%
Real GDP	5.5%	3.6%	-1.5%	3.1%	3.5%	2.5%

In order to give the results some relevance, the number of efficient companies per year was expressed as a percentage of the total number of companies per year. Stage 1 and Stage 2 percentages were plotted on the same graph. For example, the seven companies in Table 5.8 (YE_Company, 2007) were divided by the fifty from Table 5.6 (YE_Company, 2007). In addition to the results, South Africa's real GDP was also plotted on the same graphs. The reason for doing this was to compare economic growth (or decline) against the number of efficient companies per year. The results at company level with a year-end share price as final output can be seen in Diagram 5.6.

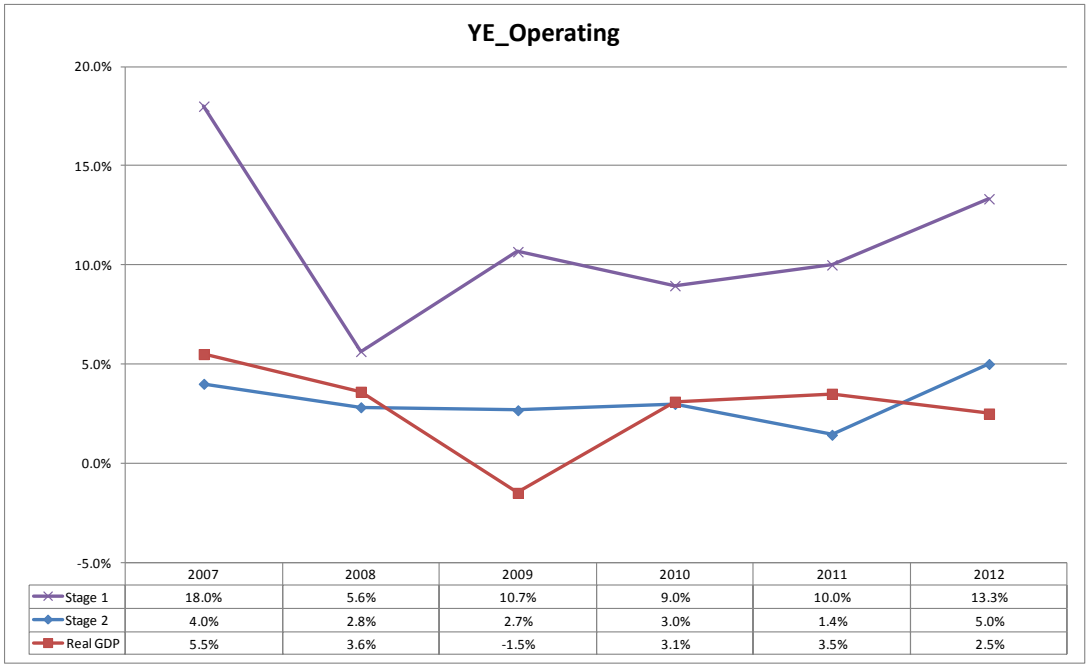
Diagram 5.6: YE_Company percentage efficient companies



	2007	2008	2009	2010	2011	2012
Stage 1	14.0%	5.6%	13.3%	11.9%	21.4%	18.3%
Stage 2	4.0%	1.4%	4.0%	4.5%	1.4%	5.0%
Real GDP	5.5%	3.6%	-1.5%	3.1%	3.5%	2.5%

In order to give the results some relevance, the number of efficient companies per year was expressed as a percentage of the total number of companies per year. Stage 1 and Stage 2 percentages were plotted on the same graph. For example, the nine companies in Table 5.8 (YE_Operating, 2007) were divided by the fifty from Table 5.6 (YE_Operating, 2007). In addition to the results, South Africa's real GDP was also plotted on the same graphs. The reason for doing this was to compare economic growth (or decline) against the number of efficient companies per year. The results at operating level with a year-end share price as final output can be seen in Diagram 5.7.

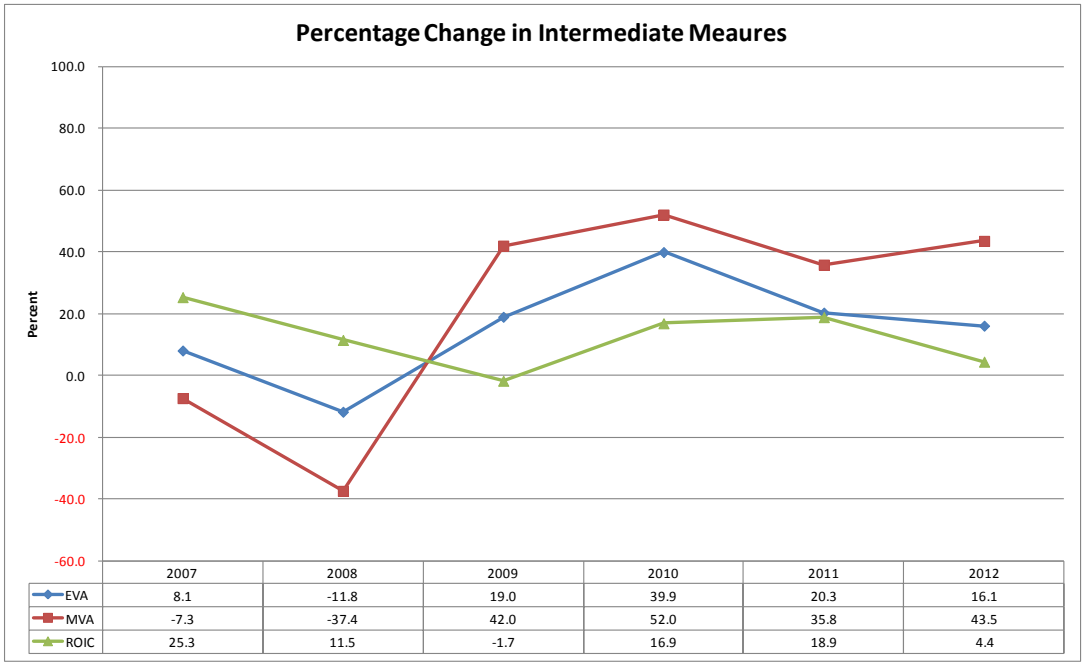
Diagram 5.7: YE_Operating percentage efficient companies



	2007	2008	2009	2010	2011	2012
Stage 1	18.0%	5.6%	10.7%	9.0%	10.0%	13.3%
Stage 2	4.0%	2.8%	2.7%	3.0%	1.4%	5.0%
Real GDP	5.5%	3.6%	-1.5%	3.1%	3.5%	2.5%

The DEAFrontier software provides a DEA projection with a set of optimal intermediate measures for inefficient DMUs. The percentage change per company between the original intermediate measures and the projected intermediate measures was calculated. A mean number per intermediate measure, per year was calculated by means of pivot tables, which was done for all the years from 2007 to 2012 individually. The percentage change in intermediate measures at company level (average share price as final output) per year is shown in Diagram 5.8.

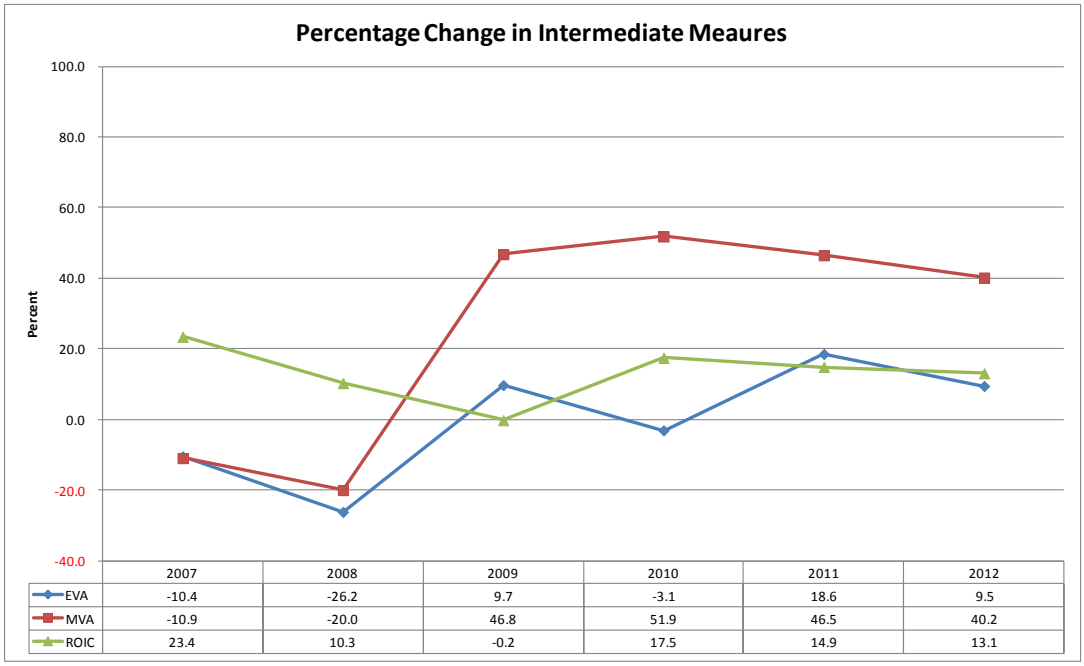
Diagram 5.8: AV_Company intermediate measures



	2007	2008	2009	2010	2011	2012
EVA	8.1	-11.8	19.0	39.9	20.3	16.1
MVA	-7.3	-37.4	42.0	52.0	35.8	43.5
ROIC	25.3	11.5	-1.7	16.9	18.9	4.4

The DEAFrontier software provides a DEA projection with a set of optimal intermediate measures for inefficient DMUs. The percentage change per company between the original intermediate measures and the projected intermediate measures was calculated. A mean number per intermediate measure, per year was calculated by means of pivot tables, which was done for all the years from 2007 to 2012 individually. The percentage change in intermediate measures at operating level (average share price as final output) per year is shown in Diagram 5.9.

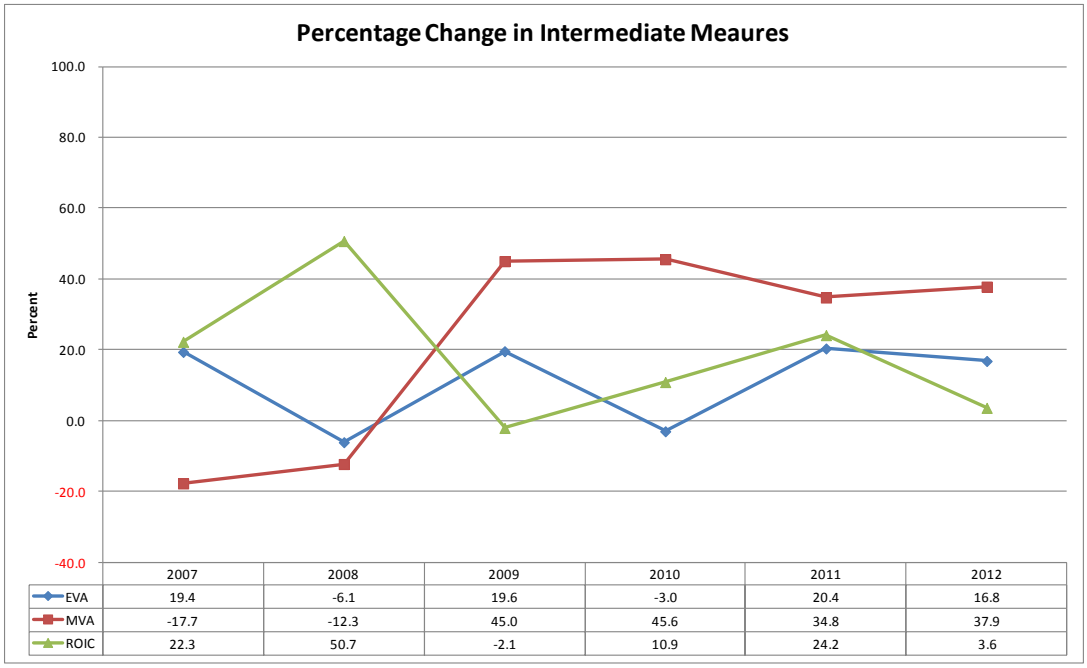
Diagram 5.9: AV_Operating intermediate measures



	2007	2008	2009	2010	2011	2012
EVA	-10.4	-26.2	9.7	-3.1	18.6	9.5
MVA	-10.9	-20.0	46.8	51.9	46.5	40.2
ROIC	23.4	10.3	-0.2	17.5	14.9	13.1

The DEAFrontier software provides a DEA projection with a set of optimal intermediate measures for inefficient DMUs. The percentage change per company between the original intermediate measures and the projected intermediate measures was calculated. A mean number per intermediate measure, per year was calculated by means of pivot tables, which was done for all the years from 2007 to 2012 individually. The percentage change in intermediate measures at company level (year-end share price as final output) per year is shown in Diagram 5.10.

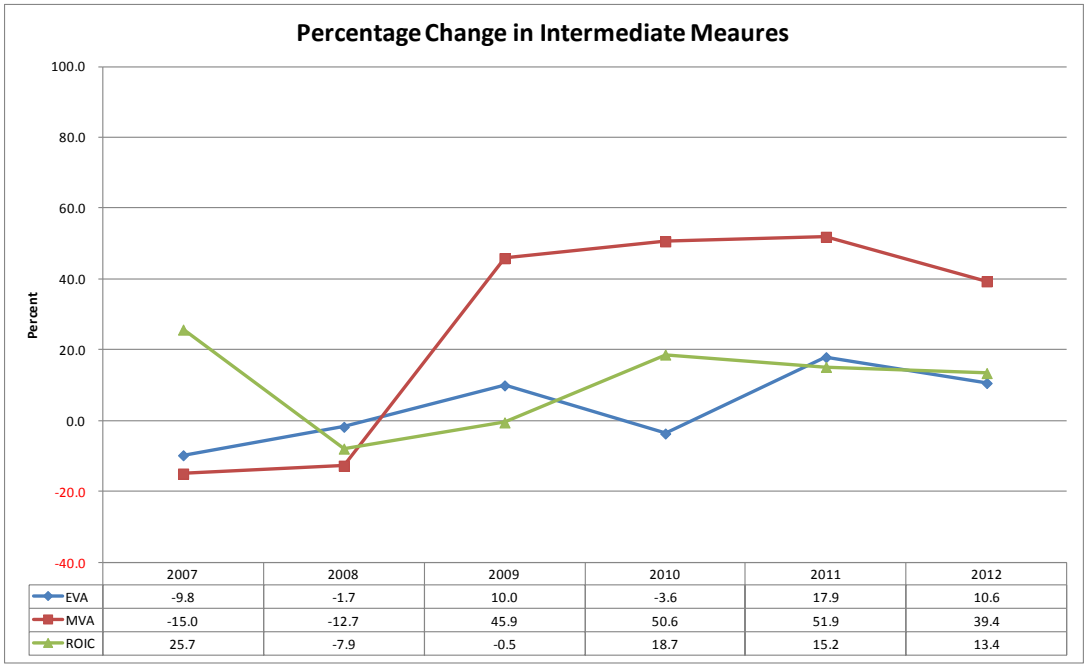
Diagram 5.10: YE_Company intermediate measures



	2007	2008	2009	2010	2011	2012
EVA	19.4	-6.1	19.6	-3.0	20.4	16.8
MVA	-17.7	-12.3	45.0	45.6	34.8	37.9
ROIC	22.3	50.7	-2.1	10.9	24.2	3.6

The DEAFrontier software provides a DEA projection with a set of optimal intermediate measures for inefficient DMUs. The percentage change per company between the original intermediate measures and the projected intermediate measures was calculated. A mean number per intermediate measure, per year was calculated by means of pivot tables, which was done for all the years from 2007 to 2012 individually. The percentage change in intermediate measures at operating level (year-end share price as final output) per year is shown in Diagram 5.11.

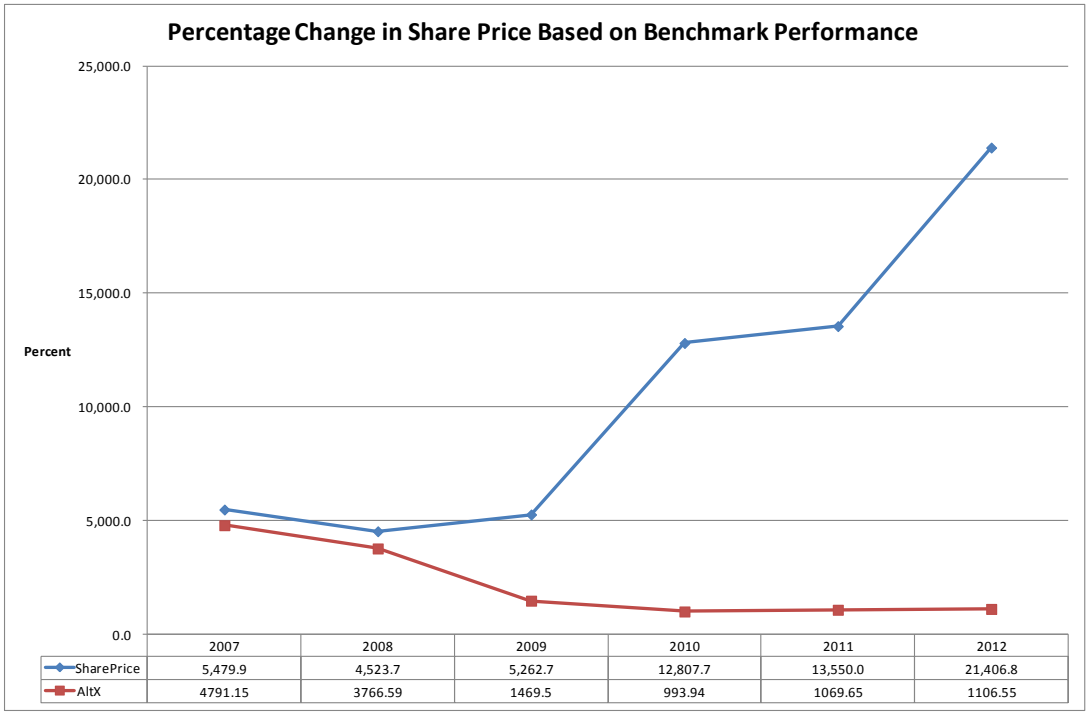
Diagram 5.11: YE_Operating intermediate measures



	2007	2008	2009	2010	2011	2012
EVA	-9.8	-1.7	10.0	-3.6	17.9	10.6
MVA	-15.0	-12.7	45.9	50.6	51.9	39.4
ROIC	25.7	-7.9	-0.5	18.7	15.2	13.4

The DEAFrontier software was also used to determine what the maximum output in terms of share price can be should companies be efficient in reflecting wealth creation in share prices. An output-oriented, VRS model was developed using the three value creating variables – EVA, MVA and ROIC. VRS acknowledges the often-different scale of operations found in business units and VRS permits translation invariance (Avkiran, 2011:324). The percentage change in share price between the original data and the DEA targets was calculated. A mean number per change in companies' share price, per year was calculated by means of pivot tables, which was done for all the years from 2004 to 2012 individually. The percentage change in the average share price as output variable at company level is shown in Diagram 5.12. The AltX index as at the last trading day of June was also included in the graph to compare targeted performance against the AltX stock market performance for the same period.

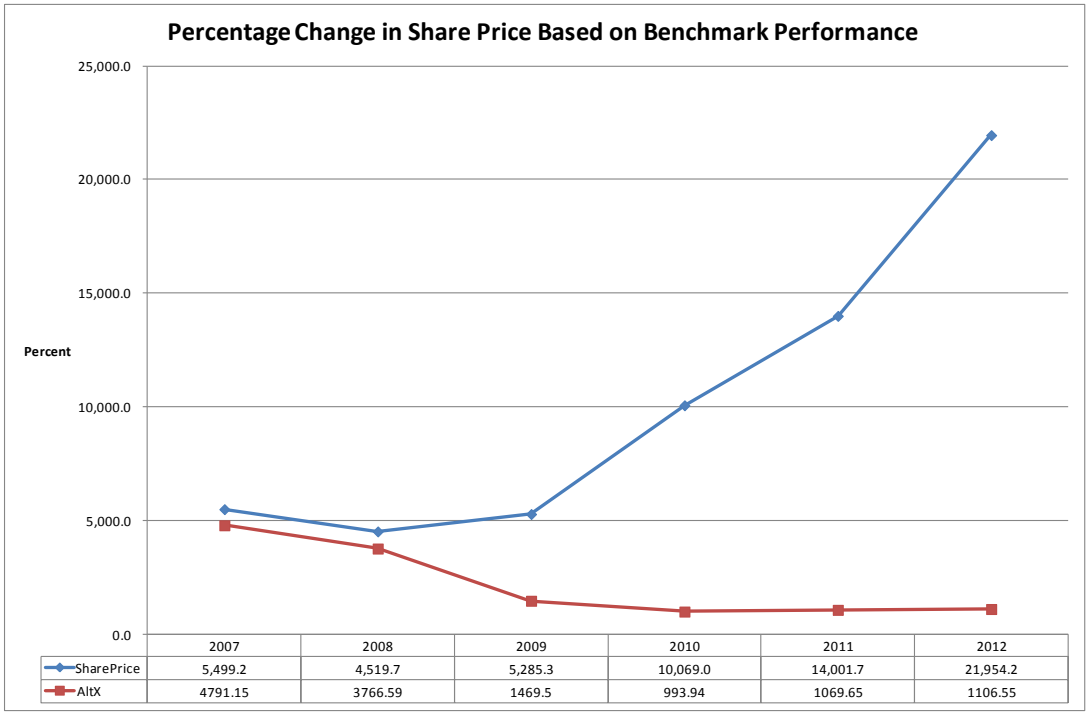
Diagram 5.12: AV_Company percentage change in Stage 2 outputs



	2007	2008	2009	2010	2011	2012
SharePrice	5,479.9	4,523.7	5,262.7	12,807.7	13,550.0	21,406.8
AltX	4791.15	3766.59	1469.5	993.94	1069.65	1106.55

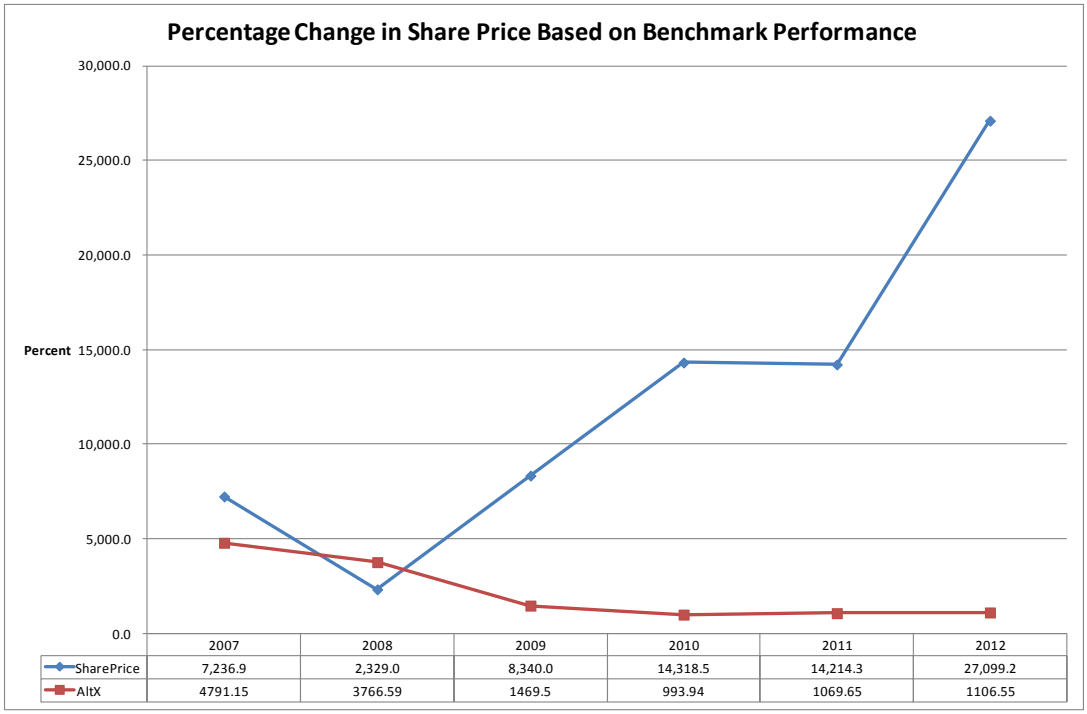
The DEAFrontier software was also used to determine what the maximum output in terms of share price can be should companies be efficient in reflecting wealth creation in share prices. An output-oriented, VRS model was developed using the three value creating variables – EVA, MVA and ROIC. VRS acknowledges the often-different scale of operations found in business units and VRS permits translation invariance (Avkiran, 2011:324). The percentage change in share price between the original data and the DEA targets was calculated. A mean number per change in companies' share price, per year was calculated by means of pivot tables, which was done for the years from 2007 to 2012 individually. The percentage change in the average share price as output variable at operating level is shown in Diagram 5.13. The AltX index as at the last trading day of June was also included in the graph to compare targeted performance against the AltX stock market performance for the same period.

Diagram 5.13: AV_Operating percentage change in Stage 2 outputs



The DEAFrontier software was also used to determine what the maximum output in terms of share price can be should companies be efficient in reflecting wealth creation in share prices. An output-oriented, VRS model was developed using the three value creating variables – EVA, MVA and ROIC. VRS acknowledges the often-different scale of operations found in business units and VRS permits translation invariance (Avkiran, 2011:324). The percentage change in share price between the original data and the DEA targets was calculated. A mean number per change in companies' share price, per year was calculated by means of pivot tables, which was done for the years from 2007 to 2012 individually. The percentage change in the year-end share price as output variable at company level is shown in Diagram 5.14. The AltX index as at the last trading day of June was also included in the graph to compare targeted performance against the AltX stock market performance for the same period.

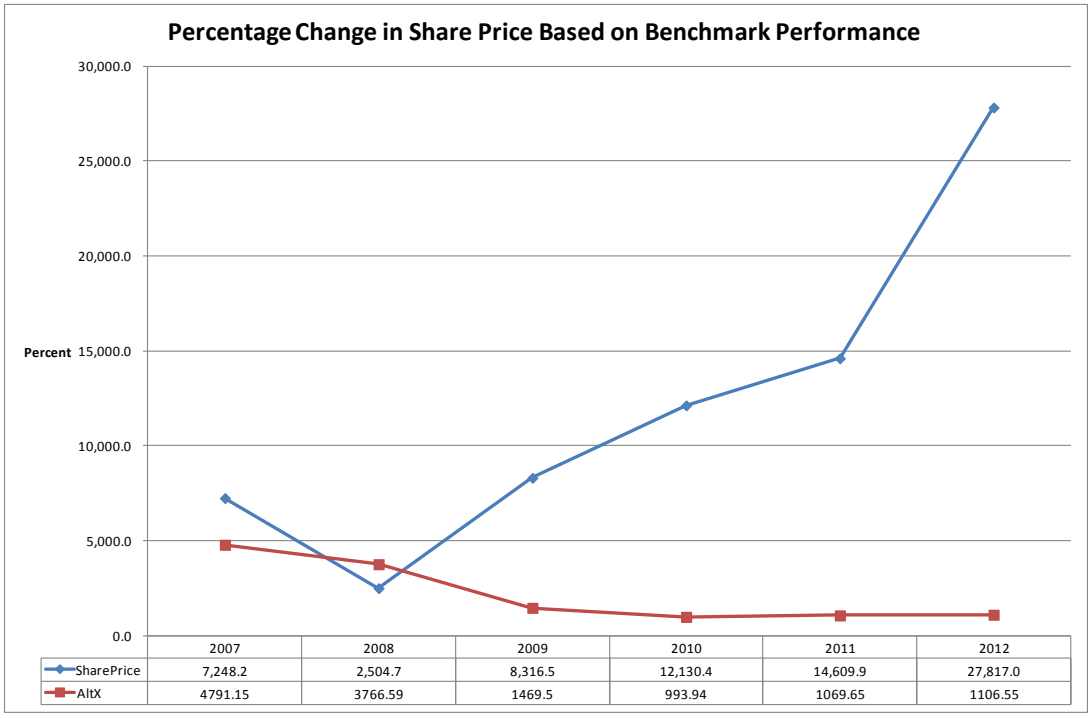
Diagram 5.14: YE_Company percentage change in Stage 2 outputs



	2007	2008	2009	2010	2011	2012
SharePrice	7,236.9	2,329.0	8,340.0	14,318.5	14,214.3	27,099.2
AltX	4791.15	3766.59	1469.5	993.94	1069.65	1106.55

The DEAFrontier software was also used to determine what the maximum output in terms of share price can be should companies be efficient in reflecting wealth creation in share prices. An output-oriented, VRS model was developed using the three value creating variables – EVA, MVA and ROIC. VRS acknowledges the often-different scale of operations found in business units and VRS permits translation invariance (Avkiran, 2011:324). The percentage change in share price between the original data and the DEA targets was calculated. A mean number per change in companies' share price, per year was calculated by means of pivot tables, which was done for the years from 2007 to 2012 individually. The percentage change in the year-end share price as output variable at operating level is shown in Diagram 5.15. The AltX index as at the last trading day of June for each year was also included in the graph to compare targeted performance against the AltX stock market performance for the same period.

Diagram 5.15: YE_Operating percentage change in Stage 2 outputs



5.3 CONCLUSION

DEA was used to benchmark company performance in a two-stage model. As far as could be determined, it was the first time this type of research was done on South African companies listed on the AltX. Furthermore, the study is the first to apply a benchmarking technique to determine the relative efficiency of companies to convert resources into value-based performance measures and to convert the same measures into share-value. Stage 1 of the model evaluates the ability of companies to transform financial performance into wealth creation. Stage 2 of the model evaluates companies' ability to reflect wealth creation in share prices. The efficiency scores for both Stage 1 and Stage 2 are very low when compared to the number of companies listed.

The model provides a DEA projection for inefficient DMUs with a set of optimal measures. The results show that for 2007 and 2008, in general, companies must decrease intermediate measures, which can be interpreted as an overuse of productive inputs. From 2009 to 2012, intermediate measures must improve on average, improve in order for companies to be deemed efficient.

The models for share price maximisation show that if all companies were effective reflecting wealth creation in share prices, share prices would increase significantly compared to the AltX index for the period under review. Theunissen and Oberholzer (2013:1513) commented that DEA does not indicate to the analyst how to reach those targets or why units are performing poorly and, therefore, recommend further analysis to identify specific problems within a unit.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATION

6.1 INTRODUCTION

In Chapter 6, the research findings are explored and interpreted in relation to the proposition of the research. The evaluation of the finding is correlated with the literature study. Through the evaluation, the research attempts to investigate and determine if small and medium enterprises can effectively utilise value-based management principles as a management tool in order to improve share price performance

The primary goal of this study is to investigate and determine how efficient companies listed on the Johannesburg Securities Exchange's Alternative Exchange are in reflecting company performance in share prices by means of value-based management principles.

The sub-objectives of this study are:

- To develop an efficiency frontier to serve as a benchmark for AltX companies' ability to create value
- To develop an efficiency frontier to serve as a benchmark for AltX companies' ability to reflect value creation in share prices
- To investigate and determine what the optimal share price could be should AltX companies be efficient in reflecting value creation ability in share prices.

6.2 RESULTS AND CONCLUSIONS OF MAIN GOAL

6.2.1 Results

Chen and Zhu (2004:15) developed a two-stage model whereby the two stages are linked with intermediate measures. When each stage is efficient, an overall two-stage process is guaranteed. In this study, a two-stage model was developed to benchmark AltX companies' performance in terms of reflecting company performance in share prices with certain VBM metrics as intermediate measures. The intermediate measure are the outputs of Stage 1 and the very same inputs for Stage 2 are EVA, MVA and ROIC.

The companies who were simultaneously efficient in both Stage 1 and Stage 2 were summarised in Table 5.6. The results from the developed two-stage model show that a very small number of companies managed to be efficient across both stages. The best

years in terms of number of companies obtaining an efficiency score of one across the two stages are 2009 and 2010. The worst year in terms of overall efficiency across the two-stage process was 2011, when not a single company managed to be efficient across the two stages. The best year percentage wise was 2010, when 4.2 percent of companies at operating level (average share price) and 4.5 percent at company level (year-end share price) were efficient across the two stages.

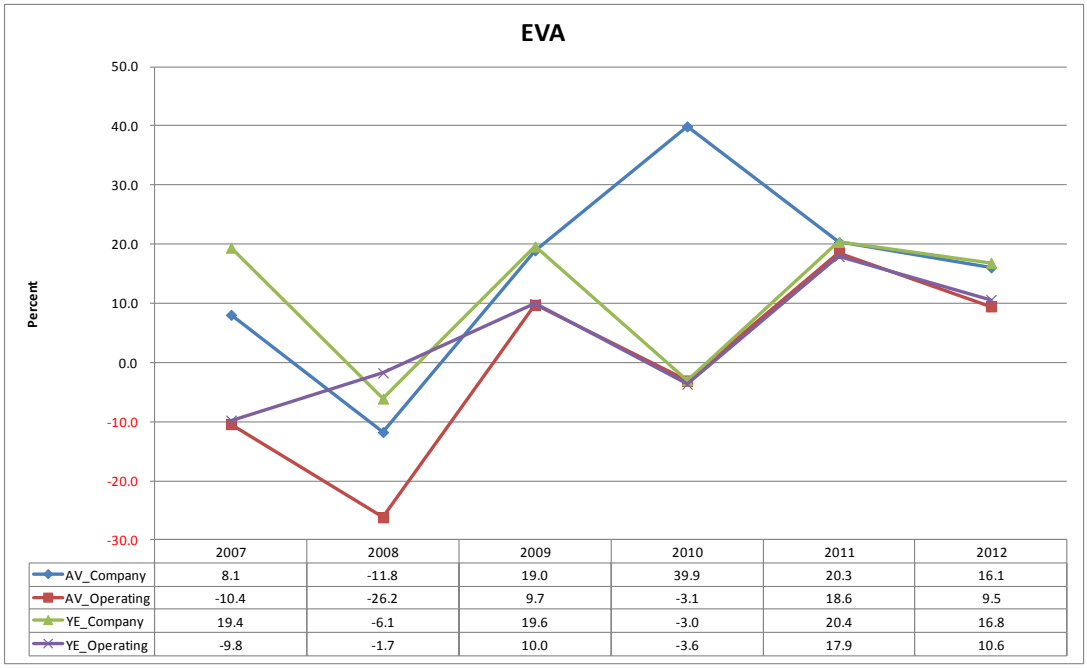
6.2.2 Conclusion

Therefore, it can be concluded that the majority of companies listed on the Johannesburg Securities Exchange's Alternative Exchange are not efficient in reflecting company performance in share prices by means of value-based management principles. A very limited number of companies were able to be simultaneously efficient in creating value and efficient in reflecting the value created in the share price.

Athanassakos (2007:1410) argued that Canadian companies, who are predisposed primarily to use non-EVA methods, tend to have an underperforming stock price, compared to companies that do use EVA. MVA is a cumulative measure of the value created by management in excess of the capital invested by shareholders, and is an excellent measure of a company's ability to create wealth (Kramer & Peters, 2001:42). Lloyd and Davis (2007:56) state that one of the critical components on which value creation relies is ROIC (in excess of the cost of capital).

The two-stage model of Chen and Zhu (2004:306) provides, in addition to the efficiency index, the optimal values for the intermediate measures with which the two stages are efficient. In Diagram 6.1, the percentage changes in optimal values for the EVA intermediate measure are displayed. The various lines in the diagram represent the percentage change per year per model, and are not a cumulative change. For example, the 19.0 percent in 2009 for AV_Company, indicates that on average, the inefficient companies in 2009 must improve EVA with 19.0 percent to become efficient. From Diagram 6.1 it can be deducted that for the inefficient companies, EVA, in general, must increase in order to become efficient across the two stages when compared to the efficient companies.

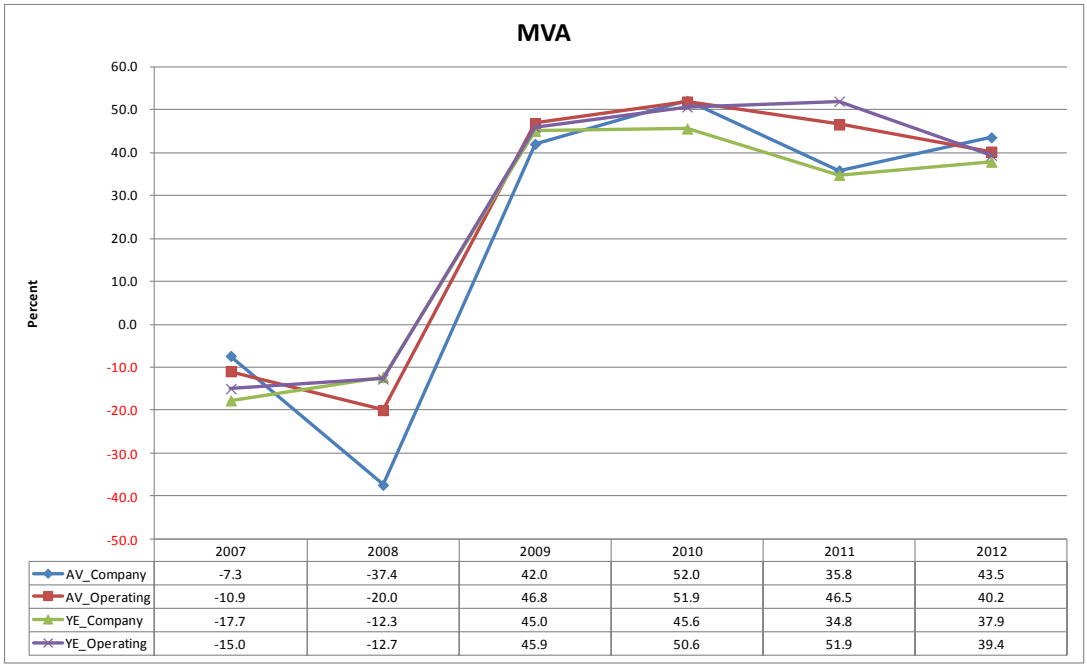
Diagram 6.1: EVA optimal values



	2007	2008	2009	2010	2011	2012
AV_Company	8.1	-11.8	19.0	39.9	20.3	16.1
AV_Operating	-10.4	-26.2	9.7	-3.1	18.6	9.5
YE_Company	19.4	-6.1	19.6	-3.0	20.4	16.8
YE_Operating	-9.8	-1.7	10.0	-3.6	17.9	10.6

In Diagram 6.2, the percentage changes in optimal values for the MVA intermediate measure are displayed. The various lines in the diagram represent the percentage change per year per model, and are not a cumulative change. For example, the 42.0 percent in 2009 for AV_Company, indicates that on averages, the inefficient companies in 2009 must improve MVA with 42.0 percent to become efficient. From Diagram 6.2 it can be deducted that since the financial crisis, for the inefficient companies in general, MVA must increase MVA significantly in order to become efficient across the two stages when compared to the efficient companies. Prior to the financial crisis of 2009, efficient companies managed to reflect company performance in share prices with lower MVA than the inefficient companies did. Share prices, therefore, possibly should have been higher than what they were prior to 2009 for the level of MVA created.

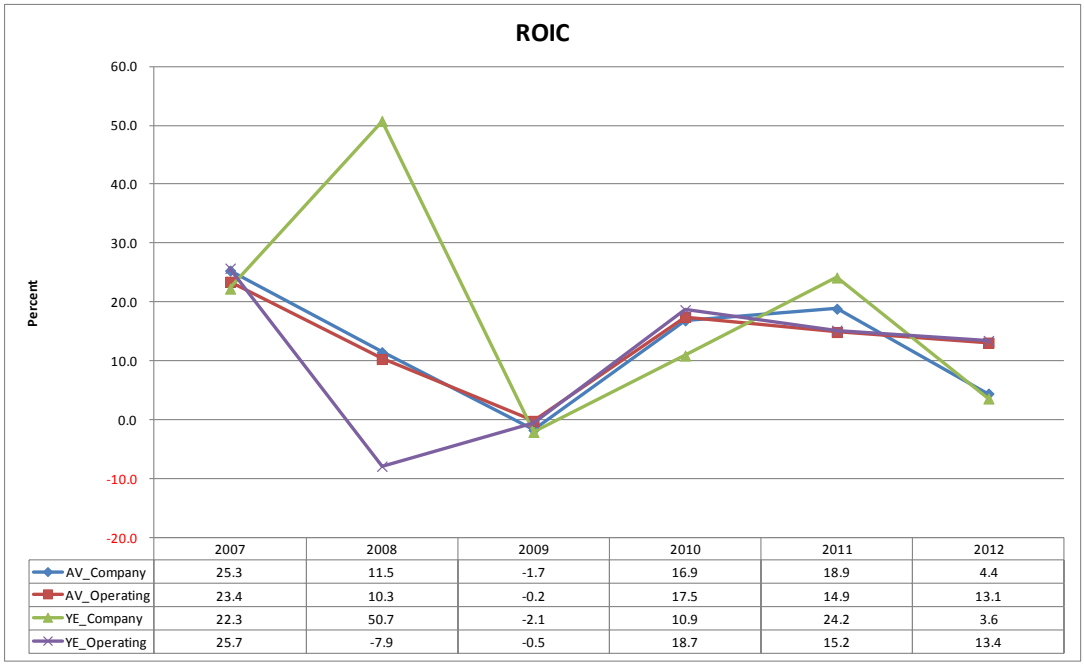
Diagram 6.2: MVA optimal values



	2007	2008	2009	2010	2011	2012
AV_Company	-7.3	-37.4	42.0	52.0	35.8	43.5
AV_Operating	-10.9	-20.0	46.8	51.9	46.5	40.2
YE_Company	-17.7	-12.3	45.0	45.6	34.8	37.9
YE_Operating	-15.0	-12.7	45.9	50.6	51.9	39.4

In Diagram 6.3, the percentage changes in optimal values for the ROIC intermediate measure are displayed. The various lines in the diagram represent the percentage change per year per model, and are not a cumulative change. For example, the 39.9 percent in 2010 for AV_Company, indicates that on average, the inefficient companies in 2010 must improve ROIC with 39.9 percent to become efficient. From Diagram 6.3 it can be deducted that for the inefficient companies, ROIC, in general, must increase in order to become efficient across the two stages when compared to the efficient companies.

Diagram 6.3: ROIC optimal values



	2007	2008	2009	2010	2011	2012
AV_Company	25.3	11.5	-1.7	16.9	18.9	4.4
AV_Operating	23.4	10.3	-0.2	17.5	14.9	13.1
YE_Company	22.3	50.7	-2.1	10.9	24.2	3.6
YE_Operating	25.7	-7.9	-0.5	18.7	15.2	13.4

Therefore, it can be concluded that the majority of AltX companies are inefficient in reflecting company performance in share prices by means of value-based management principles. In general, the majority of companies on the AltX must significantly improve the ability to create value for shareholders in order for the companies' performance to reflect in the share prices. The possibility exists that the majority of shareholders in AltX companies might be owners and not external investors. It is the owners of small companies, that decided to list on the AltX for the right reasons but the interest from potential investors is just not there. The low interest equates to low demand for AltX company shares, and low demand equals low prices.

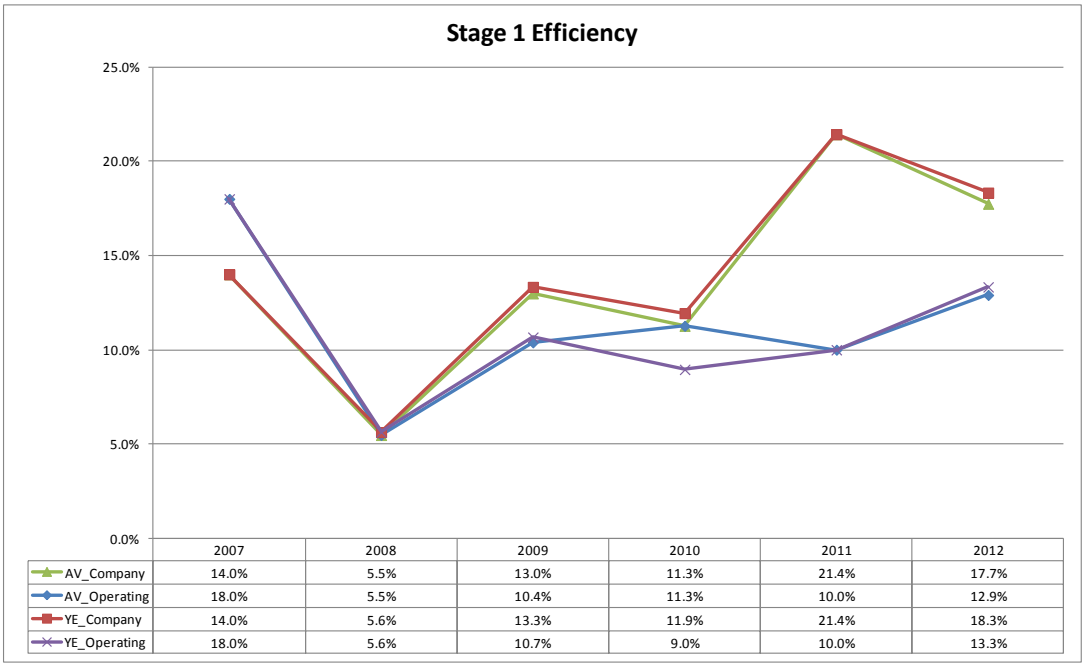
6.3 RESULTS AND CONCLUSIONS OF SUB-OBJECTIVE ONE

6.3.1 Results

An efficiency frontier was developed to serve as a benchmark for companies' ability to create value based on company performance. The result of first stage efficiency is displayed in Table 5.7. The companies that were deemed efficient in Stage 1 by the DEA model (Table 5.7) were expressed as a percentage of the total number of companies under investigation (Table 5.6) on a year-by-year basis. The results are displayed in Diagram 6.4. In terms of percentages, the number of companies that are efficient in creating value is relatively small. It was only in 2011, at company level,

where more than 20 percent of the companies were efficient in creating value. The rest of the years the results were in the low teens, and even drops below 10 percent on a few occasions.

Diagram 6.4: Percentage efficiency Stage 1



	2007	2008	2009	2010	2011	2012
AV_Company	14.0%	5.5%	13.0%	11.3%	21.4%	17.7%
AV_Operating	18.0%	5.5%	10.4%	11.3%	10.0%	12.9%
YE_Company	14.0%	5.6%	13.3%	11.9%	21.4%	18.3%
YE_Operating	18.0%	5.6%	10.7%	9.0%	10.0%	13.3%

6.3.2 Conclusion

Based on the efficiency frontier in terms of value creation, a very limited number of companies listed on the AltX are deemed efficient. The majority of the companies are not able to create value at the levels of the efficient companies. In general, there seems to be an upward trend in terms of the percentage of efficient companies, but on a very small scale. In Chapter 2, the following definition of VBM was formulated:

Value-based management is a management approach that maximises long-term shareholder value, which is incorporated in the business' strategy and goals, through the identification and management of key value drivers, whereby all employees think and act like shareholders.

If the lack of value creation ability, based on the DEA analysis, is analysed at the hand of the above definition, the following possible reasons can be listed:

- VBM is not an approach followed by management
- It is not incorporated in the business' strategy and goals

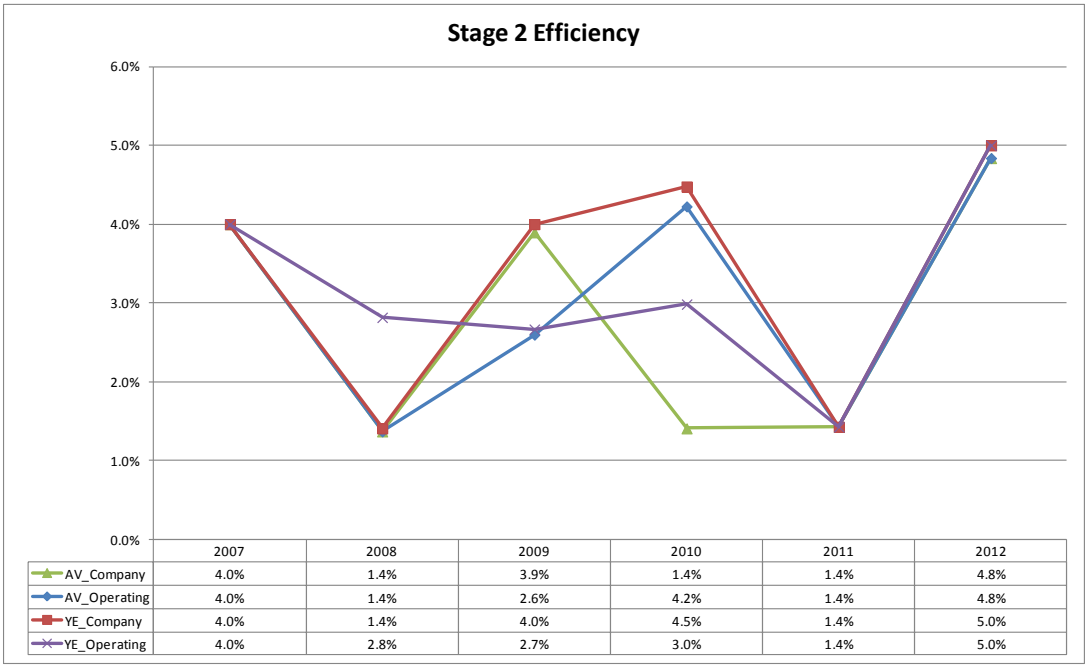
- Key value drivers are not identified and managed accordingly
- Employees do not act and think like shareholders.

6.4 RESULTS AND CONCLUSIONS OF SUB-OBJECTIVE TWO

6.4.1 Results

An efficiency frontier was developed to serve as a benchmark for companies' ability to reflect value creation in share prices. The number of companies deemed efficient in Stage 2 is displayed in Table 5.8. The companies that were deemed efficient in Stage 2 by the DEA model (Table 5.8) were expressed as a percentage of the total number of companies under investigation (Table 5.5) on a year-by-year basis. The results are displayed in Diagram 6.5.

Diagram 6.5: Percentage efficiency Stage 2



	2007	2008	2009	2010	2011	2012
AV_Company	4.0%	1.4%	3.9%	1.4%	1.4%	4.8%
AV_Operating	4.0%	1.4%	2.6%	4.2%	1.4%	4.8%
YE_Company	4.0%	1.4%	4.0%	4.5%	1.4%	5.0%
YE_Operating	4.0%	2.8%	2.7%	3.0%	1.4%	5.0%

In terms of percentages, the number of companies efficient in reflecting value creation in share prices is extremely low. In fact, the highest ever reached was 5 percent in 2012, when year-end share prices were used (both company and operating levels).

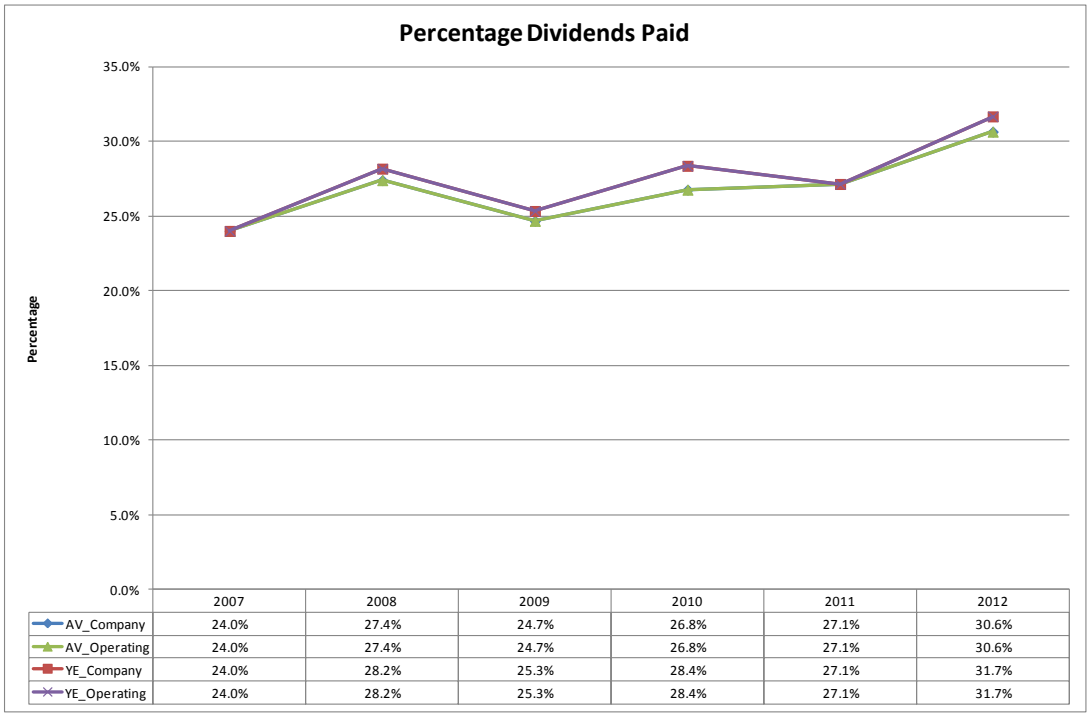
6.4.2 Conclusion

A very limited number of companies listed on the AltX are deemed efficient based on the efficiency frontier for reflecting value creation in share prices. When using year-end

share prices in the DEA models, the results seem slightly better than the average share price efficiency scores. The value of a share of common stock is equal to the present value of all future benefits that investors expect it to provide. Investors expect the stock to distribute the present value of all future dividends, even if those dividends are not expected to be paid until many years into the future (Megginson *et al*., 2010:132).

A buyer of stock purchases the stock in the belief that the future benefits, both dividends and capital gains, justify the purchase price (Megginson *et al*., 2010:132). The income statements of the companies in this study were scrutinised for ordinary share dividend payments. The number of dividend payments for the companies under review per year were counted and expressed as a percentage of the number of companies in Table 5.7. It was done for all four models (AV_Company, AV_Operating, YE_Company and YE_Operating). The results can be seen in Diagram 6.6.

Diagram 6.6: Percentage dividend payments



	2007	2008	2009	2010	2011	2012
AV_Company	24.0%	27.4%	24.7%	26.8%	27.1%	30.6%
AV_Operating	24.0%	27.4%	24.7%	26.8%	27.1%	30.6%
YE_Company	24.0%	28.2%	25.3%	28.4%	27.1%	31.7%
YE_Operating	24.0%	28.2%	25.3%	28.4%	27.1%	31.7%

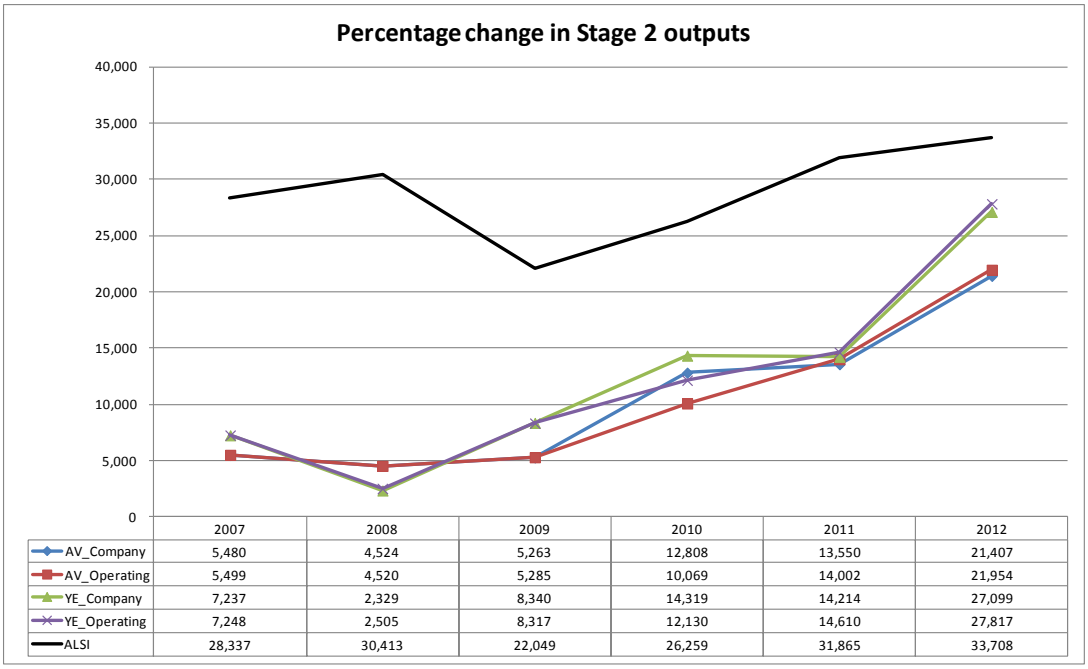
It has been established that one of the criterion for a buyer of shares is the future benefits in terms of dividends. In Diagram 6.6, it is evident that the percentage of companies that pay dividends is very low. There seems to be an increase in the number of companies that pay dividends, but in 2012, it is still less than a third of the number of companies under review in the study.

6.5 RESULTS AND CONCLUSIONS OF SUB-OBJECTIVE THREE

6.5.1 Results

The DEAFrontier software was used to determine what the maximum output in terms of share price can be should companies be efficient in reflecting wealth creation in share prices. An output-oriented, VRS model was developed using the three value creating variables – EVA, MVA and ROIC. The results were plotted against the AltX index in diagrams 5.12 to 5.15. In Diagram 6.7, the percentage increase in share price for the four models is plotted against the JSE ALSI.

Diagram 6.7: ALSI index and maximum outputs



	2007	2008	2009	2010	2011	2012
AV_Company	5,480	4,524	5,263	12,808	13,550	21,407
AV_Operating	5,499	4,520	5,285	10,069	14,002	21,954
YE_Company	7,237	2,329	8,340	14,319	14,214	27,099
YE_Operating	7,248	2,505	8,317	12,130	14,610	27,817
ALSI	28,337	30,413	22,049	26,259	31,865	33,708

The results for average share price as basis show the maximum output, in terms of share price between 2007 and 2009 to be constant. The ALSI increased between 2007 and 2008, and drop significantly in 2009, the year the impact of financial crisis was felt the hardest. Post 2009, both the ALSI and the maximum output increased significantly.

In Diagram 6.7, the percentage increase in share price for the four models is plotted against the JSE ALSI. The results for year-end share price as basis show that the maximum output, in terms of share price, dropped from 2007 to 2008, and then increased significantly after 2008 and continued to increase up to 2012. The ALSI increased between 2007 and 2008, and drop significantly in 2009, the year the impact

of financial crisis was felt the hardest. Post 2009, the ALSI output increased significantly.

6.5.2 Conclusion

It can be concluded, that based on benchmarked performance, AltX companies' share prices have the potential to increase significantly in value. The percentage increase based on the outputs of the DEA model can potentially follow the ALSI. The maximisation model was based on actual EVA, MVA and ROIC numbers and not the optimal intermediate measures from the two-stage model. A major caveat in terms of increased share prices is influencing potential investors' expectations on how the stock is going to distribute the present value of all future dividends.

6.6 RECOMMENDATIONS

Based on the model designed in 5.2.2 to benchmark performance in terms of value creation and share price performance, a very limited number of companies listed on the JSEs AltX were able to create value for shareholders, and subsequently, reflect it in the share price. For the majority of the companies under review, however, it is not the case. In Chapter 5, it was highlighted that although DEA generates the improvement targets, DEA does not indicate how to reach these targets or why DMUs are performing poorly. It is recommended that further analysis be done to identify specific problems within a DMU (in this case AltX companies) and act accordingly.

In Chapter 2, the following definition for value-based management was formulated:

Value-based management is a management approach that maximises long-term shareholder value, which is incorporated in the business' strategy and goals, through the identification and management of key value drivers, whereby all employees think and act like shareholders.

Therefore, it is recommended, in light of the evidence, that the process starts with educating the management of small and medium enterprises on the concepts and principles of value-based management. It would also be highly recommended that small and medium enterprises should make value-based management part of the business' strategies and goals. While it is understandable that small and medium enterprises sometimes operate on a shoestring budget, capacity must be build to

monitor and track the creation (or destruction) of value. It is recommended that economic profit be incorporated in the management reporting on a monthly basis.

Small and medium enterprises must be able to identify and manage key value drivers. This process is not generic, as each business is unique in its own way. It is important for management to understand the key value drivers in order to ensure employees understand them. Management of small and medium enterprises must empower employees, through education, to manage the key value drivers, which ultimately results in creating value. These empowered employees, therefore, would have a better understanding on how their actions (or lack of action) influence not only the bottom line, but also the long-term sustainability of the business through creating long-term value.

The management of small and medium enterprises are warned against a short-term value maximisation focus, at the expense of long-term shareholder value creation. Any reward and recognition system should not reward short-term benefits, but rather focus on long-term, sustainable initiatives, that will create value in the long run to the benefit of all stakeholders involved.

6.7 SUGGESTIONS FOR FURTHER STUDIES

In the course of the current study, a number of areas were identified where further research could be beneficial:

Identify specific problems within companies, which prohibit efficiency:
DEA does not indicate to the analyst how to reach the targets to become efficient or why units are performing poorly. Further analysis is recommended at company level to identify specific problems within a company.

Efficiency frontiers at income and balance sheet level:
This study focussed on a number of key input variables including income statement and balance sheet items. Future studies could develop a two-stage model to benchmark the various components of the income statement and the impact on share prices. A similar two-stage model could be developed to benchmark the various components of the balance sheet and the impact on share prices.

Gap analysis between management perception and actual results:

A two-pronged study could be conducted, whereby the perception of management on managing for value can be compared against actual financial results. By comparing the perceived efforts with actual results, the gap(s) can be identified and managed accordingly.

Country risk and share prices:

The effect of country risk on stock market returns and its influences on investment decisions warrants further investigation. South Africa is a developing country and has the potential to attract greater amounts of direct foreign investment. At present, the current political issues in the country negatively impact upon the country's credit ratings. This could potentially damage South Africa's reputation as an investment destination.

SOURCE LIST

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ANNEXURE A: SCHEDULE OF NATIONAL SMALL BUSINESS AMENDMENT ACT (26 of 2003)

Column 1	Column 2	Column 3	Column 4	Column 5
Sector or subsector in accordance with the Standard Industrial Classification	**Size of class**	**The total full-time equivalent of paid employees**	**Total turnover**	**Total gross asset value (fixed property excluded)**
Agriculture	Medium	100	R5m	R5m
	Small	50	R3m	R3m
	Very Small	10	R0.50m	R0.50m
	Micro	5	R0.20m	R0.10m
Mining and Quarrying	Medium	200	R39m	R23m
	Small	50	R10m	R6m
	Very Small	20	R4m	R2m
	Micro	5	R0.20m	R0.10m
Manufacturing	Medium	200	R51m	R19m
	Small	50	R13m	R5m
	Very Small	20	R5m	R2m
	Micro	5	R0.20m	R0.10m
Electricity, Gas and Water	Medium	200	R51m	R19m
	Small	50	R13m	R5m
	Very Small	20	R5.10m	R1.90m
	Micro	5	R0.20m	R0.10m
Construction	Medium	200	R26m	R5m
	Small	50	R6m	R1m
	Very Small	20	R3m	R0.50m
	Micro	5	R0.20m	R0.10m
Retail and Motor Trade and Repair Services	Medium	200	R39m	R6m
	Small	50	R19m	R3m
	Very Small	20	R4m	R0.60m
	Micro	5	R0.2m	R0.10m
Wholesale Trade, Commercial Agents and Allied Services	Medium	200	R64m	R10m
	Small	50	R32m	R5m
	Very Small	20	R6m	R0.60m
	Micro	5	R0.20m	R0.10m
Catering, Accommodation and other Trade	Medium	200	R13m	R3m
	Small	50	R6m	R1m
	Very Small	20	R5.10m	R1.9m
	Micro	5	R0.20m	R0.10m
Transport, Storage and	Medium	200	R26m	R6m

Column 1	Column 2	Column 3	Column 4	Column 5
Sector or subsector in accordance with the Standard Industrial Classification	**Size of class**	**The total full-time equivalent of paid employees**	**Total turnover**	**Total gross asset value (fixed property excluded)**
Communications	Small	50	R13m	R3m
	Very Small	20	R3m	R0.60m
	Micro	5	R0.20m	R0.10m
Finance and Business Services	Medium	200	R26m	R5m
	Small	50	R13m	R3m
	Very Small	20	R3m	R0.50m
	Micro	5	R0.20m	R0.10m
Community, Social and Personal Services	Medium	200	R13m	R6m
	Small	50	R6m	R3m
	Very Small	20	R1m	R0.60m
	Micro	5	R0.20m	R0.10m

Source: National Small Business Amendment Act (26 of 2003)

ANNEXURE B: EASE OF DOING BUSINESS IN SOUTH AFRICA: 2010

Starting a business (rank)	67
Procedures (number)	6
Time (days)	22
Cost (% of income per capita)	5.9
Minimum capital (% of income per capita)	0.0
Dealing with construction permits (rank)	52
Procedures (number)	17
Time (days)	174
Cost (% of income per capita)	24.5
Employing workers (rank)	102
Difficulty of hiring index (0-100)	56
Rigidity of hours index (0-100)	20
Difficulty of redundancy index (0-100)	30
Rigidity of employment index (0-100)	35
Redundancy cost (weeks of salary)	24
Registering property (rank)	90
Procedures (number)	6
Time (days)	24
Cost (% of property value)	8.7
Getting credit (rank)	2
Strength of legal rights index (0-10)	9
Depth of credit information index (0-6)	6
Public registry coverage (% of adults)	0.0
Private bureau coverage (% of adults)	54.7
Protecting investors (rank)	10
Extent of disclosure index (0-10)	8
Extent of director liability index (0-10)	8
Ease of shareholder suits index (0-10)	8
Strength of investor protection index (0-10)	8.0

Paying taxes (rank)	23
Payments (number per year)	9
Time (hours per year)	200
Total tax rate (% of profit)	30.2
Trading across borders (rank)	148
Documents to export (number)	8
Time to export (days)	30
Cost to export (US$ per container)	1,531
Documents to import (number)	9
Time to import (days)	35
Cost to import (US$ per container)	1,807
Enforcing contracts (rank)	85
Procedures (number)	30
Time (days)	600
Cost (% of claim)	33.2
Closing a business (rank)	76
Time (years)	2.0
Cost (% of estate)	18
Recovery rate (cents to the dollar)	32.2

ANNEXURE C: DMU RATIOS

Model	Year	DMUs	Stage 1 Ratio	Stage 2 Ratio
AV_Company	2004	15	1.25	5.000
AV_Company	2005	18	1.500	6.000
AV_Company	2006	26	2.167	8.667
AV_Company	2007	50	4.167	16.667
AV_Company	2008	73	6.083	24.333
AV_Company	2009	77	6.417	25.667
AV_Company	2010	71	5.917	23.667
AV_Company	2011	70	5.833	23.333
AV_Company	2012	62	5.167	20.667
AV_Operating	2004	15	1.250	5.000
AV_Operating	2005	18	1.500	6.000
AV_Operating	2006	26	2.167	8.667
AV_Operating	2007	50	4.167	16.667
AV_Operating	2008	73	6.083	24.333
AV_Operating	2009	77	6.417	25.667
AV_Operating	2010	71	5.917	23.667
AV_Operating	2011	70	5.833	23.333
AV_Operating	2012	62	5.167	20.667
YE_Company	2004	14	1.167	4.667
YE_Company	2005	16	1.333	5.333
YE_Company	2006	25	2.083	8.333
YE_Company	2007	50	4.167	16.667
YE_Company	2008	71	5.917	23.667
YE_Company	2009	75	6.250	25.000
YE_Company	2010	67	5.583	22.333
YE_Company	2011	70	5.833	23.333
YE_Company	2012	60	5.000	20.000
YE_Operating	2004	14	1.167	4.667
YE_Operating	2005	16	1.333	5.333
YE_Operating	2006	25	2.083	8.333
YE_Operating	2007	50	4.167	16.667
YE_Operating	2008	71	5.917	23.667
YE_Operating	2009	75	6.250	25.000
YE_Operating	2010	67	5.583	22.333
YE_Operating	2011	70	5.833	23.333
YE_Operating	2012	60	5.000	20.000