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Comparative efficiency performance of SMEs and other companies listed on JSE-ALTX

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Abstract

The Johannesburg Alternative Exchange is a capital market for listing small and fast growing companies. Consequently, the listing requirements on the AltX are not as onerous as on the JSE main board as they are meant to accommodate as many small businesses as possible. The problem is that it is not very clear whether the compromise listing requirements do have any impact on subsequent firm performance and therefore lead to market inefficiency resulting from the existence of information asymmetry consequently arising from the compromise listing requirements. This paper therefore investigates the efficiency performance of SMEs and None-SMEs listed on AltX. The results of this study show that SMEs have positive abnormal returns at IPO stage and at month 1 while for the months thereafter, SMEs exhibit negative abnormal returns in the short to medium term. In terms of the test of significance, SMEs have significant abnormal returns at month 2, and have significant cumulative abnormal returns from year 3- 6. None-SMEs behaved differently, for the most parts these companies have positive abnormal returns during the study period. In terms of the test of significance, None-SMEs have significant abnormal returns in month zero, and have significant cumulative abnormal returns for year 5 and year 6.

The results for all the 7 year period are mixed although for the most part show that post IPO abnormal returns are not significantly different from zero, therefore one cannot reject the null hypotheses that abnormal returns and/or cumulative abnormal returns are equal to zero. In terms of cumulative abnormal returns, the results do indicate that in some cases, the cumulative abnormal returns are significantly different from zero. This is because cumulative abnormal returns vary from positive figures to negative figures which have a cancelling effect on each other.

Declaration

I, Thokozani Wiseman Makhabeni, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Finance and Investment in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Thokozani Wiseman Makhabeni

Signed at Parktown

On the _____ day of _____ 2015

Dedication

This research paper is dedicated to my Creator for his faithfulness to this academic journey. To my parents, Lulama Makhabeeni and Sipho Ngcobo for prayerful support and my sister, Nelisiwe Makhabeeni for always being there and encouraging me to reach to the limitless horizons. To Nokulunga Makhabeeni and Thobeka Makhabeeni, I thank you for the pride you take in me.

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Chapter 1

Introduction

1.1 Introduction

This chapter introduces the thesis and clarifies the research problem motivating this research as well as research objectives and research questions. The chapter is organised as follows: Section 1.2 presents the context of the study, section 1.3 is research questions, section 1.4 is research objectives, section 1.5 is problem statement, section 1.6 is significance of this study, section 1.7 is the structure of the thesis and the last section concludes the chapter.

1.2 Context of the study

This study seeks to explore the stock market performance (the behaviour of securities in the marketplace) of firms listed on JSE AltX, with the intention of establishing whether there is differential performance between SMEs and None-SMEs listed on the exchanged. For the purposes of this study, an SME is defined as survivalist enterprises, micro enterprises, very small enterprises, small enterprises and medium enterprises. A brief description of each business type is provided below (National Small Business Act, 1996).

Survivalist enterprises are set up by individuals with little or no business experience and there is a small capital investment. This type of business has limited growth opportunities. A micro enterprise is an informal business; however it is run by an individual with basic business skills and usually has no more than 5 employees. This business usually also has a strong potential to become a formal small business. A very small enterprise is a formal business with self-employed artisans and professionals but the business usually has fewer than 10 employees and a small business is a formal business that is also owner managed, but has a slightly more complex business structure and more employees (less than 100). Lastly, a medium enterprise is a type of business that is owner managed and employs up to 200 employees, with a decentralised management structure. On the other hand, a large enterprise is one with a larger resource capacity than the firms described above.

Several studies have been done to assess the role of SMEs in the economy. Leving (2005) found that there is a positive relationship that exists between SMEs and the Gross Domestic Product (GDP) per capita. However, there was no evidence of the existence of a causal relationship between the two factors. In several countries, SMEs contributed approximately 60% of national exports (Knight, 2000). This implies that the none-performance or none-survival of this sector of business can have a detrimental effect on a country's economy. Berry et al. (1998) emphasises the potential strategic benefits of recognising the SME sector as a major factor in achieving governmental economic objectives. The common theme around the studies mentioned above is that SMEs play an important role in job creation, innovation, stimulating economic growth and the ability to create a competitive business environment. While this is true, these studies are silent on the role played by SMEs in stock markets, particularly around stock market performance of SMEs.

There are constraints that exist to inhibit the development of the SME sector. A business can seek financing for several reasons, one of which is capital for expansion. SMEs can be financed through equity finance or debt finance. Most often, access to debt finance is restricted for SMEs primarily as a result of there being insufficient collateral (Fakoti & Odeyemi, 2010). Examples of equity capital include owners' savings, retained earnings, funds from friends and families, venture capital and stock (Vance, 2005). Without access to capital, the survival of SMEs is at risk.

Ojah and Mokoaleli-Mokoteli (2010) demonstrated that venture capital finance can support firms to succeed in developing sustainable businesses into public enterprises whereas Fakoti & Odeyemi (2010) states that venture capital and stock exchange finance are part of the external equity finance and venture capital is not key in early stage business development in South Africa. It would be interesting whether the SME support structures provided by the JSE AltX allow for SMEs to flourish.

To solve the problem of small business financing, small capital markets have been developed to act as heavens for the SME IPO market. Firms (including SMEs) consider IPOs as an exit strategy and a means of gaining access to capital from public investors, allowing them to 'graduate' from being privately owned to being a publicly owned firm (He, 2007), and reducing some of the barriers to growth that have been mentioned thus far. According to Afful et al.

(2006), the number of stock exchanges has increased around the world, and this has heightened companies' opportunities to raise capital which is critical since today's SMEs are tomorrow's market leaders (Carpenter and Rondi, 2006).

The issue of market efficiency in small exchanges designed to serve small businesses is still an issue in the sense that researchers need to know how efficient these markets are in terms of incorporating information in the share price and thereby ensuring that the market operates efficiently to the benefit of the small businesses. Several studies have been conducted on market efficiency. According to Marx et al. (2010), market efficiency is linked to the premise of the rapid reaction of securities to new public information, and the resultant adjustment to their intrinsic values. Fama (1970) and Fama et al. (2012) divided markets into three subsets with respect to efficiency. These include the weak-form market efficiency, semi-strong form market efficiency and strong form market efficiency. A determinant factor of how a market fits into any of the categories is the level of embedment of the information into security prices.

In South African context, Baty (2008) found that insider trading was not prevalent in the JSE AltX. Over and above that, Mlonzi et al. (2011) concluded that the information content of earnings on the JSE AltX was noticeable and that the JSE AltX was a weak form efficient market.

Market efficiency is closely associated with market liquidity in the sense that market's capacity to accommodate order flow is greater in periods when the market is more liquid (Chordia et al., 2005). Findings from studies on the relationship between the two topics have been contradictory. Tetlock (2006) found that most liquid markets show significant pricing irregularities such as over-pricing low probability events and under-pricing high probability events, whereas less liquid markets do not show these irregularities. On the other hand, Kumar and Lee (2006) and Wurglar and Zhuravskaya (2002), shows that securities mispricing, and in turn market inefficiency is greater in markets that are illiquid.

Various literature exist on IPOs, with some focusing on under-pricing of IPOs for small and large firms, assessing differences between IPOs in hot and cold markets (Helwege and Liang, 2004). Ghosh (2005) and Carpenter & Rondi (2006) posit that under-pricing results from information asymmetries. Also, Ghosh (2005) found that in general, hot markets are endowed

with high under-pricing. Belletante & Maherault (2004) found that under-pricing of IPOs is purposefully decided upon in the pre-market for both hot and cold markets. Belletante & Maherault (2004) also found that the size of the firm is a determinant factor of whether the IPO should be under-priced or not. That is, the higher the risk the greater the under-pricing that is received by an SME. It would be interesting to discover whether SMEs listed on the JSE AltX help enhance investment portfolios.

In assessing the long-run behaviour of IPOs, Carpenter and Rondi (2006) found that going public does not provide concrete assurance of job creation and growth and as such the small capital markets on stock exchanges should not be formed with expectations of instantaneous job creation and economic growth.

On the other hand, behavioural finance states that asset prices are not a full reflection of the value of the assets as there are certain features that are deviations from intrinsic values of the assets (Thaler, 2005). When there is market inefficiency, the riskless profits are limited (hence, limits to arbitrage). Widely known investor psychology behaviours include overconfidence, including loss aversion, regret avoidance, framing, mental accounting, anchoring, overconfidence, representative bias, availability bias and conservatism (Thaler, 2005). The tendency for asset prices to be either under-priced or over-priced is linked with behavioural finance. This means that as set prices are predictable (Vissing-Jorgensen, 2003). In respect of this study, investor psychology would inherently affect asset allocation decisions by investors and as such the behaviour of SMEs in AltX would determine whether they destruct portfolio performance.

The aim of this research is to determine the performance of small businesses listed on the JSE Alternative Exchange.

1.3 Problem statement

The JSE AltX was established in order to catalyse the growth potential of SMEs by providing them with a platform to obtain capital for their investment initiatives. The listing requirements on the AltX are not as onerous as on the JSE main board as they are meant to accommodate as many small businesses as possible. For example, AltX firms are required to only disclose only the earnings forecasts for the year of listing as well as the year after listing as opposed to submitting

among others, five year audited financial statements which are a listing requirement for main board firms. Also, AltX firms are allowed to list with a minimum of R2million share capital as opposed to R25million share capital required for main board firms.

The problem is that it is not very clear whether the compromise listing requirements do have any impact on stock performance of firms listed on AltX. While the JSE AltX is meant for fast growing SMEs, according to the SME definition outlined in the Small Business Act some of the companies listed on the JSE AltX are None-SMEs. As such it is also not clear whether the market treats companies listed on the AltX in the same spirit when making investment decisions. In light of this problem, it would be interesting to investigate the market efficiency of the JSE AltX in light of stock price determination for both SMEs and None-SMEs.

1.4 Research questions

The research questions to be answered in this study include the following:

- How efficient is the AltX in pricing SME stocks compared to other stocks?
- Does the inclusion of SMEs in a portfolio enhance or destruct portfolio performance?

1.5 Research objectives

The objective of this research is as follows:

- To ascertain whether SMEs shares are efficiently priced compared to None-SMEs stocks listed on JSE AltX.

1.6 Significance of the study

This study unpacks the fundamental issues relevant to understanding whether the JSE AltX is a fair pricing market for South Africa's SMEs and other businesses qualifying to list on JSE AltX. The findings from this research will benefit South Africa's targeted SME's who wish to consider listing on the JSE AltX but do not know whether their share capital issues will be priced correctly or sold at a discount or premium. Furthermore, the outcomes of this study will be able

to clarify any possible unfounded fears relating to listing on the exchange and or considering investing on the JSE AltX market. More generally, the study will contribute to the market efficiency literature.

Furthermore, the outcomes of this study may potentially assist the JSE when introducing strategies to improve the administration of this market such as whether to apply the compromise listing requirement to both SMEs and None-SMEs listed in this market segment. Not only will this study help SMEs and other businesses listed on the JSE AltX market, but will help investors as well towards understanding the implications of investing in this market in their investment strategies.

1.7 Structure of the thesis

This thesis is structured as follows. Chapter 2 presents the extant literature related to the topic of this research. Chapter 3 presents the methodology used in undertaking this study. Chapter 4 presents the statistical test results. Chapter 5 discusses the results, concludes the thesis and presents the recommendations and suggestions for future research.

Chapter summary

This chapter laid out the foundations this thesis is based on. The thesis seeks to investigate various topics linked to the market efficiency of the JSE AltX with a comparison between SMEs and other businesses listed on this market. Topics under investigation include ascertaining whether SMEs receive efficient pricing for their stocks when compared to other businesses listed on the JSE AltX; and investigating how investors' investment strategies get affected by decisions to invest in SMEs listed on the JSE AltX and tolerating more risk.

In order to ensure that the outcomes of this study are backed by meaningful research, Chapter 2 presents the literature review which provides a summary of empirical evidence linked to the research topic.

Chapter 2

Literature Review

2.1 Introduction

This chapter intends to provide literature relating to the comparative efficiency performance of SMEs and None-SMEs listed on AltX. The chapter has been segregated into various themes namely the role of SMEs, financing of SMEs, stock exchanges and SMEs, market efficiency and behavioural finance. The intent of segregating the literature into these themes is so that a comprehensive understanding of the literature relating to the research topic is provided and that research hypotheses are informed of literature. Section 2.2 presents the role of SMEs in the economy. Section 2.3 presents various sources of capital for financing of SMEs. Section 2.4 presents the dynamic relationship between capital markets and SMEs. Section 2.5 presents market efficiency. Section 2.6 presents market inefficiency. Section 2.7 concludes the chapter.

2.2 The role of SMEs in the economy

SMEs in this research are defined according to the National Small Business Act of 1996. This act segregates SMEs into five categories namely: survivalist enterprises are enterprises started by individuals with little or no experience, little capital invested in the company and therefore business income is below the poverty level, and there are limited opportunities for growing the business; a micro enterprise is an informal business run by an individual with basic business skills but has no registration or formal business premises, this type of business would usually have 5 employees (owner and family) and has strong potential to become a formal small business; a very small enterprises is a formal business with self-employed artisans and professionals and the business usually has fewer than 10 employees; a small business is a formal business with formal business premises and employees fewer than 100, the business has a more developed and complex business structure but remains owner managed; and a medium enterprise is a type of business that is owner managed, employs up to 200 employees, possess formal business premises, and the management structure is decentralised and has clear division of labour. Contrary to this definition of an SME, a large enterprise (other businesses) is a company with resource capacity larger than the firms described above.

Understanding the macroeconomic environment is a key part of stock price determination and as such this section discusses the role of SMEs in the macroeconomic environment. In terms of theoretical evidence, Leving (2005) used a sample of 45 countries to assess the importance of SMEs towards economic development and he discovered that there is a positive relationship between the importance of SMEs and Gross Domestic Product (GDP) per capital, a measure of a country's per capita production. However, Levine (2005) found no evidence that shows that SMEs exert a causal impact on growth. Knight (2000) supports the assertion that SMEs are playing an important role in economic development and further shows that in Italy, Korea and China SMEs contributed close to 60% of total national exports whilst SMEs contributed around 35% of exports in Asia overall, and 26% of exports from developed countries across the globe.

In Hong Kong, it is shown that between 1951 and 1977 the SME sector maintained a steady and important position in the country's industrial structure, increasing from 79.7% of all manufacturing businesses in 1961 to 86.5% in 1971 to 92.1% in 1977 (Sit, 1982).

According to Choi (2000), SMEs are predominantly known as the unsung heroes that bring stability to the national economies as they have the ability to help support an economy from the boom and bust of economic cycles. Choi (2000) states that in Korea, SMEs play a role in job creation, value creation, increased export sector participation, foreign investment participation and productivity. Choi (2000) does however; point out that Korea is faced with a higher rate of birth and death of SMEs than the larger firms. Other findings by Choi (2000) include the fact that SMEs (in the Korean economy) played a role in creating manufacturing employment and the sector helped decrease income inequality.

The SME sector is also recognised as a strategic sector that can help governments around the world achieve their economic objectives in economic policy formation, (Berry et al., 1998). According to Robu & Savlovski (2011) SMEs contribute more than 95% of enterprises in most countries in the OECD member countries and they hire more than half of the employees in the private sector relative to other companies.

Another role that distinctly characterises the SME sector relative to bigger firms is its ability to help in creating a competitive business environment. According to Robu & Savlovski (2011) SMEs have an added advantage of being able to provide services and products at smaller costs

than those of big companies due to the need to remain competitive – SMEs have lower conventional expenses, higher work productivity under the circumstances of the permanent presence of the entrepreneur in the company. Additionally, Floyd & McManus (2005) argue that SMEs are found to have more flexibility than the bigger firms which makes it easy to innovate and remain competitive.

The common theme around the studies mentioned above is that SMEs play an important role in job creation, innovation, stimulating economic growth and the ability to create a competitive business environment. While this is true, these studies are silent on the role played by SMEs in stock markets, particularly around stock market performance of SMEs.

2.3 Financing of SMEs

Generally, corporations raise capital in the form of equity or debt or a combination of the two sources of capital (Bose, 2010). Each of these sources of finance has its own dynamics. Equity is a form of capital that can be available in the form of owner's funds, retained equity, investor's funds from friends and family, venture capital and angel finance, and direct equity capital market (Vance, 2005). Debt capital can be available in the form of credit card, leases, bank loans, government loans, trade credits and direct debt capital market (Vance, 2005). These sources are not exhaustive but they are the most commonly used methods of financing. Large firms usually make use of the direct capital market for raising long term capital while SMEs usually use the other sources of capital. Equity and debt sources of capital are formally explained below – venture and angel finance are also discussed since they are the most conventional source of SME long term capital.

2.4 Equity finance

Equity is the difference between total value of assets and the total value of liabilities (Firer et al., 2012). Equity capital can be available in various forms. As mentioned above, forms of equity finance used by firms include owners savings, retained earnings, funds from friends and families, venture capital and direct capital market (common stock, preferred stock, convertible preferred stock, redeemable preferred stock, cumulative preferred stock, participating preferred stock, venture capital and angel finance) (Vance, 2005). Since owners' savings, retained earnings, funds from friends and families are self-explanatory; the forms of capital from the direct capital

market are explained and substantiated with some empirical evidence. As per Miller (2013): common stock holders are investors who take on a residual interest in the overall financial structure of a firm. Preferred stock holders have priority over common stock holders in the event of dividend payments and payments in the event of dissolution of a company. Convertible preferred stocks are preferred shares that the holders have an option to convert it into common stock either in the issuing company or sometimes in another company. Redeemable preferred stocks are preferred stocks with an expressed condition that the issuing company has the right to repurchase them as specified.

Cumulative preferred stocks are preferred stocks with an expressed condition that in the event that dividends are not paid in the current year, the following period dividends will include the dividends of the previous period(s) missed. Participating preferred stocks are stocks with an expressed condition that its holder will be paid preferred stock dividends and additional dividends paid to the common stock holders if the company had dividends to common stock holders. Venture capital is capital given to new business ventures by professional external investors (venture capitalists or venture capital firms). Firer et al. (2012) and Sahlman (1990) describes venture capital as financing for new, often high-risk ventures whereby individual venture capitalists invests their own money while venture capitalists firm pool funds together from various sources and invests them. While the above sources of equity capital are suited for large firms, SMEs are better funded using venture capital finance in the event where long term external finance is required especially if the owners savings, salary, and funds from friends and family are not enough. Angel capital is capital provided by individuals of organisations without requirements to pay it back but to be used to a specific purpose. Similar to venture capital, this type of funding is best suited for SMEs.

Smith (1985) argues that common stock, is the most widely used form of equity by firms generally when considering using the external equity market. Additionally, Hovakinmian, et al. (2001) highlighted that equity finance is most desirable at initial stages of firm growth as opposed to debt as it can be cheaper than debt finance and that firms that use debt have more operating income than the smaller ones. Most SMEs do not have access to the external finance market such as venture capital and stock markets (Fakoti & Odeyemi,2010) and as such this inhibits SMEs from gaining access to external equity finance other than resorting to personal

savings, funds from friends and retained earnings. As for other larger businesses they have an advantage over SMEs and they tend to perform better when provided access to finance in the event where their major obstacle had been access to finance. Despite many benefits of SMEs provided in section 2.2 without access to capital, SMEs are in dire threat of survival and this can create economic instability. This study acknowledges that there is a gap in literature around the stock market performance of SMEs and None-SMEs listed in the JSE AltX. This study therefore aims to add to literature particularly around the stock market performance of JSE AltX.

2.5 Venture capital

Venture Capital has a strong potential to be a pillar for entrepreneurial (SMEs) finance. Ojah&Mokoaleli-Mokoteli (2010) highlight the important role of this market (as a form of private equity) of providing cost-effective finance to start-ups and/or growing private enterprises characterised by information asymmetries. Evidence provided by Ojah & Mokoaleli-Mokoteli (2010) show that venture capital finance supported firms do well in developing sustainable businesses into public enterprise types and as such this market needs to be concerted in South Africa so as to help grow and/or support the nation's SMEs. While this is true, this study did not incorporate the stock market performance of SMEs and None-SMEs listed in JSE AltX. According to Fakoti & Odeyemi (2010) venture capital and stock exchange finance are part of the external equity finance but venture capital is not key in early stage business development in South Africa – most venture capitalist or venture capital firms invest in middle or late stages of SME life cycle which creates further difficulty for most SMEs without track record to gain access to external finance. Fakoti & Odeyemi (2010) mentions that this market consisted of at least 65 venture capital funds controlling R29 billion with an average investment size of R15.4 million in 2008. None-SMEs who are still eligible for venture capital finance tend to flourish as they receive managerial support from venture capital partners who assist in fast tracking the growth of the firm. It would be interesting whether the SME support structures provided by the JSE AltX allow for SMEs to flourish.

2.6 Debt finance

Debt capital can be available in the form of credit card, leases, bank loans, government loans, trade credits and direct debt capital market (bond market) (Vance, 2005). According to

Subramanian & Umakrishan (2004) while direct debt capital market is gaining momentum most firms depend on bank debt and internal finance. This form of capital (debt) has implication for entrepreneurial development as outlined below.

As Subramanian & Umakrishan (2004) mentions bank debt provides lower transaction costs, flexibility, embedded options in favour of borrowers, ability to restructure debt in times of financial stress, etc. Contrary, the disadvantages of bank debt could be the cost of monitoring, suboptimal liquidation outcomes, and distortions induced by information asymmetries. Based on these benefits and costs, firms are advised to undertake a cost benefit analysis between bank debt and direct debt capital market and assess which debt source will be beneficial.

According to Berk (2007), the capital market also has an impact on the form of capital structure used by the firms. Berk (2007) confirms that in Slovenia, most private corporates used more debt than public corporates because the country's capital market is poor as it creates barriers to raising capital from the direct capital market.

Another study which was done by Chhibber & Majumdar (1997) posits that there is a positive relationship between the use of debt and the performance of a firm but in India, a negative relationship was found. Chhibber & Majumdar (1997) confirms that literature found that firms that have greater prospects can issue debt while those that have poor prospects will reduce debt in their capital structure. Secondly, the use of debt allows the entrepreneur to protect his shareholding while using debt to help the business become a profitable venture (Chhibber & Majumdar, 1997). The use of debt allows the firm to persuade the market that the company is financially sound and is yet to make additional profits. An alternative theory by Modigliani and Miller (MM) however states that whether a company uses debt or equity, the capital structure of a firm has no relationship with a company's market value (Chhibber & Majumdar, 1997). In addition, the MM theory predicts that the cost of equity is a linear function of the leverage ratio, the market value of a company is independent of its dividend policy and that the shareholders of a firm are indifferent to its financial policy.

According to Brander (1992), the level of debt used by a company is also affected by the nature of managerial contracts. These managerial contracts can be used to protect the company from unprofitable aggressiveness of management or alternatively enforce management to consider

debt as a source of capital in profitable situations. Brander (1992) & Gumbel (2005), states that because shareholders do not normally commit themselves to acting in the best interests of bondholders, an agency costs is borne. Management contracts are therefore, there to ensure that bondholders and shareholders' interests are balanced as the two company funders may at times only care about their own bottom lines. The more managerial contracts are aligned to shareholders interests, the more costly debt becomes and vice versa for the event when managerial contracts are more balanced in terms of protecting bondholders and shareholders.

Other theories affecting SMEs or capital structure in general towards bank debt include moral hazards, adverse selection costs, ease of renegotiation in financial distress and credit rationing theory (Stiglitz & Weiss, 1981 & Gosh, 2006). As mentioned earlier other costs include monitoring costs, suboptimal liquidation outcomes, agency costs and distortions induced by information monopoly (Hadlock, 2002). These costs which results from information asymmetry will influence the firm's attitude towards using bank debt relative to direct debt capital market (Hadlock, 2002). For instance, big firms that use public debt frequently may find that transaction and monitoring costs to be high (Hadlock, 2002). In terms of agency costs, evidence suggests that banks tend to inject costly monitoring services that can limit asset substitution and underinvestment problems (Hadlock, 2002). Asset substitution usually happens when a firm seeks debt from a bank for a specific investment opportunity and yet ends up not investing funds on those investment projects. Underinvesting takes place when a firm does not take investment projects that would benefit the firm (which in effect goes against debt security holders) (Hadlock, 2002). For small firms, these problems are usually high as it is not easy for banks to monitor the firm and access to information is limited (Hadlock, 2002). As for issuance or flotation costs, small firms are subject to better off using banks instead of public debt financing (Hadlock, 2002). These findings are also supported by Johnson (1997) who finds that these costs depend on the level of information asymmetry the firm posit to the banking institution.

Stiglitz & Weiss (1981) argue that SMEs generally have superior advantage in terms of knowing about their investment projects whilst banks do not and as a result SMEs cause information asymmetries (superior private information).

In addition to the above findings, Fakoti & Odeyemi (2010) also mentions that the determinants of access to debt capital market include managerial competencies, collateral, business

information, networking and location (Fakoti & Odeyemi, 2010). Most SMEs do not get access to debt capital when compared to bigger companies mainly because of a lack of collateral which banks can use against the SME firm in the event that the SME defaults (Fakoti & Odeyemi, 2010). According to Fakoti & Odeyemi (2010) collateral has the effect to reduce issues of moral hazard problems since it is effectively an additional cost to borrow. Compared to direct debt capital market, bank debt is mostly used while direct debt capital market is commonly used by large firms. Also, although direct debt capital market is not widely used in South Africa, it is growing momentum amongst bigger firms. Asset backed finance and high yield finance usually falls under debt finance.

2.7 Capital markets and SMEs

According to Afful et al. (2006), the number of stock exchanges has increased around the world (particularly in Sub-Saharan Africa (SSA) helping companies gain an expanded opportunity set for raising capital. What is also highlighted in this paper is that stock market development has had an impact on the growth of the SSA countries through influencing investment flows and economic growth (Afful et al., 2006). Furthermore, the paper mentions that while the stock markets in this region are growing rapidly, they remain small and illiquid. This paper is however silent on the opportunities enjoyed by SMEs when compared to None-SMEs listed on the stock exchange.

Banheri & Nakajima (2006) discovered that the liberalisation of securities markets and disappearance of technical barriers have been beneficial in removing the monopoly of national stock exchanges. (Kenourgios et al., 2006) mentions that stock exchanges play a very critical role in the development of SMEs more particularly since some of today's SMEs are tomorrow's market leaders as has been discovered in Carpenter & Rondi (2006). In Greece, it is said that SMEs are predominantly dependent on European Union funds and the banking loans rather than stock exchanges (Kenourgios et al., 2006). The Athens Stock Exchange which is a small capital market was discovered to be improper for domestic diversification (Kenourgios et al., 2006). It would be interesting to discover whether SMEs listed on the JSE AltX help enhance investment portfolios. Finally, Kenourgios et al., (2006) concluded that entrepreneurs (SMEs) and investors' expectations are gradually adjusting to the new era of financial development, and that there is an

absence of weak form efficiency. In a small Athens Stock Exchange, price movement does indicate responsiveness to useful information (Kenourgios, 2006).

Arestis et al. (2001) found that stock exchanges are helpful in encouraging long run growth and that they encouraged specialisation and distribution of information and in turn reduce cost of mobilising savings. Well-developed stock markets are also beneficial at enforcing strong corporate governance values by mitigating the principal agent problems through aligning the interests of managers and shareholders. Arestis et al. (2001) argue that the development of stock markets as it has happened recently has benefits of providing liquidity because in developing markets, there are an increasing number of firms listing on the stock capital market. This helps in making investment less risky which allow firms to enjoy permanent access to capital through liquid capital markets. The paper also confirms that the development of stock markets is also beneficial in accommodating SMEs gain access to capital and they allow for ease of diversification (Arestis et al, 2001).

Carpentier et al.(2007) confirmed that SMEs are however, faced with financial constrains when they have to access capital through stock exchanges. Typical constrains include securities regulation requirements which can be a major obstacle for SMEs. In the United States (US), this was attested by a sub-committee that was set by the US Congress. The US Congress was set to form an enquiry on the Securities and Exchange Commission's (SEC's) role in capital formation of the government's concerns. Typical government concerns had been that there are constrains imposed on SMEs in the matter of flow of capital to and investor participation in the SME sector.

A study done by Posner (2005) shows that Europe has managed to try and support its SME sector through the establishment of twelve exchanges in Western Europe of which one of them is Alternative Investment Market (AIM). AIM has 1400 listed smaller local and international firms and has a role for allocating financial resources to local and international SMEs. On the negative, several of the other markets have collapsed as a result of market failures including the millennium boom and bust in the international corporate share prices as well as the 2007 financial crisis (Posner, 2005). Europe has tried to maintain competition between existing stock exchanges so as to ensure effective financial support to the SME sector. Also, in Europe, nearly 3000 of newly listed firms have raised approximately eighty billion euros between 1996 and 2005.

Giudici & Paleari (2000) asked entrepreneurs about the form of capital they preferred. Most entrepreneurs prefer financing that is accompanied with some form of skills transfer programme by the investor which effectively put venture capital finance a preferred method of funding SMEs.

While stock market development has allowed for an environment where investors have a wide opportunity set for diversification, SMEs are lagging behind.

2.8 Market efficiency

Marx et al. (2010) defines market efficiency as the situation where securities react quickly to new public information and consequently adjust to their new intrinsic values on average. In addition, Marx et al. (2010) state that market efficiency is based on several assumptions. The first of these is that an efficient market will have a large number of independent, competing, profit maximising participants who analyse and value securities. Information made to the market is random and the timing of announcements is independent. Furthermore, competing investors adjust security prices to reflect the impact of new information on securities and this adjustment is considered unbiased.

According to Fama (1970), one of the pioneers of the concept of market efficiency and Firer et al. (2012), market efficiency is further divided into three increasingly wide categories depending on the information assumed to be imbedded on security prices. These wide categories include the weak-form market efficiency, semi-strong form market efficiency and strong form market efficiency, and a market that is not even at least considered weak form efficient is said to be inefficient.

A weak-form efficient market states that security prices fully reflect all security market information, historical information on stock prices, rates of return, trading volumes and other market-generated information (Brown & Reilly, 2009). As such, the use of trading rules based on any historical information and past security market information will be of little value in determining future security prices or security trends (Brown & Reilly, 2009).

A semi-strong form efficient market states that stock prices adjust rapidly to the announcement of all publicly available information (Brown & Reilly, 2009). In addition to the information

consistent with weak form efficient market, information relating to earnings, dividends, price-to-earnings (P/E) ratio, dividend yield (D/P) ratio, economic and political news, stock splits, and price-to-book (P/B) ratio form part of public information (Brown & Reilly, 2009). Wood (2007) states that if a market is semi-strong form, there are no differences between discounted expected earnings and current security prices which means that fundamental techniques to predicting stock prices are of no value. Event studies have been historically considered as the principal research tool in assessing whether a market is semi-strong form. An event study averages the cumulative performance of stocks over a period of time, from a specified number of time periods before an event to a specified number of periods after. Each stock's performance is measured after adjusting for market-wide movements in security prices.

A strong form efficient market is one where stock prices contain all public and private information (Wood, 2007). If a market is strong form efficient, no other information or technique can be used to outperform the market.

Several studies have been conducted to verify whether JSE AltX is itself efficient. Baty (2008) determined whether there is any sign of insider trading in the JSE AltX. His intention was to establish whether information that was not disclosed had in fact been used in this market. He found that following a purchase event of securities by company directors on the JSE AltX, the Cumulative Average Abnormal Returns (CAARs) were not statistically significant; implying that insider trading is not a problem at the JSE AltX. However, the study concluded that there is a marked negative reaction to the sale of directors' shares. The negative reaction is in fact observed from 20 days before the actual sale. Overall, this study concluded that there is a statistically significant difference in the reactions to purchases and to sales by company directors. This study is also silent on the role played by SMEs around the issue of stock market performance.

Compared to international evidence, Aussenegg & Ranzi (2009) discovered that insiders tend to time their transactions, selling securities after security price increases and buying securities after their decline. In addition, this study proved that firm size, transaction size, and legal origin influence the security price reaction to insider trades. Important at this stage however, is that insider trading is 'legal' given that insiders did report through the relevant JSE protocols the decision and reasons to trade.

Mlonzi et al. (2011) concluded that the information content of earnings on the JSE AltX was noticeable and that the JSE AltX was a weak form efficient market. In their study, they discovered that 16 day and five day event studies led to significant cumulative loss of 49.9% and 16.3% respectively. However, studies evaluating earnings announcement have come up with contradictory results. For examples looking into international market Cready & Gurun (2010) discovered that lower earnings results carry with them positive CAAR and move market values higher while Ball & Shivakumar (2008) state that earnings announcements provide an insignificant amount of information in relation to the market(Kennedy, Sivakumar & Vetzal (2006 and Szewczyk & Zantout, 2008).

The conventional corporate finance theory also suggests that riskier assets will yield higher returns versus assets that are relatively less riskier (Manikai, 2011). Manikai (2011) investigated the risk-return relationship between securities traded on JSE AltX and JSE main board on a risk adjusted approach through investigating IPO performance on both these JSE segments. Manikai (2011) discovered that although JSE AltX IPO returns were riskier on average as expected by corporate finance theory, their nominal and risk adjusted returns when compared to JSE Main Board IPOs which would normally exhibit relatively less risk and henceforth yield lower returns. These findings proved consistent in a short, medium and long-run state.

Although this paper has no intentions to classify the level of market efficiency, the paper investigates events of security mispricing thereby adding to the market efficiency literature around the JSE AltX segment.

2.9 Impact of liquidity on asset pricing

Closely related to market efficiency is market liquidity. Tetlock (2006) confirms that there is no relationship between market liquidity and market efficiency. This finding is inconsistent with theories that align increased market liquidity with an efficient market. In fact, Tetlock (2006) found that most liquid markets show significant pricing irregularities such as over-pricing low probability events and under-pricing high probability events, in which case less liquid market do not show these irregularities. On the other hand, Kumar & Lee (2006) and Wurglar & Zhuravskaya (2002), shows that securities mispricing, therefore market inefficiency is greater in markets that are illiquid.

According to Harvey & Lundblad (2007) liquidity is a key aspect in asset pricing i.e. it is a generally accepted practice in the capital market that assets that are illiquid and have high transaction costs would have been priced by the market. Furthermore, Harvey & Lundblad (2007) mentions that when stock prices are sold at lower prices due to illiquidity, the cash flows of the asset is then under-estimated and in turn returns are lower too.

The issue of liquidity is also an important element, particularly to investment bankers who stand to purchase the entire share capital (Butler et al., 2005). The typical costs to be incurred include inventory risk (where we consider the risk of purchasing the book) as well as adverse selection which was explained in details as he grows beyond 16 years (Butler et al. 2005).

Brunnermeir & Pedersen (2008) found that sometimes traders get involved in short-selling where they borrow funds against the security to be bought but cannot borrow the entire price of the security. When funding liquidity is squeezed, traders lose appetite for taking positions in high-margin securities, and consequently this leads to high volatility (Brunnermeir & Pedersen, 2008).

In terms of illiquidity costs, Amihud & Mendelson (1991) discovered that bid-ask spreads are higher for illiquid assets. Generally, bid ask spreads are inversely related to asset liquidity and according to Amihud & Mendelson (1991) illiquid stocks and bonds can have bid ask spreads equal to 5-10% of their value. Other costs include delay and search costs which are costs of waiting to execute a trade for the reason of wanting to take advantage of a better upcoming trade. For illiquid assets, these costs are generally high (Amihud & Mendelson, 1991).

2.10 The performance of IPOs in small capital markets

According to He (2007), firms consider IPOs as a way of gaining access to capital from public investors, and it also serves as an exit strategy from being privately owned to being a publicly owned firm.

Literature on IPO discusses various aspects of IPO including under-pricing of IPOs for small and large firms, assessing differences between IPOs in hot and cold markets as well as long run performance of IPOs (Helwege & Liang, 2004 and Abarbanell & Bushee 1998). Helwege & Liang (2004) states that hot markets are those where there is bullishness among investors due to irrational behaviour and as such firm managers would want to consider this market to take

advantage of the window of opportunity. In hot markets, there is a high volume offerings, severe under-pricing, frequent oversubscription of offerings and concentration in certain industries (Helwege & Liang, 2004). The cold markets on the other hand are those with low under-pricing, lower volume of offerings and lower events of oversubscription (Helwege & Liang, 2004).

Ghosh (2005) and Carpenter & Rondi (2006) found that under-pricing is one of the anomalies of the IPO market which results from asymmetric information, particularly adverse selection. While some evidence suggest that high-volume IPO markets have high levels of under-pricing, the opposite was found on the Indian market during a boom period a decade ago i.e. high-volume IPOs had less under-pricing (Ghosh, 2005). Generally however, in his model, Ghosh (2005) and Reinganum (1981) found that hot markets are endowed with high under-pricing.

Confirming the issue of under-pricing, Belletante & Maherault (2004) found that under-pricing of IPOs is deliberately decided upon in the pre-market either in the hot market or cold market. Belletante & Maherault (2004) also found that the size of the firm also has an impact on whether the IPO should be under-priced or not i.e. the high risk SMEs usually receives a lot of under-pricing. Special to note however is that Belletante & Maherault (2004) discovered that SMEs may require a special market in order for them to receive appropriate pricing, but in order for this market to be functional investors must have ease to measure the risk premium of the stocks listed in the market. However, this is sometimes not possible to discover as the risk is a function of business risk and not financial risk alone i.e. it is not easy to measure business risk of SMEs as the level of transparency is lower than that of big firms (Belletante & Maherault, 2004).

In terms of long-run behaviour, Carpenter & Rondi (2006) found that going public does not guarantee job creation and growth and as such the stock exchanges should not form small capital markets in expectation of immediate job creation and contribution to the growth of the economy. Carpenter & Rondi (2006) do however notice that the decline in under-pricing is increased liquidity in the Italian market. This could mean that if small capital markets have increasing liquidity, under-pricing of IPOs can be decreased. When they compared US firms and Italian firms, it was discovered that US firms are smaller than the Italian firms and as such the smaller firms grow faster than the Italian firms after the IPO (Carpenter & Rondi, 2006). When comparing the size, growth, profitability and leverage of listed firms before and after the IPO market, it was discovered that although the labour input were increasing they do not grow in

terms of fixed capital investment and real sales (Carpenter & Rondi, 2006). Additionally, the study found that profitability and leverage were less after the IPO (Carpenter & Rondi, 2006).

Levis (1993) who assessed the long run performance of IPO discovered that in the UK there was some degree of under-performance in the aftermarket. This paper discovered that there was an abnormal return of -13.73% for investors who purchased IPO stocks in the open market. In Gompers & Lerner (2003), it was found that value-weighted IPO returns significantly decreased the measured under-performance.

Leinbach & Lusting (1983) looked at the small firm effect and found that the cumulative abnormal returns for small firms was 20.65% for the period 1951 to 1979 while large companies had cumulative abnormal returns of 1.53% for the same period. This study acknowledged that the reason for excessively high cumulative abnormal returns could be due to the fact that the opportunity cost of obtaining information about small capitalisation stocks were not included in the purchase price, otherwise the abnormal returns would probably disappear (Leinbach & Lusting, 1983).

This section confirm the immense challenges faced by SME IPOs particularly issues around under-pricing and lack of guarantee for job creation. It would be interesting to find out whether SMEs are faced with similar challenges in the AltX.

2.11 Market inefficiency

According to Thaler (2005) behavioural finance rests on two spheres namely limits to arbitrage and investor psychology. Behavioural finance says that asset prices are not fully reflecting the fundamental values of the assets as there are certain features that are deviations from intrinsic values of the assets. When the market is inefficient, the riskless profits are limited (hence, limits to arbitrage). Additionally, this affects investors' investment strategy as an investor that knows that the market is inefficient won't make riskless profits. The commonly known investor psychology behaviours include overconfidence, loss aversion, regret avoidance, framing, mental accounting, anchoring, representative bias, availability bias and conservative (Thaler, 2005). Thaler (2005) explains these investor psychology behaviour as described below. In respect of this study, investor psychology would inherently affect asset allocation decisions by investors

and as such the behaviour of SMEs in AltX would determine whether they destruct portfolio performance.

Over-confidence bias is a tendency to view the world in positive terms or otherwise known as unwarranted confidence. Investors suffering from this bias may overestimate their ability to identify winning investments. Loss aversion is a tendency of investors suffering from fear of loss, and do not associate greater returns with greater risk and vice versa. Traditional finance on the other hand says that the higher the risk, the higher the return and the lower the risk, the lower the returns. Regret avoidance include investors who tend to avoid adjusting or making amendments to their investment portfolios mainly because they have an emotional connection to their previous decision and they keep believing that things will get better even if there is no sound evidence justifying the decision to wait. Framing investors tend to focus overwhelmingly on the behaviour of individual investments or securities rather than considering their investment portfolios comprehensively. Typically, these investors tend to fret over the poor performance of a specific asset class or security or mutual fund.

Mental accounting include investors who usually have mental accounts separating their wealth into buckets or pools i.e. retirement, school fees, savings to start a business etc. This process tends to deny these investors from assessing their investment process broadly instead of focusing on specific mental accounts. Anchoring bias is a behavioural tendency to rely too heavily on one trait or piece of information when making decisions. Availability bias is a behavioural tendency of investors to heavily rely on recent experience or events in making investment decisions. Representative bias is a tendency by investors to make investment decisions based on superficial features (what it looks like) instead of undertaking a detailed evaluation of the reality. Finally, the conservative bias is one where investors stick to a decision based on initial judgements despite new contradictory information.

In a study done by Harris (2006) investigating the impact of hot issue markets and noise on stock exchange listing standards, it was found that hot issue markets and noise traders create conflict between exchange shareholders' private interests and the public interest in connection with this critical exchange function when exchanges compete with one another for listings.

Shiller (2003) asserts that behavioural finance comes from a broader social science viewpoint including psychology and sociology and it usually contradicts with efficient market theories. Olsen (1998) state that there is no unified theory of behavioural finance that exists but he mentions that behavioural finance is focussed on the application of psychological and economic principles to help one make improve the decision making process. Olsen (1998) highlights that decision makers react in three forms towards making investment decisions: their preferences often are multifaceted, made during the decision making process itself and they are open to change; they adapt to the environment in which they make the investment decisions; and they seek satisfactory solutions instead of optimal solutions.

Associated with behavioural finance however is the tendency for asset prices to be either underpriced or overpriced and this leaves prices predictable (Vissing-Jorgensen, 2003 and Dietrich 2012). An environment such as this one allows for noise traders to persist in the short term and arbitrage opportunities become a reality (Vissing-Jorgensen, 2003). Another observation is that there are differences between return behaviour of large caps and return behaviour of small caps – small caps suffer from idiosyncratic factors while large caps were exposed to international diversification. Small caps suffer from limited local diversification and because of behavioural finance; opportunities for diversification are limited as investors were exposed to an undiversified market (Eun et al., 2008).

Chapter summary

This chapter was prepared to form a basic understanding of the literature available for SMEs in connection to the research topic. The literature indicates that SMEs play a significant role in shaping the nation's economic growth, job creation, innovation, providing a competitive landscape and skills development. The chapter also showed various sources of finance available for all stages of a business. Particular attention was given to sources of finance relevant for SMEs and ease of access was discussed. The relationship between capital markets and SMEs were also discussed as well as the literature on market efficiency and market inefficiency.

Chapter 3

Research Methodology

3.1 Introduction

This chapter seeks to outline the approach and methodology used to answer the research questions and consequently responds to research objectives outlined in chapter 1. The chapter is structured as follows. Section 3.2 presents data and data sources. Section 3.3 presents the research design and chapter summary concludes the chapter.

3.2 Data and Data sources

This research uses the monthly closing stock price data for all shares listed on the JSE Alt-X. The FTSE/JSE AltX Index is used as a benchmark to which firms' performance is compared. The price data for individual companies and for the benchmark are obtained from *Bloomberg Professional*. Volume and turnover are used to assess the share liquidity subsequent to a firm listing on the JSE Alt-X. This data is also obtained from *Bloomberg Professional and I-net Bridge*. Other data to assess the size of the company (in order to determine whether the firm is an SME or not) such as market capitalization and number of employees is also obtained from *Bloomberg Professional and from company's websites*.

Although the JSE Alt-X was established in 2003, the research assesses the performance of companies that were listed between April 2006 and December 2013. The research period starts from April 2006 because the JSE Alternative Exchange Index, the benchmark index was established in April 2006. Only stocks that have data for at least 2 months observations after the listing month are included in the analysis.

3.3 Research Design

The price data for all the shares are converted into returns data using the following formula:

The formula used to calculate monthly returns is:

$$R_t = \ln P_t - \ln P_{t-1} \dots \dots \dots (1)$$

Where:

R_t is the price return of stock “i” at month t;

$\ln P_t$ is the natural logarithm of price at the end of period “t”; and

$\ln P_{t-1}$ is the natural logarithm of price at the end of period “t-1”.

In order to test for differences in the behaviour of SME stocks and None-SME stocks, a difference of means test is carried out using the following formula:

$$Dmt = \text{Mean of SMEst} - \text{Mean of None-SMEt} \dots\dots(2)$$

Where:

Dmt is the difference of means at period “t”;

Mean of SMEst is the mean of SMEs at period “t”; and

Mean of None-SMEst –s the mean of None-SMEs at period “t”.

3.4 The benchmark for expected returns

The FTSE/JSE AltX Index is used to generate the expected return in this research. FTSE/JSE AltX Index represents all the stocks listed on the JSE Alt-X. The excess or abnormal return (alpha) is then calculated. The abnormal return is calculated as follows:

$$AR_t = R_t - IR_t \dots\dots\dots(3)$$

Where:

AR_t is the abnormal return for stock “i” at month t;

R_t is the price return of stock “i” at month t; and

IR_t is the index return at month t.

The abnormal return is cumulated over different period using the following formula

$$CAR_i(t_1, t_2) = \sum_{t=t_1}^{t_2} AR_{it} \dots\dots\dots(3)$$

The sum of the abnormal returns on security i from period t_1 to period t_2 , where

$$T_1 \leq t_1 \leq t_2 \leq T_2$$

The t-test and p-value are used to assess the significance of the abnormal return at different periods, i.e. at IPO stage, 6 months after listing and 7 years after listing. Because this research is focussed on companies listed between April 2006 and December 2013, not all of the 63 companies listed on the JSE AltX were analysed. The significance tests are testing the following hypotheses:

$$H_0: \alpha = 0 \text{ or mean of SMEs} - \text{Mean of None-SMEs} = 0$$

$$H_1: \alpha \neq 0 \text{ or mean of SMEs} - \text{Mean of None-SMEs} \neq 0$$

The aim of this study was to establish whether SMEs are priced the same as None-SMEs on the JSE Alternative Exchange. To achieve this, the sample is divided into two groups using the number of employees as a guide for ranking companies as SMEs and None-SMEs. If a company has up to 200 employees, it is regarded as an SME, otherwise a None-SME. The analysis then checked which of the two groups out/underperformed the benchmark in the short, medium or long term.

Chapter summary

This chapter discussed the data and research design used in this research. The chapter began by providing an overview of the data and data sources wherein this research paper provides an indication of the type of data that was used as well as where it was sourced. The chapter continued to discuss the research design wherein this research paper presented the formula used to calculate returns (index/stock), alpha and CAR. These formulas are helpful at determining whether the stocks are correctly priced as would be the case under an efficient market. The research design further provided measures of liquidity that will be used to investigate stock liquidity levels between stocks of SMEs and other businesses listed on the AltX. Additionally, the research design provided the research hypotheses for which this research paper will test the risk-adjusted excess returns (alpha) against. Key to note is that the excess returns for SMEs and None-SMEs are compared to assess whether there are variations between stock returns for SMEs against those of None-SMEs. Consequently, this assessment seeks to assess the extent to which

SME stocks are incorrectly priced relative to None-SMEs. The criteria to separate SMEs from None-SMEs are the number of employees. The next chapter presents the research findings.

Chapter 4

Presentation of Results

4.1 Introduction

The purpose of this chapter is to discuss the findings of the research results of the research. The Chapter is organised as follows. Section 4.2 presents descriptive statistics. Section 4.3 presents the IPO performance of SMEs and None-SMEs. Section 4.4 presents medium term performance of SMEs and None-SMEs. Section 4.5 presents long term performance of SMEs and None-SMEs.

4.2 Descriptive statistics

Table 1 below shows descriptive statistics of 63 companies listed on the JSE AltX.

Table 1: Descriptive statistics of the firms listed on the AltX over the period October 2007 and December 2013

Panel 1 - The descriptive statistics for all Stocks						
Variable	Mean	Median	Low	High	Standard Deviation	Skewness
Stock Closing Price (cents)	696	71	1	84,500	4,465	13
Stock Volumes	4,451,655	783,077	0	428,836,854	14,306,103	15
Stock Market Capitalisation (Rands)	262,547,485	107,297,017	86,343	7,420,000,000	478,177,392	5
Number of Listed Shares	528,456,347	184,928,683	664,180	8,854,541,003	1,265,782,089	5
Number of Employees	426	91	0	5,842	948	4
Panel 2 - The descriptive statistics of None-SMEs						
Stock Closing Price (cents)	971	70	4	84,500	6,591	10
Stock Volumes	4,323,448	666,747	0	428,836,854	18,330,068	13
Stock Market Capitalisation (Rands)	409,296,939	161,429,380	86,343	4,167,534,085	616,578,818	3
Number of Listed Shares	546,422,565	203,181,818	664,180	8,229,773,339	1,113,467,925	5
Number of Employees	1,094	653	0	5,842	1,378	3
Panel 3 - The descriptive statistics of SMEs						
Stock Closing Price (cents)	552	75	1	35,577	2,749	9
Stock Volumes	4,521,323	950,481	0	109,395,697	11,549,399	12
Stock Market Capitalisation (Rands)	182,803,327	101,863,622	86,343	7,420,000,000	358,280,457	3
Number of Listed Shares	518,693,442	208,143,835	664,180	8,854,541,003	1,341,420,505	5
Number of Employees	74	39	0	876	116	3

Table 1, Panel 1 shows that, the stock closing prices do not have a symmetrical distribution as positive skewness is greater than zero. The closing price median is 71 which is significantly wide apart from the mean value of 696. The standard deviation which is a measure of variation from the mean also confirms the wide variation of individual stock closing price at a given period from the mean.

The volume of trades (Panel 1) in the JSE AltX is also not symmetrical as it has the skewness greater than zero (long tail to the right). The skewness of stock volumes which is 15 is greater than that of stock closing price (13). The highest volume value (428,836,854) is also wide apart from the lowest volume value (0). The high skewness is an indication of a combination of low market trades and high market trades in varying periods. This is in line with the view that illiquid market would generally have periods of low trades and as such there would be costs of delay and search costs which are costs of waiting to execute a trade for the reason of wanting to take advantage of a better upcoming trade (Amihud & Mendelson, 1991).

Although skewness of stock market capitalisation of 5 (Panel 1) is less than that of stock closing price and stock volumes, stock market capitalisation also has an asymmetrical distribution with a long tail to the right as skewness is positive. The standard deviation is high, the median is different from the mean, and the low and high values are wide apart from each other or the mean. The variation of stock market capitalisation however is more stable than stock closing prices at any given point. The relatively smaller variation around the mean for stock market capitalisation could mean that stock trades within this market circulate around this market thereby leading to a balancing effect. Another explanation could be that there might be an outlier in the observations analysed.

The number of listed shares (Panel 1) has a skewness of 5 which renders it with an asymmetrical distribution with a long tail to the right. Similar to other variables, the standard deviation is high and there is wide distance between the low and high values for the number of listed shares, and the median is different from the mean. The relatively low skewness, however indicates that the companies listed on Alt-X have a stable number of listed shares and possibly the rate of delisting is not very high.

The number of employees (Panel 1) has a positive skewness thereby implying that the number of employees have an asymmetrical distribution with a long tail to the right. The mean is also different from the median, the standard deviation is high and the distance between low and high values is large. The relatively low skewness brings an appreciation that jobs created by this market are sustainable and that the rate of job losses is not relatively high. This positive skewness finding is in line with Fakoti & Odeyemi (2010) who note that the failure rate of SMEs in South Africa is very high with 75% of new SMEs failing within the first two years. Fakoti & Odeyemi (2010) do however, find the SME sector as a major contributor to private sector employment (56% of private sector employment) and provide 36% contribution to GDP. Kongolo (2010) also confirms that SMEs contribute over 60% to GDP in South Africa and over 70% to total employment in low income countries (including South Africa) but the high failure rate of this sector plays a huge role in job shedding.

Panel 2 and Panel 3 show the descriptive statistics of the various variables for large firms and small firms respectively. It can be deduced that the skewness of all the variables are positive in nature thereby proving asymmetrical distribution with long tail to the right. This means that although the numerical results of the various variables are not the same; the fundamental observation is that there is a very high variation around the mean as indicated by each of the various descriptive statistics (median, low, high, standard deviation and skewness). An interesting observation is that the mean closing price for large companies is higher than that of small companies thereby proving large companies as more valued by investors as opposed to small companies which pose a greater risk than large firms.

4.3 IPO performance of SMEs and None-SMEs on JSE AltX

This section analyses the stock market performance of SMEs and None-SMEs at IPO month. The stock market performance is calculated as the difference between IPO share price and closing price at the end of the listing month. Based on the IPO stock returns, the IPOs abnormal returns and IPOs' cumulative abnormal returns are calculated.

Table 2 shows that the mean and median values of IPO abnormal returns for SMEs are 11.78% and 9.24% respectively. The mean value and median value for None-SMEs is 19.32% and 4.63% respectively. For both SMEs and None-SMEs the p-value indicates that the

null hypothesis that the abnormal returns and/or cumulative abnormal returns are greater than zero cannot be rejected at 5% significance level. This is due to the fact that both the p-values are greater than 5% significance level. However, the null hypotheses can be rejected at 10% confidence level for Non-MEs given that the p-value is 8.17%. An interesting finding is that the abnormal returns are positive for both SMEs and None-SMEs although they remain insignificant. The test for difference of means indicate that the stock market performance of SMEs is below that of None-SMEs at IPO stage as the difference of means is -7.54%. In addition, the difference of means test indicate that one can reject the null hypothesis (that the difference of means of Abnormal Returns is equal to zero) at 5% significance level since the p-value is 3.79%. This means that the stock market performance of SMEs is significantly different from those of None-SMEs.

Table 2: Short term performance of firms listed on AltX over the period October 2007 - December 2013

Panel	Month	IPO Abnormal Return			
		Mean	Median	T-Value	P-Value
SMEs (Decimal)	0	0.1178	0.0924	1.6100	0.1196
None-SMEs (Decimal)	0	0.1932	0.0463	1.9000	0.0817
Difference of Means	0	-0.0754	0.0461	-0.2900	0.0379

4.4 Medium term performance of SMEs and None-SMEs listed on JSE AltX

This section investigates the medium term (1- 6 months) performance of SMEs and None-SMEs companies. The results will help us understand better the stock market performance of the AltX stock post-IPO.

Table 3 shows that the mean of abnormal returns for SMEs ranged between -5% and 0.01% whilst the mean for cumulative abnormal returns ranges between -15% and 0.00%. The median for abnormal returns of SMEs range -7% and -0.00%, while for cumulative abnormal

returns ranges between 6% and 0.00%. On the None-SME front, the mean of abnormal returns range -2% and 4% while cumulative abnormal returns range -5% and -0.00%. The median for abnormal returns of None-SMEs range -3% and 3% while for cumulative abnormal returns it range -11% and 0.02%. Given that the p-values for the small companies are greater than 5% significance level, it can be deduced that the null hypothesis cannot be rejected for both abnormal returns and cumulative abnormal returns. However, for month 2 one can reject the null hypothesis at 10% significance level since the p-value is less than 0.10. Additionally, since the p-values for large companies are greater than 0.05 and/or 0.10, it can also be inferred that the null hypothesis cannot be rejected.

Table 3: Medium term performance of firms listed on AltX over the period October 2007 and December 2013

Panel	Month	Abnormal Return				Cumulative Abnormal Return			
		Mean	Median	T-Value	P-Value	Mean	Median	T-Value	P-Value
Panel 1 – 1 Medium term performance of SMEs N=26		0.0088	-0.0306	0.2400	0.8141	0.0088	-0.0306	0.2400	0.8141
	2	-0.0422	-0.0650	-1.7400	0.0930	-0.0334	-0.0293	-0.5000	0.6184
	3	-0.0268	-0.0013	-0.7300	0.4737	-0.0601	-0.0003	-0.5700	0.5724
	4	-0.0062	-0.0113	-0.1900	0.8482	-0.0664	0.0009	-0.6000	0.5556
	5	-0.0377	-0.0031	-1.1600	0.2571	-0.1041	-0.0348	-1.0400	0.3104
	6	-0.0503	-0.0666	-1.5400	0.1355	-0.1543	-0.0606	-1.4700	0.1527
Panel 2 – 1 Medium term performance of None-SMEs N=15		-0.0198	-0.0255	-1.1900	0.2530	-0.0198	-0.0255	-1.1900	0.2530
	2	-0.0298	-0.0184	-1.1000	0.2879	-0.0496	-0.0499	-1.6200	0.1281
	3	0.0357	0.0340	1.1000	0.2891	-0.0139	0.0211	-0.3200	0.7545
	4	0.0107	-0.0190	0.3000	0.7714	-0.0031	0.0021	-0.0600	0.9559

5	-0.0231	-0.0001	-0.8500	0.4071	-0.0263	-0.0182	-0.4300	0.6766
6	-0.0221	-0.0188	-0.5400	0.5972	-0.0483	-0.1094	-0.5800	0.5684

An interesting observation to note in Table 3 is that SMEs have negative abnormal returns except for month 1 which attests to the riskiness of SMEs. The mean CARs for None-SMEs are a mixture of positive and negative abnormal returns.

Table 3.1: Difference of means for the medium term performance of firms listed on AltX over the period October 2007 and December 2013

Panel	Month	Abnormal Return				Cumulative Abnormal Return			
		Mean	Median	T-Value	P-Value	Mean	Median	T-Value	P-Value
Difference of Means (SMEs & Non-SMEs)	1	0.0286	-0.0051	1.4300	0.5611	0.0286	-0.0051	1.4300	0.5611
	2	-0.0123	-0.0466	-0.6400	-0.1949	0.0163	0.0207	1.1200	0.4903
	3	-0.0625	-0.0353	-1.8300	0.1846	-0.0462	-0.0214	-0.2500	-0.1821
	4	-0.0170	0.0077	-0.4900	0.0768	-0.0632	-0.0012	-0.5400	-0.4003
	5	-0.0146	-0.0031	-0.3100	-0.1500	-0.0778	-0.0166	-0.6100	-0.3662
	6	-0.0282	-0.0479	-1.0000	-0.4617	-0.1060	0.0488	-0.8900	-0.4157

The test for difference of means indicate that in the medium term the stock market performance of SMEs is below that of None-SMEs except in month 1 where the difference of means is positive for Abnormal Returns. In addition, one can only reject the null hypothesis (that the difference of means for Abnormal Returns is equal to zero) in month 4 at the 10% significance level. In terms of Cumulative Abnormal Returns, one cannot reject the null hypothesis.

4.5 Long term performance of SMEs and None-SMEs listed on the JSE AltX

In this section, the stocks for SMEs and None-SMEs listed on the JSE AltX are analysed over 7 years from the listing date to understand the behaviour of the inherent abnormal returns and cumulative abnormal returns. The purpose of this analysis is to assess whether there is any varying behaviour of abnormal returns and cumulative returns when compared against short-term performance and medium term performance of the stocks of SMEs and None-SMEs listed on the JSE AltX. Table 4 presents the long-term performance of SMEs and None-SMEs.

Table 4: Long term performance of firms listed on AltX over the period October 2007 and December 2013

Panel	Year	Abnormal Return	Cumulative Abnormal Return
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		Mean	Median	T-Value	P-Value	Mean	Median	T-Value	P-Value
Panel 1 - Long-term performance of SMEs	1	0.0201	-0.0382	0.3000	0.7658	-0.2053	-0.2169	-1.4100	0.1725
	2	0.0265	-0.0203	0.5500	0.5878	-0.1789	0.2498	0.0000	0.9975
	3	0.0349	-0.0258	0.5700	0.5765	-0.1439	0.5272	3.0600	0.0065
	4	-0.0638	-0.0782	-0.9700	0.3458	-0.2077	0.6435	4.3700	0.0003
	5	-0.0049	-0.0369	-0.0600	0.9514	-0.2127	0.6704	2.9600	0.0080
	6	0.0232	0.0396	0.3300	0.7446	-0.1895	0.5613	3.4500	0.0035
	7	-0.0424	-0.0493	-0.3600	0.7366	-0.2319	0.4495	1.8700	0.1209
Panel 2 -Long-term performance of None-SMEs	1	-0.0446	-0.0226	-1.4900	0.1571	-0.1863	-0.3331	-1.5700	0.1390
	2	0.0101	0.0651	0.2200	0.8258	-0.1762	0.1213	0.3900	0.7008
	3	-0.0432	0.0388	-1.0500	0.3155	-0.2194	0.1629	1.5900	0.1374
	4	-0.0194	-0.0444	-0.3000	0.7722	-0.2388	0.2941	0.2700	0.7943
	5	-0.0235	0.0254	-0.3200	0.7530	-0.2623	0.3633	2.0600	0.0639
	6	0.0687	0.1013	1.4200	0.1890	-0.1936	0.7481	2.5900	0.0291
	7	0.0032	-0.0302	0.1400	0.8946	-0.1904	0.6808	1.9300	0.1257

Table 4 presents the performance of SMEs and None-SMEs over a period of 7 years subsequent to IPO. Table 4 shows that the mean of abnormal returns for SMEs stocks range -6% and 3% while the mean of cumulative abnormal returns for SME stocks range -23% and -14%. The median for abnormal returns of stocks for SMEs range -8% and 4% while the median for cumulative abnormal returns of stocks for SMEs ranges -22% and 67%. In terms of None-SMEs, the mean of abnormal returns range -4% and 7% while the mean for cumulative abnormal returns range -26% and -18%. The median for abnormal returns of stocks of None-SMEs range -4% and 10% while the median for cumulative abnormal returns of stocks of None-SMEs range -33% and 75%.

The results show that we cannot reject the null hypothesis that the abnormal returns are significantly different from zero for both SMEs and None-SMEs. Interestingly, the cumulative abnormal returns for SMEs have p-values less than 0.05 from year 3 to year 6 thereby confirming that one can reject the null hypothesis that the cumulative abnormal returns are significantly different from zero. However, for None-SMEs, the null hypothesis cannot be rejected that the cumulative abnormal returns are significantly different from zero except for year 5 where the null hypothesis can be rejected at 10% confidence level and year 6 where the null hypothesis can be rejected at 5% confidence level.

The results for all the 7 years are mixed although for the most part show that post IPO abnormal returns are not significantly different from zero. In terms of cumulative abnormal returns, the results do indicate that in some cases, the cumulative abnormal returns are significantly different from zero.

Table 4.1: Difference of means test for the long term stock market performance of firms listed on AltX over the period October 2007 and December 2013

Panel	Year	Abnormal Return				Cumulative Abnormal Return			
		Mean	Median	T-Value	P-Value	Mean	Median	T-Value	P-Value
Difference of Means	1	0.0648	-0.0156	1.7900	0.6087	-0.0191	0.1162	0.1600	0.0335
	2	0.0163	-0.0854	0.3300	-0.2380	0.0731	0.1285	-0.3900	0.2967
	3	0.0782	-0.0646	1.6200	0.2610	0.4262	0.3644	1.4700	-0.1309
	4	-0.0444	-0.0338	-0.6700	-0.4264	0.9775	0.3494	4.1000	-0.7940
	5	0.0186	-0.0623	0.2600	0.1984	0.8966	0.3070	0.9000	-0.0559
	6	-0.0455	-0.0617	-1.0900	0.5556	0.4771	-0.1868	0.8600	-0.0256
	7	-0.0455	-0.0190	-0.5000	-0.1580	0.4905	-0.2313	-0.0600	-0.0048

The test for difference of means indicate that in the long term the stock market performance of SMEs outperform None-SMEs in the first three years and the fifth year but underperform None-SMEs in year 4, 6 and 7 when considering the means of Abnormal Returns. In terms of the means of Cumulative Abnormal Returns, SMEs underperform None-SMEs in year 1 only. The null hypotheses (that the difference of means is zero) cannot be rejected for Abnormal Returns but can be rejected at year 1, 5, 6 and 7 at 10% significance level for Cumulative Abnormal Returns.

Summary of findings

This section analyses the results of the various tests that were conducted. Based on the findings, it can be ascertained that for the most part, the null hypothesis that the abnormal cumulative returns are zero cannot be rejected although in certain instances one could reject the null hypothesis for certain months. In the long term scenario, it came out that the cumulative abnormal returns were in most part statistically significant from zero for SMEs while cumulative abnormal returns for None-SMEs had notable but few events of significant results. This means that in most instances, the behaviour of stocks listed in the JSE AltX exhibit the characteristics of companies that have stocks that are correctly priced while in a few instances, some months indicate that the stock prices are not correctly priced. These months would be outliers that could potentially make it seem that the entire stock markets in the AltX are not correctly priced.

Chapter 5

Discussion and conclusion

5.1 Introduction

The purpose of this section is to discuss the results of this study against findings that were made by other related studies. Additionally, this chapter intends to conclude and lay out the recommendation as well as to suggest areas of future research. Accordingly, section 5.2 discusses the findings. Section 5.3 concludes the study and section 5.4 presents the recommendations for future research.

5.2 Findings

The JSE AltX market exhibit positive skewness with long tail to the right for all the variables described such as stock closing price, stock volumes, stock market capitalisation, number of listed shares and the number of employees. From the results shown in chapter 4 it came out clear that the number of employees has the least skewness among the aforementioned variables for both SMEs and None-SMEs thereby showing that employees are the least affected during economic downturns relative to the other variables. This finding is in line with the finding by Sit (1982) which showed that in Hong Kong, the SME sector maintained a steady and important position in the country's industrial structure. Choi (2000) also found that SMEs bring stability to the national economies as they have the ability to help support an economy from the boom and bust of economic cycles.

One of the findings is that SMEs exhibit negative abnormal returns post month 1 since IPO whereas None-SMEs have a combination of positive and negative abnormal returns. This suggests that SMEs distract portfolio performance. This study suggests that this could be due to idiosyncratic factors specific to the stocks listed in the small cap which goes hand in hand with the studies of Vissing-Jorgensen (2003). This study is supported by the findings of Vissing-Jorgensen (2003) which noted that SMEs can be affected by idiosyncratic factors specific to listed small cap stocks. Vissing- Jorgensen (2003) and Dietrich (2012), findings corroborate with ours in that it is difficult to value small firms as opposed to large firms due to lower information efficiency experienced when valuing small firms.

This study acknowledged that the reason for excessively high cumulative abnormal returns could be due to the fact that the opportunity cost of obtaining information about small capitalisation stocks were not included in the purchase price, otherwise the abnormal returns would probably disappear (Leinbach & Lusting, 1983). This finding is also consistent with another study that found that small caps generally have a very high and significant beta with respect to their country's respective market index thereby showing the unlikelihood to be tracked by a market index (Eun & Lai, 2008). This study also found that in the short term SMEs and None-SMEs experience positive abnormal returns and cumulative abnormal returns. This result is inconsistent with the finding of Reinganum (1981) which shows that small firms earn an average abnormal return of 20% higher than that of large firms. Reinganum (1981) found that abnormal returns are positive for both small and large firms in the first year. Using fundamental analysis approach (Abarbanell & Bushee, 1998) found that significant abnormal returns are likely to occur over the long term as opposed to the short term. In terms of the short-term results of this study, the finding by Abarbanell & Bushee (1998) corroborate with ours for SMEs. This study also found that SMEs stock market performance is below that of None-SMEs in the short term.

This study found that in the medium term, results indicates the possibility of the JSE AltX not offering significant abnormal returns for investors. This result is inconsistent with a finding by (Vives, 1995) which shows that market prices diverge from their fundamental values in the short term due to excess volatility. This trend is also called short-termism. Vives (1995) acknowledge however that this finding is different from what is accepted by market efficiency i.e. that the volatility of stocks in the short term is an indication that information is already captured in the stock prices. Compared to None-SMEs, it was found that the stock market performance of SMEs is below that of None-SMEs.

Another study which is inconsistent with this paper's finding is the study by (Gumbel, 2005) which shows that the short termism behaviour is common due to the agency problem between the firm and its managers. Additionally, (Gumbel, 2005) shows that short-termism behaviour may also prevail in the absence of moral hazard problem over the choice of horizon. However, the findings to this paper are consistent with that of Reinganum (1981) which show that significant abnormal returns and/or cumulative abnormal returns can be expected in the long term. Another finding observed in the medium term is that SMEs earn negative abnormal returns

post month 1 while None-SMEs have both positive and negative abnormal returns. Reinganum (1981) also found that abnormal returns for SMEs are negative post month 1 and this is an indication of the high riskiness of small firms.

In the long term, it was discovered that the mean abnormal returns were a mixture of positive and negative abnormal returns for both SMEs and None-SMEs. This finding is inconsistent with the findings of Kennedy, Sivakumar & Vetzal (2006), Ritter (1991) who show that in the long term, the abnormal returns of the stocks listed on small capital markets are negative. Mitchell & Stafford (2000) rejects the efficient market hypothesis by producing large estimates of long-term abnormal returns following major corporate events where in most instances the long term abnormal returns were significantly different from zero. Other studies such as (Szewczyk & Zantout, 2008) show that the significance in long term abnormal returns is also due to the post-earnings announcement drift which is an exercise not covered by this research paper. The study also found that the stock market performance of SMEs is above that of None-SMEs for the most part in the long term which corroborate with the finding of Reinganum (1981) which show that significant abnormal returns and/or cumulative abnormal returns can be expected in the long term.

5.3 Conclusion

The interesting results of this paper came from the long term analysis. The results for all the years are mixed although for the most part show that post IPO abnormal returns are not significantly different from zero. In terms of cumulative abnormal returns, the results do indicate that in some cases, the cumulative abnormal returns are significantly different from zero.

What was an interesting observation is that for the most part SMEs experience negative abnormal returns as opposed to large firms. This was also evident in the test of difference of means for SMEs and None-SMEs which showed that in most parts the stock market performance of SMEs underperformed when compared to None-SMEs. This research paper therefore shows that for the most part, the stock prices in the JSE AltX are correctly priced at IPO stage. However, post IPO stage, there are certain months that are characterised by statistically significant abnormal returns and/or cumulative abnormal returns which can help investors gain extra returns from investing in the JSE AltX.

Interestingly, the purpose of this research was to also investigate whether stocks of SMEs listed on JSE AltX behave differently from stocks of large companies. Based on the results of this paper, it was discovered that stocks of SMEs and None-SMEs behave almost the same when it comes to assessing the significance of abnormal returns. However, when it comes to the behaviour of cumulative abnormal returns, to a larger extent it cannot be concluded that stocks of SMEs are correctly priced over the long term period. When considering the test of difference of means, only in a few events was there statistically significant results. When it comes to whether SMEs destruct portfolio performance, it came out clear that for the most part these companies have negative abnormal returns relative to None-SMEs and thus they do destruct portfolio performance.

5.4 Recommendations for future research

The JSE AltX was established in 2003 which means that this market is fairly young and also this market has just about 63 listed companies. The implication of this is that there is limited data available for analysis given that not all companies were listed during the study period. Furthermore, this market has limited research which lives one relying on research done on similar markets in other countries. The use of research from other similar markets can only provide an indicative assessment of small caps but JSE AltX specific research will assist in ensuring that this market is analysed based on its true characteristics.

The number of employees had the lowest skewness when compared to other financial variables. It would be interesting to find out whether this could be explained by the labour laws that tend to protect jobs, the power of unions and the human behaviour that company executives would want job shedding to be the last resort during restructuring seasons.

There was limited empirical evidence showing medium term and long term performance of stocks listed on small caps, let alone research specific to JSE AltX. It is encouraged that further research in the area of understanding the behaviour of small and large company stock performance over the medium term and long term would be useful. This will allow for comparison of new research with previous studies and create a sound body of knowledge for the JSE AltX market. This will also assist the JSE in investigating whether the purpose of this

market which is to assist good quality high growth firms is being met in terms of helping these companies grow their market returns over long term sustainably.

This study focused on understanding the behaviour of market returns, abnormal returns and cumulative abnormal returns for SMEs and None-SMEs listed on the JSE AltX. It would be interesting to investigate the behaviour of accounting returns and compare them to market returns to investigate whether SMEs and None-SMEs listed on the JSE AltX are experiencing growth in terms of financial accounting— this research will help understand whether the JSE is meeting its objective to create a platform for good quality high growth firms to grow.

The index that was used as the market index was FTSE/JSE AltX index and it was established on April 2006. This posed a limitation in the sense that only observations from April 2006 had to be considered in this paper so that abnormal and cumulative returns can be calculated. This caused a major obstacle as less than 60 companies were considered when analysing either the short-term performance, medium term performance and/ or long term performance of SMEs and None-SMEs.

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