

**A CROSS SECTIONAL ANALYSIS OF SME FAILURE
WITHIN THE INDUSTRIAL SECTOR
FOCUS ON IDC FUNDED INVESTMENTS**

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Kofi Amparbeng

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Supervised by: **Professor Joshua Abor**

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ABSTRACT

Small and Medium Enterprises play an important economic role in many countries. In South Africa, for example, a significant proportion of the formal business entities are SMEs; and they contribute between 52 and 57% to GDP, and provide about 61% to employment. However, despite their significance in the local economy, SMEs regularly encounter the threat of failure. Business failure can be disruptive and costly to a large number of stakeholders, which include the owner, the employees, suppliers, customers, investors, bankers, communities, etc. This study examines failed SMEs and compares them with SMEs that are going concerns in order to discover significant differences between the two groups. The study adopted non-parametric tests and binary logistic regression methods. The final data set included 50 failures covering the calendar years July 2009 and June 2012, and 50 going concerns listed in the IDC database on 30 June 2012. The dataset was limited to industrial sector firms from the Chemicals, Metal, Textiles and Wood & Paper industry. The results of this study indicate that, the going concern sample of SMEs were larger than the failures in terms of firm size; led by more experienced management; older in terms of years in existence; and were supported by a stronger equity structure and interest cover ratio. The binary logistic regression results also show that SMEs located in provinces with high per capita income are associated with high probability of failure. But SMEs with increase in annual turnover or increase in equity structure are less likely to fail. Understanding which variables are statistically significantly different between the two groups can enable business owners to develop plans to increase their likelihood of survival. They can also help other stakeholders such as funders implement policies and controls for funding SMEs that mitigate these risk factors.

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GLOSSARY OF TERMS

CC	Close Corporation
Chemicals	Chemicals and Allied Industries Unit
COSATU	Congress of South African Trade Unions
DFI	Development Finance Institution
EBITDA	Earnings before Interest, Tax, Depreciation, and Amortisation
EU	European Union
EUR	Euro
GDP	Gross Domestic Product
IDC	Industrial Development Corporation of South Africa
KSH	Kenyan Shilling
Metals	Metals, Transport and Machinery Products Unit
MFI	Micro Finance Institution
NGN	Nigerian Naira
NSB	National Small Business
ROT	Rule of Thumb
SADC	Southern African Development Community
SAP	Systems, Applications and Products in Data Processing
SARS	South African Revenue Services
SBA	Small Business Administration
SBC	Small Business Corporation
SBU	Strategic Business Unit
SME	Small and Medium Enterprise
SPSS	Statistical Package for the Social Science
SSA	Sub-Saharan Africa
TES	Transformation and Entrepreneurship Scheme
Textiles	Textiles and Clothing Unit
U.S.	United States of America
W&R	Workout and Restructuring
Wood & Paper	Forestry and Wood Products unit
ZAR	South African Rand

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1 INTRODUCTION

1.1 Research Area

Business failure has been one of the most investigated topics in the business literature during the last seven decades (Balcaen & Ooghe, 2006a). Since the early 1930s and the initial contribution of Fitz-Patrick (1932), this field of research focused on how the study of small business failure has developed and the number of empirical studies concerning this subject has considerably increased over time (Guilhot, 2000). Business failure can be disruptive and costly to a large number of stakeholders, including the owner, employees, suppliers, customers, investors, bankers, communities, etc. Practically all studies have concluded that small business failure rates are generally high, with less than half surviving after five years (Atamian, Wagman, & VanZante, 2009). Further studies on this subject matter are still important if efforts are to be made to reverse this negative trend.

Small and Medium Enterprises (SMEs) operate in a dynamic environment in which changes permeate throughout the organisation. In addition to small businesses trying to mitigate common failure factors, such as poor managerial performance and inadequate cash flows, they also face numerous challenges, particularly in developing countries. Lack of technological advancements, inability to obtain financing, unskilled and uneducated workforces, as well as lack of infrastructure, volatility of prices, and small markets must all be overcome in order for small-scale businesses to be successful in today's globalised economy (Arinaitwe, 2006).

When entrepreneurs look at statistics on small business failure, they might be less willing to risk starting up their own businesses. An understanding of the factors associated with small business failure can, however, stimulate entrepreneurs to pursue their business ideas and contribute towards playing a critical role in the health of their economy. Even for cases where entrepreneurs failed to make a success of their business, understanding the pitfalls of failure and ways to avoid repeating the same mistake provide invaluable lessons for future attempts at running a small business.

The important role of SMEs in the South African economy necessitates an understanding of the factors that cause businesses to fail and others to succeed. A high survival rate for SMEs is important for the development of a country's economy, particularly in South Africa, where they contribute significantly to employment and development. The sector employs an estimated 61% of salaried people whilst it contributes 52% to 57% of Gross Domestic Product (GDP) (Ngwenya, 2012). Previously, many economists believed that it was the large firms which contributed in the developing of economies and attracted foreign exchange in the country; but their point of view changed when countries like Taiwan, Japan, and Korea established their economies on the basis of SMEs (Naqvi, 2011). Due to their sheer size and contribution to the South African private sector, SMEs can also form the backbone of the economy. An in-depth understanding of SME failure will help to develop a critical managerial perspective on key factors confronting small businesses. It will also enable decision-makers and the people or institutions in a position of influence to better serve the SME sector.

1.2 Problem Statement

South Africa has one the most developed economies in Sub-Saharan Africa (SSA) coupled with the continent's most sophisticated financial markets. The economy is estimated to have grown by 3.1% in 2011, up from 2.9% in 2010, with growth expected to slow to 2.8% in 2012 (African Economic Outlook, 2012). Income inequality remains one of the highest in the world and unemployment levels are unacceptably high. The dichotomy which plagues the country – one of having both elements of a first world and third world economy – has resulted in socio-economic challenges that need to be at the core of the policy makers agenda. The economic crisis and its aftermath have yet again exposed inextricable problems of this dichotomy. The gap in income inequality and wealth has undermined economic growth and social well being (Gordhan, 2012). The South African government has the difficult task of intervening and addressing this challenge. Government has expanded the social assistance to households over the past decade, but employment and economic growth are seen as the main future drivers of income growth and poverty reduction (Gordhan, 2012).

Unemployment, Poverty and Income Inequality

Unemployment has always been and continues to be one of the most important challenges facing the country. Statistics South Africa reported that there were approximately 3.9 million

persons unemployed in South Africa in the fourth quarter of 2008 (Statistics South Africa, 2012). Since the wake of the economic crisis, that level has climbed rapidly to approximately 4.2 million (23.9%) (Statistics South Africa, 2012). About 42% of young people under the age of 30 are unemployed compared with less than 17% of adults over 30 (National Treasury, 2011). This equates to almost two out of every five working age young adults in South Africa without jobs.

Poverty and income inequality still remain high and South Africa remains one of the most unequal societies in the world. For an upper-middle income country (in terms of GDP *per capita* and economic structure), its social indicators (for example: life expectancy, infant mortality or quality of education) are closer to those of lower-middle income or even low-income countries (van der Berg, 2011). Some of the facts reported by South Africa's largest trade union, the Congress of South African Trade Unions (COSATU), give an indication of the situation most of the population face: (i) over half of the economy survives on 8% of national income while the other half enjoys 92%; (ii) almost 25% of South African households experience hunger on a daily basis; (iii) an average member of a working-class household lives on R18 a day, but many actually live on less; and (iv) 44% of workers (or six million workers) live on less than R10 a day (Craven, 2012).

Reducing unemployment is the focal point of the government's approach to reducing poverty and income inequality. The New Growth Path calls on the state to provide bold, imaginative and effective strategies to create the millions of new jobs that South Africans need (National Treasury, 2011). In the 2012 budget speech by the Minister of Finance, Pravin Gordhan, he highlighted a wide range of government programmes and policies in support of job creation. One idea that emerged, in which job creation for young people might be accelerated, was for a youth subsidy to go to new start-ups as a tax incentive to encourage entrepreneurs and business innovation. Another mechanism proposed to stimulate general job creation was by supporting enterprise development. The Minister acknowledged that the country needed to move beyond debate and find the policy levers that would make a difference to the pace and dynamics of job creation across the whole economy (Gordhan, 2012). For South Africa to become more inclusive, many more people need to be provided with the opportunity to work and make a productive contribution to the economy and society (National Treasury, 2011).

Importance of SMEs to the South African Economy

The small business sector is often viewed as the incubator of employment, innovation, and growth (Craig, Jackson, & Thomson, 2005). The South African government has relied on SMEs to play a vital role in the country's economic development from as early as 1995. The White Paper on National Strategy for the Development and Promotion of Small Business in South Africa (1995) highlighted the fact that "small, medium and micro-enterprises represent an important vehicle to address the challenges of job creation, economic growth and equity in South Africa" (Mahembe, 2011). SMEs are known to provide multi-fold benefits in the economy. They perform useful roles in ensuring income stability, growth and employment (Abor & Quartey, 2010): they can create employment and contribute towards reducing poverty and hunger by providing income to the unemployed; SMEs can also address issues of inequality by expanding the productive workforce in the country; and in terms of economic contribution, they can generate higher production volumes for local consumption and exports.

South Africa's SME sector is quite vibrant with a majority of these businesses distributed across a diverse range of sectors (Obadan & Agba, 2006). Opportunities exist to operate a micro-enterprise or SME in both the formal and informal economies, as well as different industrial sectors. The problem, however, is the high failure rate that has prevented this sector from realising its full potential. The estimated failure rate of SMEs is between 70% and 80%, and millions of Rands are being lost on business ventures because of essentially avoidable mistakes and problems (Brink & Cant, 2003). Key stakeholders of small businesses need to be aware of the factors that inhibit their growth or result in failure. If small business start-ups continue to close down soon after their formation, or existing SMEs are not sustainable, the value that these enterprises can bring to the country's economy will struggle to materialise. The impact of small firm bankruptcy and failure extends to a wide array of stakeholders, including the owner, family, friends, suppliers, and customers (Carter & Van Auken, 2006). Financial investors, who stand to profit from the success of the enterprise, are also at risk when the business fails. In the case of state-owned Development Finance Institutions (DFIs) or Micro Finance Institutions (MFIs), the ramifications of failure extend beyond financial loss to developmental loss as these institutions have a broader mandate of funding sustainable entities that will contribute to the economic development of the country.

1.3 Founding Research

This study is based on the Fredland & Morris (1976) paper on small business failure. In their study, the authors related measures of firm size, age, managerial experience, location and variables relating to loans and form of organisation to the likelihood that a business will be among a group of business failures rather than among non-failures, with failure described as the ceasing of operations with losses to creditors.

The major differences between this study and the Fredland & Morris study are: (1) their sample comprised United States of America (U.S.) firms drawn from the files of Dun & Bradstreet, Inc., which at that point in time had collected data on some three million business establishments. This study was based on a much smaller sample of South African SMEs as it had been restricted to only companies that were funded by the Industrial Development Corporation of South Africa (IDC). It had been confined to files from a single DFI to allow efficient data collection. The sample does not represent the entire SME sector in South Africa, however, the results can still be useful to SME owners and stakeholders throughout the country; (2) the proposed research focused on SMEs as opposed to only small businesses; (3) the definition of failure used differed, but not to the extent that it changed the essence of the study; (4) Certain variables used by Fredland & Morris i.e. (i) size, source, and security for outstanding loans; (ii) number of 4 digit SIC's in which the firm operates; and (iii) form of organisation, were not used. These variables were either unique to the U.S. or were not meaningful to the results of this study. In addition, some new variables that were identified from the literature review as common causes of business failure have been used; and (5) This study employed binary logistic regression to estimate important determinants of failure, whereas the founding study did not use any form of multiple regression analysis.

1.4 Purpose and Significance of the Research

Purpose of Research

The purpose of this study was to examine a sample of failures and compare it to a similar sample of going concerns in order to discover significant differences between the two groups. It did not attempt to isolate the 'cause' of the failure. An understanding of such factors could enable small business owners to develop plans to increase their likelihood of survival. SMEs need to pay particular attention to failure factors that could potentially prevent them from

reaching their optimal potential. They could also help other stakeholders, such as funders, implement policies and controls for funding SMEs that mitigate these risk factors.

There had been consensus on certain factors (or variables) likely to lead to small business failure such as poor management or inadequate cash flow. With other variables, however, there were conflicting results. Prior researchers created discrepancies within literature by reporting different variables as contributors to success or failure (Lussier, 1996). This study will, therefore, add to the knowledge pool in support of some of the empirical evidence in existing literature.

Significance of Research

The first reason why this research is important is that by identifying some of the problems facing SMEs, this may give direction to the types of assistance that they receive. For example, this could be in the form of business support; strengthening the corporate governance structures of the entity, or facilitating management-training opportunities.

Secondly, South Africa was more affected by the financial crisis than many of the other Southern African Development Community (SADC) economies due to its strong international financial and trade links (Nevin, 2010). This resulted in substantial job losses, with close to one million jobs shed across the economy in 2009 (Soko, Balchin, Cupido, & Hess, 2010). To reverse this negative trend and see sustainable job creation, SMEs need to play their vital role in driving employment. Identifying significant differences between going concern SMEs and those that have failed is thus an important step.

Thirdly, understanding SME failure is an important area of research because bankruptcy is both costly and disruptive to a variety of stakeholders including owners, investors, and communities (Van Auken, Kaufmann, & Herrmann, 2009).

Given the important role of SMEs an understanding of the factors negatively affecting them is a crucial step in managing and avoiding such business failures in the long term.

1.5 Research Sample Focus

The focus of this study is IDC-funded investments. The IDC, a self-financing DFI with a mandate to promote economic growth and industrial development in South Africa and the rest of the African continent, helped build the industrial capacity that fueled the country's economic growth by funding viable businesses (Best Employers, 2012).

The IDC has special schemes in place, such as the "Transformation and Entrepreneurship Scheme" (TES), set up to finance marginalised groups in Southern Africa. One of the aims of the scheme is to stimulate and develop largely SMEs by helping entrepreneurs access finance to develop and grow their businesses. In January 2012, almost 50% of businesses funded by IDC comprised SMEs, thereby representing a sizable portion of the DFI's portfolio. A sample drawn from the IDCs books is, therefore, a suitable group for testing the research hypotheses. The ethical concern presented was that individual client information was needed in order to test the hypotheses. The research was conducted in such a manner that no confidential client information is mentioned in the paper, and no information, which makes it possible to identify a client, has been used. Furthermore, the research focuses on the aggregate of the information collected as opposed to individual client statistics, and therefore keeping client information confidential did not in any manner affect the study.

1.6 Research Assumptions

One of the key definitions used in this study is that of business failure, which does not take into account instances where the SME receives continuing support from the owner in the form of capital injections. Such a firm, had it not received additional capital to keep it operational, would in all likelihood fail. The process of the owner injecting capital into the business could continue indefinitely and prolong the failure. So although the business continues to operate, this does not imply that it is not a failure. For the purposes of this study, these firms would be difficult to isolate. The assumption is, therefore, that the owner does not prolong the failure. A business is closed if it underperforms or cannot adapt to its environment.

1.7 Outline of Sections

The remainder of the proposal is organised as follows:

Section 2 provides a brief review of the literature on small business failure. Rather than attempting an exhaustive summary of the literature, this section focuses on factors linked to the cause of small business failure found in empirical studies in order to find a set of factors that can be used for the quantitative study.

Section 3 discusses these factors, together with the expected result of the data analysis.

Section 4 compares the different definitions of SME to illustrate how widely the definitions can vary from country to country. Motivation for the criteria used to define an SME for the purposes of this study is then specified. The section also elaborates on the definitions of both business failure and non-failure.

Section 5 presents the research methodology that was used to analyse the research hypotheses. It focuses on the following topics: research approach and strategy, data period and population, data collection, sampling, data analysis methods, research reliability and validity, and research limitations.

Section 6 reports the research findings, analysis and discussions of the empirical study. Based on the outcome of the cross-section analysis comparing the failures and non-failures, it reveals which factors are statistically significantly different and whether the hypotheses can be accepted or rejected.

Section 7 summarises and draws conclusions regarding the main findings of the study. Certain recommendations to key stakeholders of SMEs are also made in this section.

Finally, section 8 highlights the recommendations for future research.

2 LITERATURE REVIEW

2.1 Introduction

This chapter reviews the various sources of literature that have focused on investigating the causes or determinants of small business failure. There has been extensive research performed on this subject matter. Such research has been critical in trying to understand why some firms fail and others succeed. This review will show that there are predominantly two broad categories which are used to classify the causes of failure, namely endogenous and exogenous factors. The chapter puts into perspective the challenges that small business owner's face and the factors that have contributed to their failure. Although each factor is looked at in isolation, it must be emphasised that there is often a combination of factors behind a business's demise. The purpose of this section is to point out the substantive findings and relevant theories which underpin this research. It does not intend to describe an exhaustive list of all the factors linked to failure, but rather narrow the discussion to the quantifiable and objective factors that can be used for the empirical study.

Previous research on small business failure has identified subjective factors such as 'quality of record keeping and financial control' or 'ability to attract and retain quality employees' as factors that can cause small business failure. These studies typically require these factors to be ranked on a scale; for example, an entrepreneur ranking their 'quality of record keeping and financial control' on a scale of 1 to 5, where 1 represents 'very poor quality' and 5 indicates 'superior quality'. Providing a numerical guideline in such instances would be a subjective matter and such measures will most likely differ from research to research. Judgement is needed when applying the guideline, which allows the possibility of subjective ratings that can be given by different assessors. To avoid uncontrollable biases, this study excluded such subjective factors from the literature review.

The chapter begins by looking at the endogenous versus exogenous classification, followed by some of the common objective endogenous factors cited in literature, and lastly at the exogenous factors known to cause small business failure.

2.2 Endogenous versus Exogenous Classification

The issue of causation of business failure is clarified somewhat by classifying causes as endogenous (internal to the firm and presumably within its control) and exogenous (external to the firm and beyond its control) (Fredland & Morris, 1976). Such a classification has the merit of providing a somewhat better policy handle since if causes are endogenous, appropriate policy “helps firms help themselves”; if exogenous, appropriate policy may seek to change the economic environment (Fredland & Morris, 1976).

Suggestions that failure is precipitated by factors that are capable of isolation and categorisation (whether strategic or tactical) across the small firm sector are simplistic, immature and dangerous (Beaver, 2003). There are likely to be several factors, both endogenous and exogenous, that cause small firm failure, and their relative significance will depend on the posture and composition of the firm and the prevailing characteristics of the operating environment (Beaver, 2003). When diagnosing the root cause of failure, a ‘chicken and egg’ scenario may exist. For example, literature postulates that undercapitalisation is one of the causes of small business failure. There could be various reasons such as management’s inability to prepare a cash flow forecast or poor financial management and planning that lead to the under-funding. Whether the cause of failure is attributable to management inefficiency or lack of finance is difficult to specify. The above shows that there may be a whole host of factors that result in small business failure or success, and caution needs to be taken when ascribing causal factors.

A large proportion of both the subjective and empirical research in the search for the cause of small firm failure, appears to be concentrated on the endogenous or internal factors of the firm – the principal of which is frequently perceived to be ‘poor management’ followed invariably by some financial deficiency such as under-capitalisation or inadequate cash flow (Beaver, 2003). The literature review below is to identify primarily endogenous factors that empirical studies have concluded result in failure. Although such factors are classified separately below, it must be noted that in most of the studies, there were a combination of factors that were considered in attempting to explain small business failure.

There have been theories developed around the attribution by entrepreneurs and experts on the causes of success or failure. According to attribution theory, entrepreneurs tend to

attribute their success to internal causes and their lack of success to external causes (Rogoff, Lee, & Suh, 2004). Attribution theory also suggests that explanations of the same events tend to differ for actors (persons whose behaviour is being explained) versus observers, who are not part of the events themselves (Ross, 1977). In this case, one would postulate that surveys in which experts ascribe causal failure factors would tend to not have a bias for either endogenous or exogenous factors, whereas surveys in which the entrepreneur provides the reasons for failure are likely to lean towards endogenous factors. This issue is important because the existence of a fundamental attribution bias should alert both entrepreneurs and those who study entrepreneurs to at least partially discount conclusions that some groups may make as to the causes of business outcomes (Rogoff, Lee, & Suh, 2004).

2.3 Endogenous Factors Identified in Literature

Size

Moah and Kanaroglou (2007) conducted a study on the survival and failure of small and medium-size business establishments in the city of Hamilton. They assumed that smaller establishments were more susceptible to failure, and as size increased, the propensity of failure decreased. Their empirical results showed that establishment size impacted the hazard of failure probability in most sectors. Koke (2002) analysed a sample of about 1,700 medium-sized and large German firms for the years 1986-1995. The study aimed to provide new stylised facts on the determinants of corporate acquisition and failure in Germany. The author concluded that firm size was an important determinant of the occurrence of bankruptcy by showing that firms were more likely to fail if they were small. Pusnik and Tajnikar (2008) studied small Slovenian firms and found that all analyses of market structure with regards to assets, employment, and revenue indicate that failed firms were, on average, smaller than surviving firms. Headd also found that firms having more resources – that were larger, with better financing and having more employees – were found to have better chances of survival (Headd, 2003).

The advantages of size supported the hypothesis of a liability of smallness, which assumed a stratification of overall death by size; with large organisations having a lower death risk and small ones facing a higher risk (Bruderl & Schussler, 1990). Thus, a decline towards

bankruptcy was more gradual for larger organisations, as they had more resources available to them in bad times (Bruderl & Schussler, 1990).

There is mixed evidence on size, however, much like some other factors. The central objective of a study by Watson & Everett (1996b) was two-fold: (i) to show how reported failure rates depended heavily on the definition of failure adopted, and (ii) to test certain hypotheses concerning the relationship between reported failure rates and the size of the business. Their data sample consisted of 5,196 small business start-ups in 51 managed shopping centres across Australia covering the period 1961-1990. The results did not support the findings of some previous research suggesting that size was a significant factor in small business failure. The results presented suggest that large businesses tend to fail more often than small businesses if 'bankruptcy' was used as the definition of failure. Conversely, the failure rate was lower for large businesses when either 'discontinuance of ownership' or 'discontinuance of business' was used as the definition of failure. When 'disposed of to prevent further losses' and 'failed to make a go of it' was used as the definition of failure, size did not appear to be a factor in the reported failure rates (Watson & Everett, 1996b). These results suggest that conclusions from some previous studies demonstrating a relationship between tendency to fail and size of business may have been driven by the choice of failure definition (Watson & Everett, 1996b).

Management Experience

Carter & Van Auken (2006) conducted a survey in which they compared the demographics and potential problem situations of 57 bankrupt firms to 55 non-bankrupt firms in an attempt to identify the root cause of bankruptcy. One of the testable hypotheses of their study looked at whether 'firms with less sophisticated owners or managers were more likely to fail than other firms'. The results of their analysis concluded that owner or manager sophistication in terms of experience and training impacted the likelihood of failure (Carter & Van Auken, 2006). Other studies also found an association between the probability of failure and the owner or manager's level of education or work experience. For example, businesses where the owner had 10 or more years of work experience and/or four or more years of college were less likely to fail (Boden & Nucci, 2000). A study by Headd (2003) used U.S. government data sources that encompassed almost all industries to analyse the factors that contributed to business failure. Amongst the factors correlated to firm survival was an educated owner (Headd, 2003). Herrington & Wood (2003) pointed out that lack of education and training

reduced management's capabilities in SMEs in South Africa and accounted for one of the reasons for their high failure rates. A paper by Mehralizadeh and Sajady (2006) examined the determinants of business start-ups, long and short-term success, and failure of small business. One of the hypotheses was to test whether the general abilities of successful entrepreneurs were higher than failed entrepreneurs. To test this hypothesis, they aggregated variables such as: education of small business managers, their major field, first job or second job, relation between their education and business activities, and previous experience of managers in relation to their business. The results of the research indicated that significant differences existed between successful and failed enterprises general abilities.

Much of the research on small business failures was summarised by Haswell and Holmes (1989). They reported that managerial inadequacy, incompetence, inefficiency, inexperience, etc., were a consistent theme explaining small business failures. A study of the perceived causes of small business failure in the apparel and accessory retailing industry in the U.S. was undertaken by Gaskill, Van Auken, & Manning (1993) to identify practices to be avoided and to aid educators, consultants, and small business support agencies to meet the needs of the small business community. Many aspects of poor management were reportedly connected to several related issues such as poor financial condition, inadequate accounting records, limited access to necessary information, and lack of good managerial advice (Gaskill *et al*, 1993). Research published by Dun & Bradstreet (1991), a company that collects data continuously on millions of businesses in the U.S. in order to ascertain the causes of failure, unequivocally stated that the primary cause of business failure was due to management incompetence of the business owner. In their survey of reasons for failure, over two-thirds of the respondents attributed failures with poor management, which included aspects of the owners' ability to plan, analyse, control or satisfactorily direct the operation of the business.

Age of Firm

The study by Watson & Everett strongly supported previous findings that age was a significant factor in small business failure; they concluded that the probability of failure declined steadily, for all definitions of failure, as businesses progress from their first five years of life to their second five years and beyond (Peacock, 2000). Javanovic (1982) argued that younger firms were more likely to fail because they faced greater variability in their cost functions while they learnt about their industry and management capabilities. As such, the business was at its greatest risk during the first few years of operations. Pompe and

Bilderbeek (2005) used large amounts of publicly available financial data from small and medium-sized industrial firms to examine several aspects of bankruptcy prediction. The authors found that the older the firm, the smaller the likelihood of bankruptcy. An article by Dickler (2007) on small business failure found that only two-thirds of new small businesses survived at least two years, and just 44 percent survived at least five years according to a study conducted by the U.S. Small Business Association. A study by Bates (1973) highlighted the impact of firm age on the likelihood of discontinuing business operations. This examined a randomly selected sample of Black-owned businesses located in three major urban areas (New York, Chicago and Boston), and all the firms that were considered had received loans from banks or the Small Business Administration (SBA). A sample of 210 white-owned firms was used as a comparison group to find variables, which discriminate between firms who successfully repay loans and firms whose loans were seriously delinquent. It found that firms in operation for three years or less had much higher failure rates than older, more established small businesses. Controlling for owner education, financial capital investment in the firm, and other factors, Bates (1973) found that firm age was the strongest single determinant of small business survival among firms owned by white males.

Poor Financial Planning

Perry (2001) conducted a study of the relationship between written business plans and the failure of small businesses in the U.S. The aim was to investigate differences between the failed firms and matched successful firms. The main conclusion was that very little formal planning went on in U.S. small businesses, however, Perry (2001) found that successful firms did more planning than similar failed firms. Keats & Bracker (1988) presented evidence suggesting that a positive relationship existed between the amount of planning which the firm undertakes and its financial performance. Some symptoms of poor financial planning cited in literature included undercapitalisation and unbalanced capital structure (Baldwin, Gray, Johnson, Proctor, Rafiquzzaman, & Sabourin, 1997; Gaskill *et al*, 1993). Coupled to this were liquidity concerns that the firm would experience such as lack of money to fund their daily operations, poor cash flow from inadequate working capital management, inability to settle short-term commitments or covenants and other finance related problems (Baldwin *et al*, 1997; Gaskill *et al*, 1993; Bowen, Morara, & Mureithi, 2009; Bradley III & Cowdery, 2004). As stated above, Bradley III (2000) found lack of financial planning led to many small businesses going bankrupt. Another financial problem was the inability of the majority of the

small business owners surveyed to adequately make credit and collection decisions, thus leading to cash flow problems (Bradley III, 2000).

Undercapitalisation

According to Schaefer (2006) it was imperative to ascertain how much money the business would require, not only the cost of starting, but also the cost of staying in business. He also stated the importance of considering that many businesses take a year or two to get going and would need sufficient funds to cover all costs until revenue started paying for these costs.

High Debt to Equity Structure

It is believed that the significance of leverage and the use of debt equity ratios were little understood by many small business owners and operators (Patrone & DuBois, 1981). Leverage relates to risk – the higher the debt to equity ratio, the higher the degree of leverage, and the higher the degree of risk (Patrone & DuBois, 1981). If a downturn materialised, broken covenants created loan defaults and ultimately resulted in business closure. Van Auken & Doran (1989) investigated the initial capitalisation and financing patterns of recently established (new) and established (old) small businesses in Iowa. Their analysis of 375 randomly selected businesses listed in the Iowa Business Directory indicated that significant differences existed between the new and old firms. According to Van Auken & Doran's (1989) results, excessive use of debt often led to liquidity problems. Their research suggested that new firms with high debt loads were not likely to survive and become old firms (Van Auken & Doran, 1989).

O'Neill & Duker (1986) carried out a comparative study on the survival and failure of small businesses. Although the response rate from the questionnaire sent out to the failed firms was low (only 11 of the 142 firms provided usable responses), the authors were still able to conclude that failed small firms had greater debt loads than surviving firms. Pusnik and Tajnikar's (2008) study of small Slovenian firms found that on average, failed firms displayed higher indebtedness than surviving firms. Another finding from their study was that the equity of numerous small firms became negative shortly before bankruptcy. Owners of firms threatened by bankruptcy tried to get as much out of their firms as they could. Often, they lowered equity capital in those firms radically before they decided on bankruptcy (Pusnik & Tajnikar, 2008).

Poor Cash Flow

Inability to manage cash flow effectively was one of the main reasons entrepreneurs failed, or experienced great difficulties in their first year of operation (Mehralizadeh & Sajady, 2006). This situation frequently arose because of external factors beyond the control of the business owner, for example, inability to secure credit with suppliers while having to provide extensive credit for customers (Mehralizadeh & Sajady, 2006). Bradley III & Cowdery (2004) stated that a lack of cash flow was often the biggest failure indicator; a lack of cash flow could cause a business to fall behind on wage payments, rent, and insurance and loan payments, as well as inhibit the company's ability to reinvest for future profits such as the ordering of products or supplies and marketing execution (Bradley III & Cowdery, 2004). This inability to manage cash flow was therefore a concern for small business as it could lead to failure.

Location

Schaefer (2006) article on the '*Seven pitfalls of business failure and how to avoid them*', stated that location was critical for the success of the business. Whereas a good location might enable a struggling business to ultimately survive and thrive, a bad location could result in disaster to even the best managed enterprise (Schaefer, 2006). Empirical studies have also shown location to be one of the determinants of small business failure. A paper by Pusnik & Tajnikar (2008) investigated the determinants of business failure in particular historical circumstances of Slovenia. The research showed that the difference between failed and surviving firms was statistically significant regarding firms' locations. The study concluded that geographic location was important for the survival of small firms in Slovenia as the local environment apparently affected survival probability. Bowen *et al* (2009) conducted qualitative research into the management of business challenges among small and micro enterprises in Nairobi-Kenya. The authors collected data from 198 SMEs using interviews and questionnaires, focused on understanding the challenges the SME owners faced and strategies they could adopt to overcome the challenges. One of the factors cited that contributed to business success was physical location of the business, where 42% of respondents believed this was one of the main reasons their business performed well (Bowen *et al*, 2009). Bradley III (2000) carried out research by surveying 189 small businesses that went bankrupt during the calendar year 1998. After analysing the primary reasons why these businesses failed, two things became evident: one, inadequate financial planning (especially operating capital for the early months of the operation); two, inadequate location knowledge by the small business owner. Although most small business owners seemed to be satisfied

with their company's location, it appeared that the owners were largely unaware of the benefits or drawbacks of location analysis (Bradley III, 2000).

The manufacturing sector might be less dependent on location than other sectors. For example, one would expect the more customer-orientated divisions such as retail and wholesale trade, and services to be related to location (Fredland & Morris, 1976). A study by Karadeniz (2009) looked at the importance of retail site selection in marketing management. It showed that in our globalised world, retail location assessment had gained more and more significance. Increasing competition led companies to be one step ahead of their rivals and act more meticulously in retail location assessment (Karadeniz, 2009). Hence, population features, income levels of people and competitive situation of the place to be selected were of primary concern (Karadeniz, 2009). An example of the importance of location for the service industry was choosing to place a fast food outlet in a retail shopping centre. This would be an ideal location, as one would expect customers shopping with their families to also eat at the fast food outlet.

Research shows that there are other factors besides demand factors that drive the decision for selecting a site for an industrial concern. Badri (2007) identified a set of fourteen critical factors of industrial location that were synthesised from an extensive search of the literature. The general critical factors of industrial location were transportation, labour, raw materials, markets, industrial sites, utilities, government attitude, tax structure, climate and community (Badri, 2007). In addition, for international location considerations, four general factors were identified: political situation of foreign countries, global competition and survival, government regulations, and economic factors (Badri, 2007). Similarly, a study by Blair & Premus (1987) noted that in addition to the traditional factors such as access to markets, labour, raw materials and transportation that were dominant location factors, there were other influential factors. These included productivity, education, taxes, community attitudes towards business, and other factors (Blair & Premus, 1987). Evident from the literature was that industrial location selection involved assessing a more complex set of factors than just demand factors.

Other Endogenous Factors

Several studies have tried to develop and test generic non-financial models that would predict a young business's success or failure. In order to help clarify prior research results, Lussier (1995) conducted a study to test each of the 15 major variables identified in 20 journal articles as contributing to success versus failure. These variables included the following, some of which have already been discussed above: capital, record keeping and financial control, industry experience, management experience, planning, use of professional advisors, education, staffing, product or service timing, economic timing, age of firm, number of business partners, parents, minority, and marketing skills of owner (Lussier, 1995). The Lussier 15-variable business success versus failure prediction model has been tested with significant results in three different parts of the world: first in United States (North America), then in Croatia (Central Eastern Europe), and lastly in Chile (South America). The model reliably predicted a group of businesses as failed or successful more accurately than random guessing in all three countries over 96 per cent of the time (Lussier & Halabi, 2010).

2.4 Exogenous Factors Identified in Literature

Economic Variables

Economic variables have a direct impact on the potential attractiveness of various strategies and consumption patterns in the economy and had significant and unequal effects on organisations in different industries and in different locations (Olawale & Garwe, 2010). Economic variables include the fiscal and monetary policies of the government, inflation, interest rates and foreign exchange rates (Olawale & Garwe, 2010). Millington (1994) found that long-term interest rates, unemployment, and inflation were the economic variables that had the greatest impact on business failure. Hudson's (1989) reported a significant positive relationship between unemployment rates and business failure, as well as a significant positive relationship between interest rates and business failure. This finding is consistent with the research performed by Everett & Watson (1998) that concluded failure was positively associated with interest rates (where failure was defined as bankruptcy) and the rate of unemployment (where failure was defined as discontinuance of business).

External forces tended to have more impact on small business than on large firms, which enjoy deeper resources to cushion change (Peacock, 2000). These economic variables influenced demand for goods and services and also had the potential to significantly affect a

firm's financial resources. Relative to large firms, SMEs possessed more limited capital and had fewer financing resources, and were, therefore, more prone to failure due to adverse economic variables. If management of the small business was not aware of the impending requirements of its external environment and they did not anticipate the potential future changes, they stood to face the risk of business failure.

Access to Finance

Lack of finance or access to finance has been often cited as a common cause of small business failure. Le, Venkatesh, & Nguyen (2006) found that one critical success factor for entrepreneurial SMEs is gaining sufficient access to external sources of finance. Hussain, Si, Xie, & Wang, (2010) state lack of financial assistance and unable to access capital were the most critical environmental failure factors. Beck & Demircuc-Kunt (2006) summarized recent empirical research, which showed that access to finance is an important growth constraint for SMEs. The author's research suggested that a competitive business environment, of which access to finance was an important component, facilitates entry, exit and growth of firms and is therefore essential for the development process.

Other External Environment Factors

Brink & Cant (2002) conducted a survey in selected provinces in South Africa. The objective of their paper was to establish to what extent owners or managers of small businesses in a typical South African setting experience selected problems or issues as negatively influencing the success of their small business. They found that the most prominent problems influencing SME success in their environment were the state of the economy, compliance with legislation, resource scarcity, HIV/AIDS, crime and corruption and rapidly changing technology.

Exclusion of Exogenous Factors from Research

The aim of the research was to identify factors that could be included in the analytical model. External factors were difficult to quantify and as Brink & Cant (2002) noted, management could exert no control over exogenous problems that manifested themselves in the economic, socio-demographic, political, technological and international spheres. Furthermore, this study was cross-sectional, whereas a longitudinal study would have been more ideal to encapsulate economic factors, as this would have shown the changes in the variables over time. So, although exogenous factors were not considered in the empirical study, what was evident

from the literature was that external factors tended to have more impact on small business than on large firms, which had more resources to deal with the change.

3 FACTORS RELATED TO SMALL BUSINESS FAILURE AND HYPOTHESES FORMULATED

3.1 Introduction

As noted earlier in this paper, one of the main purposes of the literature review was to identify objective factors related to small business failure and that could be used in the data analysis. This chapter therefore linked what has commonly been cited in literature to cause small business failure, to testable hypotheses. In general, there were six main factors linked to small business failure that emerged from the literature, each elaborated in detail in this section. For example, the first factor was firm size and the hypothesis was that the probability of failure for SMEs was related to size. The expected result of the data analysis is also discussed below for each of the factors (or variables) i.e., the direction of the relationship that the variable was expected to have with failure. For the example above, firm size was expected to be negatively associated with failure. Where there were discrepancies in the literature as to the direction of the relationship, the predominant view was taken. Throughout this chapter, the approach taken was to analyse each variable separately and then to formulate a testable hypothesis.

3.2 Research Hypothesis

The analysis of the sample of firms that have failed versus the going concern group centred on a few testable hypotheses, motivated by the literature review in section 2.2. The factors identified relating to small business failure were: (i) size, as measured by number of employees, annual sales values and fixed assets; (ii) management's experience; (iii) age of firm; (iv) debt to equity structure; (v) poor cash flow; and (vi) location. Consider briefly how each of them can be expected to relate to failure:

3.2.1 Firm Size

Firm size was a proxy for a complex of factors relating to failure: a large firm is less likely to face capital market discrimination, more apt to survive exogenous crises or serious managerial mistakes, more efficient to the extent that scale economies exists, and also probably better managed on the average than the small firm (Fredland & Morris, 1976). There are several measures of firm size; however, this study used the number of employees, volume of sales, and value of fixed assets as the proxy for size. To make a comparison of firms within an industry, any measure could reasonably be used, since production functions were

presumably similar. On the other hand, industry comparisons were inevitably biased by choice of measure (Fredland & Morris, 1976). This study focused only on industrial sector firms and all the proxies for firm size were used. SMEs that employed fewer employees, or had lower annual sales, or a smaller fixed asset base were expected to experience a higher incidence of failure relative to their larger counterparts. Reasonable hypotheses were therefore:

H1: The probability of failure for SMEs is related to size

H1a: SMEs with fewer employees are more likely to fail than others

H1b: SMEs with lower annual sales value are more likely to fail than those with higher annual sales value

H1c: SMEs with lower fixed asset bases are more likely to fail than those with higher fixed assets

3.2.2 Management Experience

Most studies found 'lack of managerial experience' to be a significant factor in differentiating firms, which fail, from those that survive. Businesses managed by experienced, competent management had a greater chance of survival than firms managed by people without prior industry or management experience. Experienced managers were inclined to be efficient and effective in implementing and monitoring the strategic and operational plan of a business. Management that lacked industry experience were more likely to mismanage their resources and had poor organisation in their business. The non-failure group was, therefore, likely to have had a higher average for years of managerial experience, expressed as follows:

H2: The probability of failure for an SME is negatively related to its key management's experience (as measured by number of year's managerial experience)

3.2.3 Age of Firm

Age of firm was another determinant used. Age of firm was defined as the number of years the business had been operational. What could be seen from literature was that the longer a firm existed, the greater the likelihood that it could weather adverse economic conditions. Older firms should be less prone to failure than younger firms. The longer a firm existed, the

more likely it was to build up resources and capabilities that enabled it to survive beyond the initial years. By building up its internal asset stocks over time, this created a buffer that shielded the firm while it adapted to the competitive environment. We would therefore expect there to be a negative relationship between age of firm and failure. This can be shown as:

H3: The probability of failure is negatively related to the age of the firm.

3.2.4 Equity Structure

One would expect failing firms to be less likely to generate internal capital and therefore would be more prone to borrowing. By looking at the debt to equity ratio or equity structure (shareholder funds to total assets) one would expect failures to have more debt than equity or a lower equity structure (lower ratio of shareholder funds to total assets). Because the data set was obtained from IDCs books, this study focused on equity structure instead of debt to equity ratio, as the equity structure measure was the more common ratio used within the IDC. A reasonable hypothesis:

H4: The probability of failure is higher for SMEs with a low equity structure

3.2.5 Cash Flow to Service Interest (Interest Cover)

A lack of cash flow was often one of the main failure indicators. Many small businesses failed because owners had a difficult time projecting what cash came in every month, and thus, how much cash would go out (Titus, 2010). An inability to manage the firm's cash flow could ultimately lead to default in servicing debt or settling short-term payables. This debt burden might lead to strained cash flows and possible liquidity problems for the entity. An indication of the company's cash flow position was an analysis of its interest cover (indicated as times interest covered). This ratio indicates the extent to which the company can meet its interest expense out of that specific year's net operating cash flow. The higher the cover, the sounder the business was likely to be as it implied that even if there was a fairly significant reduction in profitability, the business would still be able to honour its short term commitments. Thus, when considering interest cover ratio, one would expect a lower cover for failures. A testable hypothesis was:

H5: The probability of failure is higher for SMEs with a low interest cover ratio

3.2.6 Location

Selecting a location was a critical decision in determining success or failure. Marketing ideas such as population density, foot and vehicular traffic, number of local competitors and number of surrounding non-competing firms should be considered when selecting a business location (Bradley III & Cowdery, 2004). In areas (locations) where the *per capita* incomes were relatively high and in which the population grew rapidly, one would expect that demand was strong and failures relatively few (both *per capita* incomes and population growth were rough proxies for demand). These factors expected to relate to failure were summarised as:

H6: The probability of failure is negatively related to *per capita* income and percentage of population growth in the location (province) of the SME

4 DEFINING SMALL AND MEDIUM ENTERPRISES, FAILURE AND NON-FAILURE

4.1 Introduction

This chapter presents the key definitions used in this study. Which entities classified as SMEs and what constituted failure or non-failure primarily determined the population from which the sample was drawn. This chapter contrasts the fundamental characteristics that different countries used to identify SMEs. It also examined the various size thresholds that were used to distinguish SMEs in these countries. What was evident from the discussion was how the definitions diverge from country to country, as there was no single universal agreed definition of an SME. Even within South Africa, the way the National Small Business Act and the South African Receiver of Revenue define an SME differs. This chapter then motivates the definition of SME chosen for this study and what criteria needed to be met for a business to qualify under this definition.

The focus in the second part of this chapter shifts to the definition of business failure and non-failure. A study by Watson & Everett (1996b) showed that the results of previous studies reporting a negative association between propensity to fail and business size might have been driven by choice of failure definition. This section illustrates how defining failure too narrowly reduced the reported failure rate, whereas defining it too broadly increased the incidence of failure. The chapter concludes by stating how failure and non-failure was defined in this study. Both definitions are clear and concise and allow for such entities to be easily distinguishable.

4.2 Definition of Small Medium Enterprise (SME)

The term SME is interchangeable with small business. There is generally no agreed universally applicable definition. Statistical definitions generally vary based on the number of employees, the turnover of the business and/or the asset value. The importance for a definition is to identify those entities for which specific measures and programmes can be designed to support their development and success. Some generic definitions for SMEs are discussed below for the European Union (EU) and U.S., which serve as a proxy for developed countries. With South Africa being the largest economy in the SADC region, Nigeria and Kenya were used for comparative purposes as they have the largest economies in terms of

GDP in West and East Africa respectively. The different definitions were used simply to illustrate how widely the definitions vary from country to country.

Generic Definition of SME for the EU and U.S.

A new EU definition for SME came into effect on 1 January 2005, which was applied to all community acts and funding programmes. The ceilings under the new definition had a higher financial threshold. Under the European Commission's definition, SMEs are enterprises which employ fewer than 250 persons and which have either an annual turnover not exceeding €50 million, or an annual balance sheet total not exceeding €43 million (European Commission, n.d.). In addition to the thresholds, there were two other conditions to qualify as an SME: the entity needed to be an enterprise and it was required to be either autonomous, a partner or a linked enterprise.

There was no universally accepted definition within the U.S. government. The common agreed upon measure was the number of employees, which included firms with fewer than 500 employees. The revenue threshold varied and could depend on such criteria as whether the entity was a manufacturing and non-export services firm, an export services firm, or a farm, amongst other criteria.

Generic Definition of SMEs in Kenya and Nigeria

The legal definition for Nigeria was adopted at the 13th Council meeting of the National Council on Industry held in July 2001, which defined an SME as follows (Central Bank of Nigeria, 2003):

- **Small-Scale Industry:** An industry with a labour size of 11-100 workers or a total cost of not more than 50 million naira, including working capital but excluding cost of land.
- **Medium Scale Industry:** An industry with a labour size of between 101-300 workers or a total cost of over 50 million naira but not more than 200 million naira, including working capital but excluding cost of land.

There was no uniform legislated definition for SMEs in Kenya. The Micro and Small Enterprise Act of 2006 defined small and micro enterprises as those found both in the formal and informal sector and classified them into farm and non-farm categories; in addition, such enterprises did not employ more than 50 employees with annual turnover of less than KSh 4

million. (Ernst & Young, 2009). To this definition we include medium enterprises defined as those enterprises that employ between 51 to 100 employees (Ernst & Young, 2009). The criterion for turnover varied, but Lenders typically defined SMEs as businesses with annual turnovers less than KSh 50 million (Microfinance Risk Management L.L.C., 2008).

Generic Definition of SME in South Africa

The most widely used framework in South Africa is the National Small Business Act (NSB Act), which defined five categories of businesses (National Small Business Act, 1996). Under these categories, the two relevant definitions for small and medium enterprises were:

- Small enterprise: Up to 50 employees; less than R2 million to R25 million annual turnover, depending upon the industry; and less than R1 million to R4.5 million gross assets, depending on the industry.
- Medium enterprise: Maximum number of employees of 100, or 200 for the mining, electricity, manufacturing and construction sectors; less than R4 million to R50 million annual turnover, depending upon the industry; and less than R2 million to R18 million gross assets, depending on the industry.

Small enterprises were generally more established than very small enterprises and exhibit more complex business practice; and medium enterprises were often characterised by the decentralisation of power to an additional management layer. (Mahembe, 2011).

The South African Revenue Service (SARS) website stated that it did not have a single description for small business; instead there were several definitions utilised for different purposes (South African Revenue Service, n.d.):

- For Amnesty purposes, a small business is any business with a turnover of up to R10 million;
- For Income Tax purposes (Section 12E), a Small Business Corporation (SBC) is defined as a business having a turnover of less than R14 million, over and above other qualifying criteria.
- For Capital Gains Tax, a SME is described as a business having total net assets of under R5 million.

The definitions used by SARS are quite narrow, as it makes no mention of the number of employees or the business's asset base.

Comparison of Different Countries SME Criterion Ceilings

Based on the average exchange rates for the 2011 calendar year, a summary table comparing the different countries ceilings is shown below. The average exchange rate for the Euro (EUR), Nigerian Naira (NGN), and Kenyan Shilling (KSH), to the South African Rand (ZAR) for the 2011 calendar year as per oanda.com was 1 EUR: 10.0826 ZAR, 1 NGN: 0.0465 ZAR, and 1 KSH: 0.0819 ZAR respectively. These ceiling are used for illustrative purposes only as the definition used within the countries may differ depending on the cut-off points used by the various official sources.

Table 1: Comparison of SME Criteria across Selected Countries

Measure	EU	USA	Nigeria	Kenya	South Africa (NSB Act)
Number of employees	< 250	< 500	< 300	< 100	< 200
Balance sheet measure	< R434 million annual balance sheet total	n/a	< R9.3 million total cost	n/a	< R18 million gross assets
Annual turnover	< R504 million	varies	n/a	< R4.1 million	< R50 million
Average exchange rates used for conversion obtained from www.oanda.com					

The EU threshold for number of employees does not differ much from the ceiling used in South Africa, however, the annual turnover and balance sheet figures would most likely include the majority of South African businesses from qualifying. Similarly, the ceilings to qualify as an SME in Nigeria and Kenya are much lower than those in South Africa, and certain South African enterprises would be excluded from qualifying.

Definition of SME for Research Study

Despite the categorisations stipulated in the NSB Act, these categories were not used consistently by state-owned agencies or by private sector databases and research studies, making comparisons difficult and unreliable (Mahembe, 2011). The definition used by the IDC confirms this, as the definition used by it to classify SMEs differs from that in the NSB Act. Furthermore, small enterprises and medium enterprises were not distinguished when

defined. According to the IDC definition for SMEs any independent groups or companies meeting at least two of the following parameters would be classified as an SME¹:

- Less than 200 employees;
- Turnover of less than R51 million; or
- Less than R55 million in total assets

The research study is specific to samples drawn from businesses funded by the IDC and therefore its qualifying definition for an SME was used.

4.3 Definition of Business Failure and Non-Failure

Business Failure

There are various different meanings ascribed to the word “failure” relating to a business. To the economist, this would be a business which earned a rate of return on investment which was insufficient to cover its opportunity cost i.e., it failed to be competitive with alternative uses of economic resources (Peacock, 2000). Measuring opportunity cost as well as determining what the alternative use of economic resource did not make this a practical approach. The easiest meaning to understand and to measure was legal failure, where a business was formally liquidated or in the case of an unincorporated enterprise, the owner became bankrupt for business reasons (Peacock, 2000). An alternative approach was to look at discontinuance or an unsuccessful attempt at making the business work. When reviewing much of literature, it became apparent that the terminology of business failure such as ‘death’, ‘discontinuance’, ‘bankruptcy’, ‘insolvency’, ‘closure’ and ‘failure’ are often seen to be synonymous, and that the clarity of these terms are further confused by the emotive and frequent negative nature of perceptions regarding the subject (Beaver, 2003). This showed that there were many possible definitions that could be used for business failure. What was evident from the above is that depending on which definition of failure was used, it would affect the sample and might distort the results.

Watson & Everett (1996b & 1998) categorised the definitions of failure into four common groups. According to their findings, the two widely used definition of failure were ‘bankruptcy’ and ‘discontinuance for any reason’. This coincided with the fact that data had been most readily available for these two events that act as a surrogate measure of failure

¹ IDC Internal Document - IDC Development Scorecard v2.0, February2008

(Watson & Everett, 1996b). Defining failure as ‘discontinuance for any reason’ was a very broad measure as not all closures are as a result of failure. There might be instances where the entrepreneur closed their business for other reasons and such closure does not necessarily result in loss. Some reasons for such closure could be due to ill health, death or retirement of the principal owner, selling a viable business to pursue what seems to be another more profitable business opportunity, or exiting the business as part of a planned strategy. Defining failure as bankruptcy or discontinuance for any reason serve as the extremes within which the definitions of failure lie. The third defined failure as those firms that have been ‘disposed of to prevent further losses’; and the last commonly used definition was to attach failure to those businesses that have not been able to ‘make a go of it’ Watson & Everett (1996b & 1998).

Watson & Everett (1996a) noted that the broader the definition of failure, the higher the failure rate for small firms. When they used discontinuance of ownership as the definition (where all businesses sold or ceasing to operate are classified as failed), the discontinuance rate averaged 9.4% per annum. Where bankruptcy was used to measure failure, the rate fell to 0.7% per annum. The rate of failure was somewhere in-between these two extremes when the other two definitions were used.

Depending on which definition of failure is used, the results could be contradictory. In the same study by Watson & Everett (1996b) their results showed that large businesses tend to fail more often than small businesses when bankruptcy was used as the definition of failure. Conversely, small businesses tend to fail more often than large businesses if discontinuance of management was used as the definition. However, if a business was deemed to have failed in the case where it ceased operation or was sold to prevent further losses or because the owners had failed to ‘make a go of it’, then size did not appear to be a factor in the overall failure rate.

The definition of failure used in this study was narrow and pertains to the information contained on the IDCs Systems, Applications and Products in Data Processing (SAP) System. Instances of business failure existed when a business had been classified as either having ‘ceased manufacturing or operation’, ‘under liquidation’, ‘under legal action’ or having ‘closed down after business rescue attempts did not succeed’. This is somewhat similar to the definition used by Gaskill *et al* (1993) wherein they defined business failure as ‘wanting or

needing to sell or liquidate to avoid losses or to pay off creditors or general inability to make a profitable go of the business.’

Business Non-Failure

The first criteria used to classify a business as a ‘non-failure’ was that it had to be a going concern. The accounting definition of going concern was used, which defined a going concern as ‘a company that will continue to operate in the foreseeable future’ (Business Dictionary, n.d.). The foreseeable future usually implied that the business would continue to operate for at least the next 12 months. Not all businesses that fail to meet the definition of ‘business failure’ would be non-failures. For example, there might be instances where certain firms display signs of distress and could be placed under a turnaround strategy. Although such firms do not qualify to be failed businesses, they might receive a qualification on their audit report as having uncertainties regarding its ability to continue as a going concern.

The business needed to also have assets that exceeded their liabilities i.e., it should have been a solvent entity. If a business is able to settle its liabilities in the long term, it is unlikely that there would be loss to creditors even if it closed down or discontinued its business in the near future. Other more stringent definitions could be used such as considering only those businesses that had recorded successive years of profits or made at least industry average profits. However, those classifications were usually confined to categorising businesses as ‘successful’ and, therefore, not used in this study.

A business that was a going concern and solvent was considered a non-failure. Although this was a broad definition, it essentially included those businesses likely to exist beyond the short term of approximately 12 months.

5 RESEARCH METHODOLOGY

5.1 Introduction

This chapter is organised into eight parts, each of which is summarised briefly below. Part one discusses the research approach and strategy. This looks at the nature and design of the study, and what it aims to achieve. Part two explains the rationale for the data period chosen and the implication of using this period. Part three sets out the steps that were followed to identify the population. It details the two steps used to select the going concern and failed population from which the sample could be chosen. Part four describes the sampling method used, specifically on how the sample size was calculated and the use of stratified random sampling to select the representative sub-samples. The final data set includes 50 failures covering the calendar years July 2009 to June 2012, and 50 going concerns listed in the IDC database on 30 June 2012. Part five stipulates the variables that were used for the research. Each of the variables is elaborated in detail and the criterion that was used is explained. The data collection section concludes by looking at the different types of sources from where the variables were obtained. Part six deals with the data analysis methods and delves into the types of statistical tests that were used to interrogate the data and test the hypotheses. Part seven sets out the techniques and mechanisms that have been employed to ensure the two important principles of validity and reliability were met. Establishing validity and reliability was necessary to ensure that the conclusions drawn and recommendations made from the data analysis are relevant and meaningful. The last part of this chapter accounts for the limitations of the research.

5.2 Research Approach and Strategy

This study was designed to be quantitative in nature and based on performing statistical procedures on quantitative factors associated with small business failure. Data used to analyse these identified factors are cross-sectional. Some benefits of this type of study are that it does not involve manipulating variables and it allows one to look at numerous things at the same time. More specifically, the approach in this case was to examine empirically a cross-section of business failures and non-failures, studying the association between failure and firm size, along with other characteristics. The aim was not to isolate the “cause” of failure, as any attempt to do so would not be meaningful. This research focused only on those variables

identified during the literature review that were linked to small business failure, and determined whether they were significantly different between the two groups.

5.3 Data Period

The cut-off date for the purpose of the cross-sectional study was 30 June 2012. Two basic samples were drawn: a sample of 50 failures, all of which failed approximately between the period July 2009 and June 2012, and a sample of 50 going concerns as listed in the IDCs SAP system on 30 June 2012.

The global financial crisis and the ensuing recession coincided with the sample period chosen. This was likely to have an effect on the cause of failure as the recession would have had a pervasive effect on many businesses. This impact was partially mitigated due to the particular efforts made by the IDC. At the onset of the economic crisis in 2007/08, the IDC realised that South Africa would not be spared the effects of the recession. Proactively, it provided a response to assist companies that were impacted negatively by the recession. Part of the initiatives undertaken was to set aside a special fund of R6.1 billion to support companies in distress (Maema & Mpangase, 2010). One of the main aims of this fund was to assist companies that were successful before the onset of the economic crisis to withstand the impact of the recession and have the ability to continue growth once economic conditions improved. Ultimately, the fund was to serve businesses that had the potential to emerge from the crisis, as well as to create and preserve permanent jobs as efficiently as possible. As at August 2011, the IDC had approved R4.1 billion of the R6.1 billion allocated to assist companies in distress (My Subs, n.d.).

Guidelines were set out specifying which businesses could be considered for the distressed funding facility. The guidelines applied to companies, which were not existing IDC clients. One of the key criteria for the funding was that companies experiencing distress caused by structural or other non-economic problems were not considered for IDC intervention. This meant that the distress should have been directly as a result of the recessionary environment and not the company's internal difficulties. The main criteria used to ascertain whether businesses qualified for the distressed funding scheme included:

- For established businesses, their cyclical difficulties should have been due to the crisis. i.e., the company should have been able to demonstrate a profit history, with

acceptable financial ratios, of at least two years prior to the company experiencing problems due to the deteriorating economy.

- For companies in the start-up phase, the performance should have been in line with budgets as per their initial business or project plan and the business should have been performing in line with what could have been expected before the economic crisis.

For existing clients, the IDC continued to provide support through advice and restructuring of funding facilities in order to contribute towards prevention of the business failure. This was to give businesses experiencing distress support to counter the recessionary impact on their business. The support provided by the IDC to their existing clients as well as the criteria for accepting new clients would have partially mitigated the risk of SME failure over the selection period due to exogenous factors, in this instance the macro-economy. This was an important point for the purposes of this study as only endogenous factors were investigated.

5.4 Population

The population used in this study to compare business failures and non-failures was drawn from IDCs SAP system and the IDCs Workout and Restructuring (W&R) database. The SAP system maintains an active record of the businesses entities that have been funded by the IDC. The W&R book contains non-performing loans and equity investments of the IDC. A two-step process was followed to determine the populations. The first step was to select the going concern population from SAP and some of the failed population from SAP. The second step was to select the remaining failed population from the W&R records.

Step 1: SAP

A detailed report was downloaded which contained all the active clients on IDCs books on the 30th June 2012. This report was filtered based on the relevant input variables that were needed for the purposes of identifying the population, as follows:

- (a) ***SME classification:*** businesses were classified as either ‘SME’ or ‘non-SME’ based on the definition discussed in section 4.2. Those that met the definition of a SME were marked with an ‘X’ under the column ‘SME’. Only businesses reflected as SMEs were filtered to form part of the initial population.

(b) **Current Status – Going Concern or Failed Business:** Each entity was classified according to its administrative or legal status. A variety of descriptions were used that could be broadly split into the three distinct categories as shown below: ‘going concern’, ‘business in distress’, or ‘failed business’.

Going Concern	Business in Distress	Failed Business
<ul style="list-style-type: none"> • Current book • Financial management action* • Financial management queries * • Initial IDC attention required* • Outstanding authorised amendments * • Outstanding fee on first draw deductible * • Clients under supervision * 	<ul style="list-style-type: none"> • IDC action required 	<ul style="list-style-type: none"> • Ceased manufacturing • Legal action • Liquidation • Post write off legal action

* These businesses had pending administrative or accounting related issues. However, this did not preclude them from qualifying as going concerns.

The SME population was further narrowed to only those businesses classified under the ‘going concern’ category and ‘failed business’ category.

(c) **Industry sector:** IDC operations are classified into different Strategic Business Units (SBUs) that offer advice, support key projects and manage funding applications in specific industry sectors. Table 2 illustrates the mandate of the four industrial sector SBUs used in this study, namely (i) Chemicals and Allied Industries Unit (Chemicals), (ii) Metals, Transport and Machinery Products Unit (Metals), (iii) Textiles and Clothing Unit (Textiles), and (iv) Forestry and Wood Products Unit (Wood & Paper). The last filter was used to include only the four SBUs outline above in the population.

Table 2: IDC Industrial Sector Strategic Business Units and Mandate

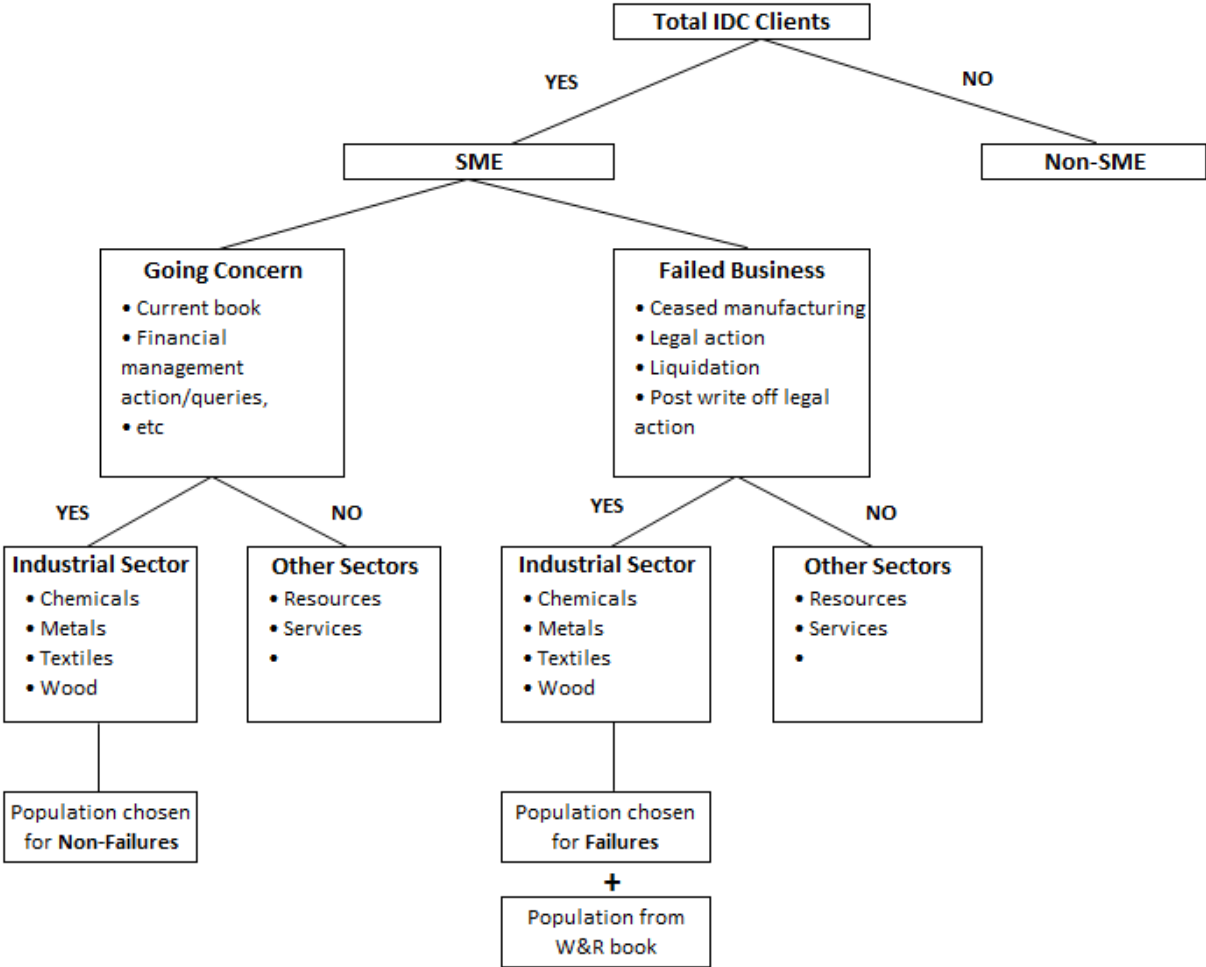
Strategic Business Unit	Mandate
Chemicals and Allied Industries	Invest in business ventures and projects in a number of chemical industry sub-sectors, from large industrial upstream and basic chemicals to cosmetics and detergents, from glass, plastic and rubber products to fine and speciality chemicals. It also focuses on ceramic, stone and concrete products.
Metal, Transport and Machinery Products	Provide industry and project development support to ferrous and non-ferrous metal-based manufacturing businesses. Sub-sectors supported by the unit include fabricated metal, capital and transport equipment; automotive assembly, including medium and heavy commercial vehicles, buses and taxis, and components; advanced manufacturing; and renewable and energy-saving industry components.
Textiles and Clothing	Support a variety of enterprises across the industry, ranging from producing natural or synthetic fabrics, to creating home décor, from leather goods to manufacturing clothes. The unit's more specific focus is on synthetic fibre production; spinning yarn, knitting and weaving fabrics; dyeing, printing and finishing fabrics; non-woven textiles; home textiles; clothing manufacturing; footwear; leather tanning; and leather products.
Forestry and Wood Products	Finance projects and investments in the forestry, sawmilling, pulp, paper, furniture and wood industries, as well as those involved in biomass, renewable energy and energy efficiency.

Source: <http://www.idc.co.za/images/Finance-by-sector/idc-corp-bro.pdf>

Step 2: W&R Book

Certain businesses that failed over the sample period did not appear on the SAP download as they were removed from the system following their failure and/or loan account closure. The W&R business unit maintains a register of these entities. A similar process to the one outlined above was followed in order to select those failures that formed part of the failed population. The two-step process used to identify the populations is illustrated in Figure 1.

Figure 1: Population Selection Process Flow Diagram



The above process resulted in a population of 129 going concerns and 83 failures being identified.

5.5 Sampling Method

5.5.1 Sample Size

There was generally no set percentage for deciding what would be an accurate sample size for every population. What was of importance was the actual number and not the percentage of the population. A sample size of 50 for both groups was deemed to be appropriate for this comparative analysis. A statistical rule of thumb (ROT) procedure was used to show that a sample size of 50 has a “medium” effect size.

5.5.2 Sampling Approach

A stratified random sampling approach was used to select the samples whereby each population was divided into subsets based on the four sector classifications i.e., (i) Chemicals, (ii) Metals, (iii) Textiles, and (iv) Wood & Paper. A sample size for each subgroup was calculated in order to ensure that each sector was represented in the same proportion that they exist in the population. The figures of the sample size for the two populations are shown in table 3:

Table 3: Population and Sample Size Breakdown

	Total SME Population	Chemicals & Allied Industries	Metal, Transport & Machinery Products	Textiles & Clothing	Forestry and Wood Products
<u>Population</u>					
Going Concerns	129	27	41	39	22
Failures	83	29	31	10	13
<u>Sample</u>					
Going Concerns	50	10	16	15	9
Failures	50	17	19	6	8

In order to select a random sample for testing where all individuals in the population had an equal and independent chance of being selected for the sample, the following steps were taken for each of the failure group and going concern group:

- A list of all SMEs in each of the sub-strata (industry sector) was listed in excel and numbered orderly from 1 to x, with x being the total sub-strata size. For example, the 27 going concerns in Chemicals sector were listed and numbered sequentially from 1 to 27;
- An excel formula was then used to obtain y unique random numbers (where y = sub-strata sample size). For example, 10 unique random numbers between 1 and 27 were generated for the Chemicals sub-sample;
- The selected random numbers generated by excel was then matched with the number assigned to the individual firms in the sequentially numbered list;
- The final step was to select those SMEs that had been matched to be part of the larger sample. For example, the 10 randomly selected businesses in the Chemicals sector were added to the 16 Metals, 15 Textiles, and 9 Wood & Paper going concern entities that were selected in a similar manner.

Once the final list of 50 entities was selected for both groups, a verification check was performed to ensure that some key requirements were met before data collection. The verification check took the following factors into consideration:

- Client files needed to be available for the entities selected;
- For the going concern group, the business needed to have been in operation for at least two years prior to 30 June 2012;
- Similarly, for the failure group, the business needed to have failed approximately between the period July 2009 and June 2012; and
- The definitions of SME, failure, and non-failure had to be strictly met.

For the purposes of this study, an iterative process was not followed to update the representative sample size i.e., it would have been more accurate to exclude those entities which did not pass the verification check from the population and re-calculate the sub-sample size. This procedure, however, would not have resulted in any significant additional value to the study; and without this reiterative process an overall random, unbiased, representative sample could still be obtained. Therefore, those entities excluded were simply replaced by re-performing the steps used to select a random sub-sample to get back to a total of 50 failed and 50 non-failed businesses as shown in table 3.

5.6 Data Collection

5.6.1 Factors Used

The literature review was used to formulate hypotheses for testing. The hypotheses were therefore the determining factor for the data that were collected. The literature review in section 2 pointed to the following factors that had been linked to the cause of small business failure:

- (1) Firm size, as measured by number of employees, annual sales, and fixed assets. All three measures were used for this study;
- (2) Experience of the management, as measured by number of years at a managerial level. Depending on the company's organogram, the structure varied widely from those entities that had a sole manager to those that had a few people at the top management

level. Only one individual was selected for this study, who was assumed to be the most senior manager. The main characteristics of this individual was that he/she was either the managing director, the chief executive officer or equivalent, the sole shareholder or majority shareholder who was actively involved at a management level, the general manager, or the person responsible for the day-to-day operations of the business. Furthermore, although this individual may have had extensive industry experience, only managerial experience was taken into consideration;

- (3) Age of firm, as measured by the number of years the firm had been in operation as at 30th June 2012 for the going concern group; and the number of years the firm was in operation prior to its failure, for the failed sample;
- (4) Equity structure, expressed as total equity in the business as a percentage of total assets. This ratio gives an indication to what extent the owners have financed the business;
- (5) Interest cover ratio, expressed by the ratio of earnings before interest, tax, depreciation, and amortisation (EBITDA) to interest expense; and
- (6) Firm location, as defined by the province where the operating facility or factory was situated. In cases where there were multiple factories, the location of the main factory was used. Provinces, grouped by *per capita* income in 2012, and by percentage of population growth between 2008 and 2012, were used as variables for comparing the samples. These variables are regarded as rough proxies for demand.

In all cases, the conservative estimate was used when there was uncertainty, although such instances were limited. There was generally a clear and objective measure or data for the variables listed above. Financial variables were extracted from the latest available annual financial statements. This was typically for the 2010, 2011 or 2012 financial year-ends for the going concern group. Similarly, the latest set of financial statements used was generally within one to three years from the approximate time of failure for the failure group. Management experience and age of firm was measured at 30 June 2012 for the going concerns, whereas for the failure sample, this was only estimated up to the year when the business failed.

5.6.2 Sources

Most of the data was obtained from the IDCs internal databases. All information and correspondence pertaining to an entity financed by the IDC is stored on the IDCs internal database. Such sources include annual financial statements, business plans, email correspondence, due diligence files, credit committee reports, management CVs, company payroll records, etc. For each company forming part of the sample, the relevant files were obtained. A summary of the sources used to extract the variables is elaborated below:

Number of Employees

The credit committee reports detailed the employment figures of the business. Only the existing employee numbers at the date of the report, i.e., excluding anticipated jobs to be created, were used. Another source was the reports which contained a summary of the jobs shown on the company's payroll records, or the EMP 102 submissions (a document submitted to the South African Receiver of Revenue detailing the number of employees in the company).

Total Assets and Annual Turnover

Total assets and annual turnover were sourced from the company's latest available annual financial statements. Total assets at the closing balance sheet date, and annual turnover as shown in the most recent income statement were used. A full 12 months annual turnover was considered for each entity.

Management Experience

The number of years' experience that the key manager had was derived from a combination of the credit committee reports, and the CV's of management obtained during the due diligence process.

Age of Firm

The credit committee reports and the business plans were used to derive the age of the firm, and this was compared to the company registration documents or company registration number for reasonableness.

Location

Per capita income per province and average population growth per province data was obtained from online or published sources. A research report compiled by the Bureau of Market Research contained statistics on personal income estimates for South Africa segmented at a provincial level. Data on annual historical population growth rate per province was found on Statistics South Africa website.

Other Financial Information

The income statement, balance sheet or detailed notes of the latest available annual financial statements were used to obtain all other financial information. Financial figures required for the analysis such as interest expense, depreciation, amortisation, taxation, EBITDA, and total equity, was extracted from these sources.

5.7 Data Analysis Methods

The first type of statistical test was to compare the median values of the variables identified in order to infer whether the populations from which the samples were drawn were significantly different. This was ultimately a test of the hypotheses stated in section 3.2, summarised below:

Number of Employees

H1a#: Number of employees in failure group = number of employees in going concern group

H1a: Number of employees in failure group \neq number of employees in going concern group

Annual Sales Value

H1b#: Annual sales value of failure group = annual sales value of going concern group

H1b: Annual sales value of failure group \neq annual sales value of going concern group

Total Fixed Assets

H1c#: Total fixed assets of failure group = total fixed assets of going concern group

H1c: Total fixed assets of failure group \neq total fixed assets of going concern group

Key Management Experience

H2#: Key management experience (in years) of failure group = key management experience of going concern group

H2: Key management experience (in years) of failure group \neq key management experience of going concern group

Age of Firm

H3#: Age of firm of failure group = age of firm of going concern group

H3: Age of firm of failure group \neq age of firm of going concern group

Equity Structure

H4#: Equity structure for failure group = equity structure for going concern group

H4: Equity structure for failure group \neq equity structure for going concern group

Interest Cover

H5#: Interest cover ratio for failure group = interest cover ratio for going concern group

H5: Interest cover ratio for failure group \neq interest cover ratio for going concern group

Province Per capita Income

H6a#: Province *per capita* income of the failure group = province *per capita* income of the going concern group

H6a: Province *per capita* income of the failure group \neq province *per capita* income of the going concern group

Province Percentage Change in Population

H6b#: Province percentage change in population of the failure group = province percentage change in population of the going concern group

H6b: province percentage change in population of the failure group \neq province percentage change in population of the going concern group

The non-parametric statistical procedure that was used to analyse and evaluate the data was the Mann-Whitney test, also known as the two sample rank test as the name indicates how the test works. This test was used to test equality of medians between the going concern population and failure population. The first step required all the observations of the variable

being tested to be ranked, with the lowest observation assigned a rank of 1, the second lowest observation received the rank 2, etc. Where two or more observations had the same value, the average rank of the tied observations was given to each observation. The next step was to calculate the sum of the ranks of the going concern sample and failure sample. If there were no significant difference in the variable of the two groups, one would expect a similar number of low and high ranks. So effectively, the sum of the ranks for the two groups should be fairly similar. On the contrary, if there were a difference between the two samples, then one would expect to find one group with lower ranks and another group with higher ranks. A test statistic (p-value) of less than 0.05 was commonly interpreted as justification for rejecting the null hypothesis (symbolised by #). The null hypothesis essentially states that there is no difference between the median values of the two groups. Rejecting the null hypothesis would therefore imply that the median for the control group was significantly different than the median of the failure group; So we reject the hypothesis that the groups are the same i.e., either the going concern sample or the failure sample of independent observations tended to have larger values than the other. The two-sided p-value was chosen because even though one was able to assume the direction of any difference before collecting the data based on the outcome of the literature review, this direction could not be stated with certainty. There was some contradiction found in previous research on the causes of small business failure such as the mixed evidence on firm size. If one were to select a one-sided test and specify the direction in advance before collecting any data, then if the data were to go the other way, the difference would have to be attributed to chance, no matter how striking the data.

The Mann-Whitney test for two independent samples was preferred over the t-test as this is a non-parametric test that does not make assumptions about the population distribution. The test did not require the data to fit a normal distribution, whereas one of the conditions for the t-test would require normally distributed data. Another benefit is that the Mann–Whitney test was less likely than the t-test to spuriously indicate significance because of the presence of outliers (Martinez-Murcia, Gorriz, Ramirez, Puntonet & Salas-Gonzalez, 2012). The reason behind this is that the median is not affected by the outliers.

The Shapiro-Wilk test was used to assess the normality of the distribution. The convention was that a significance value greater than 0.05 indicated normality of the distribution. On the contrary, a p-value of less than 0.05 allowed one to state with at least a 95% confidence that the data did not fit the normal distribution. Passing the significance test only allowed one to

state that there was no significant departure from normality found. The Shapiro-Wilk test only looked at the distribution of the sample selected and not the entire population of the groups. The p-value was less than 0.05 for at least one of the data sets (failure group or going concern group) when assessing the variables, which implied that at least one of the data sets was not normally distributed. Therefore the Mann-Whitney test was preferred over the t-test.

For correlation analysis, the Kendall rank correlation coefficient (τ) and Spearman rank correlation coefficient (ρ) was used to measure the degree of linear association between categorical distributions of the variables. These tests measure the degree to which a relationship is always increasing or always decreasing (Buxton, 2008). The Kendall tau correlation coefficient is considered to be equivalent to the Spearman rank correlation coefficient (Bolboaca & Jantschi, 2006). While Spearman rank correlation coefficient is like the Pearson correlation coefficient but computed from ranks, the Kendall tau correlation rather represents a probability (Bolboaca & Jantschi, 2006). The correlation coefficient can take on a value between -1 and +1. For the purpose of this calculation, the control group (going concerns) was assigned the value of 0 and the failure group a value of 1. Thus a negative value for the correlation coefficient relating group category (control group or failure group) to, for example, age of firm, would indicate that the older the firm is, the more likely the firm was to be a part of the control group rather than the failure group. The converse would hold where the correlation coefficient had a positive sign. A coefficient of zero indicated that there was no correlation between the variable and group assignment.

The analytical study also disaggregated the sample and looked at the association between group assignment and selected variables within the four industrial sector classifications. An analysis of how the variables related to the likelihood of failure for the Chemicals, Metals, Textiles and Wood & Paper industry was conducted separately. Similarly, when testing for correlations, the control group was assigned the value of 0 and the failure group, the value 1.

Finally, binary logistic regression was used to estimate important determinants of failure. Logistic regression is similar to multiple regression analysis, but makes no assumptions about the distribution of the independent variables (Wuensch, 2011). Furthermore, this model was suited for the analysis as the dependent variable was categorical i.e., the dependent variable was a binary indicator response, where going concern took on the value 0 and failure the value 1. The regression model was used to determine the relationship of the independent

variables on the binary response for the purposes of prediction. By interpreting the regression coefficients or odds ratios one can analyse the association between a series of independent variables and failure.

5.8 Research Reliability and Validity

Reliability and validity are the two most important and fundamental characteristics of any measurement procedure (Miller, 2011). There was a need for controls and mechanisms to be put in place in order to ensure that the research was valid and reliable. Establishing validity and reliability for quantitative research involved ensuring adequate sampling procedures, suitable statistical tests, and reliable measurement techniques. This ensures that the conclusions drawn and recommendations made from the data analysis are relevant and meaningful. One should note that reliability is necessary but not sufficient for validity; that is, for something to be valid it must be reliable, but it must also measure what it intends to measure (Miller, 2011).

Validity

Validity was defined as the extent to which the instrument measures what it purported to measure (Miller, 2011); and the closeness of what we believed we were measuring to what we intended to measure (Roberts, Priest, & Traynor, 2006). An example given by Miller (2001) was that a test used to screen applicants for a job was only valid if its scores were directly related to future job performance.

Validity was firstly established by adhering strictly to the chosen definitions of SME, failure and non-failure. The three definitions were important as they distinguished which type of businesses should be part of the sample, and also differentiated the one group from the other. With regard to the definition of an SME, restricting the sample to only those entities that were classified as SMEs was relatively easy to apply because of the objective measures used to define SMEs. The three criteria: (1) number of employees, (2) annual turnover and (3) total assets was easily verifiable and determining whether the companies selected met at least two of the three criteria was a simple procedure. In terms of the definition of non-failure, the auditors' report and directors' report were used to corroborate whether the entity was a going concern. This meant that the annual financial statement needed to be prepared on a going concern basis and/or the company should not have had an audit qualification relating to it

being a going concern. Furthermore, an additional check was to determine whether there were any reports indicating that the business was in any form of distress, which could exclude it from being a going concern. Lastly, identifying those entities that met the definition for failure encompassed screening the population for those specific characteristics used to define failure i.e., ‘ceased manufacturing or operation’, ‘under liquidation’, ‘under legal action’ or ‘closed down after business rescue attempts did not succeed’. Reports prepared within the IDC detailing the cause of failure as well as the classification of the status of the client on the internal system was used to validate whether the business was a failure.

Validity also related to the extent that the tool measured what it was supposed to measure. The study was to compare differences between a failure group of SMEs and a going concern group. The quantitative tests would, therefore, need to be able to measure whether significant differences existed. The research study was specifically designed to ensure that the appropriate test was used to test the hypotheses. As such, non-parametric tests were predominantly used due to the data not being normally distributed. These tests did not rely on numbers, but rather on ranking the data.

The data collection procedure was also important in order to ensure that quality data was measured in the end. The sample of firms drawn from the population of interest was representative of that population at the time of the study. This sample was drawn with reference to relevant factors in the study such as the industry classification, and the definition of SME, failure, and non-failure. Most of the data relating to the variables that were used was obtained from reliable secondary sources such as: the latest financial statements, company registration documents, management CVs, payroll reports, industry reports, etc. Collecting the data from reliable sources was one of the features that enhanced the trustworthiness of the study.

Reliability

Reliability was defined as the extent to which a questionnaire, test, observation or any measurement procedure produced the same results on repeated trials (Miller, 2011). In short, a test or measurement needed to be repeatable without inconsistent results in order to be reliable. An important point to understand is that a measure can be perfectly reliable and yet not be valid. The example given by Miller (2011) to illustrate this was a bathroom scale that always weighed you as being five pounds heavier than your true weight. This scale (though

invalid as it incorrectly assesses weight) was perfectly reliable as it consistently weighed you as being five pounds heavier than you truly were.

The statistical tests were performed using IBM Statistical Package for the Social Science (SPSS) and to a lesser extent Microsoft Excel. IBM SPSS Statistics is an integrated family of products that addresses the entire analytical process, from planning to data collection to analysis, reporting and deployment (SPSS Statistics, n.d.). The use of a trusted statistical package (SPSS) and a reputable commercial spreadsheet application (Microsoft Excel) was to ensure the accuracy and precision of the measurement instruments. The reasonable expectation from using these tools was that all the statistical tests used would yield identical results if re-performed, regardless of how many times the test was repeated.

Reliability and validity are ways of demonstrating and communicating the rigour of research processes and the trustworthiness of research findings (Roberts, Priest, & Traynor, 2006). It must be reiterated that although the instruments used would ensure reliability, the data would still be required to be valid in order to yield meaningful results. Simply stated, reliability was a necessary but insufficient condition for validity (Roberts, Priest, & Traynor, 2006).

5.9 Limitations

Evidence in literature supported causal observations that both exogenous and endogenous circumstances contributed to failure. Which usually “causes” failure could not be finally decided, regardless of available data, since it was in large measure a matter of how one defined “cause” and/or “failure” (Fredland & Morris, 1976). Similarly, this study did not and could not isolate the “causes” of failure, as the author did not claim to be able to state with any degree of certainty the reason why SMEs fail.

There are numerous theories on why some businesses fail and others succeed. Some of the theories point to qualitative factors such as ‘staffing’ (businesses that cannot attract and retain quality employees had a greater chance of failure than firms that can); ‘marketing’ (business owners without marketing skills had a greater chance of failure than owners with marketing skills); ‘record keeping and financial control’ (businesses that did not keep updated and accurate records and did not use adequate financial controls had a greater chance of failure

than firms that did); etc. (Lussier & Halabi, 2010). Quantifying such factors was a matter of subjectivity as this type of study was usually done through questionnaires. For the purposes of this research, only objective, quantifiable variables had been considered and therefore it did not capture some of the factors that could contribute towards distinguishing between business failure and non-failure.

Another limitation of this study was that it investigated mainly endogenous factors. Exogenous factors related to small business failure were not investigated. The literature review showed that external factors, such as the economic environment and legal environment, could impact small business failure.

One important limitation of the data was that it did not include a cross section of all SMEs; the population was limited to industrial sector entities only. Furthermore, the data was only collected from SMEs that had been funded by one DFI being the IDC. It was, therefore, not representative of the entire SME sector in South Africa and might, therefore, not cater for industry specific characteristics or other more diverse characteristics of SMEs.

A cross sectional study was performed whereby the data was collected at a specific point in time for the purpose of conducting the quantitative analysis. The limitation of this type of study was that it provided only a snapshot of a sample at the chosen point in time. Some of the variables collected, such as the financial data, were highly unlikely to be exactly the same from year to year. For example, total assets and annual turnover would in all probably differ between two financial year-end dates. Depending on which current set of annual financial statements were available, this could have had an effect on the data captured, although this would not be expected to be significant. A longitudinal study which made a series of observations more than once on the study sample could provide evidence in the changing patterns and variables impacting failure over time.

6 RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

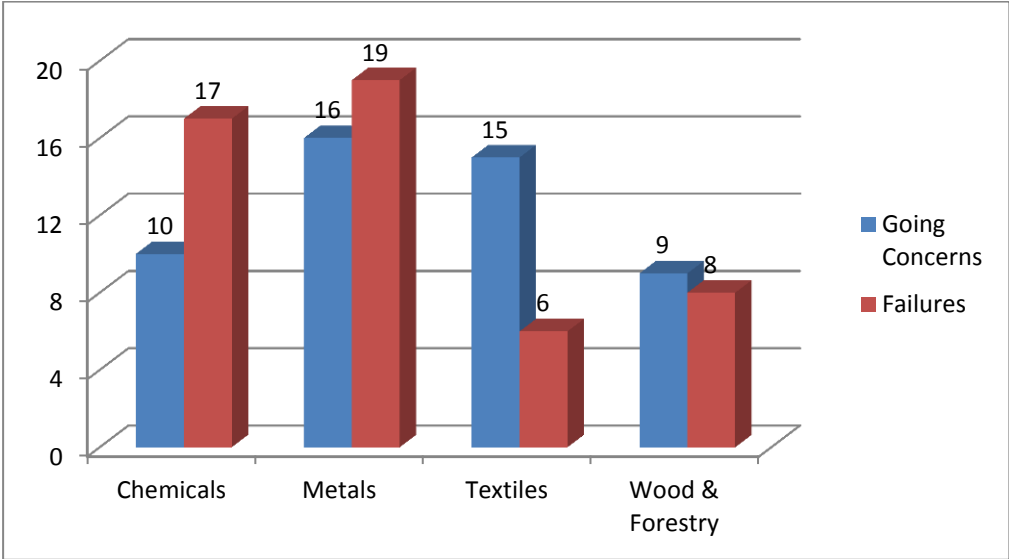
6.1 Introduction

This chapter presents the results of the empirical analysis based on the research approach detailed in chapter 5. The chapter is organised in four parts as follows: Section 6.2 gives a numeric representation and overview of the going concern and failure population that is tested later in the chapter. Section 6.3 discusses the form of business ownership. The sample only contained companies and close corporations (CCs), although there are other forms of business ownership available. This section looks at the benefits and disadvantages of having a company or CC, and whether the proportion of companies and CCs for the two samples was similar or significantly different. Section 6.4 uses descriptive statistics to describe the basic features of the study. They statistics provide simple summaries about the sample and about the variables used. The main aim of this section was to compare key variables of the two groups, specifically: total assets, annual turnover and number of employees; number of years' experience of the key management; age of firm, firms with positive equity versus those with negative equity; EBITDA and interest cover ratio; and location of operating facility. The last section, 6.5, presents the results of the data analysis. The first of the statistical techniques used to analyse the data was the Mann-Whitney test, which tests whether the medians of the two samples were the same. The Kendall Tau correlation coefficient and Spearman Rho correlation coefficient are then used to determine the association between the variables and group assignment. A logistic regression is conducted in the last part of this section taking a binary variable (going concern or failure) as the dependent variable and the six variables isolated from the literature review, as the independent variables.

6.2 Representation of Going Concern and Failure Population

The sample was representative of the population from which it was chosen. Stated differently, businesses in all four sectors were represented by about the same percentage in the sample as the population from which they were drawn as shown in Figure 2.

Figure 2: Industry Representation of Going Concerns and Failures (Number of Firms)



Chemicals and Metals had a greater proportion of failures than going concerns, whereas Textiles and Wood & Paper were the opposite. The Metals companies had both the largest share of failures and non-failures. Metals was the sector in which the most failures took place, followed by Chemical, Wood & Forestry, and lastly Textiles. The standout industry in terms of below average failure rate was the Textiles industry, where the sample only had six failures. The textiles sector was particularly vulnerable to export competition, which had increasingly hampered the local industry. There were extraneous factors such as the level of intervention or support given to the textiles industry to promote its survival and sustainable development. This could explain the lower relative failure rate of textile firms in light of the deteriorating local textiles industry where one would expect a higher relative number of failures.

6.3 Form of Business Ownership

There are generally four common types of business ownerships used in South Africa. These include sole proprietorship, partnership, CC and public or private company. The decision regarding which type of entity to use is influenced by legal, tax, and other considerations. All the entities that were part of both samples were either close corporations or private companies as shown in table 4.

Table 4: Summary of Business Form

	Non-failure	Failed
Company	33	29
Close Corp	17	21

A CC is similar to a private company in many ways. It is a legal entity with its own legal personality and perpetual succession (South African Revenue Services, 2012). Although it does not have share capital and therefore no shareholders, the ownership interest in the business is represented by the members’ interest, expressed as a percentage. Some of the key features of both a private company and a CC are that:

- Both vehicles are separate entities that exist separately from its members, in the case of a CC, or its shareholders, in the case of a private company;
- They are both seen as legal persons so their members or shareholders are not liable in their personal capacity;
- Taxable incomes that the entity makes is taxed as company tax and not in the hands of the members or shareholders;
- Members interest and shareholders shareholding are relatively easy to transfer; and
- In terms of continuity, both forms of business have a perpetual life as they continue to exist and operate irrespective of changes to members or shareholders.

The new Companies Act 71 of 2008 that came into force on 1 May 2011 included a provision that no new CCs could be registered. Furthermore, no company conversions to CCs would be registered. This change had certain implications for business owners. Some of the key benefits that incorporating a CC as opposed to a private company which no longer exist include: (i) a CC could be established and operated with relative ease; (ii) from a cost perspective, establishing a CC was relatively less expensive; and (iii) there were fewer legal requirements for a CC whereas a private company is subject to many legal requirements.

The majority for both the failure sample and non-failure sample businesses were private companies. A total of 33 (66%) of the non-failures and 29 (58%) of the failures were private companies. A comparison of the two groups was done to determine whether the proportion of private companies and CCs for the two samples were similar. The chi square test was the appropriate test for this purpose as it could be used to investigate whether distributions of categorical variables differed from one another. Using the chi square test, there was no

statistically significant difference at the 5% confidence level. In other words, both private companies and CCs were represented by about the same percentage in the non-failure sample as the failure sample.

6.4 Descriptive Statistics

6.4.1 Size

This section focuses on assets, annual turnover and number of employees as measures of size. Table 5 presents a summarised comparison of the total assets of the going concern and failure group, categorised into mutually exclusive intervals. Overall, more than two-thirds (68%) of the companies that failed had less than R10 million in assets compared to less than half (46%) of the going concern companies. Only 10% of the failed firms had more than R25 million in total assets whereas about 20% of the non-failures had assets that exceed R25 million. No entities in the two groups had assets greater than R55 million.

Table 5: Comparison of Total Assets of Going Concerns and Failures

Total Assets	Going Concerns			Failures		
	Frequency	Percent	Percent cumulative	Frequency	Percent	Percent cumulative
Under R10 mill	23	46.0%	46.0%	34	68.0%	68.0%
Between R10 mill - R25 mill	17	34.0%	80.0%	11	22.0%	90.0%
Between R25 mill - R55 mill	10	20.0%	100.0%	5	10.0%	100.0%
R55 mill or more	0	0.0%	100.0%	0	0.0%	100.0%
Total	50	100.0%	100.0%	50	100.0%	100.0%

As with assets, data on annual turnovers were categorised into four categories. Table 6 shows that seven out of every 10 business failures reported less than R10 million in annual turnover. Less than one in three non-failures (32%) made less than R10 million in revenue per annum. The majority of going concern companies earned annual revenue of between R10 million and R51 million (58% of the going concern sample). Five of the going concerns generated revenue greater than R51 million. According to the SME definition used for this study, any independent groups or companies meeting at least two of the following parameters would be classified as an SME: (i) Less than 200 employees; (ii) Turnover of less than R51 million; or (iii) Less than R55 million in total assets. Therefore, in order to qualify as an SME, these five

entities met the other two criteria; i.e., they had total assets of less than R55 million, and employed less than 200 employees.

Table 6: Comparison of Annual Turnover of Going Concerns and Failures

	Going Concerns			Failures		
	Frequency	Percent	Percent cumulative	Frequency	Percent	Percent cumulative
Under R10 mill	16	32.0%	32.0%	35	70.0%	70.0%
Between R10 mill - R30 mill	22	44.0%	76.0%	11	22.0%	92.0%
Between R30 mill - R51 mill	7	14.0%	90.0%	4	8.0%	100.0%
R51 mill or more	5	10.0%	100.0%	0	0.0%	100.0%
Total	50	100.0%	100.0%	50	100.0%	100.0%

The last typical measure of size was number of employees. Over two-thirds (70%) of the failures employed less than 50 employees and exactly half (50%) of the going concerns had less than 50 employees, as shown in Table 7. While the failure of a large business has the ability to affect many thousands of employees and thereby receive negative publicity and criticism, the impact of the failure of smaller companies should not be overlooked. Even when each small businesses failure was looked at in isolation, the demise of that business could affect many families. In cases where the failed business employed people from the nearby community, the failure might extend to impact the community as well. Altogether, the failed companies collectively employed a total of approximately 2,284 people. According to the definition of failure used, instances of business failure existed when a business had been classified as either having ‘ceased manufacturing or operation’, ‘under liquidation’, ‘under legal action’ or having ‘closed down after business rescue attempts did not succeed’. Therefore, according to the definition, at least 2,284 people who would have been put out of work following the downfall of the company. Furthermore, depending on the length of time during which the company was in distress, management may have retrenched employees prior to the eventual collapse of the business. There could be an unaccounted number of workers that lost their job before the employment data was collected. These numbers illustrate the severe effect that SME failure can have on employment.

Table 7: Comparison of Number of Employees of Going Concerns and Failures

	Going Concerns			Failures		
	Frequency	Percent	Percent cumulative	Frequency	Percent	Percent cumulative
Less than 30 employees	12	24.0%	24.0%	24	48.0%	48.0%
Between 30 – 50 employees	13	26.0%	50.0%	11	22.0%	70.0%
Between 50 – 100 employees	16	32.0%	82.0%	10	20.0%	90.0%
More than 100 employees	9	18.0%	100.0%	5	10.0%	100.0%
Total	50	100.0%	100.0%	50	100.0%	100.0%

6.4.2 Key Management Experience

The data in Table 8 shows that an overwhelming number (80%) of key management in the going concern firms had more than 10 years of experience. This finding is consistent with intuition and the expectation that more experience reduces the likelihood of failure. With regards to the primary leaders of the failed firms, the majority (40%) had between 5 and 10 years managerial experience. Somewhat surprisingly, the going concerns had one more key manager than the failure group that had less than 5 years' experience. However, when the next category was also considered i.e., key management experience less than 10 years, an entirely different picture arose; only 20% of the non-failures had key management experience of less than 10 years, compared to 50% of the failures. Once again, this was consistent with the theory of small business failure.

Table 8: Comparison of Key Management Experience of Going Concerns and Failures

	Going Concerns			Failures		
	Frequency	Percent	Percent cumulative	Frequency	Percent	Percent cumulative
Less than 5 years	6	12.0%	12.0%	5	10.0%	10.0%
Between 5 - 10 years	4	8.0%	20.0%	20	40.0%	50.0%
Between 10 - 15 years	10	20.0%	40.0%	11	22.0%	72.0%
More than 15 years	30	60.0%	100.0%	14	28.0%	100.0%
Total	50	100.0%	100.0%	50	100.0%	100.0%

6.4.3 Age of Firm

Table 9 present the age of the firm for the two groups segregated into five year intervals. As might be expected, the life span of firms that failed would have been shorter than those that

were going concerns. Approximately 82% of the failures survived for less than 10 years. On the other extreme, at least 72% of the non-failures had been in existence for over 10 years. Even more notable was the 56% that had operated for more than 15 years, compared to only 8% of the failed entities that lasted more than 15 years. Being in existence for such a long period reflected the market experience of the business and its ability to weather the economic cycles.

Table 9: Comparison of Age of Firm of Going Concerns and Failures

	Going Concerns			Failures		
	Frequency	Percent	Percent cumulative	Frequency	Percent	Percent cumulative
Less than 5	6	12.0%	12.0%	16	32.0%	32.0%
Between 5 - 10	8	16.0%	28.0%	25	50.0%	82.0%
Between 10 - 15	8	16.0%	44.0%	5	10.0%	92.0%
More than 15	28	56.0%	100.0%	4	8.0%	100.0%
Total	50	100.0%	100.0%	50	100.0%	100.0%

6.4.4 Total Equity

As Table 10 depicts, the greater majority of the failures (68%) had negative equity. These businesses were technically insolvent as their liabilities exceeded their assets. This could be expected as one of the signs of having going concern issues or the business being in distress was having negative equity. The observation was also consistent with the findings of Pusnik & Tajnikar (2008) on a study of Slovenian firms, which showed that the equity in numerous small firms became negative shortly before bankruptcy. They related this to the likelihood that the owners of the firms threatened by bankruptcy tried to get as much out of their firms as they could prior to deciding on bankruptcy. Another reason for the negative equity was that failing firm may have made continued losses before their failure. These losses could be large enough to erode the firm’s equity to the point where it became negative.

A less striking feature was that all the going concerns had positive shareholders or members equity. Sufficient equity was an indication that the business was adequately capitalised. Such a business could also reinvest its earnings in order to grow.

Table 10: Analysis of Total Equity of Going Concerns and Failures

Category	Positive Equity		Negative Equity	
	Frequency	Percent	Frequency	Percent
Going Concerns	50	100.0%	16	32.0%
Failures	0	0.0%	34	68.0%
Total	50	100.0%	50	100.0%

6.4.5 Earnings before Interest, Tax, Depreciation and Amortisation

EBITDA is a measure of the cash available from operating activities that can be utilised to service interest payments. The higher the EBITDA relative to the interest expense, the more likely it is that the business will be able to service its debt in the ordinary course of business. On the contrary, a low EBITDA relative to interest cost is an indication of suppressed cash flows available for interest service. Should the company not be able to meet its interest and debt covenants on an on-going basis, it may face the prospect of failure.

The analysis in Table 11 indicates that 43 of the going concern had operating cash flow available (i.e., positive EBITDA) to service their debt. As could be expected, the majority of these going concern entities that had positive EBITDA also had an interest cover ratio greater than one. A cover ratio greater than one means that for every R1 of interest, the business had at least R1 of cash available to service that interest. Therefore, during that period of operation 41 of the going concerns had sufficient cash to cover their interest charges. Thus, only nine of the going concerns would have experience some form of cash flow difficulty when it came to servicing interest from operating cash flow. On the contrary, 23 of the failed businesses had negative EBITDA, which indicated cash flow difficulty. A further three had an interest cover ratio of less than 1.0. Therefore, more than half of the failure sample (26 entities) could not meet their interest obligations in that particular year of operation.

Table 11: Analysis of EBITDA of Going Concerns and Failures

Category	Positive EBITDA		Negative EBITDA	
	Frequency	Interest Cover > 1.0	Frequency	Interest Cover > 1.0
Going Concerns	43	41	7	n/a
Failures	27	24	23	n/a

6.4.6 Location as a Proxy for Demand

Most of the entities for both groups had their main operating facility in Gauteng, KwaZulu Natal, or the Western Cape. These three provinces made up 78% of the going concerns and 72% of the failures. Gauteng followed by Western Cape had the highest income *per capita* levels in the whole of South Africa. KwaZulu Natal was ranked sixth out the nine provinces on a *per capita* income basis, but ranked third behind Gauteng and Western Cape on a total personal income measure. With respect to population size, based on the South African population census conducted in 2011, Gauteng and KwaZulu Natal respectively were the provinces with the highest population, with Western Cape being ranked fifth. In terms of the five-year population growth rate, Western Cape grew the fastest, followed by Gauteng and then KwaZulu Natal.

For the purposes of this study, income *per capita* and population growth rate were used as proxies for demand. What is evident from Table 12 below is that the companies for both groups set up their facilities in the three provinces which had the potential for the highest demand.

Table 12: Location of Operating Facilities

Province	Going Concern		Failures	
	Frequency	Percent	Frequency	Percent
Eastern Cape	2	4.0%	5	10.0%
Free State	1	2.0%	5	10.0%
Gauteng	18	36.0%	23	46.0%
KwaZulu Natal	11	22.0%	6	12.0%
Limpopo	0	0.0%	2	4.0%
Mpumalanga	4	8.0%	2	4.0%
Northern Cape	0	0.0%	0	0.0%
North West	4	8.0%	0	0.0%
Western Cape	10	20.0%	7	14.0%
Total	50	100.0%	50	100.0%

6.5 Data Analysis

6.5.1 Mann-Whitney Tests

In table 13, selected statistics are shown for the firms in the sample. The two samples were compared for significant differences based on the variables identified in the literature review. The results are summarised below:

In a Mann-Whitney test of median comparisons, the going concern firms had a higher median number of employees (51.5) than the failed firms (34.5). The median value of the total assets in the going concern group was R12.44 million, whereas for the failed entities the median was R6.37 million. The going concern firms also reported a higher annual turnover (median = R19.62 million) than their failed counterparts (median = R4.53 million). The test of median comparisons was very significant at the 1% level for all three measures of size.

In the case of the other variables, the median number of year's management experience of the key manager for the control group was 17.5 years compared to 10.5 years for the failure group. The median life span that enterprises traded before they failed was 7.0 years. The median number of years that the control group companies had been trading was just over double that (16.5 years). Taking into account the large number of outliers, the median equity structure for the control group was 21.6% compared to the median of -13.8% for the failure group. Likewise, the median interest cover ratio for the going concerns was 5.0 versus 0.8 for the failures. All of the above differences were also statistically significant at the 1% level.

There was no statistically significant difference between the medians of the demand proxies; i.e., the median province *per capita* income and median five-year province population growth rate was not significant at the 5% level.

Table 13: Relationship between Failure and Selected Variables

	Median Control Group	Median Failure Group	Mann- Whitney Test	Kendal tau Coefficient	Spearman rho Coefficient
Number of Employees	51.5	34.5	**	-.231**	-.280**
Total Assets (R000's)	12,438	6,370	**	-.263**	-.320**
Annual Turnover (R000's)	19,618	4,527	**	-.385**	-.469**
Management Experience (Years)	17.5	10.5	**	-.242**	-.290**
Age of Firm (Years)	16.5	7.0	**	-.400**	-.478**
Equity as % of Assets	21.6%	-13.8%	**	-.515**	-.626**
Interest Cover Ratio	5.0	0.8	**	-.276**	-.337**
Province <i>Per capita</i> Income (R000's)	NC	NC	--	0.046	0.052
5 Year Province Population Growth	NC	NC	--	-0.051	-0.057

Notes:

* Significant at the 0.05 level

** Significant at the 0.01 level

-- Not significant at the 0.05 level

For correlations, Control Group is assigned the value 0 and Failure Group, the value 1

NC = Not calculated or not meaningful as a measure

In summary, all the hypotheses except for the demand hypotheses can be rejected; i.e., H1, H2, H3, H4 and H5 can be rejected at 1% significance level, but H6 cannot be rejected at the 5% level. The data suggests that the going concern sample of independent observations tends to have larger values than the failure sample. Thus, SMEs in the going concern sample were relatively larger as measured by number of employees or total assets or annual turnover; led by more experience management; older in terms of years in existence; and were supported by a strong equity structure and cash flow repayment capacity, compared to their failed counterparts.

6.5.2 Kendall Tau Correlation Coefficient

It appeared that firm size was related to group assignment (i.e., appearance in non-failure group or failure group). The Kendall rank correlation coefficients had the expected negative sign and were significant for the size variables. This indicated that there was a greater likelihood of failure as the size of the firm decreased. Stated differently, the smaller the employee workforce, or the lower the total asset base, or the less the annual turnover of the firm, the more likely it was to fail. Given the magnitude of the correlation coefficients, this

association was weak. There was, therefore, only some indication that there was an advantage to being a big firm.

The expected relationship between managerial experience, age of firm, equity structure, and interest cover ratio, and group assignment exists, and also ranged from weak to moderate. There was a negative and significant correlation between group assignment and managerial experience, suggesting that entities with more experienced managers were likely to fair better than those with less experienced managers. Not surprisingly, chances of success increased with the age of the firm. The firm's chances of success increased the longer the business was in existence. Equity structure had the strongest correlation to group assignment, signifying that the higher the equity relative to total assets a firm had, the greater its chances of success. Interest cover also had the expected negative sign implying that as the interest cover ratio increased, then we moved from failure group (denoted as 1) to the going concern group (denoted as 0). Higher interest cover ratios were, therefore, associated with a lower probability of failure.

The demand variables suggested that there was not enough evidence to believe that there was an association between group assignment and location. The control group firms did not appear to be located in provinces with higher *per capita* incomes or fast growing areas. Both of these hypotheses were not supported at the 5% level. This was consistent with the theoretical view that industrial location selection involved assessing a more complex set of factors than just demand.

In summary, there was a correlation between all the variables and group assignment, except for the demand variables. This correlation was in line with the expected sign based on the literature review. Although this relationship was significant, the association was weak for firm size, management experience, and interest cover. On the other hand, the association was significant and moderate for equity structure and age of firm, which emphasised the importance of these two variables when considering small business failure.

6.5.3 Sector Analysis – Relationship between Failure and Factors Identified

Table 14 shows the results of disaggregating the sample by sector. The Mann-Whitney test of median can be summarised as follows: For the Chemicals sector, we reject the null hypothesis

for H1, H3, H4 and H5 at the 1% or 5% level. There was sufficient evidence to infer that a difference existed between firm size, age of firm, equity structure and interest cover ratio. For the Metals sector, H1, H2, H3, and H4 can be rejected. There was enough evidence to conclude that there was a difference between firm size, managerial experience, age of firm and equity structure between the failures and going concern in this sector. Only one of the hypotheses, H4, was rejected for the Textiles and Wood & Paper sector. There was adequate evidence to show that equity structure was significantly different for the two groups at the 5% level. We can conclude that for all the other variables, there was no difference between the going concerns and failures in these two sectors.

The Kendall rank correlation coefficient and Spearman's rho correlation coefficient showed the association between group assignment and the variables identified for the four industry sectors. Size of firm was strongly related to group assignment in both the Chemicals and Metals sector, but not in the Textiles and Wood & Paper sector. Lack of age, equity structure and interest cover were also strongly related to the likelihood of failure in the Chemicals sector. Managerial experience, lack of age, and equity structure appeared to also be strongly related to the likelihood of failure in the Metals sector. The results for equity structure were similar across all industry sectors. They indicated that failure was more likely where the equity structure had a relatively low level of equity to total assets. This helped to explain the strong association between failure and low equity structure described above in Table 13 for all firms. No other variable besides equity structure was associated with failure for both the Textiles and Wood & Paper sector. One of the reasons for the lack of association between some of the variables in the Textiles and Wood & Paper sector could be the small sample sizes. Figure 2 illustrated that these were the two sectors with the smallest representation. Similar to the results in Table 13 for all firms, failure was not related to location for all the sectors, which was not a surprising outcome.

We can conclude that there was sufficient evidence to infer that there were significant differences for the majority of the variables when analysing the Chemicals and Metals sector. The majority of the variables were related to group assignment for these two sectors. On the contrary, there was not enough evidence to infer that the medians for most of the variables were statistically significantly different for the Textiles and Wood & Paper industry; nor did the results suggest that there was a significant relationship between the groups regarding most variables.

Table 14: Associations between Failure and Variables Identified - Industry Sector Analysis

	Chemicals	Metals	Textiles	Wood & Paper
Number of Employees				
U	**	**	--	--
τ	-.452**	-.421**	--	--
ρ	-.538**	-.506**	--	--
Total Assets				
U	*	*	--	--
τ	-.336*	-.310*	--	--
ρ	-.404*	-.375*	--	--
Annual Turnover				
U	**	**	--	--
τ	-.557**	-.508**	--	--
ρ	-.670**	-.613**	--	--
Management Experience				
U	--	*	--	--
τ	--	-.285*	--	--
ρ	--	-.339*	--	--
Age of Firm				
U	**	**	--	--
τ	-.559**	-.491**	--	--
ρ	-.657**	-.586**	--	--
Equity as % of Assets				
U	**	**	*	*
τ	-.680**	-.442**	-.408*	-.507*
ρ	-.817**	-.531**	-.488*	-.602*
Interest Cover Ratio				
U	*	--	--	--
τ	-.352*	--	--	--
ρ	-.423*	--	--	--
Province per capita income				
U	--	--	--	--
τ	--	--	--	--
ρ	--	--	--	--
5 Year Province Population Growth				
U	--	--	--	--
τ	--	--	--	--
ρ	--	--	--	--

Notes:

* Significant at the 0.05 level

** Significant at the 0.01 level

-- Not significant at the 0.05 level

For correlations, Control Group is assigned the value 0 and Failure Group, the value 1

U = Mann-Whitney test; τ = Kendall tau coefficient; ρ = Spearman rho coefficient

6.5.4 Logistic Regression Results and Discussion

The results of the binary logistic regression are shown in Table 15 below.

Table 15: Binary Logistic Regression Results

Model Summary				
Measurement	Results	Significance		
-2 Log likelihood	74.083			
Cox & Snell R-Square	0.4756			
Nagelkerke R-Square	0.6341			
Omnibus Test of Model Coefficients (Chi-square)	64.5462	0.0000		
Hosmer and Lemeshow Test (Chi-square)	14.7083	0.0651		

Classification Results		
Correctly Predicted	Number	Percentage
Going Concern	41	82%
Failures	40	80%
Total	81	81%

Model Parameter Estimates				
Variable Name	β	Wald	Sig.	Exp(β)
Number of Employees	.0092	1.163	.281	1.009
Total Assets	.0001	.894	.344	1.000
Annual Turnover	-.0001	3.659	.056	0.999
Management Experience	-.0427	1.071	.301	0.958
Age of Firm	-.0544	2.075	.150	0.947
Equity as % of Assets	-.0537	15.683	.000	0.948
Interest Cover Ratio	.0003	.019	.891	1.000
Province <i>per capita</i> income	.0434	3.312	.069	1.044
5 Year Province Population Growth	-.4740	1.773	.183	0.623
Constant	.6357	.311	.577	1.888

R-Square Tests

The Cox & Snell R-square estimates the fit of the model to the data and can be interpreted in much the same way as the R-square value in multiple regression, although this value cannot reach a maximum of 1. The difference between the Cox & Snell R-square and the Nagelkerke R-square is that Nagelkerke R-square can reach a value of 1. The R-square indicates the goodness of fit of the model to the data. As shown in Table 15, this indicates that between 48% and 63% of the variation in the dependent variable can be explained by variation in the

independent variables. Therefore, between 37% and 52% remains unexplained. Both R-square values are transformations of the -2 log likelihood (-2LL) values.

Chi-Square Tests – Tests of Goodness of Fit and Model Fit

The Omnibus test of model coefficients was used to test the contribution of all the variables entered in the model. As shown in Table 15 above, the chi-square statistic is 64.546 and this test is very significant ($p = 0.000$). This implies that the variables have explanatory power in the model and, therefore, at least one of the betas (β) is not equal to zero (excluding the constant). This test is comparable to the Significance-F test in multiple regression.

The Hosmer-Lemeshow test was used to test the null hypothesis that there is a linear relationship between the predictor variable and the log odds of the criterion variable (Wuensch, 2011). A p-value greater than 5% indicates that the data fit the model well. i.e., there is not much difference between the predicted and observed values. The significance level for the chi-square statistic was 0.0651; therefore, as the value exceeded the significant threshold (although not by much), the data can be said to fit the model relatively well.

Classification results of the Model

The classification table shows the accuracy of the model by revealing the number and percentage of cases correctly classified by the model. This was another measure to determine how well the model performed. The results indicate that the model correctly predicted 41 cases (82%) of going concern sample and 40 cases (80%) of the failed sample, with an overall accuracy of about 81%.

Model Parameter Estimates

The Wald Chi-Square statistic tests the unique contribution of each predictor, in the context of other predictors (that is, holding constant the other predictors) and eliminating any overlap between predictors (Wuensch, 2011). The parameter with the maximum Wald statistic is the best one that contributes in predicting the outcome properly (De, Bandyopadhyay, & Chakraborty, 2011). The Wald statistics showed that equity structure contributes the most in determining the dependent variable followed by annual turnover and then province *per capita* income. The only predictor that met the conventional 0.05 standard for statistical significance was the equity structure variable. The results imply that an increase in equity structure is associated with a low probability of failure. Annual turnover ($p = 0.056$) and Province *per*

capita income ($p = 0.069$) were significant at the 10% level. This suggests that firms that experience increase in annual turnover are less likely to fail. But those that are located in provinces with high *per capita* incomes are more likely to fail. Although the other variables were important contributors to determining going concern and failures, equity structure, annual turnover and province *per capita* income were the significant distinguishing factors between the going concerns and the failures in the Industrial Sector. Note that the Wald Chi-Square had been criticised for being too conservative, that is, lacking adequate power (Wuensch, 2011).

The variables in the equation output also gave us the Exp (β), better known as the odds ratio predicted by the model. This odds ratio can be computed by raising the base of the natural log to the b^{th} power, where b is the slope from the logistic regression equation (Wuensch, 2011).

As per Table 15, the Exp (β) for equity structure is 0.948, which means that for each one unit or one percentage difference in equity as a percentage of total assets, the firm is 0.948 times less likely to fail, having allowed for the other variables in the model. Inverting this odds ratio for easier interpretation implies that for each one percent less equity structure that the business has, the firm is 1.055 times more likely to fail. This might not appear to be a major difference, but where there is a 20% difference in equity structure, this leads to the firm being 2.93 times (1.055^{20}) more likely to fail. For example, a firm, which has an equity structure of 5%, is 2.93 times more likely to fail than a firm with an equity structure of 25%, having allowed for the other variables in the model.

The Exp (β) statistic for annual sales of 0.99991 implies that for every R1,000 difference in annual sales, the firm is 0.99991 times less likely to fail. Inverting the odds ratio, and using a larger difference for illustrative purposes, we see that where a firm has R5 million less in annual sales, this leads to the firm being 1.56 times more likely to fail.

The other variables, although not significant in the model, can still be interpreted in much the same way. Exp (β) for management experience of 0.958 implies that for each year difference in management experience, the firm is 0.958 times less likely to fail. Inverting this odds ratio shows that for each year less experience that the key manager has, the business is 1.044 times more likely to fail. This leads to the firm being 2.35 times more likely to fail where there is a 20-year difference in management experience.

Similarly, $\text{Exp}(\beta)$ for age of firm is 0.948, which means that for each year difference in firm age, the firm is 0.948 times less likely to fail. Conversely stated, for each year decrease in age, the entity is 1.056 times more likely to fail; or for every 20 years difference in age, the firm is almost 3 times more likely to fail.

The odds ratio for the other two proxies of firm size (number of employees and total assets) and interest cover is one which means that the probability of failure did not change by much with every unit change in firm size (as measured by number of employees or total assets) or a unit change in interest cover ratio, having allowed for all other variables in the model. The other demand proxy, population growth rate, shows that low population growth rate is associated with a high probability of failure.

7 RESEARCH CONCLUSIONS

7.1 Summary

The purpose of conducting this research emanated from the current high failure rate of SMEs. Business failure is disruptive and costly as the impact of the failure is not only experienced by the owners and employees, but also by all stakeholders in the business. This study focused on identifying the factors that differentiate SME failures from going concerns. Understanding which factors are statistically and significantly different between the two groups can enable business owners to develop plans to increase their likelihood of sustainability in the market and also encourage more entrepreneurs to establish SMEs. This can also help other stakeholders, such as funders, to implement policies and controls for funding SMEs that mitigate the factors linked to failure.

The literature review identified factors related to SME failure that could be used in the empirical study. Although the cause of failure was dependent on a number of internal as well as external factors, this study was restricted to the identification of only objective internal factors that were evidenced in literature. In general, there were six main factors linked to SME failure that emerged: firm size (measured by number of employees or total assets or annual turnover), management experience, age of firm, equity structure, interest cover ratio and location of operating facility. Hypotheses were developed to test whether each of the six factors stated above were significantly different for a sample of failures and a sample of going concerns. The summary of the empirical results is included in section 7.2, with the recommendations to key stakeholders on the factors where there were significant differences, shown in section 7.3 below.

The final data set included 50 failures covering the calendar years July 2009 to June 2012, and 50 going concerns listed in the IDC database as at 30 June 2012. The data set was limited to industrial sector firms from the Chemicals, Metal, Textiles and Wood & Paper industries

7.2 Summary of the Empirical Results

Three statistical tests were performed in the empirical study. The Mann-Whitney test was used to compare the median values of the variables identified in order to infer whether the populations from which the samples were drawn were significantly different. Correlation

analysis was then used to measure the degree of linear association between categorical distributions of the variables. Finally, binary logistic regression was used to estimate important determinants of failure, having allowed for all the variables in the model.

The results of the Mann-Whitney test showed that all the hypotheses except for the demand hypothesis could be rejected at the 1% significance level i.e. H1, H2, H3, H4 and H5 were rejected. The analysis suggested that the going concern sample of SMEs was larger than the failures in terms of firm size; led by more experienced management; older in terms of years in existence; and supported by a stronger equity structure and interest cover ratio. H6 could not be rejected at the 5% level. There was no statistically significant difference between the medians of the demand proxies; i.e., the median province *per capita* income and median five year province population growth rate.

The Kendall tau rank correlation coefficient and Spearman rho correlation coefficient results showed the following relationships, which were consistent with the dominant literature view: (i) there was a lower likelihood of failure as the size of the firm increased; (ii) entities with more experienced managers were likely to fare better than those with less experienced managers; (iii) the chances of success increased with the age of the firm; (iv) the higher the equity structure of the firm, the greater its chances of success; and (v) higher interest cover ratios were associated with a lower probability of failure. Although the relationships were significant, the association was weak for firm size, management experience, and interest cover. The association was moderate for equity structure and age of firm, which emphasised the importance of these two variables when considering SME failure. The relationship between the demand proxies and failure were not significant.

The binary logistic model summary statistics indicated that between 48% and 63% of the variation in the dependent variable was explained by variation in the independent variables. The dependent variable was a binary indicator response, where going concern took on the value 0 and failure took on the value 1; and the independent variables were the six factors identified in the literature review that were linked to SME failure. The binary logistic regression results also show that SMEs located in provinces with high per capita income are associated with high probability of failure. But where there is an increase in annual turnover and equity structure, the SMEs are less likely to fail. Overall, the independent variables used had explanatory power in the model and the data fitted the model relatively well. The Wald

statistics reported showed that equity structure contributed the most in determining failure. This was also the only predictor variable that was significant at the 5% level. Annual turnover and province *per capita* income were significant at the 10% level.

7.3 Recommendations to SME stakeholders

As shown in the empirical results of the hypotheses tested, firms that were smaller, had less experienced management, were younger in age, had lower equity structures, and lower interest cover ratios, were more likely to fail. Thus, the following recommendations have been proposed for each of the factors to help mitigate the probability of failure:

Firm Size

Smaller firms' innovation and perception of customers' needs might increase their chances of thriving over the long-term and grow into larger businesses. Relatively small companies need to distinguish themselves through their superior service offering. Providing exceptional customer service should be a key area of focus for a small-sized firm, especially in a manufacturing environment where products might be similar. Furthermore, many small businesses need to recognise the importance of developing and maintaining a sound branding strategy. This could help the business distinguish itself amongst its competitors and help establish its reputation in the market. In turn this could create loyalty once customers start to trust the brand, and through their repeated purchases the business could survive over the long-term.

Small firms should also learn to be innovative and understand their markets' needs. Small firms could compete with larger competitors by creating a niche market for themselves. By specialising or focusing in a few product lines, the company could create a profitable niche for itself. Leveraging the assets of the company would probably be needed to secure that niche market.

Management Experience

Evaluation of management's capabilities and experience should be a key aspect of any financial institution's due diligence process. A separate or integrated management due diligence should be performed with the aim of identifying management's capabilities. Where the owner or key manager lacks the necessary experience, management personnel with the relevant industry experience should be recruited. They should also be willing to learn from

such persons in order to up-skill themselves. Alternatively, consultants could be employed on a short- to-medium term basis to provide the business with the necessary skills and competencies, however, the benefits of doing so should exceed the costs. DFIs such as the IDC could provide business support to entities that display a sound business case, but may not have management with the necessary experience or track record. The business support could be in the form of professional advice to management at a marginal or no cost. The professional advisor's responsibilities should encompass, at a minimum, providing an understanding of the cash flow requirements that the business requires, ensure that accurate and up-to-date accounting and regulatory records are maintained, and implement financial controls for record keeping.

Another way to up-skill management is for part of the management budget to be directed towards education and management training courses. This could include courses on how to develop a detailed business plan, how to address marketing, technical and financial risks of the business, how to manage human resources, etc. Management should regularly attend such value-adding courses in order to increase their acumen. Attending industry conferences and seminars would also be informative for management and make them aware of the latest industry trends and practices to apply in the business.

Sound corporate governance practices should be in place to compensate for lack of managerial experience. Having someone who the owner or key manager is accountable to, would increase effective monitoring of the business and ensure that the owner or manager pursues objectives that are in the best interest of the company. The major financier could have the right, but not the obligation, to appoint a member from its own institution on the company's Board of Directors. Having a financial institution as a shareholder could also enforce corporate governance as this would help ensure that financial stakeholders are informed of the fundamental issues and decisions made, and would allow them to intervene, if necessary.

Accumulating industry knowledge through previous work experience could be invaluable. An entrepreneurial-minded individual could work as an employee in the industry in which they intend to own a business and acquire the skills and competencies. Furthermore, being appointed in a managerial role before venturing into one's own business could be instrumental in developing leadership skills and experience in a decision-making capacity.

This opportunity could also be used to learn from their predecessor and other management personnel's mistakes in order to avoid similar mistakes when running their own business.

Age of Firm

Start-up businesses need to be capitalised adequately to have sufficient capital to conduct business operations and settle its obligations as they become due. A three-year monthly statement of financial position (balance sheet) and statement of comprehensive income (income statement) forecast should be prepared. This should be used to determine the maximum funding requirement that the business will require over that period. Scenarios should be run by the owner/accountant to stress test the funding shortfall and based on a conservative scenario this should indicate the funding needed. Although overcapitalisation might lead to higher finance charges, it would be an unlikely cause of failure.

The importance of business planning for young firms should not be overlooked. Having a clear strategy on how to penetrate the market, setting key objectives linked to a timeline, defining the risks and the mitigation of those risks, preparing a realistic budget, etc. are some of the factors that should be included in the business plan. If the business was not achieving the set goals or initial targets, this should serve as an early warning mechanism to the owner or key manager.

The start-up or young business should compare its performance to competitors in the industry of choice. If the business was able to match or exceed the industry norms consistently, then this would place it in good stead against its competitors and likely to increase its chance of survival. Benchmarking the business to industry norms would also provide the owner or key manager with an indication of which areas of the business require improvement and which areas require focus to enhance the business's performance.

Equity Structure

The company should set a target minimum equity structure ratio which should be industry related, and performance should be reviewed periodically against this target. Future growth prospects and profit history should be analysed when deciding on whether to change the target minimum threshold. Where the company expects to expand operations rapidly, or if it had a weak profit history, then such businesses should ideally increase their target equity structure in order to create a buffer. The company should adhere to restrictive conditions in

regards to its shareholders and owners whereby no distributions or dividends payments, shareholder loan repayments or advances, or interest payments on shareholder loans, are paid while the company performs below their target equity structure level. Similarly, bonus payments to its managers or directors, or other similar payments, should also be restricted during this period. The owner or managers should also be willing to restrict or defer part of their salaries during periods when the company falls below the target minimum equity structure.

A certain level of owner's funds should be maintained in the business to ensure the long-term viability of the business. The owner should also consider injection of equity to restore the minimum ratio, or exceed the minimum if further losses in the near future were forecast. If the company continued to incur losses, these funds would then be available to absorb these losses.

Strong cash flow could compensate for a weaker equity structure ratio. One of the main causes of cash flow difficulties is associated with customers' failure to settle their accounts. This could be mitigated by appropriate credit checks and screening of customers prior to opening their accounts and also creating incentives for faster payments. Improving other working capital management concerns such as maintaining adequate inventory levels and negotiating longer supplier credit terms could also strengthen the company's cash flow.

Interest Cover

Monthly (or quarterly) management accounts should be prepared, which must at a minimum include an income statement, balance sheet, budget and cash flow forecast. This might seem to be an additional administrative burden, costly and time consuming for SMEs, especially for those with very few accounting or administrative personnel. However, these accounts are important as they could give management insight into their financial position, including how much money was being made, whether this was converted into cash, and what they were spending this on. Preparing cash flow forecasts could be used to determine the short-term commitments of the business, and whether or not they would have sufficient resources to meet those commitments. Particular attention should be paid on whether the business is capable of servicing its debt commitments and where there could be an anticipated short-fall, management should explore available options to meet this shortfall.

A target minimum interest coverage ratio should be set and continually monitored when each set of management accounts are reviewed. Budget forecasts for the next 12 months should be prepared and the monthly forecast interest cover ratio calculated. This could serve as an early warning mechanism for management to address potential inability to satisfy its debt service. These accounts could also be used by financial stakeholders to monitor their investment and possibly restructure their facility well in advance if required.

7.4 Concluding Remarks

South Africa continues to be affected by the aftermath of the financial crisis, which led to substantial job losses. In order to reverse this negative trend and see sustainable job creation and growth, SMEs need to play their vital role in driving employment. Identifying significant differences between going concern SMEs and those that have failed is an important step in reversing this trend. Given their important role in South Africa's economic development and job creation, an understanding of the factors affecting their failure is a crucial step in managing and avoiding such business failures in the long term.

8 RECOMMENDATIONS FOR FUTURE RESEARCH

8.1 Further Research

The definition of business failure was specific to the IDC criteria used to classify failures. Prior research studies showed that depending on which definition of failure is used, the results can be contradictory. For example, the study by Watson & Everett (1996b) showed how the empirical results differed depending on which definition of failure was used. This study could therefore be repeated using a broader or narrower definition of failure to the one that was used, and then compare the results for consistency.

Replication of this study using larger samples more representative of the entire SME sector in South Africa is suggested. The research was limited to entities from only one industry, namely Industrial Sector firms. By using a sample comprising a more diverse set of industry classifications such as Agriculture, Franchising, Techno Industries, Tourism, Retailing, Wholesaling, or Mining and Mineral Beneficiation might strengthen future research.

Another opportunity for future research, which this study does not cover, is extending the population to consider failed businesses and non-failures in the whole of South Africa. Such a database may not be available due to the difficulty of keeping record for small business owners. The current sample was relatively small and only considered businesses that were funded by the IDC. Further research could examine the generality of the results by examining SMEs funded by other financial institutions such as commercial banks or other DFI's within the country, and provide comparative results.

One of the key features of the data set was that the data was not normally distributed. Therefore, only non-parametric tests were used as these tests do not make any assumptions about the population distribution. The distribution was not normal possibly due to there being a large number of outliers, as indicated by the large standard deviations of the variables. Further research could be done to normalise the populations and then use parametric tests such as the t-test and Pearson correlation coefficient to test the same hypotheses and determine whether they yield similar results.

BIBLIOGRAPHY

- Abor, J., & Quartey, P. (2010). Issues in SME development in Ghana and South Africa. *International Research Journal of Finance and Economics*, 39(6), 215-228.
- African Economic Outlook. (2012). *South Africa*. Retrieved September 18, 2012, from African Economic Outlook:
<http://www.africaneconomicoutlook.org/en/countries/southern-africa/south-africa/>
- Arinaitwe, B. (2006). Factors constraining the growth and survival of small scale businesses: a developing countries analysis. *The Journal of American Academy of Business*, 8(2), 167-178.
- Atamian, R., Wagman, G. R., & Van Zante, N. R. (2009). Practical advice for individuals considering opening a small business. *Journal of Business & Economics Research*, 7(7), 33-38.
- Badri, A. M. (2007). Dimensions of industrial location factors: review and exploration. *Journal of Business and Public Affairs*, 1(2), 1-27.
- Balcaen, S., & Ooghe, H. (2006a). 35 years of studies on business failure: an overview of the classic statistical methodologies and their related problems. *The British Accounting Review*, 38(1), 63-93.
- Baldwin, J., Gray, T., Johnson, J., Proctor, J., Rafiquzzaman, M., & Sabourin, D. (1997). *Failing concerns: business bankruptcy in Canada*. Retrieved March 28, 2012, from Publications: <http://publications.gc.ca/Collection/Statcan/61-525-X/61-525-XIE1997001.pdf>
- Bates, T. (1973). An econometric analysis of lending to black businessmen. *Review of Economics and Statistics*, 55(3), 272-283.
- Beaver, G. (2003). *Small business: success and failure* (12th ed.). Nottingham: John Wiley & Sons, Ltd.
- Beck, T., & Demirguc-Kunt, A. (2006). Small and medium-size enterprises: access to finance as a growth constraint. *J. Bank. Fin*, 30(1), 2931-2943.
- Best Employers. (2012). *Best Employers 2011/2012 - Industrial Development Corporation of SA Ltd*. Retrieved March 24, 2012, from Best Employers:
<http://www.bestemployers.co.za/BESTEmployers/BestEmployers20112012/C/tabid/5678/C/726/IndustrialDevelopmentCorporationofSALtd.aspx>
- Blair, P. J., & Premus, R. (1987). Major factors in industrial location: a review. *Economic Development Quarterly*, 1(1), 72-85.
- Boden, R. J., & Nucci, A. R. (2000). On the survival prospects of men's and women's new business ventures. *Business of Business Venturing*, 15(4), 437-362.
- Bolboaca, S.-D., & Jantschi, L. (2006). Pearson versus Spearman, Kendall's Tau correlation analysis on structure-activity relationships of biologic active compounds. *Leonardo Journal of Sciences*(9), 179-200.
- Bowen, M. K., Morara, M., & Mureithi, S. (2009). Management of business challenges among small and micro enterprises in Nairobi-Kenya. *KCA Journal of Business Management*, 2(1), 16-31.
- Bradley III, D. B. (2000). *Lack of financial and location planning causes small business bankruptcy*. Retrieved October 14, 2012, from Sbaer:
<http://www.sbaer.uca.edu/research/asbe/2000/10.pdf>
- Bradley III, D. B., & Cowdery, C. (2004). *Small business: Causes of bankruptcy*. Retrieved October 14, 2012, from Beyond Economy:
<http://beyondeconomy.pbworks.com/w/file/fetch/44809076/Causes%20of%20Bankruptcy.pdf>
- Brink, A., & Cant, M. (2003). *Problems experienced by small businesses in South Africa*. Retrieved June 16, 2012, from CECC:

- http://www.cecc.com.au/programs/resource_manager/accounts/seanz_papers/NewdocCant.pdf
- Bruderl, J., & Schussler, R. (1990). Organisational mortality: liabilities of newness and adolescence. *Administrative Science Quarterly*, 35(3), 530-547.
- Business Dictionary. (n.d.). *Going-concern principle*. Retrieved September 18, 2012, from Business Dictionary: <http://www.businessdictionary.com/definition/going-concern-principle.html>
- Buxton, R. (2008). *Statistics: Correlation*. Retrieved September 28, 2012, from mlsc.lboro: <http://mlsc.lboro.ac.uk/resources/statistics/Correlation.pdf>
- Carter, R., & Van Auken, H. (2006). Small firm bankruptcy. *Journal of Small Business Management*, 44(4), 493-512.
- Central Bank of Nigeria. (2003). *Small and medium industries equities investment scheme*. Retrieved September 18, 2012, from Cenbank: <http://www.cenbank.org/out/Publications/guidelines/dfd/2004/smieis.pdf>
- Craig, B. R., Jackson, W. E., & Thomson, J. B. (2005). *SBA guaranteed lending and local economic growth*. Retrieved September 19, 2012, from Federal Reserve Bank of Atlanta: <http://www.frbatlanta.org/filelegacydocs/wp0528.pdf>
- Craven, P. (2012). *COSATU and NACTU memorandum on labour brokering*. Retrieved September 18, 2012, from Cosatu: <http://www.cosatu.org.za/show.php?ID=5917>
- De, A., Bandyopadhyay, G., & Chakraborty, B. N. (2011). Analyzing and predicting the corporate dividend pay-out probabilities: an empirical study on Indian cement companies. *International Research Journal of Finance and Economics*(69), 151-166.
- Dickler, J. (2007). *Six ways to keep your business alive*. Retrieved September 18, 2012, from CNNMoney: http://money.cnn.com/2007/01/09/smbusiness/tips_avoid_failure/index.htm
- Dun, & Bradstreet. (1991). Press Release, June 15th.
- Ernst & Young. (2009). *The promotion of small and medium enterprises (SMEs) in the East African region*. Retrieved September 18, 2012, from EAC: http://www.eac.int/rmo/index.php?option=com_docman&task=doc_download&gid=120&Itemid=238
- European Commission. (n.d.). *The new SME definition: user guide and model declaration*. Retrieved November 28, 2012, from Europa.eu: http://ec.europa.eu/enterprise/policies/sme/files/sme_definition/sme_user_guide_en.pdf
- Everett, J., & Watson, J. (1998). Small business failure and external risk factors. *Small Business Economics*, 11(4), 371-390.
- FitzPatrick, P. J. (1932). A comparison of ratios of unsuccessful industrial enterprises with those of failed firms. *The Certified Public Accountant*, 598-605.
- Fredland, J. E., & Morris, C. E. (1976). A cross section analysis of small business failure. *American Journal of Small Business*, 1(1), 7-18.
- Gaskill, L. R., Van Auken, H. E., & Manning, R. A. (1993). A factor analytic study of the perceived causes of small business failure. *Journal of Small Business Management*, 31(4), 18-29.
- Gordhan, P. (2012). *2012 budget speech by the Minister of Finance of the Republic of South Africa, Mr. Pravin Gordhan*. Retrieved October 20, 2012, from South African Consulate General: <http://www.southafrica-newyork.net/consulate/2012budgetspeech.html>
- Guilhot, B. (2000). Defaillance d'entreprise: Soixante-dix ans d'analyses theoriques et empiriques. *Revue Francaise de Gestion*, 26(130), 52-67.

- Haswell, S., & Holmes, S. (1989). Estimating the small business failure rate: a reappraisal. *Journal of Small Business Management*, 27(3), 68-74.
- Headd, B. (2003). Redefining business success: distinguishing between closure and failure. *Small Business Economics*, 21, 51-61.
- Herrington, M., & Wood, E. (2010). *Global Entrepreneurship Monitor: South African report*. Retrieved September 18, 2012, from University of Cape Town: <http://www.gsb.uct.ac.za/files/GEM2010Report.pdf>
- Hudson, J. (1989). The birth and death of firms. *Quarterly Review of Economics and Business*, 29(2), 68-86.
- Hussain, I., Si, S., Xie, X. M., & Wang, L. (2010). Comparative study on impact of internal and external CFFs on SMEs. *Journal of Small Business Entrepreneurship*, 23(4), 637-648.
- Industrial Development Corporation. (n.d.). *IDC: a new path to development*. Retrieved September 18, 2012, from Industrial Development Corporation: <http://www.idc.co.za/images/Finance-by-sector/idc-corp-bro.pdf>
- Javanovic, B. (1982). Selection and the evolution of industry. *Econometrica*, 50(3), 649-670.
- Karadeniz, M. (2009). The importance of retail site selection in marketing management and hypothetical approaches used in site selection. *Journal of Naval Science and Engineering*, 5(3), 79-90.
- Keats, B. W., & Bracker, J. S. (1988). Towards a theory of small firm performance: a conceptual model. *American Journal of Small Business*, 12(1), 41-58.
- Koke, J. (2002). Determinants of acquisition and failure: evidence from corporate Germany. *Structural Change and Economic Dynamics*, 13(14), 457-484.
- Le, N. T., Venkatesh, S., & Nguyen, T. V. (2006). Getting bank financing: study of Vietnamese private firms. *Asia Pacific Journal of Management*, 23(2), 209-227.
- Lussier, R. N. (1995). A nonfinancial business success versus failure prediction model for young firms. *Journal of Small Business Management*, 8-20.
- Lussier, R. N. (1996). Reasons why small businesses fail: and how to avoid failure. *The Entrepreneurial Executive*, 1(2), 10-17.
- Lussier, R. N., & Halabi, C. E. (2010). A three-country comparison of the business versus success failure prediction model. *Journal of Small Business Management*, 48(3), 360-377.
- Maema, K., & Mpangase, M. (2010). *IDC allocates R3.1 billion to distressed companies*. Retrieved September 18, 2012, from Industrial Development Corporation: <http://www.idc.co.za/media-room/press-release/media-releases-2010/102-idc-allocates-r31-billion-to-distressed-companies>
- Mahembe, E. (2011). *Literature review on small and medium enterprises' access to credit and support in South Africa*. Retrieved September 19, 2012, from National Credit Regulator: http://www.ncr.org.za/pdfs/Literature%20Review%20on%20SME%20Access%20to%20Credit%20in%20South%20Africa_Final%20Report_NCR_Dec%202011.pdf
- Maoh, H., & Kanaroglou, P. (2007). *Modeling the failure of small and medium size business establishments in urban areas: an application to Hamilton, Ontario*. Retrieved September 18, 2012, from McMaster University: http://www.science.mcmaster.ca/cspa/papers/CSpA_WP_025.pdf
- Martinez-Murcia, F. J., Gorriz, J. M., Ramirez, J., Puntonet, C. G., & Salas-Gonzalez, D. (2012). Computer aided diagnosis tool for Alzheimer's disease based on Mann–Whitney–Wilcoxon U-Test. *Expert Systems with Applications*(39), 9676-9685.
- Mehralizadeh, Y., & Sajady, H. (2006). *A study of factors related to successful and failure of entrepreneurs of small industrial business with emphasis on their level of education*

- and training*. Retrieved September 19, 2012, from Social Science Research Network: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=902045
- Microfinance Risk Management L.L.C. (2008). *The potential for credit scoring for SME lending in Kenya*. Retrieved September 18, 2012, from FSD Kenya: http://www.fsdkenya.org/pdf_documents/08-11-24_Credit_Scoring_for_SME_lending.pdf
- Miller, M. J. (2011). *Reliability and validity*. Retrieved September 18, 2012, from http://michaeljmillerrphd.com/res500_lecturenotes/reliability_and_validity.pdf
- Millington, K. J. (1994). The impact of selected economic variables on new business formation and business failure. *The Journal of Small Business Finance*, 3(2), 177-179.
- My Subs. (n.d.). *IDC will ask for cash to aid recession-hit firms*. Retrieved March 29, 2012, from My Subs: https://www.mysubs.co.za/Article/s_472012/3/1/IDC-will-ask-for-cash-to-aid-recession-hit-firms
- Naqvi, S. W. (2011). Critical success and failure factors of entrepreneurial organisations: study of SMEs in Bahawalpur. *Journal of Public Administration and Governance*, 3(4), 96-99.
- National Small Business Act. (1996). *National Small Business Act, 1996*. Retrieved March 29, 2012, from info.gov.za: <http://www.info.gov.za/acts/1996/a102-96.pdf>
- National Treasury. (2011). *Confronting youth unemployment: policy options for South Africa*. Retrieved September 19, 2012, from African Economic Outlook: <http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/PDF/Confronting%20youth%20unemployment%20-%20Policy%20options.pdf>
- Nevin, T. (2010). After the crisis comes the bounce-back. *African Business*(362), 26.
- Ngwenya, F. (2012). *The small and medium-sized enterprises as a vehicle for employment creation in South Africa*. Retrieved November 28, 2012, from Cluteonline: <http://conferences.cluteonline.com/index.php/IAC/2012BK/paper/viewFile/1060/1070>
- Oanda. (n.d.). *Currency converter*. Retrieved June 23, 2012, from Oanda: <http://www.oanda.com/currency/converter/>
- Obadan, M. I., & Agba, A. V. (2006). Small and medium enterprises development policy in Brazil, Malaysia, South Africa and South Korea: Lesson for Africa and Nigeria. *Business Publ. Union Bank Nig. Plc.*, 10, 24-50.
- Olawale, F., & Garwe, D. (2010). Obstacles to the growth of new SMEs in South Africa: a principal component analysis approach. *African Journal of Business Management*, 4(5), 729-738.
- O'Neill, H. M., & Duker, J. (1986). Survival and failure of small business. *Journal of Small Business Management*, 30-37.
- Patrone, F. L., & DuBois, D. (1981). Financial ratio analysis for the small business. *Journal of Small Business Management*, 36-40.
- Peacock, R. (2000). *Failure and assistance of small firms*. Retrieved March 27, 2012, from SB Education: <http://www.sbeducation.info/downloads/sbfail.pdf>
- Perry, S. C. (2001). The relationship between written business plans and the failure of small business in the U.S. *Journal of Small Business Management*, 39(3), 201-209.
- Pompe, P. P., & Bilderbeek, J. (2005). The prediction of bankruptcy of small and medium sized industrial firms. *Journal of Business Venturing*, 20(6), 847-868.
- Pusnik, K., & Tajnikar, M. (2008). Technical and cost efficiencies as determinants of business failure of small firms - The case of Slovenia. *Eastern European Economics*, 46(1), 43-62.
- Roberts, P., Priest, H., & Traynor, M. (2006). Reliability and validity in research. *Nursing Standard*, 20(44), 41-45.

- Rogoff, E. G., Lee, M. S., & Suh, D. C. (2004). Who done it? Attributions by entrepreneurs and experts of the cause of small business success and impeding factors. *Journal of Small Business Management*, 42(2), 364-376.
- Ross, L. (1977). The intuitive psychologist and his shortcomings: distortions in the attribution process. *Advances in Experimental Social Psychology*, 10, 174-221.
- Schaefer, P. (2006). *The seven pitfalls of business failures and how to avoid them*. Retrieved September 19, 2012, from Business Know How: <http://www.businessknowhow.com/startup/business-failure.htm>
- Soko, M., Balchin, N., Cupido, M., & Hess, S. (2010). SADC and the global economic crisis: origins, impacts and state policy responses. *Africa Insight*, 40(3), 168-182.
- South African Revenue Services. (2012). *Tax guide for small businesses 2011/12*. Retrieved September 19, 2012, from ICB: http://www.icb.org.za/images/downloads/Tax_Guide_for_Small_Business_2011-2012.pdf
- South African Revenue Services. (n.d.). *More about small businesses*. Retrieved September 19, 2012, from South African Revenue Service: <http://www.sars.gov.za/home.asp?pid=46185>
- SPSS Statistics. (n.d.). *Put the power of advanced statistical analysis in your hands*. Retrieved September 19, 2012, from IBM SPSS Statistics: <http://www-01.ibm.com/software/analytics/spss/products/statistics>
- Statistics South Africa. (2012). *Quarterly labour force survey – Quarter 4, 2011*. Retrieved September 2012, 2012, from Statistics South Africa: <http://www.statssa.gov.za/publications/P0211/P02114thQuarter2011.pdf>
- Titus, S. (2010). *Key reasons why sSmall businesses fail*. Retrieved May 28, 2012, from Word Press: http://frrl.files.wordpress.com/2009/09/smallbusiness_research-papers-why-businesses-fail-titus-05-32.pdf
- Van Auken, H., & Doran, M. (1989). Small business capitalization patterns. *The Journal of Applied Business Research*, 5(2), 15-22.
- Van Auken, H., Kaufmann, J., & Herrmann, P. (2009). An empirical analysis of the relationship between capital acquisition and bankruptcy laws. *Journal of Small Business Management*, 47(1), 23-37.
- van der Berg, S. (2011). Current poverty and income distribution in the context of South African history. *Economic History of Developing Regions*, 26(1), 120-140.
- Watson, J., & Everett, J. (1996a). Do small businesses have high failure rates? *Journal of Small Business Management*(34), 45-63.
- Watson, J., & Everett, J. (1996b). Small business failure rates: choice of definition and the size effect. *Journal of Entrepreneurial and Small Business Finance*, 5(3), 271-315.
- Wuensch, K. L. (2011). *Binarylogistic regression with PASW/SPSS*. Retrieved October 15, 2012, from Core: <http://core.ecu.edu/psyc/wuenschk/MV/Multreg/Logistic-SPSS.pdf>

APPENDICES