

An Empirical Investigation into the Determinants of the Capital Structure of SMEs in Nairobi, Kenya

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A thesis submitted to the Faculty of commerce in partial
fulfilment of the requirements for the award of a Master of
commerce degree at Strathmore University

June 2010



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Abstract

This study examined whether capital structure theories from the developed world were applicable to Kenyan SMEs given the differences in economic development. The research design was quantitative. Financial data covering a three year period from 2004 to 2006 for forty three SMEs in the trade, hotel, retail and manufacturing sectors, were collected from the 2008 baseline survey by the Kenya Institute for Public Policy, Research and Analysis, KIPPRA. A panel data regression model was used to this data. In addition, a survey was done on the same population in order to triangulate the data from the secondary data analysis to enhance the reliability of the data. The dependent variable was the ratio total liabilities to total assets. Independent variables were size, asset structure and profitability and age with industry, ownership and growth as control variables. Profitability, asset structure and size were found to be key determinants of the capital structure of SMEs. The debt ratio was negatively related to age when turnover measured size but was positively related to age when total assets were used to measure size. The relationship between the debt ratio and age was not statistically significant at 5% in both cases. The debt ratio was negatively related to size and to profitability but it was positively related to asset structure. This relationship between the debt ratio and size, profitability and asset structure was significant at 5%. Turnover was found to be a more robust measure of size than total assets for the sample in this study while the negative relationship between the debt ratio and profitability concurred with pecking order theory. The significance of asset structure underlined the importance of collateral in SME finance. The questionnaire survey confirmed that profitability, assets and size were important determinants of capital structure. Profitability was found to be important to the SMEs as it is not an objective measure. The survey also found that while SMEs operated bank accounts, banks were their least preferred source of debt and there was no relationship between capital structure and

Asian/ African ownership, industry sector and growth.

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Acknowledgements

First of all I thank God who is ever present and then I would like to thank my supervisor Dr Jim McFie who took time out of his very busy schedule to make this study possible. I would also like to thank Mr. David Wangombe for his insights and recommendations throughout the study. I would also like to thank Messrs Joash Ratemo, Robert Mwaura, George Mwangi, Moses Ndungu and Kevin Gatonga for their assistance in data collection. Naturally I thank my parents Mr. and Mrs. Macharia for their constant encouragement, and my sister Christine Wanjiru for her invaluable support in innumerable ways. Finally I would like to thank the researchers at KIPPRA and all other people not mentioned by name but who gave their

input in one way or another to this thesis.

List of acronyms

GDP	Gross Domestic Product
ICDC	Industrial Commercial and Development Corporation
KES	Kenya Shillings
KIPPR	Kenya Institute for Public Policy Research and Analysis
A	Micro, Small and Medium Sized Enterprises
MSME	Organization for Economic Cooperation and Development
OECD	Small and Medium Sized Enterprises
SMEs	

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The increasing amount of literature on small and medium sized enterprises, SMEs, is indicative of the fact that SMEs are recognized as engines of economic growth (Daskalakis and Psillaki 2008). Most of the research, though, has tended to focus on assessing the importance of SMEs in the process of economic development and industrialization (Daskalaki^s and Psillaki 2008; Snodgrass and Biggs 1996; Beck, Demirgüç-Kunt, Laeven and Maksimovic 2006). It is believed that SMEs help distribute the benefits of economic growth more widely than large enterprises (Green, Kirkpatrick and Murinde 2006; Hussain 2000) and reduce poverty levels (Beyene 2002; Kayanula and Quartey 2000). This ability of SMEs to distribute economic growth is important in Kenya due to pervasive income inequality and the subsequent social ills that such inequality brings with it (Wambugu and Munga 2009). According to the Organization for Economic cooperation and Development, OECD, SMEs form the backbone of developed, and some developing, economies and are a key source of economic growth, dynamism

and flexibility (OECD 2006).

Due to the prominent role SMEs play in an economy, the source of finance to support them poses an important question (Rocca, Rocca and Cariola 2009). The availability of finance for investment is crucial to the sustainability, growth and viability of SMEs (Berger and Udell 1998; Carpenter and Petersen 2002). Financing is important to help SMEs set up and expand their operations, develop innovative new products, and invest in new staff or production facilities (OECD 2006).

Financing is the 'glue' that holds together all the diverse aspects involved the start-up and development of an SME (Green, Kimuyu, Manos and Murinde 2002).

The logical way to approach an investigation of financing preferences then is to examine capital structure theory. Capital structure theory has originated from the developed world, a world with sophisticated financial markets and

generally readily available information on business performance (Abor and Biekpe 2009). The theories discussed in this thesis were information asymmetry theory and its sub-theories, agency theory, static trade-off theory

and life stage theory.

Studies in the developed world mainly in the United States, the United Kingdom and Australia on capital structure determinants of SMEs have come up with varied conclusions and it would be interesting to find out whether these theories apply to sub Saharan Africa. In sub Saharan Africa financial markets are underdeveloped, economies are smaller and information on businesses is generally not available (Boateng 2004). Published studies on capital structure of SMEs in sub-Saharan Africa are mainly in Ghana such as Abor and Biekpe (2009) and Boateng (2004).

The study by Abor and Biekpe (2009) investigated whether capital structure theories originating from the developed world could explain the capital structure of SMEs in Ghana. This thesis adopts a similar approach to that of Abor and Biekpe (2009) because like them, it argues that the differences in institutional arrangements and financial markets between developing countries and developed countries necessitate studies that can examine capital structure from the sub Saharan African perspective.

This thesis adopts a similar methodology to other studies on SME capital structure in sample selection and data analysis. Most previous studies do not consider firms in the financial sector because such firms have capital structures that are determined by regulators (Abor and Biekpe 2009; Sogorb-Mira 2005). Firms that are subsidiaries of other companies are also excluded because their capital structure is strongly influenced by the parent company (Cassar and Holmes 2003). Not for profit organisations are also excluded from any sample taken together with loss making firms or those in bankruptcy in line with Daskalakis and Psillaki (2008), Cassar and Holmes (2003) and Chittenden, Hall and Hutchinson (1996).

The definition of an SME varies across different countries and it is not possible to have a standardized definition (Abor and Biekpe 2009; Daskalakis and Psillaki 2008; Hall et al. 2004; Cassar and Holmes 2003). The definition adopted in this study is generally used in sub Saharan Africa

and states that SMEs are firms that have an annual turnover of between 0.65 million to 1.3 million United States dollars equivalent to Kenya Shillings, KES, 5 million and KES 100 million (Elumba 2008).

This study used financial data from the Kenya Institute of Public Policy and Research Analysis, KIPPRA, 2008 Micro, Small and Medium Sized Enterprise Survey (MSME) Baseline Survey. The main reason for using this data is because a pilot study at the proposal stage showed clearly that it was not going to be possible to get financial statements from SMEs or their auditors.

Only the SMEs in Nairobi are chosen in this study as 76% of firms registered for value added tax that is firms with turnover exceeding KES 5 million per annum are within Nairobi (Government of Kenya 2006). Micro enterprises were excluded from the study as they have different characteristics and needs from SMEs (Mutesasira, Osinde and Mule 2001; Daniels 1998). Of the 693 firms that the KIPPRA baseline survey sampled in Nairobi, 575 were micro enterprises 118 were SMEs. In the final sample 43 firms were analysed in this study after excluding all firms that were from the financial sector, subsidiaries and not for profit institutions. Firms that were loss making were also excluded and the remaining firms fitted the definition adopted in this study which is firms that have a minimum turnover of 5 million shillings and a maximum turnover of 100 million and are not in the financial sector, are not subsidiaries or not for profit and are not loss making or in the process of bankruptcy. This is in line with previous studies.

The thesis employs a firm characteristic static framework to empirically test financial theories in line with Cassar and Holmes (2003) and Daskalakis and Psillaki (2008). This allowed the study to build on previous research that had investigated factors other than the firm characteristic approach.

The financial statements obtained for purposes of this study spanned only three years and this imposed some limitations on the study as regards the variable growth. Given that these statements are difficult if not impossible to obtain directly from the firms the limitations inherent in using secondary data meant that the findings are confirmed through triangulation of data.

This triangulation was achieved through a questionnaire administered survey using the same sampling frame as KIPPRA.

Firms in this sampling frame included a list of trade licensees from the Nairobi City Council of firms in the central business district, and downtown Nairobi. Only the firms with physical premises were identifiable from the list and therefore only these were contacted. 60 firms in total were targeted and sent the questionnaire while 33 responded representing a response rate of 55%. The questionnaire is attached in the appendix.

The survey found results that confirmed what was found in the secondary data analysis but provided insights that were not readily available from the secondary analysis. This included the fact that while debt is an important source of finance, it too has a hierarchy and bank finance is the least preferred source. It was also clear from the survey that none of the providers of external finance consider profitability of SMEs; instead they seem to rely on factors such as friendship, reputation, size and collateral as a basis for their lending decisions.

This thesis also finds that pecking order theory, which is based on information asymmetry, can explain the capital structure of SMEs in Nairobi, Kenya.

It also establishes that retained earnings are the choice source of finance for SMEs, as indicated by the negative and statistically significant relationship between debt and profitability. The thesis also finds statistically significant relationships between the debt ratio and asset structure and size but contradictory results for age. The study also finds that Asian or African ownership, industry sector and growth do not influence the debt ratio of the firms in the sample. These relationships are not statistically significant however.

1.2 Problem statement

This thesis investigates the determinants of the capital structure of SMEs in Nairobi, Kenya, in order to find out whether the capital structure theories originating from the developed world are applicable locally. Capital structure theories have established certain relationships between the debt ratio and a number of specific determinants (Cassar and Holmes 2003). There is still

considerable debate as to what factors influence SME capital structure in the developed world and this debate is far from being concluded (Daskalakis and Psillaki 2008; Sogorb-Mira 2005; Hall et al. 2004; Esperanza and Mohammed 2003; Michaelas, Chittenden and Pitzouris. 1999; Jordan, Lowe and Taylor 1998; Chittenden et al. 1996). Furthermore, since there are very few studies on the capital structure of SMEs, this study will contribute to filling this gap in research.

It would be interesting to discover the scenario in Kenya, with its less sophisticated financial markets, limited range of financing choices for SMEs and cumbersome and arbitrary business laws (Chu, Benzing and McGee 2007; Biggs and Shah 2006; Gray, Cooley and Lutauringwa 1997). Also information on business in general and small businesses in particular is scarce (Biggs and Shah 2006).

Kenya has created conditions favourable for private sector growth but is still held back by an inadequate financial system (OECD 2006). This financial system offers few products for SMEs. Most companies are small in size because of legal and financial obstacles to capital accumulation (OECD 2007). What is interesting is that Kenya's private sector consists mostly of informal microenterprises operating alongside large firms. Between these micro enterprises and large firms, SMEs are very scarce and constitute a 'missing middle' (OECD 2006; Mutesasira, Osinde and Mule 2001). For an economic transformation to take place these firms in the 'missing middle' need to increase in number and be strong in performance (Kimuyu and Omiti 2000). This is why firms in this category are the focus of this study. The fact that SMEs are key to Kenya's development yet they are few in number stimulates interest in finding out the extent to which established capital structure theories can explain the capital structure of Kenyan SMEs and how the debt ratio and the determinants of capital structure are related.

1.3 Justification of study

In Kenya, expansion of the SME sector has been hailed as the engine of future economic growth in sessional papers on the informal sector locally known as the *Jua Kali* industry and in Vision 2030 but it is recognized that

to date SMEs are still very few in comparison to microenterprises. Kenya Vision 2030 is the country's new development blueprint covering the period 2008 to 2030. It aims to transform Kenya into a newly industrializing, "middle-income country providing a high quality life to all its citizens by the year 2030." Vision 2030 has, as one of its flagship projects the development and creation of at least 5 SME industrial parks (Government of Kenya 2007) The Kenyan government has come up with a policy framework for SME development which was completed in early 2004. The aim of this framework is to develop a vibrant SME sector capable of promoting the creation of durable, decent and productive employment opportunities, stimulating economic growth, reducing economic disparities and strengthening linkages between firms.

Information that sheds light in this area will provide insight into the capital structure of SMEs in Kenya and in so doing help policymakers in targeting incentive programs for SMEs. It will also help financing organisations better understand how to create financial products and models suitable for SMEs in Kenya.

1.4 Research objectives

1. To investigate whether developed countries' capital structure theories explain the capital structure of Kenyan SMEs.
3. To investigate the factors influencing the financing decisions of SMEs in Nairobi, Kenya.
4. To investigate the financing preferences of SMEs in Nairobi, Kenya.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

The current state of research on capital structure consists of a variety of conditional theories with no universally accepted theory (Daskalakis and Psillaki 2008).

Since all existing capital structure theories were developed with large enterprises in mind (Ang 1991), and in particular firms that are listed and have a wide range of sources of finance, the most relevant question to researchers on small firm capital structure is whether extant theories on capital structure are still applicable. If this is not the case, the question to ask is the way in which the theory on small firm capital structure would differ. For example if SMEs and large firms are compared, it would be clear that finance related problems manifest themselves differently (Ang 1991). This would be because SMEs usually have a shorter expected life and are

beset by intergenerational transfer problems.

Other authors explain that the agency problem and asymmetric information are more complex in small firms (Pettit and Singer 1985) and that SMEs face relatively high transaction costs in all types of financial decisions reducing the available choices of finance.

In spite of these limitations, capital structure theories can be tested on SMEs because these firms tend to show characteristics that are amenable to testing such as their closed nature in terms of closely held ownership, their relatively small size and relatively small financing requirements (Myers and Majluf 1984). The relative usefulness of each theory depends upon which economic aspect or firm characteristic that is focused on and this leads to the next section which examines capital structure theories

2.2 Capital structure theories

The debate on capital structure was brought to the limelight by Modigliani and Miller (1958 and 1963) where they highlighted what they assumed to be the most important issues in capital structure decisions. According to Modigliani and Miller (1958 and 1963), the important issues were the relatively lower cost of debt compared to equity, the increased risk to a firm as a result of increasing debt levels and the tax savings as a result of using debt finance.

In response to criticisms of their first study in 1958 in which they had ignored taxation, they proceeded in 1963 to state that the overall cost of capital reduced as the proportion of debt increased in the capital structure. Thus the most efficient capital structure consisted of 100% debt. In practice, firms of all sizes do not follow this practice and, in particular, SMEs have lower debt ratios than large firms and a significant number of SMEs are all equity financed (Cassar and Holmes 2003; Chittenden et al. 1996).

Since the paper of Modigliani and Miller (1963), the capital structure theories that have developed can be classified into three types, namely static trade off theory, agency theory and information asymmetry theory and while these were developed to study large corporations, the theories have since been applied to SMEs (Bhaird and Lucey 2009).

In particular the theory developed by Modigliani and Miller gave rise to the static trade off theory by De Angelo and Masulis (1980). This theory posited that the gain conferred by the tax advantage of debt was offset by an increase in business risk. This meant that there was a point when the marginal benefit of using an additional unit of debt was exactly equal to the increase in business risk and financial distress costs (De Angelo and Masulis 1980). At this point the cost of capital was at its lowest.

Empirical evidence among SMEs does not lend credence to the static trade off theory as Michaelas, Chittenden and Pitzouris (1999) and Mira and Lopez (2003) show that tax is negatively related to debt. Among possible reasons put forward to explain why this is the case is the fact that SMEs are likely to be less profitable than large firms (Chittenden et al. 1996). This makes it less important for them to use debt as a tax shield (Pettit and

Singer 1985). In addition, the smaller a firm is, the greater the risk of financial distress and ultimate failure is (Bhairst and Lucey 2009).

Agency theory was developed by Jensen and Meckling (1976). For a large corporation, they developed a number of principal-agent relationships that created monitoring costs. These monitoring costs arise because in many cases an agent may not act in the interests of the principal, forcing the principal to incur costs so as to protect his or her interests (Jensen and

Meckling 1976).

As their theory was developed for large corporations, most of the agency relationships they outlined are not relevant to SMEs because most SMEs are owner managed (Chittenden et al 1996).

The most important agency relationship for SMEs is the relationship between SME owner/managers and lenders (Chittenden et al 1996) This agency relationship is important because of information asymmetry between the two parties arising from the lack of standardised, publicly available accounting information (Bhairst and Lucey 2009). The main problem that lenders face is moral hazard, that is, the funds they lend will not be used for the agreed purpose, but rather for more risky ventures. As a result the risk premium that SMEs have to pay on external finance may make external finance too expensive (Chittenden et al. 1996). The relationship between agency theory and information asymmetry can thus be seen.

To delve deeper into the matter, it suffices to say that lenders will try to reduce agency costs arising from information asymmetry by changing their lending techniques. This explains why collateral influences the capital structure of SMEs as it helps mitigate the adverse effects of information asymmetry on lending to SMEs leading to more debt in the capital structure

(Bhairst and Lucey 2009).

Empirical evidence confirms the widespread use of collateral in financing of SMEs (Black, Meza and Jeffreys 1996), even for firms with a positive cash flow (Manove, Padilla and Pagano 2001). With this evidence, it is possible to deduce the importance of the type of assets a firm has; if such assets are good as collateral then such a firm would be expected to have relatively

higher proportions of debt finance than those firms without collateral (Cassar and Holmes 2003).

Information asymmetry costs and agency costs are not constant over the life of the firm (Bhaired and Lucey 2009). It would be expected that over the life cycle of the firm, information asymmetry costs reduce together with related agency costs because it becomes established and develops a trading and credit history (Diamond 1989). In addition, as time passes it is reasonable to expect the firm to grow, accumulate assets in the form of inventories, receivables and equipment (Berger and Udell 1998) which may be used as security for debt.

Mentioning the life cycle of a firm brings up the concept of age and it can be seen how age is related to agency costs and information asymmetry. It is reasonable then to tie reputation to age and presume that an older firm finds it easier to access finance than a younger firm. However the question whether having a strong reputation results in higher debt ratios in older firms is still open to debate (Daskalakis and Psillaki 2008).

A fundamental question arises in the capital structure debate surrounding the relationship between size and capital structure. Modigliani and Miller (1958 and 1963) ignored firm size as they assumed the existence of perfect capital markets. For a long time however the debate as to whether the capital structure of firms is different across sizes has gone on and on without being settled (Chittenden et al. 1996).

It would be expected that according to information asymmetry theory the degree of information asymmetry should decrease as a firm increases in size. This should result in easier access to finance (Berger and Udell 1998). Size would be considered an important factor influencing the behaviour of SMEs because size could influence credit rationing and the smaller the size the greater the rationing (Lopez and Aybar-Arias 1999). This study by Lopez and Aybar-Arias (1999) further posits that SMEs tend to limit their financial structure with the objective of ensuring that they do not cede control to outsiders. Lopez and Aybar-Arias (1999) conclude the matter by stating that the financing behaviour of SMEs is conditioned by size.

Agency cost theory on the other hand predicts a decrease in agency costs as a firm becomes larger because it becomes more transparent through information from financial statements.

Capital structure life stage theory assumes that a firm grows larger over time which may not be a realistic assumption (Rocca et al. 2009). The life stage theory predicts that a firm increases its debt ratio as it grows larger over time.

Information asymmetry theory also forms the basis of pecking order theory. This theory was developed by Myers (1984), who observed how firms structure their balance sheets, and found that firms tend to follow a 'pecking order' in financing their projects: first they use internal equity, then debt, and only then do they use external equity (Myers, 1984; Watson and Wilson 2002). Pecking order in short holds the view that firms do not aim at a target capital structure. The capital structure reflected in their balance sheet is not a deliberate attempt to minimise the cost of capital.

The theories just discussed refer to different theoretical attributes which cannot be adequately measured. However these theories can be tested using proxy variables that represent the theoretical attributes. For this reason, proxy variables have to be used in all empirical investigations (Chittenden et al. 1996). This leads to the next section where quantitative proxy variables are discussed.

2.3 Firm level characteristics

Consistent with most empirical research, theoretical constructs must be formulated to represent or measure firm characteristics (Cassar and Holmes 2003). This means that hypotheses and subsequent results must be interpreted in the light of the fact that several theoretical effects or consequences are represented by each firm variable indirectly through the use of firm characteristics. The theoretical constructs discussed in this section are age, size, asset structure, profitability, growth and industrial sector.

2.3.1 Age of the firm

Age is a proxy for reputation (Abor and Biekpe 2009; Cassar and Holmes 2003; Ang 1991). Fragmentation of information and high costs of control and evaluation make the firm and the entrepreneur's reputation a valuable asset in the management of relations between the investor and the owner (Landstrom, 1993). According to pecking order theory, older firms tend to borrow less, as they have sufficient retained earnings to finance normal operations (Cassar and Holmes 2003). However it can be argued that an older firm will tend to be better established in the market and should find it easier to borrow due to lower information asymmetry between it and financiers.

Age however is not a robust predictor because a firm can develop or harm its reputation over time (Rocca et al. 2009). It can also remain stagnant from a growth point of view over a long period of time making it possess no better reputation than younger firms (Rocca et al. 2009). **In** addition, size can be substituted for age as a proxy for reputation (Winker 1999) because it takes time for a firm to grow in size regardless of the measure of size that is used. Empirical evidence from sub Saharan Africa such as Abor and Biekpe (2009) find a positive relationship between long term debt and age that is statistically significant and also a positive relationship between age and short term debt unlike in Hall et al. (2004) in the developed world. This finding by Abor and Biekpe (2009), however, was not statistically significant at 5%.

2.3.2 Size

The relationship between the size of SMEs and their capital structure is a logical one (Cassar and Holmes 2003). The impact of size on the debt ratios of SMEs is determined by information asymmetry, costs of financial distress, reputation, scale effects and risk (Wu, Song and Zeng 2009; Hall et al. 2004; Cassar and Holmes 2003). Information asymmetry is expected to decrease with increasing size as financial and operational details of a large firm are more transparent than for smaller firms (Daskalakis and Psillaki 2008). The

costs of financial distress also reduce with firm size as larger firms find it easier to obtain capital than smaller ones (Ang 1991; Myers 1984).

Naturally it is expected that large firms will raise larger amounts of finance than smaller ones as they have larger or more numerous projects than their smaller counterparts. This means that the fixed transaction costs of raising finance will be relatively smaller for larger firms because of scale effects (Hall, Hutchinson and Michaelas 2000).

If operational risks were to be considered for firms of different sizes then it would be expected that smaller firms would have fewer product lines and therefore less diversified operations than larger firms. This will make them more vulnerable to economic shocks or rapid technological changes or other unforeseen adverse circumstances (Biggs and Shah 2006). This means that large firms have lower operational risk than smaller ones and therefore they are expected to tolerate higher debt ratios (Myers 2001; Titman and Wessels 1988).

Cassar and Holmes (2003) further presuppose that Since SMEs are not covered by financial analysts, their financial statements do not need to be detailed and therefore information on the firm's prospects can only be known with a high degree of certainty by the owner and not the external parties that may want to finance the organisation. As a consequence, smaller firms will be offered less capital or are offered capital at much higher costs in comparison with larger firms. This tends to discourage the use of outside financing. SMEs also lack the extensive managerial resources of larger firms and thus may not have adequate knowledge of the different sources of funding available (Cassar and Holmes 2003).

Some studies from Spain and the United States split debt into long term and short term and find a negative relationship between size and short term debt while they (studies) find a positive relationship between size and long term debt (Mira and Lopez 2003; Homaifar, Zietz and Benkato 1994; Titman and Wessels 1988; Brealey, Hodges and Capron 1976 and Gupta 1969). Other empirical evidence from sub Saharan Africa generally points to a positive relationship between size and both the long term debt ratio and the debt ratio (Abor and Biekpe 2009).

Hall et al. (2004), Cassar and Holmes (2003) and Esperanza and Mohammed (2003) found a positive relationship between firm size and long-term debt but a negative relationship with short-term debt. Some studies (Michaelas et al. 1999; Chittenden et al. 1996) also support a negative relationship between short-term debt and firm size.

Dividing debt into short term and long term is practical in developed financial markets where debt of short maturity and long maturity is available to SMEs (Esperanza and Mohammed 2003).

In an insightful study in the Greek manufacturing sector, Voulgaris, Asteriou and Agiomirgianakis (2004) found that firm size, profitability and asset structure were the most important determinants of capital structure. In Kenya because of the importance of business networks (Biggs and Shah 2006) and the lack of access to long term debt finance for SMEs, it is expected that short term debt will constitute a significant portion of total debt.

2.3.3 Asset structure

Asset structure or tangibility of assets refers to the relative proportion of tangible non-current assets in the total assets of the firm. Cassar and Holmes (2003) presuppose that the debt ratio is positively related to the asset structure. This position is supported by Harris and Raviv (1991) who say that the degree to which the firm's assets are tangible should result in the firm having greater liquidation value making it easier to lend to as recovery is easier in the event of default. Furthermore, by pledging the firm's assets as collateral, the cost associated with adverse selection and moral hazards are reduced. This will result in firms with assets that have greater liquidation value having relatively easier access to finance at lower cost. Consequently, higher debt or outside financing is included in their capital structure.

In Kenya, where a sizeable proportion of business financing is from banks (Beck et al. 2006), asset structure or tangibility should be an important determinant of the capital structure of SMEs. With high quality collateral, it is relatively simple for SMEs to obtain debt finance (Biggs and Shah 2006).

Empirical evidence from developed countries generally supports a positive relationship between long term gearing and asset structure or tangibility for SMEs.

Jensen and Meckling (1976) propounded that, according to the theory of financial distress and agency theory, asset structure or tangibility has a positive relationship with capital structure. In an interesting counterargument, Daskalakis and Psillaki (2008) intimate that firms with large investments in tangible assets have already found a stable source of return which provides more internally generated funds reducing its need for external debt. A stable source of return should imply high profitability and should result in a negative relationship between asset structure and gearing. Other studies on SME capital structure (Hall et al. 2004; Cassar and Holmes, 2003; Michaelas et al. 1999; Jordan, Lowe and Taylor 1998; Chittenden et al. 1996; Van der Wijst and Thurik, 1993) show evidence of a positive relationship between asset structure and long-term debt, and a negative relationship with short-term debt.

Abor and Biekpe (2009) provide empirical evidence from Ghana that suggests a positive relationship between long term debt and asset structure but a negative relationship between short term debt and asset structure. Their study suggests that where commercial banks are the main channels through which finance reaches businesses, for an SME to access finance, it must have high quality collateral with valid title documents that can be used as security for finance. In addition it will be of great help if the owner of an SME has sufficient private assets that can be used as collateral and naturally the owner will be greatly helped if he has an already existing relationship with the bank (Biggs and Shah 2006).

Since it is not likely that SMEs in Kenya have access to long term debt, it is expected that their capital structure will consist largely of short term debt including trade credit (Biggs and Shah 2006).

According to the theories discussed earlier a negative relationship is expected between short term debt and asset structure, but a high proportion of tangible non-current assets should make it relatively simple to access finance of all types thus predicting a positive relationship.

2.3.4 Profitability

The effect of profitability on capital structure according to pecking order theory and its related information asymmetry effects should be to reduce the debt ratio. This implies a negative relationship (Myers 1984).

Empirical evidence from previous studies appears to be consistent with the pecking order theory as most studies found a negative relationship between debt financing and profitability (Mishra and McConaughy, 1999; ShyamSunder and Myers, 1999; Jordan et al. 1998; Chittenden et al. 1996; Van der Wijst and Thurik, 1993; Barton et al. 1989; Friend and Lang, 1988). SMEs seem to face an extreme version of the pecking order theory (Chittenden et al. 1996; Holmes and Kent 1991) because they have less access to external funds for both debt and equity when compared with large enterprises.

Studies on SMEs (Hall et al. 2004; Cassar and Holmes 2003; Esperanza and Mohammed 2003; Michaelas et al. 1999) suggest a negative relationship between profitability and both long-term and short-term debt.

If a positive relationship is found between gearing and profitability, then the static trade off theory may be validated as Petersen and Raj an (1994) found in a study on the lending relationships of small businesses. A study on the capital structure of SMEs in Spain by Mira and Lopez (2003) also found a positive relationship between profitability and long term gearing.

2.3.5 Firm growth

Drawing from pecking order arguments, firm growth exerts pressure on internal finance and pushes the firm into borrowing to finance the growth (Hall et al. 2004).

Thus it should then be expected that firms with high growth to exhibit relatively higher debt ratios. Future growth opportunities should also be positively related to short term leverage (Abor and Biekpe 2009).

Michaelas et al. (1999) argue that future opportunities will be positively related to leverage, in particular short term leverage. They argue that the agency problem and consequently the cost of financing are reduced if the firm issues short-term debt rather than long-term debt.

Myers (1977), in a contrary view, says that firms with growth opportunities will have a smaller proportion of debt in their capital structure. He contends that growth opportunities can produce moral hazard situations and that small-scale entrepreneurs have an incentive to take risks to grow. The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans. Lenders will therefore charge higher interest rates on long term debt. With this in mind, high growth firms would be expected to finance expansion by means of retained earnings and external equity if maintaining ownership and control is not a priority for the owner. In countries with highly developed financial markets, it is possible to get debt investors who are willing to invest in high risk companies such as those who invest in convertible debentures (Myers 1984).

Growth increases costs of financial distress, induces free cash flow problems, and exacerbates debt-related agency problems. Growing firms place a greater value on stakeholder co-investment. Thus, trade-off theory predicts that growth reduces leverage (Murray and Goyal 2009). By contrast, pecking order theory implies that firms with more investments assuming that profitability is constant should accumulate more debt over time. Thus, growth opportunities and leverage are positively related under the pecking order theory.

Empirical evidence on the relationship between firm growth and gearing is mixed as it depends upon the measure adopted for growth. Some researchers found a positive relationship between increases in sales and leverage (Titman and Wessels, 1988; Barton et al. 1989). Other evidence suggests that higher growth firms use less debt (Rajan and Zingales, 1995; Roden and Lewellen, 1995; Stulz, 1990; Kim and Sorensen, 1986). Michaelas et al. (1999) found future growth to be positively related to leverage and long-term debt. Cassar and Holmes (2003) and Hall et al. (2004) showed positive associations between growth and both long-term debt and short-term debt ratios, while Chittenden et al. (1996), Jordan et al. (1998), and Esperanza and Mohammed (2003) found mixed evidence.

This present study examined data covering 3 years and this meant that growth could only be measured for two periods. For this reason it was not expected that any meaningful trend could be established and therefore growth was not used in the regression model as an explanatory variable but was included as a control variable.

2.3.6 Industry sector

There has been considerable debate as to whether the industry within which an SME operates exerts an effect on the SME's capital structure (Jordan et al. 1998).

With regard to industry effects, Myers (1984) argued that since asset risk, asset type and external financing requirements vary by industry, and then debt ratios should vary by industry as well.

There is considerable disagreement as to the strength of the industry effect (Chittenden et al. 1996) because Balakrishnan and Fox (1993) argued that industry factors were not nearly as important as firm specific ones.

Jordan et al. (1998) further suggested that since SMEs often operate in niche markets, this would reduce the impact of broad industry influences on capital structure.

This study did not use industry as an explanatory variable in line with Balakrishnan and Fox (1993) and Jordan et al. (1998). However since Myers (1984) found industry to be important in determining capital structure, it has been included as a control variable

2.3.7 Asian or African ownership

Some studies on the capital structure of SMEs have found ethnicity to be a determinant of the capital structure. A study by Robb and Robinson (2009) in the United States found that black held businesses held far less debt in their capital structure than other businesses. The debt ratios of black businesses when compared to white owned businesses were 7% lower.

It is important to take into account the distinctive features of the Kenyan economy that are relevant for a study on capital structure of SMEs. Kenya had approximately 40000 large and medium sized firms in 2005 that contributed 60% of the Gross Domestic Product, GDP. It also had 1.7 million

micro and small enterprises virtually all in the informal sector contributing 20% of the GDP. 76% of all the formal firms are located in Nairobi (Government of Kenya 2006)

In a study on the importance of business networks to sub Saharan African SMEs, Biggs and Shah (2006) give a succinct overview of the Kenyan context. Their study categorically states that Asians dominate ownership among SMEs in Kenya with Asians owning 60% of SMEs as defined in this study with Africans owning 39.6% of the total SMEs. This disparity could be due to many factors and financing is commonly cited as a primary factor. The same study states that the average availability for all SMEs in Kenya is approximately 30% for supplier credit and 24% for bank credit. The rest of the finance has to come from personal savings or from friends.

As regards tangible non-current assets approximately 37% of the firms surveyed in their study have titles to property. It was interesting to note however that 43.5% of Asian owned firms had access to supplier credit as opposed to a paltry 13.8% of the African owned firms.

As regards bank finance at start up, 12.6% of African owned SMEs had access while 34.2% of Asian SMEs accessed the same finance. In addition, the percentage of Asian owned SMEs with title to property was 56.5% while African owned SMEs with title to property was only 13.8%.

This disparity in access to supplier credit, bank finance and title to property indicates that Asian or African ownership may have an effect on the capital structure of SMEs in Kenya. For this reason Asian or African, is included as a control variable in the regression model.

The characteristics of the Kenyan economy described in this section make it well suited for testing theories on asymmetric information such as pecking order theory.

2.4 Summary of literature reviewed

The literature reviewed confirms that almost all the studies on SME capital structure have been done in the developed world. As there are very few studies on SMEs capital structure this study has attempted to bridge this gap.

It is clear however that the debate on the determinants of capital structure of SMEs is far from being resolved. The importance or otherwise of variables such as age, size, asset structure and industry has been researched extensively. Most studies concur with each other on the relative importance of these variables, but disagree as regards the direction of the relationship with capital structure.

The conclusions of SMEs studies in the developed world need to be interpreted with caution because of the different circumstances in Kenya. For example, an SME in the developed world is a large firm by Kenyan standards.

The pecking order theory originated by Myers and Majluf (1984) has received the greatest empirical support both in studies of large listed firms and SMEs in developed countries. Most studies have found that a negative relationship exists between profitability and the debt ratio such that even profitable firms that have easy access to debt prefer to use retained earnings. While it is largely agreed that SMEs follow a pecking order in their capital structure, the factors that cause them to follow such an order is still open to debate. The tax based theory, static trade, has little empirical support among SMEs especially those in Africa (Abor and Biekpe 2009).

This study is new because most studies on firms in Kenya focus either on micro and very small enterprises (Kinyua 2005; Daniels and Mead 1998) or on large firms. This study focused on firms that fall in the so called 'missing middle' as these firms are not set up as survival enterprises but as businesses expected to grow into large enterprises (Abor and Biekpe 2009).

CHAPTER THREE

METHODOLOGY

3.1 Research Design

The research design adopted in this study was quantitative. Secondary data was collected and analysed using regression while primary data was collected via a questionnaire survey and ranked. This design is in line with Abor and Biekpe (2009), Hall et al. (2004) and Cassar and Holmes (2003). According to Balnaves and Caputi (2001), previous data can be re-analysed by other researchers as secondary analysis which is a common and economical method of research. The main reason for adopting a mixed approach is that the results obtained from both approaches enable triangulation of data and corroboration of results. It also brings additional insights that may not be realized with a single design (Kazmier 2004).

A pilot study done at the proposal stage made it clear that obtaining financial statements directly from SMEs was not going to be possible. It was then necessary to get secondary data from an organisation that is able to elicit a high degree of cooperation from SMEs, for instance a research institute associated with the government.

KIPPRA published a study in 2008 together with Ernst and Young titled *'Improving MSMEs Business Environment through Simplified Registration and Taxation Systems in Kenya.'* This study had been done on behalf of the Ministry of Trade

KIPPRA and Ernst and Young did a national baseline survey of micro, small and medium sized enterprises improving on the one previously done by the Kenya National Bureau of Statistics in 1999 which had omitted medium sized enterprises. KIPPRA used the licensing records of local authorities as the sampling frame taking a sample of 2590 firms. Of these firms, 84.6% comprised micro-enterprises, 13.2% small enterprises, 1.8% medium sized enterprises and 0.4% large firms. Only 8% of these firms were registered with the Registrar of Companies mostly small and medium sized and all the large firms. All the firms classified as small and medium sized all had a

yearly turnover in excess of the value added tax threshold of KES 5 million. One of the objectives of KIPPRA and Ernst and Young's study was to collect financial data that can inform the design of an optimal business tax system. In order to do this they collected data spanning a period of 3 years from 2004 to 2006 relating to the income statement and the balance sheet of the firms in their sample. Their sample excluded firms that were branches of other firms to avoid integrating aspects of large firms in their study.

The KIPPRA baseline survey adopted a multistage sampling where the 24 districts were identified, at first, from 8 provinces in Kenya. The second stage of sampling involved selection of local authorities. For districts that serve as provincial headquarters, only businesses in the municipal council were included in the sample. Guided by the sampling frame and using the information given by key informants from municipal and town councils, the survey was carried out within the town's central business district (and its immediate environs) and industrial zones that reflect the highest number of micro, small medium enterprises.

In Nairobi, a total of 693 firms were sampled of which 595 were micro enterprises, 83 were small enterprises and 15 were medium sized enterprises. According to the 1999 baseline survey, this distribution reflects the proportion of firms in Kenya as it found 99.3% of the firms in Kenya to be microenterprises while the rest could be classified as small and medium sized. The firms in the sample for Nairobi province were obtained from the Nairobi City Council trade licence list because this was the source that best represented the targeted firms.

3.2 Units of analysis

The units of analysis in this study were SMEs whose annual turnover was between KES 5 million and KES 100 million shillings. This measure is obtained from Elumba (2008). It is important to note that there is no generally accepted definition of an SME because the classification of businesses into different scales is both a subjective and a qualitative judgement (Gray et al. 1997; Waka 1999). Using information contained in financial statements related to turnover, assets and capital to determine size

is convenient and practical (Abor and Biekpe 2009). Definitions can be in terms of turnover or the number of employees and the definition adopted depends on the data available for the study (Hart and Oulton 1996). Where the number of employed by a firm is stable then employees is a good measure of size (OECD 2006). However to obtain the figure for employees requires direct contact with SMEs which may be time consuming. For a country such as Kenya, the number of employees in SMEs is constantly changing as few are employed on a permanent basis (Bigsten et al. 2004; Daniels 1999). For this reason the measure adopted in this study is turnover. Total assets are also used for confirmatory purposes.

3.2.1 Population

The population for the purposes of this study were SMEs in Nairobi, Kenya.

The exact number of SMEs in Nairobi is not known as a census has never

been carried out (KIPPRA 2008). Possible sources of data on the population of SMEs include the Kenya Revenue Authority because SMEs as defined in this study are all registered for value added tax. Other possible sources included the Industrial and Commercial Development Corporation, ICDC, the Kenya National Chamber of Commerce, the Registrar of Companies and the National Social Security Fund, NSSF. The researcher contacted these organisations and met with senior officials of Kenya Revenue Authority and ICDC. None of these organisations could establish the number of SMEs in Nairobi with precision. KIPPRA used the Nairobi City Council list of trade licensees as the sampling frame

3.2.2 Data collection

This thesis collected both primary and secondary data. The secondary data was obtained from the baseline survey done by KIPPRA and Ernst and Young in 2008. This survey report together with the questionnaire and the raw data for Nairobi firms were made available by KIPPRA to the researcher at no cost. The raw data was available onsite only and the names of the firms were hidden. This KIPPRA study had compiled financial statements of a sample of 118 SMEs in Nairobi together with 595 micro-enterprises.

Micro-enterprises are excluded by the researcher from this thesis as they have needs and characteristics that are altogether different from SMEs (Green et al. 2006; Mutesasira, Osinde and Mule 2001).

3.2.3 Sampling design

For the secondary data analysis, the researcher used the sample that had been used by KIPPRA for a different study which was convenient. This sample had 98 firms classified as SMEs. In line with other studies Abor and Biekpe (2009), Daskalakis and Psillaki (2008), Sogorb-Mira (2005), it was necessary to remove firms that are subsidiaries of foreign firms because their capital structure decisions are determined by the parent company (Cassar and Holmes 2003), firms in the financial sector are also excluded because their capital structures are determined by legal requirements (Abor and Biekpe 2009; Daskalakis and Psillaki 2008; Cassar and Holmes 2003; Chittenden et al. 1996). Firms with missing data, losses brought forward or outliers are also excluded as they reduce the robustness of the statistical analysis carried out (Abor and Biekpe 2009; Cassar and Holmes 2003). Table 1 below shows how the researcher adjusted the sample from KIPPRA to come up with the final sample of 43 firms with complete data for three years. An extract of the table from the baseline survey is in the appendix.

Table 1: Derivation of sample size of SMEs in Nairobi

Original sample size	693
Micro enterprises	575
Firms in the financial sector(insurance brokers, cooperatives and insurance agencies and stock brokers)	28
Subsidiaries of other firms and not for profit firms	22
Firms with inconsistent or missing data for any of the 3 years	25
Remaining firms	43

3.3 Secondary data analysis methods

The data collected from the financial statements has variables that tend to be related in linear fashion (Hall et al. 2004; Cassar and Holmes 2003; Chittenden et al. 1996). Examples of variables include turnover, total liabilities, equity, total assets and profit before tax. This means that the relationships between the variables can be established through regression analysis accompanied by the appropriate statistical tests (Rocca et al. 2009). The following tests of variables were used to assess the robustness of the results.

3.3.1. *F test*

An F-test a statistical test used to compare statistical models that have been fitted to a data set in order to identify the model that best fits the population from which the data were sampled.

3.3.2 *R squared*

R^2 is a statistic that tests the goodness of fit of a model. It is a statistical measure of how well the regression line approximates the real data points. An R^2 of 1.0 indicates that the regression line perfectly fits the data.

3.3.3 *Durbin Watson statistic*

The Durbin-Watson statistic is a test statistic used to detect the presence of autocorrelation in the residuals from a regression analysis. Its value always lies between 0 and 4. Autocorrelation refers to the correlation of a time series with its own past or future values. This correlation may be caused by misspecification of the model and data manipulation. Autocorrelation complicates the application of statistical tests by reducing effective sample size. It also increases the variances of the residuals and the estimated coefficients causing the model to produce biased results. As a rough rule of thumb, if Durbin-Watson is lies between 1.7 and 2.4 there is no au tocorrelation.

3.3.4 Multicollinearity

Multicollinearity is a regression assumption violation that occurs when two or more independent variables are highly but not perfectly correlated with each other. An independent variable that is highly correlated with others will have a large standard error and the partial regression coefficient will be unstable varying from one sample to the next. Multicollinearity undermines the statistical significance of the independent variable. The variance inflation factor, VIF, is applied to detect multicollinearity. It measures how much the variance of an estimated regression coefficient increases if the predictors are correlated. $VIF = 1$ indicates no relation among predictors; $VIF > 1$ indicates that the predictors are correlated; $VIF > 5 - 10$ indicates that the regression coefficients are poorly fitted. The solution is to remove the predictor causing the problem or to use partial least squares regression.

3.4 Data and the Empirical Model

3.4.1 Dependent Variable

The dependent variable used in this study is the debt ratio measured as total liabilities to total assets. This measure was also used by Rajan and Zingales (1995) and Daskalakis and Psillaki (2008). Total liabilities include trade credit, leases and overdrafts, all of which are important sources of finance for SMEs. Another reason for adopting this measure was that total liabilities are a better representative of debt in countries with underdeveloped financial markets ((Booth, Aivazian, Demirguc-Kunt and Maksimovic 2001)). In addition, information related to the long term and short term debt of SMEs in Africa will usually not be available. This means that the appropriate measure of gearing to use is the total liabilities to total assets ratio (Booth et al 2001).

3.4.2 Independent Variables

The first independent variable in the model is profitability. Profitability is measured as the profit before interest and tax divided by total assets. This is the measure adopted by Daskalakis and Psillaki (2008) and Titman and Wessels (1988). According to the pecking order theory, firms that are

profitable will finance their operations through retained earnings. A negative relationship between profitability and gearing is then expected. A positive relationship would either be evidence supporting the static trade off theory or an indicator of low profitability.

The following hypothesis was tested

H1_a: Return on assets (ROA) is negatively related to the debt ratio. H1_b:

Return on assets (ROA) is not negatively related to the debt ratio.

The second independent variable is asset structure. Asset structure or tangibility is measured as the ratio of tangible non current assets to total assets, ASit. The degree of financial distress costs depends to a large extent on the type of assets that a firm employs. Firms that maintain large investments in land and buildings and plant and equipment will experience relatively low financial distress costs while those with a large proportion of current assets except cash should experience relatively higher financial distress costs. A high asset structure should make it relatively easier to borrow and therefore the researcher tested the following hypothesis

H2_a: Asset structure (AS) is positively related to the debt ratio.

H2_b: Asset structure (AS) is not positively related to the debt ratio.

The third independent variable is firm size. The model adopted in this study measures size as the natural log of turnover in one regression equation and as the natural log of total assets in the other regression equation. The natural log is used so as to measure the trend of this variable in the determination of capital structure rather than the contribution of absolute size (Daskalakis and Psillaki 2008); it also smoothes out differences between large turnover figures and smaller ones. These measures are in line with previous studies in sub Saharan Africa such as Abor and Biekpe (2009). According to the theory of information asymmetry, a large firm is more transparent in its operations and prospects and will likely secure lower costs of debt than smaller firms. Since the pecking order theory shows a hierarchy of finance choices based on information asymmetry a positive relationship was expected between size and the debt ratio.

The hypotheses tested were as follows:

H3a: Total assets (SIZE_{ta}) are positively related to the debt ratio. H3b:

Total assets (SIZE_{ta}) are not positively related to the debt ratio. H3c:

Turnover (SIZE_{tn}) is positively related to the debt ratio.

H3d : Turnover (SIZE_{tn}) is not positively related to the debt ratio.

The fourth independent variable is age. Age is measured as the number of years since the date of incorporation. Age is a standard measure of reputation and according to information asymmetry theory and agency theory, information asymmetry and agency costs decline over time as the firm acquires a good reputation. An older firm should therefore have relatively higher debt ratios than a younger one. The following hypothesis is formulated:

H4a: Age is positively related to the debt ratio.

H4b : Age is not positively related to the debt ratio.

The first control variable is industry sector. There has been considerable debate on whether industry sector has an effect on capital structure. Some studies have found this to be the case but others have not. For this reason it is necessary to categorize the firms sampled in this study according to the industry sectors in which they operate. For the industry control variable, the following hypothesis is formulated:

HSa: Industry sector makes a difference in the debt ratio.

HSb: Industry sector does not make a difference in the debt ratio.

A study by Biggs, Raturi and Srivastava (2002) had found that Asian owned SMEs in Kenya tended to have larger gearing ratios and greater access to trade credit. For this reason, Asian or African ownership is included as a control variable, and the following hypothesis is formulated:

H6a: Asian or African ownership makes a difference in the debt ratio.

H6b: Asian or African ownership does not make a difference in the debt ratio.

Debate on the effect of growth on capital structure continues with some researchers finding that high growth firms prefer equity finance because debt financiers perceive their risk to be high while other researchers posit that high growth firms are normally start ups and may find it difficult to issue equity. Such firms will therefore tend to rely on debt. Most studies though have failed to come up with conclusive evidence that growth does have an effect on capital structure (Daskalakis and Psillaki 2008). For this reason a control variable for growth is included and the following hypothesis is formulated:

H7a: the growth rate makes a difference in the debt ratio.

H7b: the growth rate does not make a difference in the debt ratio.

3.4.3 The Model

The model used has size, asset structure, profitability and age as the explanatory variables. According to Biggs and Shah (2006), Asian owned firms in Kenya have higher debt ratios than indigenous African owned firms. In addition, industry classification has been found in some studies to significantly influence capital structure of SMEs while other studies have found no evidence. Growth has also been found to be important in a few studies while it was found insignificant for most.

It was thus necessary to include ownership, industry classification and growth as control variables.

For ownership, since all the firms in the sample were either Asian owned or African owned, the ownership dummy takes a value of 1 if the firm is Asian owned and a value of 0 if African owned.

As regards industry classification, the SMEs sampled were classified as belonging to either one of 2 industrial sectors:

1. Trade, hotels and restaurants
2. Manufacturing

This means that if the firm is in trade, hotels and industry it takes a value of 1, otherwise the value is zero. With regard to growth, the firms are classified either as high growth (increase in turnover > 5%) or low growth (increase in turnover < 5% (Bhaired and Lucey 2009).

The following model is estimated when size is measured as the natural logarithm of turnover:

$$DR_{it} = 130 + 131ROA_{it} + 132AS_{it} + 133SIZE_{it} + 134 AGE + 135 D1 + 136 D2 + 137 D3 + e_{it}$$

Where:

DR_{it} = total liabilities / total assets for firm i in period t

ROA_{it} = return on assets for firm i in period t

AS_{it} = ratio of fixed assets to total assets for firm i in period t

$SIZE_{it}$ = natural log of turnover for firm i in period t (TN)

AGE_{it} = age in years

$D1$ = industry dummy: takes a value of 1 if manufacturing and takes a value of 0 if trade, hotel or restaurant

$D2$ = ownership dummy: takes a value of 1 if Asian owned, and 0 if African owned

$D3$ = growth dummy: takes a value of 1 if high growth, otherwise 0

e_{it} = error term

The second regression equation measuring size as the natural log of total assets is:

$$DR_{it} = 130 + 131ROA_{ait} + 132AS_{it} + 133SIZE_{ait} + 134 AGE + 135 D1 + 136 D2 + 137 D3 + e_{it}$$

Where:

$SIZE_{ait}$ = natural log of total assets for firm i in period t All the other variables are as stated for the first model

3.5 Questionnaire survey population

In order to study the same population as KIPPRA, SMEs in Nairobi were taken as the population.

3.5.1 Data sample

To generate a sample for qualitative data collection non probability sampling can be used and the sample size does not have to be large (Kazmier 2004). In this thesis it was necessary to follow the same approach that KIPPRA used in coming up with the sample of SMEs from Nairobi. The sampling frame used was the list of firms issued with trading licences from the Nairobi City Council in downtown Nairobi and the Central Business District. A structured, self administered questionnaire was used to collect the data; the overall response on the part of SMEs to the survey was positive in contrast to the previous attempt to obtain financial data employed earlier by the researcher. The questionnaire was designed to give Likert style responses which allow the qualitative perceptions to be quantified and analysed as quantitative data (Kazmier 2004). The reason for this second survey was to find out whether the results obtained using this method could support those obtained in the secondary data analysis.

3.5.2 Data collection

The targeted number of firms was at least 25 or more so as to have an approximate normal distribution. The self administered questionnaire was sent to 60 firms, 43 of which were delivered by hand accompanied by a brief explanation of the reasons for the research and how to fill out the questionnaire. The rest were sent in via email after contacting the owner of the firm by telephone. All the firms to which questionnaires were hand delivered were registered for value added tax as the certificate of registration was clearly visible at their premises. Just like in the secondary data analysis, the sample firms operated either in trade, retail and hotel sectors. The target response rate was 50% and the actual response rate was 55%.

The questionnaire is attached in the appendix and the data is analysed in chapter four.

3.5.3 Data analysis

The respondent's preferences are reflected in their answers to a five point Likert scale. The number of responses in each category is collected and the average score is calculated together with the median, standard deviation and mode. The mean and standard deviation are inappropriate for ordinal data such as that in the Likert scale and therefore the median or mode should be used as the measure of central tendency (Jamieson 2004).

3.5.4 Tests of variables and hypotheses

Since conclusions cannot be drawn just by looking at the measures of central tendency produced by the computer program, it is necessary to carry out statistical tests (Kazmier 2004).

The appropriate test in this case is the Wilcoxon Signed Rank Test as it can be used to test a null hypothesis concerning the value of the population median. It considers the magnitude of the difference between each sample value and the hypothesized value of the median. No assumptions are required about the form of the population distribution (Kazmier 2004) but where like in this study, $n \sim 25$ the t statistic is approximately normally distributed. This means that the test can be carried out using the normal probability distribution. The Likert scale used in this thesis is a five point scale but points 1 and 2 which are 'strongly disagree' and 'disagree' can be classified as 'disagree' with the question posed while points 4 and 5 on the Likert scale can be classified as 'agree' with the question posed. Throughout the analysis the null hypothesis [H_0] is that the median = 2 and the alternative hypothesis (H_1) is that it is greater than 2. The result is tested at 5% therefore the p value in each case has to be less than 0.05 for the result to be statistically significant.

CHAPTER FOUR

FINDINGS

4.1 Overview of secondary data analysis results

The empirical evidence on the determinants of capital structure for SMEs in Nairobi, Kenya is discussed here. There are two regression equations the first of which is the preferred one to explain the results and the second is for confirmatory purposes. The findings of each are discussed separately. The tables summarising the data are shown below:

4.1.1 Size: measured as the natural log of turnover

Regression Analysis: D versus ROA, AS, In TN, AGE, D1, D2, D3 (controlling for industry, ownership and growth)

The regression equation is

$$DR = 0.917 - 0.135 ROA + 0.169 AS - 0.0494 \ln TN - 0.00101 AGE + 0.0240 D_1 + 0.0023 D_2 + 0.0055 D_3$$

Table 2: Regression coefficients with turnover as measure of size

Predictor	Coef	SE Coef	T	P	VIF
Constant	0.9175	0.1158	7.92	0.000	
ROA	-0.13463	0.05737	-2.35	0.021	1.2
AS	0.16875	0.02242	7.53	0.000	1.1
In TN	-0.049410	0.006208	-7.96	0.000	1.2
AGE	-0.001006	0.002861	-0.35	0.726	1.0
D1	0.02401	0.01451	1.65	0.101	1.0
D2	0.00232	0.01449	0.16	0.873	1.0
D3	0.00552	0.01483	0.37	0.711	1.1

$$S = 0.0824848 \quad R\text{-Sq} = 55.3\% \quad R\text{-Sq (adj)} = 52.7\% \quad R\text{-Sq (pre d)} = 49.45\%$$

Table 3: Analysis of Variance with turnover as measure of size

Analysis of Variance					
Source	DF	SS	MS	F	P
Regression	7	1.03439	0.14777	21.72	0.000
Residual Error	123	0.83686	0.00680		
Total	130	1.87125			

Durbin-Watson statistic = 2.11140

No evidence of lack of fit ($P \geq 0.1$).

4.2 Description of results

According to table 2 the constant takes a value of 0.917 and this means the debt ratio is 0.917 when all the explanatory variables are equal to zero. With regard to the explanatory variables the evidence points to a negative relationship between the debt ratio and profitability at a 95% confidence level. It also shows a positive relationship between the debt ratio and asset structure at a 95% confidence level and a negative relationship between the debt ratio and size also at a 95% confidence level. A negative relationship between the debt ratio and age is also found but the result is not significant at 5% or 10%. All the control variables had positive coefficients but none of these were significant at a 95% confidence level or at a 90% confidence level.

4.2.1 Profitability

A more detailed look at the results for profitability show a coefficient of -0.135 and this is statistically significant at a 95% confidence level with a p value of 0.021. This negative coefficient indicates that an increase in profitability by one unit causes a decrease of 13.5% in the debt ratio holding other factors constant. It is therefore possible to reject the alternative hypothesis that profitability is not negatively related to the debt ratio.

4.2.2 Asset structure

The coefficient for asset structure is +0.169 and is significant at a 95% confidence level with a p value of 0.000. The coefficient is positive indicating that if asset structure increases by one unit; this will result in an increase in the debt ratio of 16.9% all other variables held constant. The alternative hypothesis that asset structure is not positively related to the debt ratio can be rejected at a significance level of 5%.

4.2.3 Size

The coefficient for size is -0.0494 a value significant at a 95% and even at a 99% confidence level. The value of the coefficient indicates that an increase of one unit in the turnover results in a decrease of 4.94 per cent in the debt

ratio all other variables held constant. The null hypothesis that Size IS positively related to the debt ratio can be conclusively rejected at a significance level of 5%.

4.2.4 Age

Age has a coefficient of -0.001 but the result is not significant at a 95 percent confidence level as its p value is 0.726. This means that the alternative hypothesis that age is not positively related to the debt ratio cannot be rejected at a significance level of 5%.

4.2.5 Control Variables

D1, the control variable for industry sector has a coefficient of +0.024. This shows the effect of being in manufacturing rather than being in trade, hotels and restaurants increases the debt ratio by 2.4%. The result however is not significant at a 95% confidence level as the p value is 0.101

D2 as the control variable for ownership has a coefficient of +0.0023. This shows that the effect of being an Asian owned SME as opposed to an African owned SME is to increase the debt ratio by 0.23%. Again this value is not statistically significant at 5%

D3, the control variable for growth has a coefficient of 0.0055. This is the effect of being a high growth SME as opposed to a low growth SME on the debt ratio. This difference causes a change in the debt ratio of 0.55%. The p value is 0.711 and is not statistically significant at a confidence level of 95%.

4.2.6 R-Squared

The overall regression equation has an R squared of 55.3% together with an adjusted R squared of 52.7%. This means that the set of independent variables in the equation explain at least 52.7 % of the change in the debt ratio.

4.2.7 Variance inflation/actors

The variance inflation factors are all between 1 and 1.2 indicating that there is no multicollinearity among the variables. A variance inflation factor of 5 or

greater would indicate the presence of multicollinearity. The Durbin Watson statistic is 2.1114 indicating that there is no autocorrelation among the variables. The test of fit shows that there is no evidence that the model does not fit the data well.

4.3 Size measured as the natural logarithm of total assets:

The regression equation is

$$DR = 0.239 - 0.109 ROA + 0.253 AS - 0.0132 \ln TA + 0.00551 AGE + 0.0043 DI - 0.0175 D2 - 0.0097 D3$$

Table 4: Regression coefficients with total assets as measure of size

Predictor	Coef	SE Coef	T	P	VIF
Constant	0.2392	0.1019	2.35	0.020	
ROA	-0.10887	0.06123	-1.78	0.078	1.4
AS	0.25306	0.02462	10.28	0.000	1.3
ln TA	-0.013209	0.005849	-2.26	0.026	1.6
AGE	0.005512	0.002935	1.88	0.063	1.0
DI	0.00434	0.01497	0.29	0.772	1.0
D2	-0.01753	0.01500	-1.17	0.245	1.0
D3	-0.00973	0.01481	-0.66	0.512	1.0

S = 0.0857629 R-Sq = 50.2% R-Sq (adj) = 47.5% R-Sq (pred) = 44.20%

Table 5: Analysis of Variance with total assets as measure of size

Analysis of Variance	DF	SS	MS	F	P
Source					
Regression	7	0.94301	0.13472	18.32	0.000
Residual Error	127	0.93412	0.00736		
Total	134	1.87713			

Durbin-Watson statistic = 2.23139

Lack of fit test

Possible interaction in variable ROA (P-Value = 0.038)

Possible curvature in variable AS (P-Value = 0.002)

Overall lack of fit test is significant at P = 0.002

4.3.1 Equation

According to table 4 above, the constant is 0.2392 and is significant at 95%.

This means that the debt ratio is 23.92% when all the independent variables

are equal to zero. Adjusted R squared is 47.5% and this figure means that the independent variables explain 47.5% of the change in the debt ratio.

4.3.2 Profitability

Table 4 shows that profitability is negatively related to the debt ratio but the result is not significant at 5% but it is significant at 10%. Asset structure is positively related to the debt ratio and this relationship is significant at both 5% and at 1%. Size is negatively related to the debt ratio and this relationship is significant at 5% while age is positively related to the debt ratio a result which is significant at 10%.

The coefficient for profitability is -0.109 showing that when profit increases by one unit, the debt ratio decreases by one unit. Asset structure has a coefficient of 0.253 meaning that an increase in asset structure by one unit leads to an increase of 25.3% in the debt ratio. The coefficient for size is -0.013 which means that should size increase by one unit then the debt ratio will decrease by one unit.

4.3.3 Age

Age has a positive coefficient of 0.005 unlike in the previous model which had a negative coefficient. This means that if age increases by one unit the debt ratio increases by 0.5%.

The industry dummy has a coefficient of 0.004. This shows the effect of being in manufacturing rather than being in trade, hotels and restaurants increases the debt ratio by 0.4%. The result is not significant at 5% or 10%.

4.3.4 Control Variables

The ownership dummy has a coefficient of -0.017 meaning that being an Asian owned SME as opposed to an African owned SME is to decrease the debt ratio by 1.7%. This is different from the result obtained in the first model but neither result is significant at 5%.

The growth dummy has a coefficient of -0.009 meaning that being a high growth SME as opposed to a low growth SME on the debt ratio. This

difference causes a decrease in the debt ratio of 0.9%. This result is not significant at 5%.

4.4 Questionnaire survey data results

The questionnaire was made up of 2 pages comprising 9 questions. Question 8 did not require a Likert type response as it required respondents to state what percentage of their firm's capital comprised equity. 45% of respondents placed equity at between 41-60% of total capital while 30% of respondents placed it at 61-80%. The remaining 25% placed the equity portion at between 81-100%. A pilot study on 3 firms helped refine the questions and overall 33 questionnaires were received. A copy of the questionnaire is in the appendix. The descriptive statistics and the statistical test are in the same order with the questions in the questionnaire.

Table 6 contains the descriptive statistics and table 7 shows the results from the statistical test. Question 1 required the respondent to rate the importance of trade credit (TC), retained earnings (RE), borrowing from friends (FR), savings & credit cooperative societies (SC) and banks (BK). Question 2, 3, 4 and 5 required respondents to rate how the determinants of capital structure influenced the availability of sources of finance listed in question one. Determinants included asset Structure (A), size(S), profitability (P), age (AG), Asian/African ownership (ASI), and growth rate (G) and industry sector (I).

For example A (FR) means the effect of asset structure on borrowing from friends and the same goes for each listed source of finance and each determinant of capital structure.

Table 7 displays the results of statistical analysis using Wilcoxon's test. The null hypothesis is set as median=2 meaning that respondents disagree with the question posed and median>2 meaning that they agree or at least do not disagree.

Table 6: Descriptive statistics

_Question no.		Total	Mean	SE Mean	StDev	Minimum	Median	Maximum
1	TC	33	4.121	0.136	0.781	3.000	4.000	5.000
1	RE	33	4.8485	0.0634	0.3641	4.0000	5.0000	5.0000
1	FR	33	2.515	0.227	1.302	1.000	3.000	4.000
1	SC	33	3.879	0.208	1.193	1.000	4.000	5.000
1	BK	33	2.152	0.227	1.302	1.000	2.000	5.000
2	AJF	33	1.4545	0.0880	0.5056	1.0000	1.0000	2.0000
2	SjF	33	1.6364	0.0850	0.4885	1.0000	2.0000	2.0000
2	P(F	33	1.0303	0.0303	0.1741	1.0000	1.0000	2.0000
2	AG(FR)	33	1.6061	0.0864	0.4962	1.0000	2.0000	2.0000
2	ASI	33	1.1212	0.0577	0.3314	1.0000	1.0000	2.0000
2	G(FR	33	1.0303	0.0303	0.1741	1.0000	1.0000	2.0000
2	I(F	33	1.515	0.138	0.795	1.000	1.000	3.000
3	A(C	33	1.333	0.178	1.021	1.000	1.000	5.000
3	S(C	33	1.394	0.150	0.864	1.000	1.000	4.000
3	PjC	33	1.0303	0.0303	0.1741	1.0000	1.0000	2.0000
3	AGC	33	1.758	0.200	1.146	1.000	1.000	4.000
3	ASI c)	33	1.0909	0.0508	0.2919	1.0000	1.0000	2.0000
3	G(C	33	1.182	0.102	0.584	1.000	1.000	3.000
3	I(C	33	1.273	0.133	0.761	1.000	1.000	4.000
4	A(T	33	3.091	0.147	0.843	2.000	3.000	5.000
4	S/TR	33	3.424	0.157	0.902	2.000	3.000	5.000
4	P(TR)	33	1.455	0.107	0.617	1.000	1.000	3.000
4	AGTR)	33	1.3333	0.0940	0.5401	1.0000	1.0000	3.0000
4	ASI(TR	33	1.758	0.138	0.792	1.000	2.000	3.000
4	G(TR)	33	1.1515	0.0769	0.4417	1.0000	1.0000	3.0000
4	I(T	33	1.636	0.129	0.742	1.000	1.000	3.000
5	A(B	33	4.758	0.115	0.663	3.000	5.000	5.000
5	S(B	33	4.091	0.133	0.765	3.000	4.000	5.000
5	~(B	33	1.1212	0.0577	0.3314	1.0000	1.0000	2.0000
5	AG(B)	33	1.970	0.134	0.770	1.000	2.000	3.000
5	ASI B)	33	1.1515	0.0634	0.3641	1.0000	1.0000	2.0000
5	G(B)	33	1.0606	0.0422	0.2423	1.0000	1.0000	2.0000
5	I(B)	33	1.364	0.114	0.653	1.000	1.000	3.000
6	PMD	33	1.727	0.133	0.761	1.000	2.000	5.000
7	PLD1	33	4.8788	0.0723	0.4151	3.0000	5.0000	5.0000
7	PLD2	33	4.1515	0.0985	0.5658	3.0000	4.0000	5.0000
7	PLD3	14	2.786	0.155	0.579	1.000	3.000	3.000
8	PABA	32	3.406	0.200	1.132	1.000	4.000	5.000

Table 7: Statistical tests using Wilcoxon Signed Rank Test

Question no		N	N for Test	Wilcoxon statistic	P	Estimated median
1	TC	33	33	561.0	0.000	4.000
1	RE	33	33	561.0	0.000	5.000
1	FR	33	33	405.0	0.013	2.500
1	SC	33	33	544.5	0.000	4.000
1	BK	33	31	264.0	0.381	2.000
2	A(FR)	33	18	0.0	1.000	1.500
2	S(FR)	33	12	0.0	0.999	1.500
2	P(FR)	33	32	0.0	1.000	1.000
2	AG(FR)	33	13	0.0	0.999	1.500
2	ASI(FR)	33	29	0.0	1.000	1.000
2	G(FR)	33	32	0.0	1.000	1.000
2	I(FR)	33	28	87.0	0.996	1.500
3	A(C)	33	32	78.5	1.000	1.000
3	S(C)	33	33	115.5	0.998	1.000
3	P(C)	33	32	0.0	1.000	1.000
3	AG(C)	33	29	172.5	0.837	1.500
3	ASI(C)	33	30	0.0	1.000	1.000
3	G(C)	33	33	51.0	1.000	1.000
3	I(C)	33	30	59.0	1.000	1.000
4	A(TR)	33	25	325.0	0.000	3.000
4	S(TR)	33	28	406.0	0.000	3.500
4	P(TR)	33	22	23.0	1.000	1.500
4	AG(TR)	33	24	12.5	1.000	1.500
4	ASI(TR)	33	22	80.5	0.934	1.500
4	G(TR)	33	30	15.5	1.000	1.000
4	I(TR)	33	22	57.5	0.988	1.500
5	A(B)	33	33	561.0	0.000	5.000
5	S(B)	33	33	561.0	0.000	4.000
5	P(B)	33	29	0.0	1.000	1.000
5	AG(B)	33	19	90.0	0.588	2.000
5	ASI(B)	33	28	0.0	1.000	1.000
5	G(B)	33	31	0.0	1.000	1.000
5	I(B)	33	27	42.0	1.000	1.000
6	PMD	33	13	13.0	0.989	1.500
7	PLD1	33	33	561.0	0.000	5.000
7	PLD2	33	33	561.0	0.000	4.000
7	PLD3	14	13	84.0	0.004	3.000
8	PABA	32	23	274.0	0.000	3.500

To follow the presentation of the data, it is necessary to follow step by step the questions as they appear in the questionnaire and the analysis presented by MINITAB. This assists in clarity and helps avoid cluttering the main body of the thesis with too many tables.

The secondary data study found that a statistically significant relationship existed between the debt ratio measured as total assets to total liabilities and profitability, size and asset structure. It did not find a statistically significant relationship at a confidence level of 95% for age and the control variables for African/Asian ownership, industry sector and growth.

The researcher collected some qualitative data and ranked the responses in order to make it quantitative. The aim was to gain additional insights into the importance of the dependent and independent variables that were analysed in the secondary data study. The first set of questions asks the respondents to rate the importance or otherwise of the main categories of finance available to SMEs. Results in table 7 are discussed in the next section.

4.4.1 Trade credit

Trade credit constitutes a significant portion of the total liabilities in the SMEs examined in the secondary data study. Table 7 above shows that trade credit is perceived to be an important source of finance by SMEs as the estimated median is 4.0 and we can reject the null hypothesis at 5% that the median is equal to 2.

4.4.2 Retained earnings

Retained earnings are also perceived to be a very important source of finance with an estimated median of 5.0, a result that is significant at a 5% level. The null hypothesis that the median is equal to 2 can be rejected at 5% as the p value is 0.000

4.4.3 Friends

Finance from friends is not perceived to be an important source of finance and the estimated median is 2.5 and this result is significant at 5%. This means that SMEs do not think that borrowing from friends is an important source of finance. The alternative hypothesis that the median is greater than two can be rejected at 5%.

4.4.4 Cooperatives

Interestingly, funds borrowed from cooperatives were perceived to be quite an important source. This is shown by the estimated median of 4.0. This

result is significant at 5% and the p value is 0.000. The null hypothesis that the median is equal to 2 can be rejected at 5%.

4.4.5 Banks

Surprisingly banks did not seem to be an important source of finance for the SMEs in the sample. The estimated median is 2 meaning that SME owners disagree with the statement that bank finance is important to them. The result is not statistically significant at 5% however as the p value is 0.381.

4.5 Determinants and sources of finance

The next question tested the respondents' perception of the importance or otherwise of the capital structure determinants namely asset structure, size, profitability, age, Asian/African ownership, growth and industrial sector on each source of external finance namely friends, cooperative, banks and trade credit.

4.5.1 Friends

Starting with finance from friends, there does not seem to be any relationship between any of the listed determinants of capital structure and finance from friends. The test statistic is 0 throughout and the p values are equal to or very close to 1.0 which is much greater than 0.05. From these results it is clear that there is no relationship between finance from friends and the determinants of capital structure used in this thesis.

4.5.2 Cooperatives

As regards finance from cooperatives, again all the p values are either 1 or very close to one. The estimated median is also equal or close to 1 showing that SME owners strongly disagree with the position that any of the capital structure determinants listed has an effect on whether they access finance or not. This is an important finding given that the responses to first question showed that cooperatives were an important source of finance. There must

be other determinants other than those listed in this thesis that affect debt obtained from cooperatives.

4.5.3 Trade credit

Trade credit was shown to be an important source of finance according to the responses to the first question in the questionnaire. It is clear that SME owner/managers perceive that the size of the firm is an important determinant of trade credit with an estimated median of 3.5. The estimated median is 3 for assets meaning that the respondents were ambivalent as to whether assets were important in securing credit because a score of 3 indicates neutrality. With the p values at 0.000 for both asset structure and size respectively, both results are statistically significant at 5%.

4.5.4 Bank finance

Bank finance was not perceived to be an important source of finance according to the responses given to the first question. While this result was not statistically significant the second question does provide some insights. It is clear that the respondents think that banks concentrate on the availability of assets to serve as collateral and the size of the firm. These two factors naturally reduce the risk faced by the bank in lending but the respondents are unwilling to look for finance that requires the provision of collateral or that puts pressure on their cash flow such as interest payments. The determinants of capital structure that are statistically significant as regards bank lending are size and asset structure with p values of 0.000 and estimated medians of 5.0 which is the maximum. All the other capital structure determinants are not perceived as important.

4.6 Profitability and debt

In order to test the relationship between profitability and debt, respondents were asked whether they prefer to use debt the more profitable it gets. The majority said that they prefer to use retained earnings even when profits are substantial. This result was not statistically significant though with a p

value of 0.989. Possible reasons given for avoiding debt even when a firm is profitable were suggested in the following questions and it is clear that SMEs use retained earnings over debt because they prefer things that way. The hypothesis that the median is equal to two can be rejected at 5%. The p value for this particular response was 0.000 and the estimated median was 5.0. The second reason posed in the questionnaire revolved around the pressure of interest rate commitments on the business. Again this proved to be a significant reason for avoiding debt even when a firm is profitable with a p value of 0.00, an estimated median of 4.00.

Respondents seemed to be ambivalent towards the cost of debt; a study by Beck and Fuchs (2004) found that interest rates in Kenya were perceived to be high but the firms in this sample did not seem to think this to be the case. The responses to this question were statistically significant with a p value of 0.004 and an estimated median of 3.0.

One of the respondents added on the questionnaire that he avoids debt because he feels that this makes him an 'employee' of the bank, something he would rather avoid. 15 respondents stated that bank finance for them is only on a very short term basis and in emergency cases but all firms do maintain a business current account. Additional responses not captured by the questions seem to suggest that the main reason bank finance is avoided is the risk of being shut down by the bank should hard economic times arise. In addition, the stringent requirements and close supervision adopted by banks makes the owners feel that the bank is intruding into their business activities.

4.7 Private assets and business assets

Question 8 assessed the perception of the firms examined in the sample that private assets are important. The estimated median is 3.5 and this result is significant at 5% with a p value of 0.000. Thus to better capture the influence of assets on capital structure, it is necessary to take into account private assets of the SMEs owners'.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

5.1 Capital structure theories in Kenya

This study has found evidence for pecking order theory which is based on information asymmetry indicated by the negative and significant relationship between the debt ratio and profitability. A positive and significant relationship between asset structure and the debt ratio was found as well as a negative and significant relationship between size and the debt ratio.

These relationships provide evidence for information asymmetry theory and pecking order theory and the life stage theory. Similar findings were made in Abor and Biekpe (2009) and Daskalakis and Psillaki (2008). Daskalakis and Psillaki (2008), a cross country study, found a positive relationship between asset structure and the debt ratio in one country just like the finding in this thesis. Possible reasons for this include the similarity in the method used to collect and analyse the data.

Other studies such as Cassar and Holmes (2003) had five dependent variables all measuring capital structure and each measure showed a negative relationship between profitability measured as the return on assets just like in this study.

Evidence for information asymmetry theory can be deduced from the positive and significant relationship between asset structure and the debt ratio. This finding was similar to the evidence Daskalakis and Psillaki (2008) found for SMEs in Portugal. Possible reasons for these similar findings could be that both countries have inefficient markets.

Myers (1984) has stated that in inefficient markets collateral is substituted for profitability or business operations as the criterion lenders use to make lending decisions. From the analysis of the data it is evident that firms with a higher proportion of tangible non-current assets have higher debt ratios. The conclusion that can be drawn from this finding is that firms with tangible non-current assets signal to suppliers that they are credit worthy and that they use non-current assets as security to access debt finance.

So far as agency theory is concerned, there is some insight that can be drawn from the relationship between asset structure and the debt ratio. Agency costs between the owners of the firm and outside financiers are expected to decrease in the presence of collateral (Jensen and Meckling 1976). If a high proportion of tangible non-current assets are a proxy for collateral, then the finding that asset Structure is positively related to the debt ratio shows that there is evidence that SMEs in Nairobi, Kenya have a capital structure that can be partly explained using agency theory.

No evidence could be found for the static trade off theory which may be an indication that debt tax shield is not important to SMEs in Nairobi, Kenya. This finding is by no means surprising as most other studies on SME capital structure have failed to find any evidence for the static trade off theory. Finding that pecking order theory and not static trade off theory explains the capital structure of SMEs in Nairobi, Kenya is important from an academic point of view as it shows that differences in economic development do not affect the preference of SMEs for retained earnings. From this observation it can be inferred that increasing access to debt finance by SMEs will not necessarily lead to an increase in borrowing by SMEs. In addition, lack of evidence for static trade off theory indicates that tax shields arising from interest payments are not important to SMEs in Nairobi, Kenya.

5.2 Profitability and capital structure

Profitability was measured as the return on assets in line with Cassar and Holmes (2003) and Daskalakis and Psillaki (2008) and a number of other studies for example Abor and Biekpe (2009). The findings in this study are similar to those in the above mentioned studies, that is, a negative and statistically significant relationship at a confidence level of 95%.

This was the expected result as most SMEs around the world prefer to finance their activities through retained earnings and it seems that this is the same situation for SMEs in Nairobi, Kenya. This preference is largely due to the fact that no additional external commitments are undertaken when using retained earnings as a source of finance (Myers 1984).

Profit is therefore the most important source of finance for SMEs in Nairobi, Kenya, and equally important therefore are the factors that influence profitability of SMEs. These factors include operating costs and revenue generation. Policies that ensure SMEs have market for their products and that facilitate low cost efficient operations will ensure that these firms make and retain sufficient profits to expand their operations.

5.3 Asset structure and capital structure

Asset structure in this study was found to have a positive and statistically significant relationship with the debt ratio. This is not surprising as SMEs face greater information asymmetry costs than large firms (Hall et al. 2004) than large firms.

These costs must be overcome by other means such as collateral as security for funds borrowed. Kenya's financial markets are dominated by commercial banks (Beck and Fuchs 2004) and these banks primarily lend based on collateral. Collateral based lending is indicative of inefficient markets where accurate information necessary for pricing risks is not available (Beck et al. 2004).

The significance of this finding is that SMEs with a high proportion of noncurrent assets should not have problems accessing debt. It should be noted however that a significant asset structure does not necessarily mean that SMEs will have higher debt ratios. Daskalakis and Psillaki (2008) found that in Greece, France and Italy, asset structure was negatively related to the debt ratio. This led their study to conclude that asset structure can also indicate that a firm has sufficient profits to finance its own operations as it has a large proportion of income generating assets.

The findings in this study however give the impression that asset structure is important as a measure of reputation. This is because the debt ratio employed in this study is total liabilities to total assets and for all the firms in the sample, almost all the liabilities consisted of trade payables and other short term debt. With this evidence it is possible to conclude that trade credit is more accessible for those firms with a large proportion of tangible non-current assets.

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It is important to note also that asset structure is a relative measure, that is, it states what the proportion of tangible non-current assets in a firm's asset base is. A firm could have only a few highly valued assets such as land and buildings and inventory and receivables as its main assets. Since the value of the non-current assets is great relative to the current assets, the measure of asset structure will return a large value. This high value does not necessarily mean that the SME in question has adequate collateral against which it can borrow.

However, from the point of view of reputation, trade creditors may feel that it is less risky to lend to a firm with few high value tangible non current assets than one with none.

5.4 Size and capital structure

Size was negatively related to the debt ratio in this study and the finding was statistically significant. At first sight this may seem to contradict what is predicted by theory but a closer look at the dependent variable used in this study sheds more light. If debt in the capital structure consists mostly of short term debt then the ratio approximately measures capital structure as a short term debt ratio.

Size is predicted by theory to have a negative relationship with short term debt and a positive relationship with long term debt (Cassar and Holmes 2003; Hall et al. 2004). It is thus reasonable to conclude that the study confirms the findings of previous research that found a negative relationship between short term debt and size.

An additional insight that was gained from the study is that turnover is a better measure of size than total assets for this sample at least because using turnover to measure size gives a better fitting of the model to the data. Turnover is useful for measuring size when comparing businesses in different industries for example service oriented and professional firms may not have significant assets other than cash but may have large turnover and generate much more cash flow than asset intensive firms.

The significance of finding a negative relationship between size and the debt ratio is that SMEs in Nairobi, Kenya, reduce the proportion of liabilities in

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their balance sheet as they increase in size. From this it is possible to infer that SMEs finance expansion through retained profits and steadily reduce their liabilities. This reiterates the importance of profitability in determining the capital structure of SMEs.

5.5 Age and capital structure

Age is predicted by life stage theory to have a positive relationship with the debt ratio but is predicted to have a negative relationship with the debt ratio by pecking order theory. While the coefficient for age was found to be negative thus providing evidence for pecking order theory, the relationship was not statistically significant. A number of other studies have excluded this variable from their variables as it is rarely statistically significant, for example Cassar and Holmes (2003) and Daskalakis and Psillaki (2008).

Abor and Biekpe (2009) is one of the few studies that have found a positive and significant relationship between age and capital structure. The inherent limitation with age as a determinant of capital structure is the assumption that a firm's reputation and performance improve over time (Rocca et al. 2009).

This study found contradictory evidence for age as the first regression model showed a negative relationship that was not statistically significant but the second model showed a positive relationship that was significant at 10%. The second model had a poor fit and the test of lack of fit was significant at 5%. With regard to the result in the second model, there seems to be weak evidence that the debt ratio and age are positively related and thus age is a measure of reputation.

5.6 Industry sector and capital structure

Industry sector was included as a control variable to ensure that industry specific effects were accounted for in the model. The direction of the relationship seemed to indicate that an SME in manufacturing tended to have a higher debt ratio than one in the trade, hotel and retailing industry. While the relationship was not statistically significant at a 95% level of

confidence, in theory such a finding is quite logical since manufacturing firms tend to have longer cash conversion cycles than retail firms and will therefore tend to have higher levels of debt to finance these cycles, more so if they have a small equity base (Chittenden et al. 1996).

5.7 Asian! African ownership and capital structure

Asians dominate the ownership of SMEs as defined in this study. It has also been found in a study by Biggs and Shah (2006) that Asian firms have greater access to finance, both bank and trade credit, than their African counterparts. For this reason it was necessary to include as a control variable Asian or African ownership as a determinant of capital structure. There was very weak evidence that Asian as opposed to African ownership resulted in a proportionately higher debt ratio. This is highlighted in table 2 which shows a positive coefficient for the Asian/African control variable of 0.002 and a p value of 0.873. Table 4 shows a negative relationship for the same variable with a p value of 0.245. Table 7 shows a p value of 1 for each source of finance against Asian/African ownership. Since the finding was not statistically significant it is not possible to comment further on this finding.

5.8 Growth and capital structure

Growth is included as a control variable because there is mixed evidence as regards its influence in determining capital structure of SMEs. The direction of the relationship between growth and the debt ratio is positive but not statistically significant. Lack of statistical significance is not altogether unexpected as the data in this study was for three years only, clearly not sufficient time to establish growth trends.

The results obtained in the questionnaire survey confirm what the secondary data study found but extracts finer details that could not have been obtained from the secondary analysis alone. Evidence for the pecking order theory is found as the preferred source of finance is retained earnings. This is not all however because most firms would not use any other source

of finance so long as retained earnings were available. Approaches by the government and its agencies of making credit available to SMEs may not be an important intervention in the SME sector.

5.9 Questionnaire survey findings

Profitability, according to the survey evidence, is not important to external financiers. The fact that no external financier appears interested in profitability could be mainly because of information asymmetry. Only the owner knows the true profitability of the firm and as some respondents commented orally upon collecting the questionnaires, profit figures are not reliable and cannot be used as a basis for seeking finance or lending in the case of external financiers. Profitability therefore does not directly affect the availability of external finance; its influence is more indirect because the more profitable a firm is, the more retained earnings it will have reducing its need for external debt.

The respondents confirmed that their businesses had four main sources of debt finance namely trade credit, cooperative loans, loans from friends and bank loans. It was therefore necessary to check whether the determinants of capital structure used in the secondary data analysis have any effect on these sources. Again it is not possible to get such insights using the secondary data. Just like in the secondary data study, no evidence was found that shows Asian/ African ownership, industry sector or growth rate of the firm influences availability of any of the sources of debt.

Age was not a significant determinant of capital structure in the secondary data analysis and neither was any evidence found for it in the questionnaire survey. For cooperative finance it seems that size is important but not in a direct manner as some of the respondents explained. In the cooperative, security is not provided directly but by fellow members who act as guarantors. According to the respondents, a sizeable business in terms of turnover is an indication of low credit risk to the other members of the cooperative. To a lesser extent guarantors also are interested in the personal assets of the borrower just in case the borrower fails to repay the loan. As regards borrowing from friends, none of the determinants has any

relationship but the respondents indicated that borrowing from friends depends upon your reputation for paying back and that this reputation is personal and cannot be measured.

Trade credit according to the results, is influenced by size and this relationship is statistically significant. Suppliers are more willing to grant credit to a sizeable firm relative to a smaller one because a large size may be less of a credit risk. The secondary data analysis found a negative and statistically significant relationship between size and the debt ratio. While on initial analysis, this may seem to contradict the survey finding, it may not be altogether different because size and profitability are positively related while profitability and gearing are negatively related. The negative sign may simply mean that the proportion of trade credit in the total finance of the business is not as significant as retained earnings.

Bank finance was heavily influenced as expected by assets and size. Assets because they provide security against the amount borrowed and size because it measures reputation. However bank finance had the lowest score among all external sources of debt in terms of its perceived importance. This is interesting because most of the literature on SME financing appears to focus on banks but it seems that cooperatives, friends and trade credit supersede banks in business finance for SMEs. Policy measures that enhance the performance of cooperatives and rotating savings schemes should have more influence on improving access to finance by SMEs rather than policy measures compelling banks to take a greater interest in this sector.

Finally most firms in the sample generally had more equity than debt again confirming SMEs preference for internal equity over debt.

CHAPTER 6

CONCLUSIONS

6.1 Conclusions

The conclusions of this study are that capital structure theories originating from the developed world can be used to explain the capital structure of SMEs in Nairobi, Kenya. In addition, the survey confirmed that retained earnings are the most important and preferred source of finance because these funds are fully under the control of the SME. It has been mentioned in some studies such as Kinyua (2005) and Beck and Fuchs (2004) that lack access to finance from banks is a major obstacle to SME development. This is certainly not the case for the firms examined in this study as bank finance was the least preferred source of debt after cooperative societies, trade credit and borrowing from friends. It seems therefore that the financial institutions that most closely deal with SMEs are cooperatives and not commercial banks. The respondents did however state that they used unsecured loans from banks when the need arose. Strong evidence was found for the pecking order theory and some evidence for agency theory. Since information asymmetry is a market imperfection it can be concluded that the market for finance in Kenya is inefficient as it is collateral based. The study has also found that profitability, asset structure and size explain approximately 52% of the variation in capital structure. Age, industrial sector, ownership and growth were statistically insignificant at 5% as determinants of the capital structure of SMEs in Nairobi, Kenya. Finance from cooperatives is an important source of debt but it was not influenced by any of the capital structure determinants listed in the study. This could be because cooperative borrowing is based on obtaining guarantors who can pledge to pay in case the borrower is unable. The factors that influence the ability to get guarantors can be the subject of another study.

Asset structure is positively related to the debt ratio therefore firms with a large proportion of tangible non-current assets should have higher debt

ratios. A logical reason for this conclusion is that the more tangible noncurrent assets a firm has, the less risky external investors perceive it to be. Size was found to be statistically significant even though a unit change in size resulted in a relatively small change in the debt ratio. Turnover indicates the level of business activity such that a high turnover indicates a high level of business activity. It is reasonable to conclude that a business with a large turnover is attractive to suppliers and for this reason can be expected to receive trade credit. It is also reasonable to conclude that suppliers dealing with SMEs may tend to consider those with large turnover as being more reputable and established than their smaller counterparts.

6.2 Limitations of the study

The study covered a three year period only which was not long enough to study the variable growth. A longer period would have been more desirable but it is very difficult if not impossible to get accurate and extensive financial information from SMEs in Kenya.

The number of firms studied was also relatively small but this was due to the difficulty of obtaining data from SMEs, more so data of a financial nature.

Most of the SMEs in this study were from Nairobi so the findings may not be generalised to the rest of the country. This is not a very significant limitation because anecdotal evidence has shown that Nairobi province generates in excess of 50% of the Gross Domestic Product of Kenya.

In a pilot study at the proposal stage it was clear that obtaining financial data from SMEs was not going to be possible. All respondents directed the researcher to the company auditors who by law cannot divulge financial information belonging to their clients.

There are many possible methods of collecting data from SMEs but in Kenya it seems that only the government can elicit the cooperation of SMEs in providing data for research.

Collecting data from custodians of financial information on SMEs other than auditors proved to be fruitless as well. Data on SMEs as defined in this study are kept in substantial quantities by the Industrial, Commercial and

Development Corporation, ICDC, which is a government body, the Kenya Revenue Authority and the Registrar of Companies.

In developed countries, in order to maintain confidentiality of the information, names of firms are not provided to researchers and data can only be viewed on site (Cassar and Holmes 2003). In addition, financial information is provided in ratio form and this considerably reduces the work of the researcher while maintaining the validity of the data. ICDC, a government body, declined to provide any data whatsoever, not even in ratio form (see letter in the appendix). The Kenya Revenue Authority on the other hand does not keep financial records of SMEs in electronic form; all accounts received from companies are paper based and confidential. An officer from the authority advised the researcher that even if computerized records were maintained most of these would be in the form of annual returns and not financial statements.

It is clear though that the main limitation on studies on SMEs capital structure decisions is the availability of reliable data. If regular surveys on SMEs were done by government bodies and research institutes and this information was pooled and stored electronically then more accurate data would be available. Lack of a clear definition of what is an SME in Kenya also presents a problem because it becomes unclear as to whether the findings of a particular study can be generalized.

Finally the accuracy of secondary data depends upon the accuracy of the sampling techniques used by the researcher that originally collected the data. KIPPRA is a government research institute with a lot of research experience and publications to date.

6.3 Areas for further research

This study found that the main source of debt for SMEs in Nairobi, Kenya comprised cooperative borrowing, borrowing from friends, bank borrowing and trade credit. However the capital structure determinants identified in the study did not have any relationship with cooperative borrowing (with the exception of size) and borrowing from friends. Another study can attempt to

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find out the factors that influence capital structure where debt is measured as the degree of cooperative borrowing.

This thesis did not find any evidence for the tax based theories of capital structure but high taxation has been cited as one of the major constraints on the development of SMEs. It may be useful to study the relationship between taxation and capital structure, in particular value added tax. This is because all the firms covered by this study were registered for value added tax. It may be possible that value added tax has an impact on the cash flow of SMEs and as a consequence affects their profitability and capital structure.

There are some financial institutions created by the government to support SMEs such as ICDC and other development banks. It would seem however that there are other institutions such as cooperative societies and rotating savings schemes that are more effective. The usefulness of the government sponsored credit institutions can therefore be re-evaluated.

6.4 Implications for policy makers

The policy framework for SME development in Vision 2030 should address the problem of inadequate and inaccurate information on SMEs. A national database for SMEs including sector, annual accounts and ownership can be useful both to researchers and financiers helping SMEs become more transparent. This database should be electronic and should be updated regularly. This study has collected evidence that indicates that SMEs rely heavily on retained earnings, trade credit, cooperative loans and borrowing from friends. Surprisingly while all the SMEs covered in this thesis operated business bank accounts, they seldom borrowed from the bank unless for very short periods and in exceptional circumstances which is a short term source of finance. Policy makers should recognize the fact that SMEs prefer to borrow medium to long term finance from cooperative societies and friends through rotating savings schemes and not through banks. For this reason, policies that favour the efficient operation of savings and credit

societies would be welcome such as minimal regulation but with adequate oversight to detect and prevent frauds.

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APPENDICES

QUESTIONNAIRE

	Question					
1.		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
	Is trade credit an important source of finance to your firm?					
	What about retained earnings?					
	Friends?					
	Sacco?					
	Bank?					
	Other(please specify)					
2.(a)		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
	Does your level of assets influence friends lending to you?					
	What about the size of your firm?					
	Profitability?					
	Age of firm?					
	Asian / African?					
	Rate of growth?					
	Industry sector?					
2.(b)		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
	Does your level of assets influence cooperative lending to you?					
	What about the size of your firm?					
	Profitability?					
	Age of firm?					
	Asian / African?					
	Rate of growth?					
	Industry sector?					
2.(c)		1-strongly disaaree	2-disagree	3=neutral	4=agree	5=strongly agree
	Does your level of assets influence the					

	bank finance you get?					
	What about firm size?					
	Profitability?					
	Age of firm?					
	Asian/ African?					
	Rate of growth?					
	Industry sector?					
2.(d)		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
	Does your level of assets influence the trade credit your firm gets?					
	What about firm size?					
	Profitability?					
	Age of firm?					
	Asian / African?					
	Rate of growth?					
	Industry sector?					
5.	Approximately what proportion of your capital is financed by equity?	0-20	21-40	41-60	61-80	81-100
		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
6.	As your firm becomes more profitable, are you more likely to use debt finance?					
		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree
7.	If you are less likely to use debt the more profitable you become, why is this the case?					
	Prefer using retained earnings					
	Avoiding interest payment commitments					
	Concerned about cost of debt					
		1=strongly disagree	2=disagree	3=neutral	4=agree	5=strongly agree

8.	Private assets are more important than business assets as collateral when seeking financing from lenders					
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Sample of firms from Nairobi Province from KIPPRA

Province	NO. of Sampled Firms	No. of sampled firms	Local Authorities	LA Status	LA Firms	Micro	Small	Medium
Nairobi	693	693	Nrb City Council	City	693	575	83	35

MSME Baseline survey report

Courtesy of KIPPRA and Ernst and Young (2008)

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