UNIVERSITY OF GHANA

CORPORATE GOVERNANCE, NATIONAL CULTURE AND CORPORATE DEBT MATURITY STRUCTURE: EVIDENCE FROM SUB-SAHARAN AFRICA

BY

ESTHER AFOLEY LARYEA

10222582

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DECLARATION

I, Esther Afoley Laryea, do hereby certify that this thesis which is submitted to the University of Ghana Business School is my own work and all sources that I have used or quoted have been indicated and acknowledged by means of complete reference.

…… ……

ESTHER AFOLEY LARYEA **DATE**

(10222582)

CERTIFICATION

This is to certify that this work is done under our supervision according to the rules and regulations of the University of Ghana, Legon.

…… ……

DR. GODFRED BOKPIN **DATE**

(SUPERVISOR)

…… ……

DR. A. GEMEGAH **DATE**

(SUPERVISOR)

DEDICATION

This work is dedicated to my parents for their encouragement and support throughout my education, especially throughout the MPhil programme.

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ABSTRACT

This study examines the impact of corporate governance and national culture on the debt maturity structure of firms in sub-Saharan Africa. A relatively unexplored area world-wide, the dearth of literature on debt maturity structure in Africa necessitates this study. This study sought to understand the impact that the corporate governance systems of sub-Saharan African firms have on corporate debt maturity on the basis of the argument that the debt maturity structure of a firm could augment the efforts of corporate governance systems in alleviating the agency problem of the firm. The study also found it worthwhile to explore the influence of national culture on the debt maturity decision based on the premise that the financial contractual environment within which the debt contract is agreed upon is made up of both formal and informal institutions like norms and values.

The study employs a two-stage least square estimation technique and results suggest that the debt maturity structure of firms are explained by the corporate governance systems in place as well as the national culture of the people in the nation. The study therefore suggests that these two factors be carefully considered when the debt maturity structure decision is being made. The study finds that the financial systems in a country tell on the debt maturities of firms as well and recommends that in order to make more long-term debt available for development, policy makers must pay more attention to capital market development. The study also suggests that firm debt maturity decisions should be made bearing in mind the corporate governance system in place.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The importance of capital structure decisions has been extensively highlighted in literature with Abor and Biekpe (2005) indicating that a firm's choice of capital structure influences how well it deals with its competitive environment and also how well it maximizes returns to the firm. An important aspect of firm capital structure which has largely been overlooked by researchers is the debt maturity structure. Cai *et al.* (2008) define debt maturity structure as the choice a firm makes between short-term and long-term debt. Deesomsak *et al*. (2009) consider the choice of corporate debt maturity as one of the most important financing decisions a firm takes, as a poor choice could increase agency costs.

Stiglitz (1974) and Merton (1974) argue along the same lines as Modigliani and Miller (1958) on capital structure; they argue that under perfect market conditions debt maturity structure is irrelevant. Researchers have however, argued that markets are imperfect; as a result, the financing decisions of firms, including the debt maturity decisions they take, eventually have a bearing on firm value (Fan *et al*., 2012; Deesomsak *et al.*, 2009). Studies point to market imperfections such as bankruptcy costs and agency costs (Jensen and Meckling, 1976) as reasons why debt maturity structure affects the value of the firm.

Although fairly recent and not as copious as capital structure studies, studies on the debt maturity structure of firms have pointed out the relevance of the debt maturity structure choices of firms and examined the factors which influence the choice of corporate debt maturity structures. Cai *et al*. (2008) opine that debt maturity structure might be relevant

since firms could avoid liquidation by aligning their liability structure to their asset structure. They further indicate that a firm's choice of a particular maturity mix could signal its quality as well as impact on its cost and ease of accessing finance. Deesomsak *et al*. (2009) finds that debt maturity structure decisions can affect the cost of external finance as well as alleviate some capital market imperfections. These studies indicate that the relevance of the debt maturity structure decision as a corporate decision cannot be over-emphasized.

Empirically, debt maturity structure has been proven to play a pivotal role in alleviating the agency costs of the firm. However, the already scanty literature on debt maturity has over-emphasized how the choice of debt maturity can help alleviate the agency costs of debt (e.g. agency costs of underinvestment (Myers, 1977) and asset substitution (Jensen and Meckling, 1976), neglecting the agency costs of equity. Most of these studies (Antoniou *et al.*, 2006; Cai *et al.*, 2008) assume perfect alignment of interests between managers and shareholders when it comes to the debt maturity structure decision, when in reality there could be a divergence of interest between shareholders and managers. It is interesting to note that the vital debt maturity decisions are at the discretion of top managers who are expected to make optimal (value-maximizing) financing choices on behalf of the shareholders (Datta *et al.*, 2005).

Datta *et al*. (2005), note that a conflict exists between managers and shareholders as to the structure of debt maturity because self-interested managers inherently prefer less monitoring. Their findings are corroborated by the findings of other researchers to the effect that short-term debt is used as a disciplinary tool to reduce the agency problem (Brockman *et al*. 2010). This particular management tool is effective because as Stulz

(2001) explains, it exposes managers to more monitoring by creditors, investors, and rating agencies as it comes up frequently for renewal. Thus, in firms where the alignment of interests between managers and shareholders is weak, managers would be more likely to make suboptimal debt maturity choices (Jirapon and Kitsabunnarat, 2007).

Moreover, in the face of the potential conflict that arises as a result of the separation of ownership and control, it is unlikely that managers will choose the optimal debt maturity structure and self-impose monitoring in the process unless there are mechanisms in place to align managerial and shareholder interests (Datta et al., 2005) and also to monitor them. Florackis (2008) identifies that there are both internal and external corporate governance mechanisms that alleviate the extent of agency costs and their negative impact on the value of the firm while Deesomsak *et al.,* (2009) posit that corporate governance systems have a significant role to play in determining a firm's debt maturity structure because the choice of debt maturity structure made could help alleviate the shortcomings of the legal and corporate governance systems.

Empirically, studies on capital structure indicate that corporate governance attributes such as board size, outside directors, ownership concentration, managerial ownership, director remuneration, and CEO duality play a determining role in capital structure decisions (Wen *et al*., 2002; Anderson *et al.,* 2003; Fosberg, 2004); specifically in Sub-Saharan Africa, researchers (Kyereboah-Coleman and Biekpe, 2006; Abor, 2007; Bokpin and Arko, 2009) have explored extensively this aspect of literature. Studies on how corporate governance affects debt maturity structure although diminutive have indicated that some of these corporate governance attributes significantly impact debt maturity structure decisions (Jirapon and Kitsabunnarat, 2007; Haford *et al*., 2008). Empirical studies on the

relationship between corporate governance attributes and debt maturity are not only few on the international front, but also remain virtually unexplored in the African sub-region to the best of the researcher's knowledge.

Interestingly, research points out that even in countries where corporate governance ratings and financial developments are similar, national culture may cause corporations to choose different debt maturity policies as a result of varied perceptions of agency problems and value of financial flexibility, influenced by national culture (Chang *et al.*, 2012). Zheng *et al.* (2012) posit that the explanatory power of culture when studying financial practices overrides that of formal institutions such as legal, political and economic institutions.

This empirical observation has been explained by the argument proffered by North (1990); Aggarwal and Goodell (2009) and Williamson (2000), that the contracting environment within which corporate decisions such as the debt maturity structure decisions are made, consist of both formal institutions, such as legal and economic rules, as well as informal institutions such as norms, customs and religion. North (1990) argues that in shaping choices in the contracting environment daily, the influence of the informal constraints that stem from culture is much more pervasive than formal laws and property rights. This implies that culture could be an important explanatory variable in understanding corporate decisions; in this case, debt maturity structure decisions of firms.

Consequently, there is also an increasing wealth of empirical evidence which points to the fact that culture has an important role to play in explaining corporate decisions. Chakrabarti *et al.*, (2009) and Reus and Lamont, (2009) study the effect of culture on

cross-border acquisitions, while Thomas and Grosse (2001) examined foreign direct investment in the light of culture. Shao *et al*., (2010) and Bae *et al.*, (2012), studied dividend policy and culture while Stulz and Williamson (2003) studied culture and creditor rights while Chui *et al. (*2002) studied capital structure decisions in the context of national culture.

Chang *et al*. (2012) point out that the cultural effect cannot be ignored in studying debt maturity choice as the inclusion of the cultural effect yields a statistically stronger effect over and beyond governance structure and financial development. Zheng *et al*.(2012) using Hofstede's four cultural dimensions (uncertainty avoidance, collectivism, power distance, and masculinity) as proxies for culture, find that firms located in countries with high uncertainty avoidance, high collectivism, high power distance, and high masculinity tend to use more short-term debt. Culture has been found to be a useful variable for explaining cross-country variations in debt maturity structure (Zheng *et al*., 2012; Chang *et al*., 2012).

Debt maturity structure of firms has an important and relevant bearing on firm value; as a result a keen interest must be taken in the factors that drive it, in order to gain more insight and understanding into making debt maturity structure choices in Africa. This, the study aims to do focusing on discovering the impact of two key variables: corporate governance and national culture, on the debt maturity structure choices of firms in sub Saharan Africa.

1.2 Statement of Problem

It is widely accepted that corporate governance systems are important in determining basic capital and debt maturity structure decisions of firms (Datta *et al*., 2005; Brockman *et al*., 2010). Although African economies are noticeably characterized by relatively inefficient and incomplete capital markets, noticeably higher information asymmetry, more severe agency problems and relatively different financing arrangements compared to advanced economies (Eldomiaty 2007; Ncube 2007); there is no study to the best of the researcher's knowledge that examines the role of corporate governance in explaining debt maturity structure decisions within an African context. Understanding the role corporate governance systems play in debt maturity structure decisions of a firm is important because the debt maturity structure can help attenuate the short-comings of the corporate governance systems (Deesomsak *et al*., 2009).

In the contracting environment, informal constraints stemming from culture have been found to influence corporate decision making more pervasively than the formal institutions such as economic and legal institutions (North, 1990, Zheng *et al.* 2012; Chang *et al.*, 2012). Despite this evidence, there is no study, to the best of the researcher's knowledge on the impact of culture on capital structure decision in sub-Saharan Africa. This study would add to knowledge as the first study to the best of the knowledge of the researcher to examine the impact of culture on capital structure decisions in Africa either in a single country study or in a cross country study. It would specifically examine the impact of culture on debt maturity structure choice as a corporate decision. Undertaking this study within a cross-country context will help us better understand cross-country variations in debt maturity structure choices across Africa.

Despite Booth *et al.*'s (2001) assertion that a vast difference exists between the institutional and macro-economic setup of African firms and those in the developed world; countries in Africa have thus far received very little attention with regard to debt maturity structure studies, creating a dearth of knowledge on the debt maturity choices of firms within an African context. This coupled with the growing significance of Africa in the world economy in terms of trade and investment makes it imperative that studies on debt maturity choices are replicated within an African context to validate the empirical findings. Lemma and Negash's (2012) is the only study to the best of our knowledge that addresses the determinants of debt maturity with an African focus. This study extends their work by examining the role of two factors- corporate governance and culture - in explaining debt maturity choices of African firms.

1.3 Research Questions

This study seeks to obtain answers to the following research questions:

1. What is the pattern of the corporate debt maturity structure across the sub-Saharan African region?
2. In sub-Saharan Africa, do corporate governance mechanisms influence corporate debt maturity structure decisions?
3. Does national culture influence the corporate debt maturity structure decisions across sub-Saharan Africa?

1.4 Research Objectives

In order to obtain answers to the fore asked questions, this study seeks to achieve the following research objectives:

1. To assess the pattern of corporate debt maturity structure across sub-Saharan Africa.
2. To investigate how corporate governance influences corporate debt maturity choices across sub-Saharan African countries.
3. To investigate how national culture influences corporate debt maturity decisions across sub-Saharan African countries.

1.5 Significance

The study hopes to add to the knowledge on corporate decision making by highlighting the pivotal role of culture in explaining managerial behaviour and how that impacts corporate decision making within the African context. This study also hopes to emphasize the importance of the inclusion of national culture as an important explanatory factor in studies on finance. The study will also highlight how important it is for multinationals wishing to expand into Africa to consider national culture as they decide on the debt structure of their projects as national culture could affect both the debt contracting environment and a firm's access to capital. The study also hopes to underscore the importance of debt maturity structure choice as a feasible way in which to reduce the agency problem that corporate governance seeks to address.

1.6 Scope and Limitations

The study was centred on four out of the forty-eight countries in sub Saharan Africa. The sample size was only limited to listed firms on the stock exchanges of these firms

excluding financial institutions. This limits the scope of the study. In future, studies can be conducted into the debt maturity structure of non-listed firms while increasing the number of African countries. However, the study limits itself to only four countries because collecting data from the stock exchanges of these four countries poses a daunting task which will involve serious financial constraints. The study is further limited by the availability of data which caused the study period to be over the 1997-2006 and not over a more recent time period.

1.7 Chapter Disposition

The remainder of this thesis has been structured as follows: Chapter two entails a comprehensive review of existing literature on the determinants of debt maturity as well as literature on corporate governance, and its relation to debt maturity. The literature review also reflects a review of the growing importance of culture in international business studies, specifically the relation between culture and debt maturity structure. Chapter three provides an overview of the corporate governance and institutional environments of the sample as well as the nature of the financial systems operated in these countries.

Chapter four discusses the methodological approach employed for the study. The chapter borders on an exposition of the data employed in the study as well as the sources of the data. The chapter also explains the estimation technique used in the study and defines variables of interest. Chapter five presents the data analysis and interpretation of findings of the study. This chapter presents a detailed outcome of the study with the help of statistical tools in order to give more insight into the findings of the study. Chapter 6 concludes the thesis and discusses the implications of the results and potential areas for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

As an essential part of the capital structure decision of firms, it has been argued that corporate debt maturity structure decisions have an impact on firm value. This assertion flows from the argument that Modigliani and Miller's (1958) capital structure irrelevance theorem does not hold since in actual fact market imperfections exist. Subsequently, theoretical literature has extensively explored market imperfections and their effects on corporate debt maturity and firms' value. This chapter reviews some of the most relevant theoretical and empirical research within the field of debt maturity structure.

2.2 Theories of Debt Maturity Structure

2.2.1 Agency Theories

Agency theory concerns the study of the agency relationship (principal-agent relationship) and the issues that arise from it, particularly the likelihood that a conflict may exist between the agent and the principal as concerns aligning the interests of parties in an effort to achieve the goal of the firm. Agency theory seeks to understand the relationship and the incentives faced by parties to the relationship between the manager (agent) of the firm and the outside equity and debt holders (principals). Literature identifies two primary forms of agency costs- agency costs of equity (Jensen and Meckling, 1976; Easterbrook, 1984) and agency costs of debt (Jensen and Meckling, 1976; Myers, 1977).

The agency costs of debt- the asset substitution problem and bankruptcy costs (Jensen and Meckling, 1976) and the underinvestment problem (Myers, 1977) have greatly interested

debt maturity theorists as they explore how the choice of the debt maturity structure could be used in alleviating the conflict between managers and debt-holders. Since lenders are very much aware of these costs, they take them into account when lending and ultimately, shareholders bear the agency costs of debt (Jensen and Meckling, 1976). It must also be mentioned that the agency theory which is also rooted in information asymmetry illustrates how debt maturity can be used in reducing the costs associated with moral hazard and as such increase the value of the firm.

According to Jensen and Meckling (1976), the asset substitution problem occurs when the manager of a firm which has the opportunity to choose between two projects (a low risk project and a high risk project) issues debt on the premise of undertaking the low risk project but undertakes the high risk project instead. They explain that this incentive arises because of the view that the equity of the firm can be considered as a call option whose value increases as the risk of the underlying asset increases, thus by shifting from the low risk project to the high risk project, shareholders' wealth is maximized. However, creditors in anticipation of this self-rewarding action of the firm are only willing to pay the lower value for fixed claims associated with the high risk project. Thus, instead of maximizing shareholder wealth, the value of the firm is adversely affected when the net present value of the high risk project is lower than that of the low risk project.

In order to mitigate this possible loss in firm value, Barnea *et al.* (1980) suggest that the firm issues short-term debt. They argue that, since short term debt is less sensitive to shifts in risk of firms' underlying assets or changes in the variance of projects, it will reduce the incentive of the firm to undertake low return-high risk projects which eventually lead to a loss in firm value. Barnea *et al.* (1980) also argues that shortening the maturity structure of

liabilities to match the structure of assets (maturity matching) can help reduce the underinvestment and asset substitution problem. On the maturity matching principle as a way of reducing agency costs, Myers (1977) argues that when firms synchronize their debt payments with the declining value of their assets, they reduce agency costs. This way, firms with medium and long term assets can have more long-term debt in their capital structure without increasing agency costs.

Other key agency costs identified by Jensen and Meckling (1976) are bankruptcy and reorganization costs. Bankruptcy generally leads to an adjudication process that consumes time and resources, reducing the residual value of the firm. They argue that so long as potential creditors are able to accurately predict these costs, the firm will bear the entire wealth effect of the bankruptcy costs. This is because creditors are only willing to pay a price for the fixed claims inversely related to the level and magnitude of bankruptcy cost. Short term debt helps alleviate these agency costs as they allow the creditors to monitor the borrower at regular intervals, thus reducing the likelihood that the firm will go bankrupt and incur the costly bankruptcy costs.

The underinvestment problem as identified by Myers (1977) is another agency cost of debt which scholars have suggested can be mitigated by the choice of debt maturity structure. Myers (1977) argues that managers of firms financed by risky debt, in an effort to maximize the interest of shareholders might pass up projects with positive NPVs. This incentive exists as a result of the tendency of debt-holders to capture a good share of the firm value resulting from such investments. The reduced incentive to undertake the positive NPV project would eventually lead to a decrease in the value of the firm. The

underinvestment problem is likely to be more prevalent in firms with high growth opportunities.

Myers (1977) proposes several solutions to the suboptimal investment problem which include issuing short-term debt that matures before growth options are exercised, issuing less debt, issuing debt with restrictive covenants, renegotiating debt, and matching the maturity of debt to the expected life of assets. Barnea *et al.* (1980) agree with Myers' approach to eliminate the underinvestment problem by using short-term debt. They additionally, argue that issuing long-term debt with a call provision is an alternative to shortening debt maturity in dealing with the underinvestment problem. However, Smith and Warner (1979) posit that callable and short-term debt might play a complementary rather than a substitute role in an effort to reduce the agency contracting costs.

The debt maturity literature has focused on the agency costs of debt while neglecting the agency costs of equity. The studies reviewed thus far, have assumed perfect alignment between the interest of shareholders and managers. However, Datta *et al.* (2005) indicate that the aversion of managers to monitoring means that in the face of potential conflict that arises as a result of the separation of ownership and control, it is unlikely that managers will willingly choose the optimal debt maturity structure and resultantly self impose monitoring. They assert that the debt maturity decision itself is subject to the agency costs of managerial discretion.

2.2.2 Signalling Theory

The signalling hypothesis which finds its root in information asymmetry arguments, suggests that the choice of debt maturity structure could be used by managers to convey information about the market to the firm and thus reduce the firm's cost of capital and add value in effect. Flannery (1986) presents a model in which asymmetric information prevents creditors from distinguishing between good and bad firms, causing firms to choose their debt maturity so as to signal their quality. Flannery's (1986) signalling model assumes that managers have private information about firm value which is unavailable to creditors. In the model, creditors require a larger risk premium on long-term debt because they assume a decline in credit quality is more likely when maturity is longer. Thus, in the presence of asymmetric information, long-term debt is overpriced while short-term debt is under-priced. In order to minimize the effect of this private information on financing costs, firms choose their debt maturity to signal their quality. Flannery's (1986) model shows how capital market transaction costs can cause low quality firms to deselect themselves from the short-term debt market; therefore resulting in a separating equilibrium in which high quality firms choose short-term debt while low quality firms choose long-term debt.

Firms with favourable private information choose the under-priced short-term debt to signal their high quality and relatively low risk. In doing this, they signal to creditors that they are not much concerned with refinancing risk as they have the capacity due to their quality to deal with any such risk. This gives them the opportunity to avoid paying a market premium which encapsulates the probability of future credit quality problems, usually associated with long term debt. On the other hand, firms with low quality and relatively higher risk, choose the overpriced long-term debt so as to postpone the

uncertainty associated with future refinancing rates. In doing this, they signal their low quality to the market.

Kale and Noe (1990) extend Flannery's work by validating the existence of the separating equilibrium even in the absence of transaction costs; Titman (1992) adds further to this line of work by extending Flannery's work to include interest rate uncertainty and financial distress costs. He argues that firms with a favourable future may borrow short-term debt and swap floating-rate obligations for the fixed rate obligations in order to achieve the optimal financing structure.

2.2.3 Liquidity Risk Theories

The liquidity risk theory like the signalling theory also assumes the presence of asymmetric information. Firms have private information which is unavailable to lenders; firms also face liquidity risk- the risk that a firm will be unable to meet its debt obligation as and when they fall due. Diamond (1991) develops a model which examines the influence of liquidity risk on debt maturity structure choices and proposes that there is a non-monotonic relationship between debt maturity and the borrower's credit rating.

Diamond (1991) categorizes firms as high, intermediate and low ratings firms. He argues that firms with high ratings and favourable private information will issue short term debt since they have the benefit of refinancing on better terms in the future and face low liquidity risk while firms with high and intermediate ratings which have unfavourable private information issue long term debt because they have higher liquidity risk. The choice of long term debt affords the opportunity to avoid being exposed as being possibly high risk or low quality, which would eventually result in higher refinancing costs or

complete rejection by creditors. Diamond also argues that firms with very low credit ratings will, like the intermediate firms, prefer long term debt; however, they are screened out of the long term debt market as they are considered to be too risky. Such firms as a result borrow short term debt.

2.2.4 Tax Theories

Brick and Ravid (1985) were among the first researchers to provide a frame work for the tax and debt maturity debate and they show the irrelevance of debt maturity decisions in the presence of taxes. However, they argue that if any of the conditions in the irrelevance proposition is violated then the irrelevancy of debt maturity decision is no longer the case and debt maturity structure becomes important in the presence of taxes. Brick and Ravid (1985) argue out their tax hypothesis under conditions of both interest rate certainty and uncertainty. Under interest rate certainty, they argue that it will be in the interest of firms to issue long-term debt in the event that the yield curve is an upward sloping one, as long term debt will provide a higher tax shield which will in effect add to firm value by reducing the firm's liabilities.

Brick and Ravid (1985) stick to their advice of issuing long-term debt even under conditions of interest rate uncertainty arguing that the uncertainty creates an even greater opportunity for larger tax benefits from long-term debt. They argue that if the term structure of interest rates is increasing, the optimal financing approach is to issue long-term debt, because the interest tax shield on debt is accelerated with interest rates, which increase the value of the firm. On the other hand, if the term structure of interest rates is decreasing, it is better to issue short-term debt. Kane *et al.* (1985) however establish that an inverse relationship exists between debt maturity and the effective tax rate. Lewis

(1990) contradicts earlier arguments by stating that debt maturity is irrelevant in the presence of taxes.

Kim *et al.* (1995) argue that firms tend to issue long-term debt when interest rate volatility increases. They argue on the basis that higher tax-timing option value implies higher value of the firm. This happens because the value of a tax-timing option increases with the option maturity and volatility, and evidently the long-term debt has longer maturity and is more volatile than short-term debt. In sum, long-term debt appears to be preferable to short-term debt because firms try to optimize their debt maturity by focusing on interest tax shields. However, irrelevance may occur if the term structure of interest rate is flat.

2.3 Empirical Evidence on Debt Maturity

A wealth of well-established empirical evidence exists which discuss the various firm specific factors which determine debt maturity choices of firms. Most of these studies have been conducted within the ambit of the theoretical foundations concerning corporate debt maturity choices. In these empirical studies, various firm characteristics have been used as proxies for the agency, liquidity risk, tax and signalling hypotheses; in an effort to understand and explain the debt maturity choices of firms. The set of firm level variables used pervasively in empirical debt maturity studies firm size, profitability, growth opportunities, asset maturity, firm quality, liquidity, earnings volatility, asset maturity, effective tax rate, interest rate volatility and leverage.

Scherr and Huburt (2001) argue that small firms differ from large firms in varying ways thus warranting an investigation of the determinants of the debt maturity structure of small firms. Their investigation reveals that while the maturity of assets, capital structure and

probability of default influence the choice of debt maturity of small firms significantly, there is little evidence that growth options, asymmetric information and tax affects their choice of debt maturity. However, on the premise that smaller firms have more growth opportunities, their findings are countered by Arslan and Karan (2006) whose finding lends support to the prediction that within the agency framework, firms that have more growth opportunities shorten their corporate debt maturity structure to mitigate the underinvestment problem, they specifically find that firm size is positively correlated with long-term debt. Kirch and Terra (2012) also find that firm size has a positive and significant effect on firm debt maturity, corroborating the agency theory. The agency theory predicts that small firms usually have more growth opportunities and as a result are more likely to be saddled with the underinvestment and asset substitution problem. The theory further suggests that short-term debt can be issued to mitigate the effect of these agency costs on firm value.

Firm size has also been found to play an important role in explaining the maturity matching theory of debt maturity. Demirgüç-Kunt and Maksimovic (1999) find that lower levels of short term debt are used in large firms that have high tangibility. Thus, large firms with fixed assets prefer long-term over short-term borrowing. This could be because their high tangibility gives them the relative ease needed to match their assets with their liabilities, and in doing this reduce agency costs. Corroborating earlier evidence, Kirch and Terra (2012) and Lemma and Negash (2012) find that tangibility has a positive and significant impact on debt maturity structure choices of firms.

Doukas and Pantzalis (2003) examine the agency conflicts between shareholders and bondholders of multinational and non-multinational firms and find that consistent with the

view that multinational corporations are prone to higher agency costs of debt, as a result of their geographical diversity which is accompanied with increased monitoring costs, in comparison to domestic firms; multinationals use less long term debt but more short term debt than domestic firms. Their findings fall within the agency costs of debt framework, which generally argues that an increased exposure to risk can be controlled by the use of more short term debt as is the case in the underinvestment and asset substitution problems.

In an examination of the impact of growth options on the joint choice of leverage and debt maturity; Johnson (2003) and Billett *et al.* (2007) find that in the presence of underinvestment incentives and liquidity risk, firms with high growth opportunities use more short-term debt or less leverage to alleviate the underinvestment problem. Interestingly, Aivazian *et al.* (2005) find that for firms with high growth opportunities, using more long term debt reduces investment. However, for firms with low growth opportunities, they find a weak correlation between debt maturity and investment. Cai *et al.* (2008) study Chinese firms and also find that growth opportunities tend to be important when debt maturity decisions are being made. Using a panel of UK firms, Dang (2011) however, finds that high-growth firms control underinvestment incentives by reducing leverage but not by shortening debt maturity.

Stephan *et al.* (2011) draw a distinction between constrained and unconstrained firms in emerging markets primarily on the basis of their access to capital markets. They find that constrained firms are more sensitive to the determinants of debt structure than unconstrained firms. Unconstrained companies were found to cope with agency conflicts by shortening the structure of their liabilities, while their counterparts with severe cash constraints were found to be more susceptible to liquidity risk. Whereas Cai *et al.* (2008)

find a positive significant relationship between firm size and debt maturity, Stephan *et al.* (2011) find that a negative relationship exists between debt maturity and firm size for unconstrained firms. Their findings imply that large firms, despite the fact that they are unconstrained would use short term debt while smaller firms employ long term debt, these findings support the signalling and liquidity risk theories. They however, contradict the agency theory which suggests that large firms have fewer growth opportunities and as such are not prone to the asset substitution problem. This means that they would most likely employ more long term debt, while smaller firms with more growth opportunities are more likely to employ short term debt to check the asset substitution problem.

In confirmation of the signalling hypothesis, some empirical studies have found that a negative relationship exists between firm quality and debt maturity (Johnson, 2003; Berger *et al*., 2005, and Gottesman and Roberts, 2004). Although Cai *et al*. (2008) and Stephan *et al*. (2012) both conduct their studies in emerging economies, Cai *et al*. (2008) find little evidence in support of the signalling role of debt maturity structure while Stephan *et al.* (2011) find that the signalling role is important in the determination of debt maturity structure. Cai *et al*. (2008) explain that their findings did not turn in much evidence in that regard because the Chinese corporate debt market is very small and undeveloped, and bank loan plays a very strong role in financing firms. As a result, borrowing short-term debt instead of signalling the firm's good quality as hypothesized in the signalling theory rather indicates a low credit rating and uncertain future prospects. On the other hand, borrowing long-term debt rather signals a firm's good quality. This contrasting result has been ascribed to the view that banks are more efficient in resolving information asymmetries than capital markets (Berger *et al.*, 2005).

Stephan *et al*. (2011) in their study investigate the determinants of liability maturity choice in emerging markets. Their findings confirm the importance of liquidity for the liability term structure of firms operating in a transition economy. Stephan *et al.* (2011) in their study distinguish between constrained and unconstrained firms. They do this on the presumption that smaller firms face more difficulties in accessing external finance because they are subject to greater asymmetric information and endure more severe agency problems. Additionally, creditors are more willing to finance larger borrowers because the larger amount of total assets creates a guarantee effect (Holmstrom and Tirole, 1997). Stephan *et al.* (2011) argue that constrained and unconstrained companies react differently with regards to liquidity risk and as a result pursue different debt maturity strategies.

Cai *et al*., (2008) met with mixed results when they examined the impact of the effective tax rate on Chinese corporate debt maturity choices. Lemma and Negash (2012) find that taxation negatively impacts the debt maturity structure decisions of African firms. Stephan *et al*. (2011) find that for small firms or/and firms with restricted access to bond markets, the tax rate becomes a significant determinant of their debt maturity structure. Stephan *et al.* (2011) consider taxes as important in the debt maturity structures choices of firms in emerging economies.

Increasingly, the investigation into debt maturity structure choices of firms has shifted from the examination of firm specific factors such as firm size, tax, growth opportunities and asset maturity to broader national factors such as macro-economic variables, corporate governance, financial development and institutional factors. Cai *et al*. (2008) obtain results in their study which show that market factors seem to influence debt maturity decisions. Their findings are corroborated by Deesomsak *et al.* (2009) who investigate the effects of

firm-specific as well as country-specific factors, such as economic conditions, corporate governance and institutional set-up, on the debt maturity structure of firms. They find that the debt maturity structure of firms is strongly related to a number of firm-specific and market-wide factors, as well as the country's corporate governance, and the legal and institutional environments.

The efficacy of the legal system which a nation runs has been identified as one of the institutional factors which influence a firm's choice of debt maturity. Demirgüç-Kunt and Maksimovic (1999) argue that an effective legal system is important if an enabling financial environment is to be created for long-term financing; they state that such an environment is essential if firms are to commit credibly to controlling opportunistic behaviour by corporate insiders. Furthermore, because debt covenants are primarily used by creditors to control for opportunistic behaviour, Fan *et al*. (2012) also point out that in countries with weak legal rules and poor quality of law enforcement, firms should employ financial instruments that allow insiders less discretion, and which are contractually easier to interpret, should prevail. Seemingly in response, Kirch and Terra (2012) suggest that the peculiar feature of short term debt which calls for frequent monitoring and renewal by creditors makes it best suited for countries where the legal systems are weak and do not function effectively.

Arguably, researchers have indicated that the level of financial development in a country influences corporate debt maturity decisions. Demirgüç-Kunt and Maksimovic (1998) argue that the "existence of developed and active financial markets and a large intermediary sector should make it easier for firms to raise long-term capital." Thus given the vast difference in financial development that exist between developed and developing

nations it is not strange that Fan *et al.* (2012) find that debt maturities in emerging market countries are substantially shorter than in developed markets and Demirgüç-Kunt and Maksimovic (1999) and Fan *et al.* (2012) also find that firms in developing countries use less long-term debt as a proportion of total debt.

Stephan *et al.* (2011) find that firms' liability structures are strongly affected by specific characteristics of emerging financial markets, their study underlines that underdeveloped financial markets in emerging countries are an impediment to prudent long-term financing of companies. Additionally, in a study of the debt maturity structure of African countries, Lemma and Negash (2012) find that financial deepening had a role to play in the debt maturity structure decisions of firms. However, Kirch and Terra (2012) find contrary evidence in a study conducted in South America; they find that national financial development is not significantly related to firm debt maturity. Antoniou *et al*.(2006) study the debt maturity structure of French, German and British firms and find that the debt maturity structure of a firm is determined by firm-specific factors and the country's financial systems (bank based or market based) and institutional traditions in which it operates.

2.4 Corporate Governance and Debt Maturity Structure

La Porta *et al*. (2000) define corporate governance as a set of tools for shareholders and investors of firms to protect themselves from the misuse of funds by managers. Studies have shown corporate governance systems have an important and significant role to play in determining a firm's debt maturity structure because the choice of debt maturity structure could help alleviate the shortcomings of the legal and corporate governance systems (Deesomsak *et al*., 2009).

The strength of the corporate governance system in place determines to a large extent, the nature of the agency costs that a firm will bear. Arslan and Karan (2006) argue that firms that utilize corporate governance mechanisms to ensure value maximising financing choices do not suffer from suboptimal debt maturity structure. Agency costs are also in turn related to debt maturity structure. Thus, a good corporate governance system should ideally impose a higher level of short-term debt policy in the presence of agency costs as short term debt is viewed as a disciplinary tool used to alleviate the agency problem (Datta *et al*., 2005; Brockman *et al*., 2010).

Empirically, corporate governance systems have been shown to significantly influence the debt maturity structure of firms. Agency theory posits that the choice of short term debt plays an important role in alleviating the agency costs of debt, namely underinvestment and asset substitution (Myers, 1977; Jensen and Meckling, 1976). This argument can be extended to show that short term debt alleviates the agency costs of equity as well. Datta *et al.* (2005) argue strongly that the debt maturity decision is itself subject to the agency cost of managerial discretion. Rajan and Wiston (1995) explain that short-term debt provides lenders with the flexibility of effectively monitoring debt with little effort; as it is subject to more frequent monitoring by underwriters, investors and rating agencies. It does not come as a surprise therefore that Stulz (2001) argues that it can be used as a potent mechanism for managerial oversight.

Datta *et al.* (2005) argue that the conflict between shareholders and managers over the debt maturity structure is entrenched in the inherent preference for less monitoring by self-serving managers. Datta *et al.* (2005) report a significant inverse relationship between corporate debt maturity and managerial ownership. In their study, they indicate that

whereas entrenched managers who usually hold less equity prefer longer term debt; managers with high levels of stock ownership choose shorter-debt maturity and are therefore exposed to more frequent monitoring. Benmelech (2006) explains that the reason why entrenched managers would prefer long term debt to short term debt is that long term debt affords the opportunity to preserve private benefits of control. In his study, he provides evidence that entrenchment and private managerial benefits are important determinants of debt maturity.

Haford *et al.* (2008) construct a board index with varying facets of corporate boards including board size, board independence, director incentives, board leadership, among others; they argue that a well-governed board can force the firm to hold more debts and more short-term debts so as to help monitor managers. Fan *et al.* (2012) also argue that countries with better creditor protection tend to have less total debt and more long-term debt. This finding is interesting since the treatment that a country gives to its creditors is a picture of how the part contributes to the whole. An indication that all things being equal creditor protection at firm level is well enforced. Brockman *et al.* (2010) also find empirical evidence to show that short-term debt mitigates agency costs of debt arising from compensation risk in a study they conducted to examine the relationship between executive compensation and debt maturity choices of firms.

In addition, Jiraporn and Kitsabunnarat (2007), find that an inverse relationship exists between the strength of shareholder rights and debt maturity. They argue that managers of firms with weak shareholder rights avoid short-term so they can minimize the frequency of external monitoring. Their argument suggests the presence of agency costs, which need to be mitigated by frequent monitoring.

Our expectations would be that since corporate governance is meant to mitigate agency problems and debt maturity structure when appropriately chosen could also alleviate the agency problem, then we would expect corporate governance to explain to a large extent, the choice of debt maturity structure. However, missing in the empirical literature are studies on how corporate governance mechanisms in African countries impact the debt maturity structure of firms. Such investigations are important as it has been suggested that the whole sale application of the corporate governance mechanisms used in developed nations might not have the desired or similar results in developing nations (Chang *et al.*, 2012). The question outstanding then is whether corporate governance systems in Africa influence debt maturity structure decisions as evidenced by empirical literature.

2.5 National Culture and Debt Maturity Structure

Despite the extensive depth of literature reviewed in the prior section which stresses the important role corporate governance plays in directing managerial discretion in the choice of a firm's debt maturity structure; Chang *et al*. (2012) posit that managerial discretion can be influenced by economic agents' personal experiences or assessment of information available to them, and these personal traits are influenced by national cultures.

Aggarwal and Goodell (2009), suggest that the efficiency of enforcing contracts and reducing transaction costs associated with agency costs and asymmetric information could differ significantly across countries, depending not only on the legal environment but also on national culture. Specifically, the choice of financing a firm decides on, can reduce agency costs and asymmetric information problems, however, the extent to which such an appropriate choice can be made, depends not only on the formal institutions (legal and economic structures) but also the informal institutions (norms, customs and religions)

which make up the contracting environment (Aggarwal and Goodell, 2009; North, 1990; Williamson, 2000). To this end, North (1990) argues that the informal constraints that stem from culture have a more pervasive influence than the formal in shaping choices in daily interactions; these daily interactions could include a firm's choice of debt maturity.

Prior empirical research documents substantial cross country differences in corporate debt maturity structure (Demirgüç-Kunt and Maksimovic, 1999). Fan *et al.* (2012) attribute such differences to differences in country financial and legal institutions while Chang *et al.* (2012) attribute them to differences in national culture. Chang *et al.* (2012) argue that national culture is one of the last factors to influence the significant variation of debt maturities across firms in different countries.

Zheng *et al*. (2012) find that their results corroborate evidence that national culture helps explain cross-country variations in the maturity structure of corporate debt. Their study controlled for legal, political, financial, and economic institutions. They conduct their study using Hofstede's four cultural dimensions – uncertainty avoidance, collectivism, power distance and masculinity- and find that firms located in countries with high uncertainty avoidance, high collectivism, high power distance, and high masculinity tend to use more short-term debt.

Similarly, Chang *et al.* (2012) show cross-country evidence that national culture, along with corporate governance factors, influences the corporate debt maturity choice. Using Hofstede's measure of culture along the four dimensions, they find that uncertainty avoidance, masculinity, and long-term orientation are negatively related to overall debt maturity in a country.

There is an increasing wealth of empirical evidence which points to the fact that culture has an important role to play in explaining corporate decisions. National culture has been found to be a significant factor in explaining capital structure decisions (Chui *et al.*, 2002); dividend policy (Bae *et al*., 2012); foreign direct investment (Thomas and Grosse, 2001; Habib and Zurawicki, 2002); creditor rights (Stulz and Williamson, 2003); and earnings management (Han *et al*., 2010). However, there still exists a dearth of literature where national culture and debt maturity structure is concerned, as only few studies (Chang *et al.*, 2012; Zheng *et al*., 2012) have examined how national culture could help explain the debt maturity structure of firms within a country. Conspicuously, the impact of national culture on debt maturity choices in a culture rich region like Africa is missing in debt maturity literature.

2.5.1 National Culture Models

Comprehensively, culture is defined by Hofstede and Bond (1988) as "the collective programming of the mind that distinguishes the members of one category of people from those of another". Culture is composed of certain values, which shape behaviour as well as one's perception of the world. Adler (1997) further argues that culture influences our values, which in turn affects our attitudes, and then behaviour.

In studies on the impact of national culture on organizational decision making one of the most comprehensive and extensively used conceptualizations of national culture is the cultural framework developed by Hofstede (1980, 1983). His framework was developed using data from over 116,000 morale surveys from over 88,000 employees from 72 countries (reduced to 40 countries that had more than 50 responses each) in 20 languages at IBM between 1967 and 1969 and again between 1971 and 1973. In a follow-up study,

additional data was collected from ten more countries. Hofstede characterized culture into four dimensions: power distance index (PDI), individualism (IDV), masculinity (MAS), and uncertainty avoidance index (UAI) with each dimension measured numerically (Hofstede, 1980).

However, Hofstede's measure of national culture has been strongly criticized among arguments that the sampling approach (collection of data from employees of a single corporation) used makes it difficult to generalize, the construct has lost its relevance since it is out-dated, the framework does not account for heterogeneity within the various cultures- data collection process does not ensure the equivalence in meaning across cultures and also that the dimensions are not comprehensive as other important value dimensions may be omitted (e.g., Schwartz, 1994). Notwithstanding these concerns, Hofstede's dimensions ''have arguably had far greater impact than other competing cultural dimensions'' (Tang and Koveos, 2008) due to ''its clarity, parsimony and resonance with managers'' (Kirkman *et al*., 2006).

Alternate models of culture proposed in response to these criticisms include the global leadership and organizational behaviour effectiveness research (GLOBE) model (Javidan and House, 2001; House *et al*., 2002); the Schwartz model (Schwartz, 1994) and the Trompenaars and Hampden-Turner model (Trompenaars and Hampden-Turner, 1998; 2000). Nevertheless, all these models highlight conclusions similar to that reached by Hofstede (Pagell *et al.,* 2005). They highlight the fact that culture is a multi-dimensional culture, with its differences assessed through multiple measures; they also indicate that these cultural differences account for variations in managerial behaviours and decision making.

Comparing cultural attributes of effective leadership styles in 61 nations, the GLOBE project identifies nine major cultural attributes namely: assertiveness, future orientation, gender differentiation, uncertainty avoidance, power distance, institutional emphasis on collectivism versus IDV, in-group collectivism, performance orientation, and human orientation. Trompenaars and Hampden-Turner (2000) suggested a model of five polar cultural dimensions measuring cultural differences assessed using a questionnaire administered to managers in a total of 28 countries. These dimensions are: Universalism/Particularism; Individualism/Communitarianism; Neutral/Emotional and Achievement/Ascription. Schwartz (1994) developed a model of cultural differences through a questionnaire administered to students and teachers in a total of 31 countries. Schwartz (1994) identified 45 individual values recognised across all cultures, which he reduced down to seven independent cultural dimensions. Schwartz's (1994) seven cultural dimensions are Conservatism, Intellectual and Affective Autonomy, Hierarchy, Mastery, Egalitarian Commitment, and Harmony; he further condenses these into two poles: (1) Conservatism vs. Autonomy and (2) Mastery and Hierarchy vs. Egalitarian Commitment and Harmony.

Interestingly, these models also have their share of criticisms. For instance, the GLOBE project has been criticised for using stereotypes describing a nation (Hofstede, 2006). In fact, both Hofstede's and Trompenaars's models show strong convergent validity whilst the Schwartz and GLOBE constructs had the weakest validity (Magnusson *et al.*, 2008). However, as Kirkman *et al.* (2006) argue, substantial recent research has upheld the validity of Hofstede's conclusions. Magnusson *et al.* (2008) found that despite all the criticism, Hofstede's model compares favourably to the other models. In addition, Power

et al. (2010) find that Hofstede's model is more widely accepted that the other models, thus confirming its relevance and suitability for research.

Hofstede originally measures culture along four dimensions: individualism/collectivism, masculinity, power distance and uncertainty avoidance. Individualism/collectivism measures the degree to which a society stresses the role of the individual as against that of the group (Hofstede 1991, 2001). High individualism scores indicate a society in which the ties between individuals are loose and decisions are taken based on individual needs. In contrast, in collectivist societies individuals attach high emotional value to belonging to a closely knit group. People in individualist societies are more likely to vigorously pursue their personal objectives rather than adhere to others' decisions and interests than those in collectivist societies (Kohn, 1969; Hofstede, 1980). Individualistic societies are characterized by a drive for personal achievements and the satisfaction of individual needs.

As explicated by Hofstede (1991, 2001), uncertainty avoidance is "the extent to which the members of a culture feel threatened by uncertain or unknown situations" and it reflects the extent of discomfort or tolerance for uncertainty, ambiguity and unstructured situations within a society. A high UAI score indicates that a country has a low tolerance for uncertainty and ambiguity. Thus, a rule-centred society that emphasizes laws, rules, regulations, and controls in order to reduce the amount of uncertainty is indicative of a high UAI ranking country. A low UAI score indicates the country has less concern about ambiguity and uncertainty and has more tolerance for differing views; such a society is less rule-oriented, accepts change more readily, and takes more and greater risks.

Power distance measures the extent to which the less powerful expect and accept that power is distributed unequally Hofstede (1991, 2001). In societies where a low power distance exists, little emphasis is laid on hierarchal positions, however in high power distance countries, people accept that others have more authority and power over them just because they are hierarchically placed higher than they are. In countries with high power distance, it is unlikely that subordinates will express doubts and disagreements they have with their superiors.

Masculinity focuses on the degree to which the society emphasizes the traditional masculine work role model of male achievement, control, and power. A country that scores high on masculinity is likely to have a society where the dominant value of male assertiveness is emphasized, and will usually place emphasis on making money and material success while values which characterize female nurturance such as putting relationships before money, helping others and not showing off are downplayed (Hofstede 1991, 2001).

2.6 Conclusion

The literature reviewed in this study, represents the most recent and relevant studies in the area of debt maturity structure. The extensive review demonstrates that not only is there little consensus concerning the influence of the determinants of debt maturity, but gapingly missing in the literature is literature on the influence of these determinants, especially the roles of corporate governance and national culture on the debt maturities of firm in sub-Saharan Africa.

CHAPTER THREE

OVERVIEW OF FINANCIAL SYSTEMS, CORPORATE GOVERNANCE AND INSTITUTIONAL ENVIRONMENTS IN SUB-SAHARAN AFRICA

3.1 Introduction

Deesomsak *et al.* (2009) assert that the different patterns of financing behaviour observed across countries and regions can be explained to a large extent by economic conditions, corporate governance and institutional environments which in their opinion may influence the relationship between managers, shareholders and creditors, as well as investors' behaviour. In order to put the findings of this study into context, it is important that there is a clear understanding of the economic, corporate governance and institutional environment that pertains in the sample countries. This chapter is therefore aimed at providing an exposition on the financial orientations, economic conditions, corporate governance and institutional environment across the sampled sub-Saharan African countries.

3.2 Financial Systems in Sub-Saharan Africa

Levine (2002) emphasizes the importance of financial systems, especially in alleviating market frictions through the evaluation of investment opportunities and the provision of corporate control, easier risk management and reduced cost of resource mobilization. The literature on national financial systems mainly identify two forms of financial systems: market based and bank based financial systems (Levine, 2002; Beck *et al.,* 2002). Theoretically, proponents of the bank based view argue that at early stages of economic development, especially coupled with weak institutional structures bank based systems are more efficient than market based systems at mobilizing savings, capital allocation and

the exertion of corporate control. On the other hand, proponents of the market based view, argue that markets provide key financial services that stimulate innovation and long-run growth. Levine (2002) identifies important financial services that banks provide including reducing the costs of information acquisition and processing so as to efficiently allocate resource and enhance corporate control. Banks also have the comparative advantage of mitigating risks by pooling transactions. Banks specialize in facilitating savings mobilization, and they are better able through their closer and long standing relationships with savers to reduce information asymmetry by giving them assurance of the safety of their funds even as they hand over control of their savings.

Literature has stressed the positive role of capital markets as well as the comparative advantages of markets over banks in effective capital allocation. Levine (2002) suggests that markets are more efficient than banks in capital allocation as well as risk management and reduction. Beck and Levine (2002) identify that there are negative repercussions associated with large and powerful banks, such as the stifling of innovation by extracting informational rents and protecting established firms, which can be ameliorated by capital markets. Efficient stock markets may also reduce the costs of information through the generation and dissemination of firm specific information that efficient stock prices reveal (Yartey and Adjasi, 2007).

Table 3.1 Bank and Stock Market Development

	Definition	Ghana	Nigeria	Kenya	South Africa
Bank Development	Size of Banking sector measured by deposit money banks divided by GDP	10.44013	11.98935	26.87436	122.8835
Stock Market Development	Size of stock market measured as Stock market capitalization divided by GDP	14.80079	11.32344	18.24874	166.125

Source: Author's Compilation, 2013
Notes: The various country values for bank and stock market development are averaged over the period1997-2006

Table 3.1 shows that there are variations in the size of banking and capital markets in relation to the country's GDP (bank development and stock market development). In Nigeria the relative weights of the banking sector and the stock market are quite close showing a balanced development of both banking sector and stock markets. However, in Ghana and South Africa, stock markets have greater weight than the banking system, while in Kenya the banking sector seems to be more important. Levine (2000) using the size measure of financial structure describe Ghana and South Africa as highly market based economies and Kenya as a relatively less market based economy.

The banking sector and capital markets within sub-Saharan Africa has witnessed considerable development since the early 1990 s. Allen *et al.* (2011) find that the mean market capitalization (as a percentage of GDP) for each of the sub-regions within Africa has been increasing steadily they however caution that the relatively high market capitalization in Southern Africa is as a result of the size of the South Africa market. They identify West Africa as the sub region with the highest market capitalization growth rate. Yartey and Adjasi (2007) find that African stock markets are small with few listed firms, low market capitalization and suffer from the problem of low liquidity. Allen *et al.* (2011)

also assert that in the African financial market there is a dearth of bond market for both government and corporate bond; they state that bond markets in the region are either not well developed or, at best, is at its infancy. This makes the stock market the main capital market activity within the region. Stock markets in sub-Saharan Africa shot up from 5 prior to 1989 to 19 in 2007. The challenges are not peculiar to the capital markets alone, Allen *et al.* (2011) opine that a large number of banks in Africa invest in government securities, primarily treasury bills. In their opinion this phenomenon is highly disturbing as it reflects a highly dysfunctional banking intermediation that shuns provision of private credit in favour of safer government securities.

The Ghana Stock Exchange (GSE) started operations in 1990. In 2007, the GSE had 32 listed companies, with a market capitalization of approximately GH¢12,368.60 million total volume and value of shares traded in 2007 were 287.22 million and GH¢140.71 million respectively. A high level of concentration characterizes the GSE with the top 5 firms by capitalization representing 89.4% of the total market capitalization (SEC, 2007). The bond market in Ghana is budding with the government as the main issuer of debt securities. Bonds listed on the local exchange consist of Government of Ghana bonds and two corporate bonds.

The banking sector in Ghana consisted of 24 banks as at 2007; these banks are licensed as universal, commercial and development banks. It must however be mentioned that there are a number of rural banks that operate and play a unique role in the banking sector as well. In 2003, Bank of Ghana issued a directive requiring all banks to increase stated capital to GH¢7million (equivalent of ¢70billion) by the end of 2006. This was to enable them hold the universal banking licence that allowed them to undertake retail, merchant,

development, and/or investment banking without the need to acquire separate licences. A key result of compliance with this directive was that bank lending increased from GH¢1.055billion (2003) to GH¢2.464billion (2007), representing a 66% increase in one year. Prior to 2007, industry net loans and advances had been growing at a simple average of 32% between 2003 and 2006 (Ghana Banking Survey, 2008).

The Nigerian stock market was established in 1960 and with eight branches is known to be the most liquid stock market in West Africa, with 276 securities listed on the exchange as at 2007 and a total market capitalization of 2.23 trillion naira. Many of the listed companies have foreign/multinational affiliations and represent a cross-section of the economy, ranging from agriculture through manufacturing to services. Nigeria is the only country in the West African sub-region with a secondary debt market and a bond index. Though there is active trading in government bonds, Nigeria has a long history of the use of corporate bonds in their financial system. Prior to the Nigerian civil war in 1966, between 1962 and 1966, there were six corporate bond issues in the market. In the post war era, the Structural Adjustment Programme, which facilitated a deregulation of the economy, saw an increase in the number of corporate bonds issues, with fifteen corporate bonds in 1990 with a market value of N615 million. Since the turn of the millennium, very few corporate bonds issues have been offered to the public. Between 2000 and 2006, less than ten corporate bonds have been issued examples being Access Bank Plc's offer of a N13.5 billion floating rate convertible bond in 2006.

Nigeria, the largest economy in West Africa, has a more developed banking system. Since 2004, Nigeria's banking industry has been transformed by the Central Bank recapitalization program which has reduced the numbers of banks from 89 to 24, increased

branch penetration and the industry's balance-sheets four-fold. Of the 24 banks licensed to operate in Nigeria, 21 are publicly traded banks. The total assets of the banking sector rose by 55.37 percent to N10.47 trillion in 2007 from N6.74 trillion in 2006, a significant rise demonstrating the effects of consolidation on the banking system.

The Nairobi Stock Exchange was established in 1954, and stands as the oldest and most active stock exchange in Eastern and Central Africa. At the end of 2007, with 60 listed companies the Nairobi Stock Exchange recorded a market capitalization of Kshs 854 billion and Kshs 89 billion in equity turnover (Nairobi Stock Exchange, 2007).

The Johannesburg stock exchange, in South Africa is Africa's premier exchange and the most sophisticated exchange comparable to other exchanges in the developed countries. It has operated as a market place for the trading of financial products since 1887. As of 31 December 2007, the JSE Securities Exchange had 411 listed companies with a combined market capitalization of $828 billion (World Federation of Exchanges, 2007). The South African Banking system comprise: the South Africa Reserve Bank; 55 locally controlled banks; 5 mutual banks; 12 foreign-controlled banks; and 9 branches and 60 representative offices of foreign banks. South Africa's "Big Four" local banks include Absa, First National Bank (a division of First Rand National Bank), Standard Bank and Nedbank.

La Porta *et al.* (2000) assert that financial development is important because it can accelerate economic growth by enhancing savings, channelling these savings into real investment, and allowing capital to flow to more productive uses leading to the improvement in the efficiency of resource allocations. Developments in the financial

systems of sub-Saharan African countries have implications on the amount of leverage as well as the maturities of debt that companies employ.

3.3 Corporate Governance and Institutional Environments

Corporate governance is concerned with the ways by which suppliers of capital to firms assure themselves of getting returns on their investment (Shleifer and Vishny, 1997). Corporate governance involves a set of relationships between a company's management, its board, its shareholders and other stakeholders. Corporate governance also provides the structure through which the objectives of the company are set, and the means of attaining those objectives and monitoring performance are determined. Good corporate governance should provide proper incentives for the board and management to pursue objectives that are in the interests of the company and its shareholders and should facilitate effective monitoring. The presence of an effective corporate governance system, within an individual company and across an economy as a whole, helps to provide a degree of confidence that is necessary for the proper functioning of a market economy (OECD, 2004).

Good corporate governance can provide incentives for managers to pursue objectives that are in the interests of both firms and stakeholders leading to the efficient use of resources and increased confidence of investors. A concern of the suppliers of capital to the firm as noted by Shleifer and Vishny, (1997) is expropriation; that is how to ensure that managers do not steal the capital or invest in bad projects. Expropriation of outsiders takes many forms: outright theft of assets, transfer pricing, excessive executive compensation, entrenchment of inept management teams, and diversion of funds to unsuitable projects that benefit one group of insiders, for example, diverting resources toward (over-

investment) or away (under-investment), etc. The role of corporate governance is therefore to prevent expropriation of investors by managers, smaller investors by larger ones, and debt providers by equity investors (or vice versa).

Corporate governance systems in Africa have been characterized as weak and ineffective, however as Mensah (2003) explains with respect to African capital markets, inadequate corporate governance is not a consequence of lack of reasonable rules for supporting corporate governance but rather a case of law enforcement. Mensah (2003) also opines that the absence of important mechanisms in the market which reinforce the effectiveness of these rules also pose a challenge. His study cites mechanisms such as efficient pricing, a market for corporate control that allows companies with weak governance to be taken over and the presence of large institutional shareholders with the clout to lead shareholder efforts to discipline corporate management. In many countries the regulators have aggressively enforced governance requirements and introduced a 'Code of Best Practice' developed by the Commonwealth Secretariat and derived from the OECD's Corporate Governance code.

The Nairobi Stock Exchange listing rules, the regulations of the Capital Markets Authority (CMA) and the companies act compose the main regulatory framework that govern the activities of listed firms in Kenya. In 2002, the CMA stipulated that all listed companies and issuers of traded debt instruments adopt a corporate governance code. The main corporate governance code predominant in Kenya is a sample code of best practices in corporate governance put together by The Kenya Private Sector Corporate Governance Trust (PSCGT). Mensah (2003) in a survey of corporate governance and capital markets in African countries finds that there are reasonable rules in place to promote sound

governance. The study also notes that there are significant variations in rules across markets. It notes for instance that Kenya seems to be the African country among the sampled countries with the most rigorous rules in terms of board composition and structure. Kenya requires one third of board members to be non-executive and mandatory retirement of board members after three years, additionally an individual cannot serve as a director of more than 5 listed companies and as chairman of more than two companies.

In Ghana, the regulatory framework for corporate governance is provided by the Companies Code, 1963 (Act 179). The Securities and Exchange Commission has however issued a voluntary Code of Best Practices on Corporate Governance based on OECD and Commonwealth Association for Corporate Governance principles. The code states among other things, that companies that adopt the code must include a statement in their annual accounts showing the extent of compliance with the code; companies must maintain a balance of executive and non-executive directors with independent directors making up at least one third of the board. The code suggests that there should be a separation between the role of chairman and managing director and a committee to decide on executive remuneration.

Listed companies in Nigeria must comply with the Companies & Allied Matters Act of 1990 (CAMA), the Banking & Other Financial Institutions Decree of 1991, the Investment & Securities Act of 1999, and the listing rules of the Nigeria Stock Exchange. In 2003, the SEC in Nigeria developed a voluntary code of Best Practices for Public Companies in Nigeria. The code prescribes among other things a separation of the roles of Chairman and CEO. It requires companies to form audit committees, remuneration committees as well as clearly define the duties, number and expected credentials of independent directors.

South Africa is the largest economy in Africa. Its historically Anglo-Saxon shaped administration and business values led it to have a very westernized approach to corporate governance, such as the market-based model of corporate governance and its dominant shareholder's view (Gstraunthaler, 2010). The King Report on Corporate Governance is a landmark document in issues of corporate governance in South Africa issued by the King Committee on Corporate Governance. Three reports were issued in 1994 (King I), 2002 (King II), and 2009 (King III). The Johannesburg Stock Exchange requires that all listed firms comply with the King Reports.

The King reports focus among other things on, leadership, sustainability and corporate citizenship while attempting to give the code a local business feel, thus incorporating the local business culture. The code recommends that South African companies are governed by a unified board with a Chief Executive Officer and a separate chairperson, preferably an independent non-executive director. On the issue of board structure, the code is however, silent on the number of independent directors there must be on a board it states that the board should be balanced in terms of power with a majority of nonexecutive directors. King II requires companies to establish an audit committee, together with risk, nomination and remuneration committees. The establishment of an audit committee is a listing requirement of many stock markets in Africa including the Ghana Stock Exchange, the Nigerian Stock Exchange, Nairobi Stock exchange and the Johannesburg Stock Exchange.

CHAPTER FOUR

METHODOLOGY

4.1 Introduction

This chapter presents the methods used in carrying out the research and explains into detail how the research is carried out. It identifies the sample and data collection methods as well as. It also specificies the estimation model and finally explains the variables used in the regression model. The aim of this chapter is to ensure that there is clarity as to how the research was carried out.

4.2 Sample Selection

The study focused on four selected countries in sub-Saharan Africa, namely: Ghana, Kenya, South Africa and Nigeria. The motivation for the selection of these countries is that all of these countries are within Africa where there is a dearth of literature on debt maturity. Furthermore, with this selection there is a representation of three of the major blocks within the sub Saharan African region: East Africa, South Africa and West Africa. These countries also have differing levels of cultural, economic and institutional development. This allows a comprehensive exploration into the cross-country variations in debt-maturity structure choices in the sub-Saharan African region. The study examined data from the listed companies of the stock exchanges of the selected countries.

Data pertaining to firm specific control variables and corporate governance variables was extracted from the annual reports of listed firms as well as the fact books of the various stock exchanges in selected countries, while country level data was obtained from World Development Indicators (WDI) and Financial Structure Database of the World Bank. Data

related to the national culture was based on Hofstede's (2001) cultural indices. Data was collected over a ten year period spanning 1997 to 2006. Since firms in the financial sector are regulated in a distinctively different way with regards to capital structure, they have been dropped from the study. Firms in the financial sector, have to conform to pre-determined capital structure requirements stipulated by their regulators, as such they do not have the flexibility of choice where capital structure decisions are concerned.

4.3 Model Specification

This study employs a two-stage least square regression model following Barclay et al. (2003) and Datta et al. (2005) in order to avoid simultaneous bias in a standard ordinary least squares(OLS) regression. A key condition needed for Ordinary Least Squares (OLS) to consistently estimate the β_j (assuming we have available a random sample from the population) is that the error (in the population) has mean zero and is uncorrelated with each of the regressors:

$E(u)=0 \qquad Cov(x_j,u)=0 \ , \qquad j=1,2,\ldots,K$

When this is not the case linear regression using ordinary least squares (OLS) no longer provides optimal model estimates. This occurrence violates a fundamental prerequisite of the method of OLS, that is, that the explanatory variables should either be non-stochastic and if they are, then they must be distributed independently of the stochastic disturbance term. However, since these two primary conditions are not met, using the OLS estimators renders estimators not only biased but also inconsistent.

An explanatory variable x_j is said to be endogenous if it is correlated with u. Endogeneity usually arises in one of three ways: occurrence of omitted variables, measurement error and simultaneity (Wooldridge, 2002). Of interest to this study is endogeneity caused by

simultaneity, simultaneity occurs when at least one of the explanatory variables is determined simultaneously along with the dependent variable(y). If for instance, x_k is determined partly as a function of y, then x_k and u are generally correlated and endogeneity is present.

Given a linear population model of the form;

$$y= \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k + u$$

$$E(u)=0 \qquad Cov(x_j,u)=0 \ , \qquad j=1,2,\ldots,k-1$$

Where x_k might be correlated with u; that is to say although the explanatory variables x_1, x_2, ..., x_{k-1} are exogenous, x_k is potentially endogenous. This relationship where $Cov(x_k,u)\neq 0$ results in inconsistent estimators of all the β_j.

The method of instrumental variables provides a solution to the problem of an endogenous explanatory variable. To derive consistent estimators of all the β_j we must find an instrumental variable that satisfies two properties: the instrument z must be uncorrelated with u but must be highly correlated with the endogenous variable (x_k). A variable that meets those two conditions is an IV or instrument for the endogenous variable (x_k) that deals with the correlation of x_k and the error term (Wooldridge, 2002).

Two-stage least-squares regression uses instrumental variables that are uncorrelated with the error terms but highly correlated with the endogenous variable to compute estimated values of the problematic predictor(s) (the first stage), and then uses those computed values to estimate a linear regression model of the dependent variable (the second stage). Since the computed values are based on variables that are uncorrelated with the errors, the results of the two-stage model are optimal.

The regression model below has been adapted from the regression model used by Chang *et al.* (2012) in their study. Chang *et al.* (2012) employ two-stage least squares regression analysis as used in Barclay *et al.* (2003) and Datta *et al.* (2005) to avoid simultaneous bias in a standard ordinary least squares (OLS) regression. The presence of leverage as an explanatory variable in debt maturity studies creates an endogeneity problem. This is because leverage and debt maturity are jointly determined with simultaneous effects in both directions. Leverage and debt maturity have therefore been modelled as simultaneously determined. In the first-stage regression, total leverage is estimated using the growth variable as an instrument and then in the second-stage regression debt maturity is estimated including predicted leverage endogenously from the first-stage regression as an explanatory variable.

The study estimates a regression model of the form:

$$\mathbf{DM_{it}} = \beta_1 \mathbf{BS_{it}} + \beta_2 \mathbf{BC_{it}} + \beta_3 \mathbf{OWN_{it}} + \beta_4 \mathbf{MOWN_{it}} + \beta_5 \mathbf{CEO_{it}} + \beta_6 \mathbf{HUAI_{it}} + \beta_7 \mathbf{SIZE_{it}} + \beta_8 \mathbf{LEV_{it}} + \beta_9 \mathbf{EDEV_{it}} + \beta_9 \mathbf{MKCAP_{it}} + \beta_9 \mathbf{BKDEV_{it}} + \mathbf{e_i} + \mathbf{v_{it}}$$

with the subscript *i* denoting the cross-sectional dimension and *t* representing the time-series dimension; e_i is time-invariant and accounts for any unobservable individual-specific effect that is not included in the regression model. The term v_{it} represents the remaining disturbance, and varies with the individual countries and time. It can be thought of as the usual disturbance in the regression.

4.4 Regression Variables

Table 4.1 provides a summary of all variables used in the study, their definition, expected relationship with debt maturity, as well as their sources.

Table 4.1 Summary of Regression Variables

Variable	Description	Expected sign	Sources
Dependent and Cultural variables			
DM	Debt maturity, estimated by the ratio of long-term debt to total debt (sum of long-term debt and debt in current liabilities)		Fact books
HUAI	High Uncertainty Avoidance Index: dummy variable equal to 1 if the country's score on the Uncertainty Avoidance Index (UAI) is above median of score of sample countries.	-	Hofstede (2001)
Corporate governance variables			
BS	Board size, measured as the log of the number of board members	+/-	Fact books
BC	Board composition, measured as the ratio of the number of outside directors/total number of directors	+	Fact books
OWN	Ownership Concentration, measured as the ratio of shares held by the five largest shareholders to total shares outstanding	+/-	Fact books
MOWN	Managerial Ownership, measured as the ratio of shares held by CEOs, directors, and employees to total outstanding shares	-	Fact books
CEO	CEO duality, A dummy variable, 1 if CEO is the Chairman, 0 otherwise	+/-	Fact books
Control variables			
LEV	Leverage ratio, defined as the ratio of total debt to total assets	+	Fact books
SIZE	Firm size defined as the natural logarithm of total assets in $US millions	+	Fact books
EDEV	Size of the economy measured as the natural logarithm of GDP per capita	+	WDI
BKDEV	Size of Banking sector measured by deposit money banks divided by GDP	-	Beck *et al.* (2000)
MKCAP	Size of stock market measured as Stock market capitalization divided by GDP	+/-	Beck *et al.* (2000)

Source: Author's Compilation, 2013

4.4.1 Measuring Debt Maturity

In defining debt maturity in literature, two clear schools can be identified: the school of thought that defines debt maturity as the proportion of debt maturing within a certain time period (Barclay *et al*., 2003; Johnson, 2003) and another school of thought that measures debt maturity based on the proportions of short and long term debt (Antoniou *et al.*, 2006; Deesomsak *et al*., 2009; Zheng *et al.*, 2012). As a result of the lack of detailed information on debt characteristics for African firms the former approach cannot be used and as such,

the latter is opted for. The study therefore measures the maturity of corporate debt as the ratio of long-term debt to total debt, where long term debt refers to debt that matures in more than one year. This variable is labelled DM.

4.4.2 Measuring Corporate Governance

The corporate governance measures to be used in the study include: Board size (BS) which is measured as log of number of board members; Board composition (BC) which is measured as ratio of the number of outside directors/total number of directors; Ownership concentration (OWN) measured as the ratio of shares held by the five largest shareholders to total shares outstanding; Managerial ownership (MOWN) measured as the ratio of shares held by directors, CEOs and employees to total shares outstanding and CEO duality (CEO), a dummy variable, 1 if CEO is the Chairman, 0 otherwise. The choice of these governance variables is largely informed by existing capital structure literature.

4.4.3 Board Size

Adams and Mehran (2003) argue that a bigger board can effectively monitor the actions of management and provides better expertise; we would therefore expect that the effective

monitoring provided by the board will help reduce the agency costs of equity by better aligning the interests of shareholders and managers. We therefore hypothesize that where there are high agency costs of equity a large board size will result in a positive relationship between board size and debt maturity. Conversely, Lipton and Lorsch (1992) assert that large boards are less effective compared to small boards because some directors may free-ride on the efforts of others. In which case given the inefficiency of the board we would expect a negative relationship between debt maturity and board size thus invoking the disciplinary role of short term debt.

4.4.4 Board Composition

Board composition is a measure of board independence. The presence of outside directors on the board is associated with better monitoring and disciplining of top management, this is because of their perceived independence from management. Weisbach (1988) argues that top management face more forceful monitoring when the board of directors is controlled by independent directors, on this basis we would expect a positive relationship between board composition and debt maturity structure. As the agency problem is reduced by more efficient monitoring the use of short term debt as a disciplinary tool will no longer be necessary. In this case, firms that have more independent boards will have less need for short term debt, and will therefore employ more long term debt and vice versa.

4.4.5 Ceo Duality

In the event that there is failure in top management, a lack of independent leadership makes it rather difficult for boards to respond (Jensen 1993). The role of the board in monitoring managers as well as relieving non-performing CEOs is an essential role of the board. Fama and Jensen (1983) argue that concentration of decision management and

decision control in one individual hinders boards' effectiveness in monitoring top management. Berg and Smith (1978) and Brickley *et al.* (1997) assert that there is a conflict of interest and higher agency costs when a CEO doubles as board chair and thus the proposition that the two positions should be held separately. Delegating the dual role of decision management and decision control to CEO might weaken the board control, increase agency costs and negatively affect firm performance. In this case, not only is the agency cost of equity magnified, but the agency cost of debt rears its head as lenders see opportunities for underinvestment and asset substitution from a firm set on pursuing projects with little managerial control. Thus, we conjecture that in situations where the CEO doubles as the board chairman, lenders will be unwilling to lend long term to firms given that there is a perceived exacerbation of the agency problem, in which case we suppose a negative relationship between debt maturity structure and CEO duality.

On the other hand, there is also the argument that when a CEO doubles as board chair, it affords the CEO the opportunity to carry out decisions and projects without undue influence of bureaucratic structures and in this regard it is expected that CEO duality should have a positive relationship with performance (Rechner and Dalton, 1991). In this case, it is expected that the manager- chairman would prefer long term debt to short term debt, not only to allow him to carry out intended projects but also to reduce the frequency and intensity of monitoring. Thus we expect a positive relationship between debt maturity and CEO duality in such a case.

Empirically, CEO duality has been perceived as a measure of managerial entrenchment and both Benmelech (2006) and Jiraporn and Kitsabunnarat (2007) find a positive relationship between managerial entrenchment and debt maturity. They argue that

entrenched managers prefer the use of long term debt to minimize the frequency of external monitoring.

4.4.6 Managerial Ownership

Intuitively, it will be assumed that as the ratio of insider ownership increases the need for frequent monitoring will be reduced; making it unnecessary that the firm employs short term debt to monitor managers who hitherto did not have their interests aligned with that of shareholders, implying a positive relationship between debt maturity and insider ownership. However, Datta *et al.* (2005) find that a negative relationship exists between debt maturity and managerial ownership; they argue that managerial ownership is effective in forcing firms to have shorter debt maturity. They argue that the incentive of managers with a large ownership can be better aligned with that of shareholders by holding short-term debt which incurs less agency cost. Alternatively, we posit that the negative relationship identified could be as a result of exacerbated agency costs of debt as there is alignment between interests of managers and shareholders, which agency costs can effectively be mitigated by the use of short term debt. We therefore, hypothesize a negative relationship between debt maturity and managerial ownership.

4.4.7 Ownership Concentration

In situations where no owner amply holds a large share of the firm, interventions to ensure managerial shareholder goal alignment become costly as the benefits of the intervention will not be great enough to offset the costs given the size of shareholdings. It is therefore anticipated that in firms where there is low ownership concentration the incentive to monitor managers seems to lack. In the face of this situation it is preferable that the firm uses more short term debt to allow for more effective external monitoring.

Thus it is expected that a positive relationship will exist between ownership concentration and debt maturity. On the other hand, Deesomsak *et al.* (2009), argue that when ownership concentration is high the interests of shareholders and managers align, leading to higher agency costs of debt. Therefore, the moral hazard hypothesis predicts that firms in countries with high ownership concentration should issue more short-term debt in order to mitigate agency problems. This suggests a negative relationship between ownership concentration and debt maturity.

4.4.8 Measuring National Culture

Chang *et al.* (2009) identify Hofstede's (1980, 2001) cultural dimensions as comprehensive and more persuasive in capturing cultural differences among countries. Their view is corroborated by the use of this index by several researchers who have worked on the role of culture in corporate decision making (Chui and Kwok, 2008; Chui *et al*., 2010; Kwok and Tadesse, 2006; Zheng *et al*., 2012). Although Hofstede (1980, 2001) originally identifies four cultural dimensions, uncertainty avoidance (UAI), collectivism/individualism (CLT), power distance (PDI), and masculinity/femininity (MAS), this study chooses uncertainty avoidance (UAI) as its measure of particular interest following the work of Kwok and Tadesse (2006) who studied national culture and financial systems.

Hofstede's measure of uncertainty avoidance was based on three main strands: work related stress, employment stability and rule orientation among employees. The uncertainty of future events and how people deal with this uncertainty is what Hofstede's uncertainty avoidance index (UAI) assesses. In low uncertainty avoidance societies, people are better socialized to tolerate and accept uncertainty and tend to take risks more

readily, accept what each day brings and are more open minded and tolerant of opinions and behaviours contrary to theirs. In high uncertainty avoidance societies, on the other hand, people tend to feel more anxious about ambiguity and eschew unpredictable situations; some societies socialize their members into trying to beat the future. Such societies also like to be guided by clear rules and strong institutions to reduce the impact of uncertainty. Uncertainty avoidance is measured as a dummy with 1 representing a country whose score on uncertainty avoidance is higher than the median score for the sample countries and 0 otherwise. Thus countries scored as one are described as being relative higher uncertainty avoidance societies.

Zheng *et al.*(2012) and Chang *et al.* (2012) find a statistically significant negative relationship between debt maturity and high uncertainty avoidance. People in societies characterized by high uncertainty avoidance tend to feel uncomfortable and anxious about ambiguity and unpredictable situations. By using short-term debt borrowers signal their quality and as a result reduce fears that creditors might have that the borrowers performance may detoriate or that borrowers may engage in asset substitution. (Demirgüç-Kunt and Maksimovic, 1999). Thus, creditors in high-UAI countries, who could be more likely to place a higher value on extra information and on reduced exposure to future uncertainty, may incentivize borrowers to use more short term debt. In addition where corporate governance systems are weak and owners uncertain about the conduct of managers given the likely divergence of interests between managers and owners, the use of short-term debt and its established role as a disciplinary tool can help reduce uncertainty. Thus on the basis of the arguments made above, we predict a negative relationship between debt maturity and national culture measured by uncertainty avoidance.

On the other hand, in high uncertainty avoidance societies, managers may be relatively more risk-averse when it comes to taking on debt and might therefore want to eschew all uncertainty and ambiguity that the debt contract comes with. They are more likely to avoid the use of short-term debt since short term debt is not only associated with greater refinancing and liquidity risk but also exposes managers to frequent monitoring and scrutiny by external parties. In this case we expect a positive relationship between UAI and short-term debt used for debt financing. If this prediction prevails then it can be argued that borrowers rather than lenders hold more clout when it comes to corporate debt maturity decision making within sub-Saharan Africa.

4.4.9 Control Variables

In order to correctly determine the true impact of national culture and corporate governance on debt maturity the study will control for two sets of variables identified as determinants in the debt maturity literature: firm specific variables and country level variables. We control for firm characteristics such as Leverage (Barclay *et al*., 2003; Antoniou *et al*., 2006; Deesomsak *et al*., 2009) and Firm Size (Zheng et al., 2012). Firm size is measured by the average of the natural logarithm of total assets in $US millions while leverage is measured as the ratio of total debt to total assets. The second set of control variables will be the country level variables. The variables include the size of the economy, size of banking sector and market capitalization. Size of economy is measured by the average of the logarithm of GDP per capita. Size of stock market measured as Stock market capitalization divided by GDP. Size of banking sector, measured by deposit money banks divided by GDP.

A positive relationship is expected between leverage and debt maturity because as the amount of leverage employed by a firm increases, the firm lengthens its debt maturity structure so as reduce its liquidity risk and also to delay bankruptcy risk. As a firm increases in size its growth opportunities decrease, reducing the agency problems of underinvestment and asset substitution, thus as a firm increases in size it employs more long term debt. Demirgüç-Kunt and Maksimovic (1999) believe that in general developed countries use more long term debt because they tend to own more fixed assets that firms in developing economies. Economic development is generally associated with an increase in investment and for that matter fixed asset, the maturity matching principle therefore predicts a positive relationship between economic development and debt maturity.

In countries where the weight of banking sector is heavier, there is relatively more screening, monitoring and controlling of firms by banks as bankers have economies of scale in obtaining information (Diamond 1991). Such systems reduce creditor's costs related with information asymmetry, agency and bankruptcy (Demirgüç-Kunt and Maksimovic, 1999; Levine, 2002; Antoniou *et al.*, 2008). Thus, the relative size of banking sector of a country is expected to be inversely related with debt maturity, because short-term debt enables banks to use their comparative advantage in monitoring lenders (Fan *et al.*, 2012).

The ability of market prices to partly convey information leads to a reduction of the information asymmetry problem and eventually make it less risky to lend to quoted firms Grossman (1976). We therefore, conjecture that active stock markets increase a firm's ability to obtain long term debt. On the other hand, both Deesomsak *et al.* (2009) and Demirgüç-Kunt and Maksimovic (1999) argue that firms in countries with developed

stock market are incentivized to switch from long-term debt to equity, since the extra liquidity the stock market provides encourages risk taking from well informed investors. This could lead stock market development to be negatively related with debt maturity. However, given the potential contradictory effects of the developed stock markets on debt maturity structure suggested by Demirgüç-Kunt and Maksimovic (1999), we leave the effect of MKCAP to empirical evidence.

CHAPTER FIVE

PRESENTATION AND ANALYSIS OF FINDINGS

5.1 Introduction

This chapter deals with the data analysis and discussion of the results of the study. The analysis entails both univariate and multivariate analysis. The statistical methods utilized in this chapter are graphs, tables, and regression analysis. The chapter is divided into two sections the first part deals with the analyses and interpretation of the sample composition and summary statistics while the second part deals with the analysis and interpretation of the results from the regression models. The analysis for this study was undertaken taking into consideration the objectives of the study which are to:

1. To assess the pattern of corporate debt maturity structure across sub-Saharan Africa.
2. To investigate how corporate governance influences corporate debt maturity choices across sub-Saharan African countries.
3. To investigate how national culture influences corporate debt maturity decisions across sub-Saharan African countries.

5.2 Descriptive Statistics

The descriptive statistics provided are aimed at providing an idea of the sample composition, the basic characteristics of the debt maturity structure of sub-Saharan African firms, and outlines categorical differences across industry and countries. Variables used in the study are described in order to provide a comprehensive description of the data and better appreciation of analysis made. Means and standard deviations for each of these

variables are reported annually across industry sectors and countries. A correlation matrix, depicting the interrelations among the variables, is also provided.

5.2.1 Sample Composition

In order to provide a fair idea of the sample, the study presents an overview of the sample firm composition by country and industry in Table 5.1. The study employs 400 firms and 1731 observations from four sub-Saharan African countries namely, Ghana, South Africa, Kenya and Nigeria. The table reveals that South Africa heavily influences the sample as it constitutes 55.5% of all firms in the sample. On the other hand Ghana contributes only 5% of firms in the sample showing that it might have little influence on the sample. This positions South Africa and Ghana as possible outliers. To reduce the impact of potential outliers on the sample all variables are winsorized at the 1^{st} and 99^{th} percentiles.

Examining Table 5.1, it will be observed that in terms of industry composition, the largest industry in the sample is the manufacturing industry, followed by the services industry with 40% and 19.75% respectively. On the other hand the construction and transportation and Public utilities industries are the smallest industries in the sample contributing 2.75% and 4.25% respectively.

Table 5.1 Sample Composition

	Country					
Industry	GHANA	KENYA	NIGERIA	SOUTH AFRICA	Total Firms	% of Firms
Agriculture, Forestry and Fishing	0	5	4	9	18	4.5
Mining	1	0	1	35	37	9.25
Construction	0	0	5	6	11	2.75
Manufacturing	13	28	65	54	160	40
Transportation and Public Utilities	0	0	6	11	17	4.25
Retail Trade	0	0	11	27	38	9.5
Services	6	8	13	52	79	19.75
All others	0	0	12	28	16	10
Total firms	20	41	117	222	400	100
% of Firms	5	10.25	29.25	55.5	100	

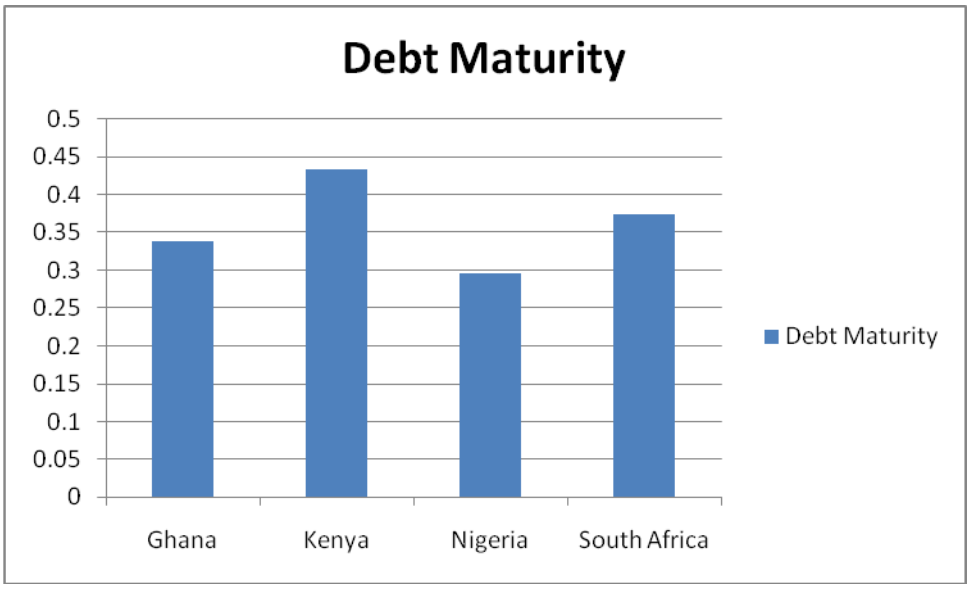
Source: Author's Compilation, 2013
Industry classifications are based on the Standard Industrial Classification (SIC) Codes.

5.2.2 Summary Statistics across Country and Entire Sample

Table 5.3 provides a summary of descriptive statistics by country and for the entire sample as well. Figure 5.1 shows that the debt maturity ratio is highest in Kenya (43%) and lowest in Nigeria (30%). Table 5.3 reports that across sub-Saharan Africa the average debt maturity ratio is 36.29 percent with a standard deviation of 27.47 percent. This shows that on the average the leverage composition of sub-Saharan African firms is 64% short term debt and 36% long term debt. However, it is clear from figure 5.1 that firms in Kenya use relatively more long term debt, than other countries in the study with Nigeria using the least amount of long term debt.

Figure 5.2 shows that there are variations in debt maturity across sub-Saharan African countries. However, we run an ANOVA tests to determine if the variations in debt maturities across the countries are statistically significant. The ANOVA results in Table 5.2 reports an F statistic of 19.1004 significant at 1%, revealing that the variations in debt maturity across the sample countries are significant.

Figure 5.1 Average Debt Maturity across Sample Countries



Source: Author's Compilation, 2013

Table 5.2 Analysis of Variance of Debt Maturity across Sample Countries

Source of Variation	*SS*	*Df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	4.2343	3	1.4115	19.1004	3.01E-12	2.6084
Within Groups	188.9489	2557	0.0739			
Total	193.1832	2560				

Source: Author's Compilation, 2013

The summary statistics displayed in Table 5.3 shows that on the average South African firms use the largest boards and employ the most leverage among sampled firms, while Nigerian boards are the most independent and also employ the least leverage. Over the study period, the largest economy was the South African economy, while the smallest was the Ghanaian economy. Juxtaposing this observation with the average debt maturities of sampled countries in Figure 5.1 there is an indication that the size of the economy does not tell directly on the debt maturity structure of firms in sub-Saharan Africa. However, this observation will have to be subjected to multivariate data analysis.

Table 5.3 Summary Statistics

Statistic	DM	BS	BC	CEO	OWN	MOWN	LEV	SIZE	EDEV	BDEV	MKCAP
Ghana											
Mean	0.34	2.05	0.75	0.64	0.82	0.14	0.41	2.25	5.60	10.60	14.81
Median	0.24	2.08	0.75	1	0.84	0.10	0.44	2.18	5.57	10.91	14.33
Std.dev	0.28	0.23	0.11	0.48	0.15	0.17	0.26	0.71	0.06	1.50	4.65
Min	0.01	1.39	0.33	0	0.24	0.10	0.23	.08	5.52	8.31	8.82
Max	1	2.64	0.91	1	0.95	0.53	0.97	3.40	5.72	13.50	22.93
Obs	181	199	199	199	187	133	184	182	199	199	199
Kenya											
Mean	0.43	2.02	0.83	0.19	0.50	0.15	0.42	1.42	6.03	26.89	18.00
Median	0.41	2. 08	0.86	0	0.5	0.13	0.39	1.43	6.02	26.79	13.78
Std.dev	0.26	0.36	0.08	0.39	0.22	0.11	0.21	0.64	0.03	0.67	9.75
Min	0	1.39	0.48	0	0.09	0.08	0.26	0.34	6.00	26.21	8.91
Max	0.98	2.83	0.85	1	0.91	0.48	0.97	2.98	6.13	28.25	41.00
Obs	307	342	342	342	303	342	307	307	342	342	342
Nigeria											
Mean	0.30	2.11	0.88	0.13	0.54	0.16	0.28	0.96	5.99	12.27	11.83
Median	0.20	2.08	0.88	0	0.60	0.13	0.22	0.84	5.98	12.12	10.71
Std.dev	0.26	0.31	0.06	0.34	0.22	0.12	0.23	0.66	0.08	0.74	3.18
Min	0.02	1.26	0.32	0	0.16	0.18	0.01	0.02	5.89	9.71	7.54
Max	0.99	2.77	0.67	1	0.95	0.54	0.97	2.63	6.13	13.5	18.35
Obs	536	703	682	682	483	703	581	682	703	703	703
South Africa											
Mean	0.38	2.18	0.60	0.04	0.42	0.15	0.52	1.14	8.05	122.88	166.12
Median	0.32	2.20	0.60	0	0.36	0.12	0.51	1.03	8.03	121.47	157.03
Std.dev	0.28	0.42	0.17	0.19	0.24	0.11	0.21	0.81	0.06	8.66	32.73
Min	0	1.38	0.29	0	0.12	0.23	0.02	0.02	8.00	112.97	130.00
Max	1	2.94	0.91	1	0.96	0.58	0.97	3.40	8.17	140.45	239.13
Obs	1537	2214	2215	2215	2194	2220	1426	1648	2220	2220	2220
Total sample											
Mean	0.36	2.14	0.69	0.11	0.47	0.15	0.45	1.20	7.29	84.51	111.50
Median	0.31	2.19	0.71	0	0.42	0.12	0.45	1.11	8.01	113.64	136.60
Std.dev	0.27	0.39	0.19	0.31	0.25	0.11	0.24	0.81	1.02	51.90	77.65
Min	0	1.26	0.29	0	0.09	0.08	0.02	0.02	5.53	8.31	7.54
Max	1	2.94	0.91	1	0.96	0.58	0.97	3.40	8.17	140.45	239.13
Obs	2561	3458	3438	3438	3167	3398	2498	2819	3464	3464	3464

Source: Author's Compilation, 2013

5.3 Patterns of Debt Maturity Structure

5.3.1 Pattern of Debt Maturity Structure over Sample Period

A close examination of Table 5.4 reveals that the debt maturity of firms in sub-Saharan African firms has undergone change over the sample period. The overall mean debt maturity of all firms included in the sample is 36.29 per cent; while it varied from a low of 26.81 per cent in 1996 to a high of 41.45 per cent in 2007.

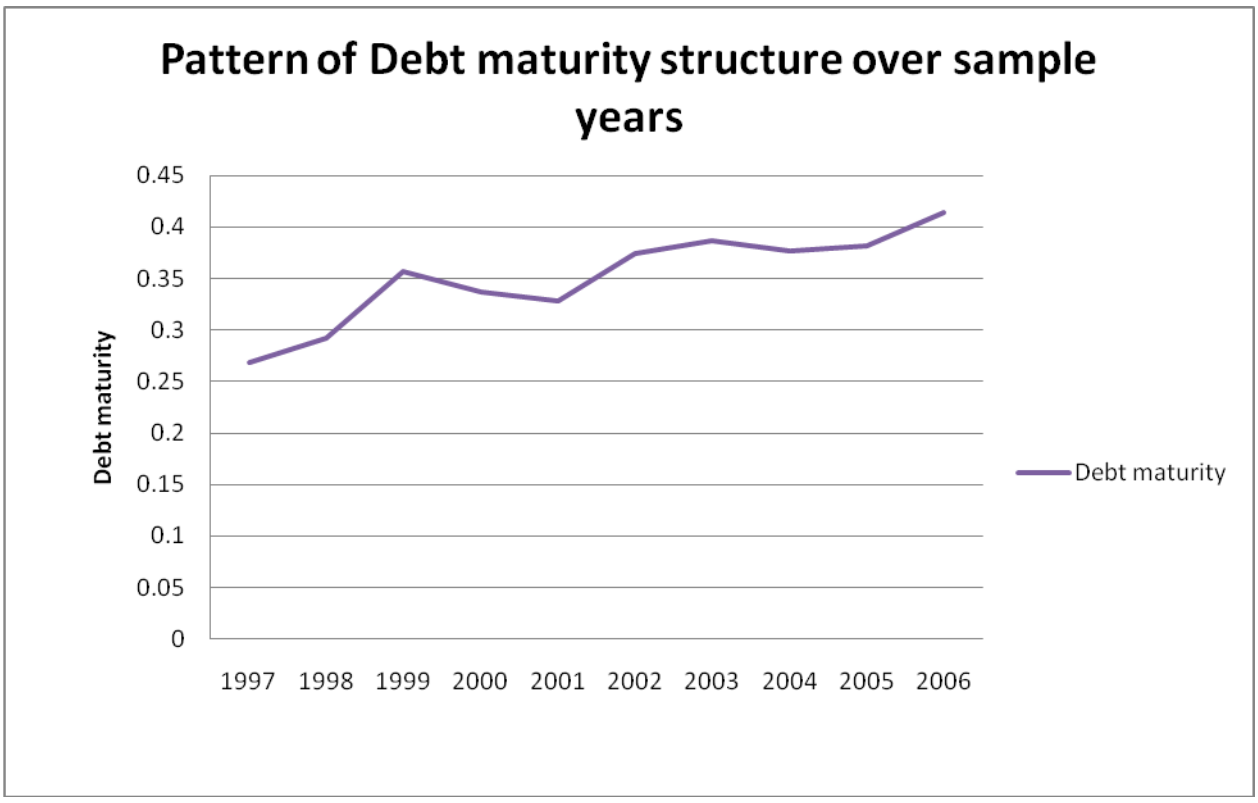
We conjecture that the variation in debt maturity over time, especially the upward trend in the debt maturity ratio over time could be a strong indication that firms in Africa are experiencing steady economic growth and expansion of stock markets in their countries. The debt maturity theory also explains that as firm profitability, firm size and leverage grow over time the debt maturity also grows. Thus there is a high likelihood that the upward trend (evidenced in Figure 5.2 below) in the use of long term debt by African firms may be as a result of a steady increase observed in profitability, growth opportunities, firm size, asset maturity and leverage experienced by sample firms and the steady development of capital markets, all of which is associated with steady economic growth.

Table 5.4 Average Debt Maturity over Sample Period

Year	Debt Maturity	S.D.	N
1997	0.2659	0.25	93
1998	0.2880	0.25	139
1999	0.3564	0.26	158
2000	0.3360	0.26	174
2001	0.3281	0.27	320
2002	0.3727	0.29	350
2003	0.3832	0.29	346
2004	0.3766	0.27	339
2005	0.3804	0.28	331
2006	0.4126	0.28	311

Source: Author's Compilation, 2013

Figure 5.2 Pattern of Debt Maturity Structure over Sample Period



Source: Author's Compilation, 2013

5.3.2 Pattern of Debt Maturity Structure across Industries

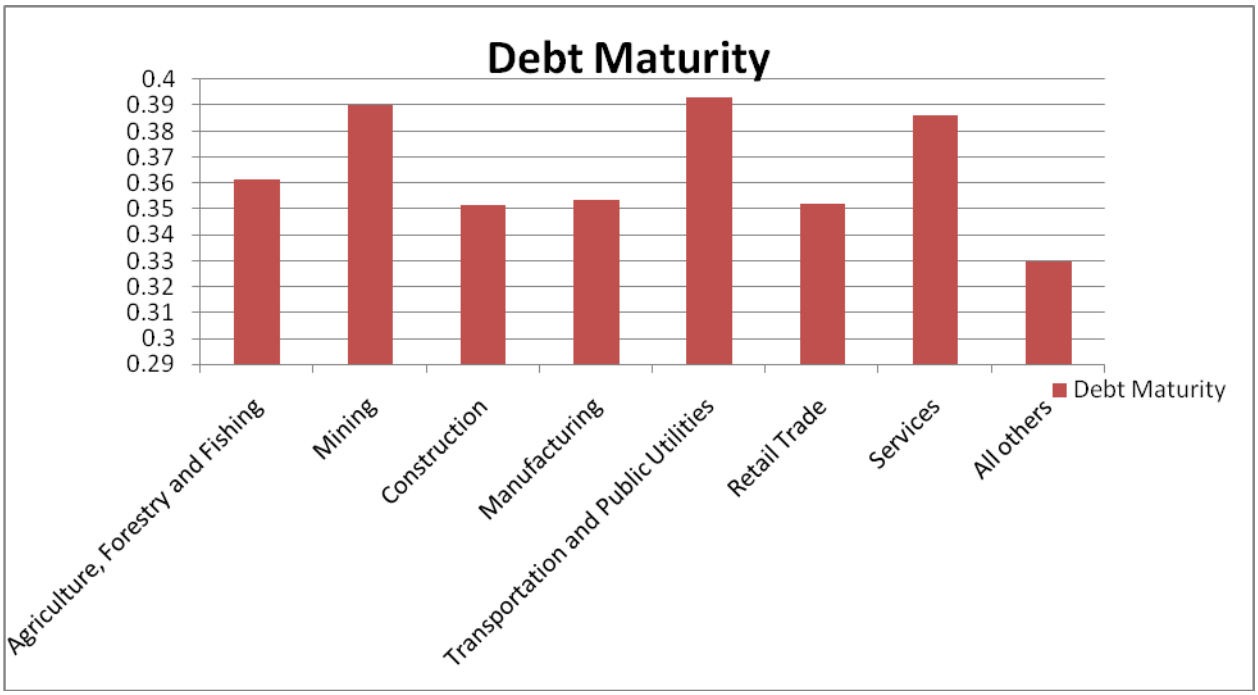
An investigation of the descriptive statistics in Table 5.5 and the bar chart in Figure 5.3 reveal there is heterogeneity within the debt maturity employed by industries in Africa. The industry with the highest debt maturity structure is that of transportation and public utilities with a mean of 28.22 percent while the construction industry uses the least long-term debt averaging a debt maturity of 22.99%. This could be a reflection of inter-industry variations in agency costs, information asymmetries, liquidity and asset structure. This is consistent with assertions made by Barclay and Smith (1999) that firms in highly regulated industries use less short-term debt since the agency costs of managerial discretion is lower there. Guedes and Opler(1996) also ascribe the use of relatively more long term debt by regulated industries to factors like their asset structure, economies of scale in borrowing and operations, reduced information asymmetry as well as easier access to external financing.

Table 5.5 Average Debt Maturity across Industries

Industry	Observations	Standard deviation	Debt Maturity
Agriculture, Forestry and Fishing	128	.27101	.3613
Mining	202	.2656	.3902
Construction	70	.2299	.3516
Manufacturing	1066	.2679	.3532
Transportation and Public Utilities	100	.2822	.3932
Retail Trade	249	.2712	.3520
Services	539	.2874	.3859
All others	207	.2967	.3299

Source: Author's Compilation, 2013
Industry classifications are based on the Standard Industrial Classification (SIC) Codes.

Figure 5.3 Debt Maturity Pattern across Industries



Source: Author's Compilation, 2013

5.3.3 Pattern of Debt across High and Low Uncertainty Avoidance Societies

The table below shows the various scores of sample countries based on Hofstede's index on uncertainty avoidance. Countries with scores above the median score will have a score of 1 denoting them as high uncertainty avoidance societies while countries with scores below the median will have a score of zero denoting them as low uncertainty avoidance societies.

Table 5.6 Uncertainty Avoidance and Average Debt Maturities across Sample Countries

COUNTRY	UAI	DEBT MATURITY
Ghana	**65**	**33.78**
Kenya	**52**	**43.35**
South Africa	**49**	**37.50**
Nigeria	**55**	**29.65**
Median	**53.5**	**35.64**

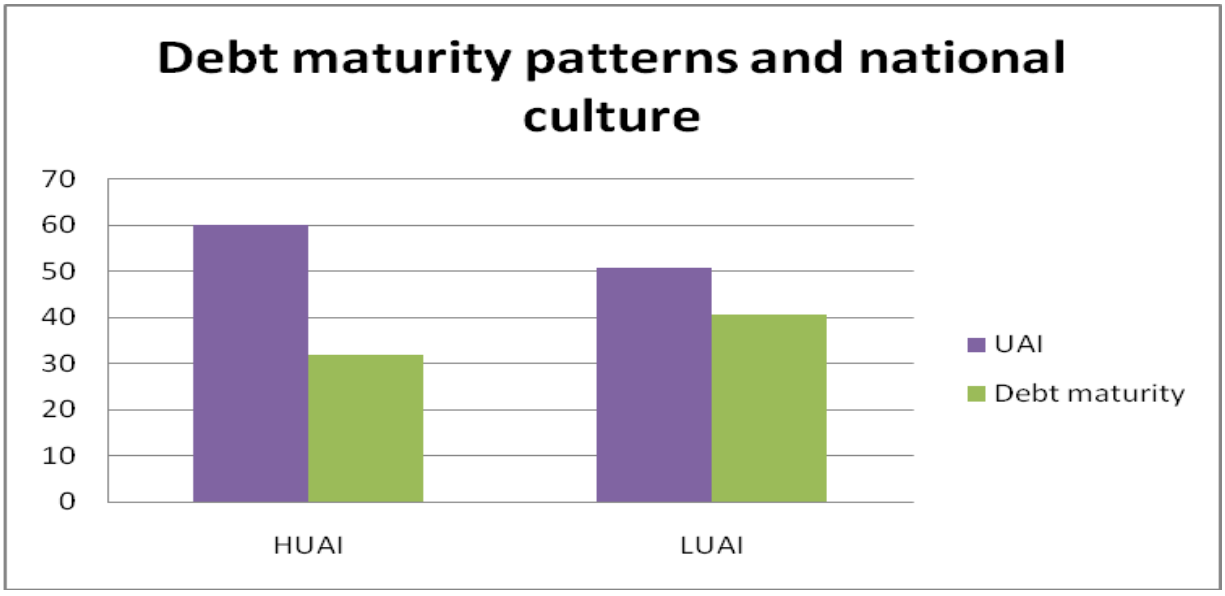
Source: Author's Compilation, 2013

Table 5.7 Average Debt Maturity across High and Low Uncertainty Avoidance Societies

	UAI	DEBT MATURITY
High uncertainty avoidance societies (HUAI)	60	31.7143
Low uncertainty avoidance societies (LUAI)	50.5	40.4263

Source: Author's Compilation, 2013

Figure 5.4 Debt Maturity and National Culture



Source: Author's Compilation, 2013

Using the scores and using their median as a middle line, Ghana and Nigeria are categorized as high uncertainty avoidance societies while South Africa and Kenya are categorized as low uncertainty avoidance societies. As shown in figure 5.3 above, high uncertainty avoidance societies on the average use less long term debt and for that matter more short term debt than low uncertainty avoidance societies. This corroborates earlier findings by Zheng *et al.* (2012) and Chang *et al.* (2012) who find that high uncertainty avoidance societies tend to use relatively more short term debt than low uncertainty avoidance societies.

5.4 Correlation Analyses

To examine the possible degree of collinearity among variables, appendix1 presents the correlation matrix showing the correlations of variables used in the study. It is observed that the correlations are generally not sufficiently large to cause multicollinearity problems.

The correlation matrix shows a positive significant relationship between board size and debt maturity. This implies that as the corporate board gets larger, the tendency for the firm to employ more long term debt is also higher. This can perhaps be attributed to the effective monitoring and oversight role that a large board has over management. It also shows that managerial ownership is significantly and negatively related to debt maturity. We conjecture that this could be the case because it is expected that as managers and employees tend to have higher ownership stakes in the firm, they would be more willing to use more short-term debt as short term debt is associated with lower agency costs. This could also be the case because there will be alignment of management-shareholder interests. The correlation matrix also shows a negative relationship between the cultural

variable used- uncertainty avoidance and debt maturity. This implies that in high uncertainty avoidance societies it is expected that more short-term debt will be used. This confirms our observation made in Figure 5.3 above.

The correlation matrix shows a positive significant relationship with debt maturity. This relationship is in line with our expectations as we expect firms to employ more long term to avert the problems associated with liquidity risk when they employ high levels of leverage. Banking sector development, size of the economy and stock market development all exhibit a positive significant relationship with debt maturity.

5.5 Discussion of Regression Results

In this section, we report regression results and their interpretation for two regression models. Table 5.8 presents results on variables and their statistical significance or otherwise using the two stage least square estimation model. Model 1 in Table 5.8 presents regression results for all variables with the exclusion of the cultural variable while model 2 includes the cultural variable. The aim of running two separate regressions is to test the assertions made by Chang *et al.* (2012) that when culture is included as an explanatory variable in multivariate analysis for debt maturity studies it yields a higher statistical significance over and beyond governance and level of financial development, implying that the cultural effect cannot be ignored in debt maturity studies.

Table 5.8 Regression Results for Entire Sample

	Model 1	Model 2
	Coef.	**Coef.**
BS	0.0406**	0.039976**
	(2.09)	(2.06)
BC	-0.01512	-0.01738
	(-0.33)	(-0.38)
CEO	0.023565	0.025553
	(0.67)	(0.73)
OWN	0.050764*	0.058914*
	(1.66)	(1.92)
MOWN	-0.2422***	-0.24042***
	(-4.38)	(4.35)
UAI		-0.20955**
		(-2.46)
LEV	0.569611***	0.572599***
	(3.81)	(3.88)
SIZE	-0.00755	-0.00889
	(-0.75)	(-0.88)
EDEV	0.125563	0.100111
	(1.63)	(1.29)
BKDEV	-0.00427*	-0.00574**
	(-2.26)	(-2.89)
MKCAP	0.001001*	0.001089**
	(1.83)	(1.99)
R-square	0.1377	0.1408
Adjusted R square	0.1322	0.1353
Wald chi2(26)	144.82	150.88
Prob > chi2	0.000	0.000

Source: Results from Stata 12

This table presents the results of regressing debt maturity (DM) on corporate governance measures and Hofstede's (2001) uncertainty avoidance cultural dimension. Model 1 reports the corporate governance results for the full sample of 1731 firm-year observations for 400 unique firms from 4 countries over the 1997–2006 period. Model 2 reports results where national culture (Hofstede's 2001 uncertainty avoidance) has been included as an explanatory variable. Z statistics are reported in brackets. Models include year and industry dummies. Definitions and data sources for all variables have been outlined in Table 4.1

*** Significance at the 1% level. ** Significance at the 5% level. * Significance at the 10% level.

5.5.1 Results on Corporate Governance Variables

The results indicate a positive and significant relationship between board size and debt maturity measured as the proportion of long term debt to total debt employed by a firm. Our findings are in line with Adams and Mehran (2003) who argue that a bigger board can effectively monitor the actions of management and provides better expertise. Therefore in line with our expectations there is a high likelihood that the effective monitoring provided by the board will help reduce the agency costs of equity by better aligning the interests of shareholders and managers, we find a positive significant relationship between board size and debt maturity. However, our findings contradict Lipton and Lorsch (1992) assertion that large boards are less effective compared to small boards because some directors may free-ride on the efforts of others.

Table 5.8 also shows a positive significant relationship between ownership concentration and debt maturity structure. This positive relationship can be explained by cost-benefit relationship that shareholders are met with in an attempt to reduce agency costs. In situations where no owner amply holds a large share of the firm, interventions to ensure managerial shareholder goal alignment becomes costly as the benefits of the intervention will not be great enough to offset the costs given the size of shareholdings. We therefore conjecture that this is the situation because in firms where there is low ownership concentration the incentive to monitor managers seems to lack. In the face of this situation it is preferable that the firm uses more short term debt to allow for more effective external monitoring. However, where there is a high ownership concentration, monitoring is more effective and therefore the need for short term debt as a disciplinary tool is lessened. Thus it is expected that a positive relationship will exist between ownership concentration and debt maturity.

Our findings however, contradict that of Deesomsak *et al.* (2009) who find a negative relationship between debt maturity structure, measured as long term debt scaled by total debt relationship between ownership concentration and debt maturity. They argue on the basis of the moral hazard hypothesis that when ownership concentration is high the interests of shareholders and managers align, leading to higher agency costs of debt. It is also at variance with the study by García-Teruel and Martínez-Solano (2007) who examine the effects of the presence of large shareholders on the debt maturity structure of Spanish listed firms. While controlling for known determinants of debt maturity structure they find a non-monotonic or concave relationship between ownership concentration and debt maturity.

A negative and statistically significant relationship was found between managerial ownership and debt maturity structure. The negative relationship found was in line with our expectations and findings by Datta *et al. (*2005). They argue that the incentive of managers with a large ownership is be better aligned with that of shareholders, as such they have no problem with committing themselves to more monitoring by holding short-term debt which incurs less agency cost.

Alternatively, the negative relationship identified could be as a result of exacerbated agency costs of debt as there is alignment between interests of managers and shareholders, necessitating the use of short term debt to alleviate the agency costs of debt which becomes more severe, in this case, as the agency costs of equity becomes less severe. Contrarily, Benmelech (2006) find that managerial stock ownership shows no relation to debt maturity. The results of our study is also at variance with, the results of the study conducted by García-Teruel and Martínez-Solano (2007) to examine the effects of

managerial equity holding on the debt maturity structure of Spanish listed firms. While controlling for known determinants of debt maturity structure they find a non-monotonic or concave relationship.

We hypothesized a positive relationship between board composition, contrary to our expectations we find a negative insignificant relationship between debt maturity and board composition. Albeit, insignificant we find a negative relationship between CEO duality and debt maturity in line with our expectations. This is an indication that in sub- Saharan Africa the composition of firm boards and the presence of CEO's who play dual roles of CEO and board chair in firms, do not explain the debt maturity structure decisions.

5.5.2 Results on National Culture Variable

Model 2 provides the results of the regression model when national culture measured by Hofstede's Uncertainty Avoidance Index is included. In confirmation of Chang *et al.*'s assertion, we find that model 2 has an R squared of 0.1408 which is far in excess of the R squared of model 1 at 0.1377.

This difference is accounted for by the inclusion of Hofstede's measure of culture- uncertainty avoidance in the model. Uncertainty avoidance is a measure of the extent to which the people of a society are uncomfortable with uncertain and ambiguous situations. The variable yields a negative significant relationship with debt maturity this shows that the higher the uncertainty in a society the more short term debt firms in that country use. People in societies characterized by high uncertainty avoidance tend to feel more anxious about ambiguity and also try to avoid unpredictable situations. This finding is in tandem with the findings from the univariate analysis, specifically Figure 5.3, which shows that on

the average high uncertainty avoidance societies (Ghana and Nigeria) tend to use more short term debt than low uncertainty avoidance societies (Kenya and South Africa). Hofstede's measure of uncertainty avoidance is a comparative measure and on the basis of his scores and the methodology employed, Ghana and Nigeria are designated as high uncertainty avoidance societies while Kenya and South Africa low uncertainty avoidance societies.

On the basis of the findings of Demirgüç-Kunt and Maksimovic (1999) that short term debt has the ability to reduce the extent to which lenders are exposed to the risk of deterioration in the borrower's performance by signalling firm quality; we conjecture that, there is a high likelihood that lenders in high-UAI countries, in an attempt to reduce exposure to future uncertainty, may encourage borrowers to use more short-term debt. Our position is further buttressed by findings that short term debt also reduces the likelihood of asset substitution where a firm that takes on debt on agreed basis to enter into a low-risk project shifts to a high risk project to the detriment of the lender (Demirgüç-Kunt and Maksimovic, 1999).

This finding is also indicative that lenders hold more clout in the corporate debt maturity decisions of sub-Saharan African firms than the firms in question. This is also evidenced by the negative significant relationship shown by the banking sector size with debt maturity. Furthermore, there is also a high likelihood that in countries where corporate governance mechanisms are weak and shareholders uncertain about the conduct of managers where there is perceived divergence between interests of managers and owners, the use of short-term debt and its established role as a disciplinary tool can help reduce uncertainty.

5.5.3 Results on Control Variables

Johnson (2003) indicates a positive relationship between debt maturity and leverage as does our study. Leverage was endogenously estimated from a first stage regression and instrumented by the Market to Book Value ratio. Since our focus is on the debt maturity equation, results of the first stage regressions are not reported. The second stage regression results report that leverage is significant in explaining the debt maturity of African firms. This is possibly because as the amount of leverage employed by a firm increases, the firm lengthens its debt maturity structure so as reduce its liquidity risk and also to delay bankruptcy risk. This result is consistent across both models.

Both models also shows a statistically negative significant relationship between debt maturity structure and the size of the banking sector with model 2 showing a statistically stronger relationship with the inclusion of culture. This is consistent with results found by Antoniou *et al.* (2008) and Levine (2002) who argue that where the relative weight of the banking sector is heavier; there is increased monitoring and controlling of firms, because of economies of scale in obtaining information. This is because short term debt enhances their comparative advantage in the monitoring and controlling of firms. Short-term loans also give the bank more power to discipline borrowers, while long-term loans with covenants only allow the bank to execute forceful actions, if a covenant has been violated (Rajan and Winton, 1995).

The statistically stronger relationship displayed by the banking sector variable in Model 2 could possibly be because bank-based economies are more effective in reducing risks than market based economies. Thus it is highly likely that high uncertainty avoidance societies will also be bank based economies. There is empirical evidence to show that the financial

system that pertains in a country is essential in explaining the outcomes of economic development. Kwok and Tadesse (2006) argue that national culture is related to two broad categories of financial system: bank-based versus market-based. They assert that the bank-based system is superior in risk-reduction efforts and is more compatible with national cultures characterized by strong uncertainty avoidance traits. Kwok and Tadesse (2006) also argue that the bank-based system is relatively safer whereas the stock market-based system is more speculative because daily returns show a greater volatility, reflecting the uncertainty of investors' future investment incomes.

As the stock market of a country develops there is reduced information asymmetry as stock prices are believed to efficiently transmit all available information (Grossman, 1976). Thus an active stock market should enhance listed firms access to long term debt as our study finds. This finding is confirmed by the positive significant relationship that market capitalization displays across both models. The regression results also show that there is no statistical relationship between the size of the economy and debt maturity, this is in confirmation of observations made during univariate analysis.

5.5.4 Corporate Governance and Debt Maturity: Country Basis

Table 5.9 below provides country by country panel results for the relationship between the corporate governance variables of interest and debt maturity. This regression analysis gives us a better appreciation of how the various corporate governance mechanisms studied influence debt maturity in each country. Despite variations within some of the various country results, generally the results show a high level of consistency across countries and with the results of the regression for the entire sample in Table 5.9. Thus, the country basis regressions confirm to a large extent the findings for the entire sample.

Board size was found to be positively related to debt maturity in all countries except Kenya. However, it was only significant in Ghana; the general positive relation of board size to debt maturity is in line with our expectations and also in tandem with findings for the entire sample. This could mean that a larger board more effectively monitors the actions of management and as a result reduce the agency costs of equity. This means that the need for short term debt as a monitoring and disciplinary tool is less and it is expected that the firm will be more likely to use more long term debt.

Although board composition was not significant in explaining debt maturity in the main regression for the entire sample, in Kenya, Nigeria and Ghana, board composition had a positive relationship with debt maturity with Ghana reporting a positive significant relationship while South Africa recorded a negative relationship between board composition and debt maturity structure at variance with a priori expectations of the study. It is expected that the more independent the board is the more effective monitoring will be and as a result, the need for short term debt as a disciplinary tool will be less. Thus we conjecture that in firms where the composition of the board exhibits greater independence more long term debt will be utilized, thus the positive relationship.

Table 5.9 Regression Results on Country Basis

	Kenya	Nigeria	South Africa	Ghana
BS	-0.0581	0.0659	0.0235	0.2139*
	(-0.85)	(-1.36)	(-0.77)	(2.1)
BC	0.9294*	0.4002*	-0.0589	0.3515
	(1.72)	(1.77)	(-0.91)	-0.55
CEO	-0.0024	0.0176	0.0357	0.0651*
	(-0.01)	-0.18	-0.56	(1.68)
OWN	-0.0436	-0.0446	0.0967*	0.1922*
	(-0.43)	(-0.65)	(1.82)	(1.91)
MOWN	-0.0225	-0.1815*	-0.249**	-0.0201
	(-0.14)	(-1.88)	(-3.39)	(-0.15)
LEV	0.3557**	0.5711***	0.3091***	0.9247***
	(2.86)	(6.1)	(8.14)	(3.58)
SIZE	-0.0641	-0.0279	-0.0195	-0.0712
	(-1.28)	(-0.99)	(-1.07)	(-1.14)
EDEV	-2.1541**	-0.4083	2.0892***	-0.8591
	(-2.52)	(-0.62)	(4.08)	(-0.73)
BKDEV	0.0637**	-0.0023	-0.0022*	-0.0074
	(3.02)	(-0.07)	(-2.27)	(-0.28)
MKCAP	0.0103*	0.014	-0.0019*	0.023
	(1.89)	(-0.99)	(-2.64)	(-1.00)
R squared	0.0938	0.2426	0.1072	0.5000
Adjusted Rsquared	0.0586	0.2218	0.1002	0.4405
Wald Chi	111.38	84.09	151.63	45.08
Prob>chi2	0.0000	0.0000	0.0000	0.0000
Observations	268	376	1292	95

Source: Results from Stata 12

This table presents the results of regressing debt maturity (DM) on corporate governance measures for all countries in the study. Definitions and data sources for all variables have been outlined in Table 4.1

*** Significance at the 1% level. ** Significance at the 5% level. * Significance at the 10% level.

With the exception of Kenya, all other sample countries exhibited a positive relationship between CEO duality and debt maturity, with Ghana being the only country to exhibit a positive significant relationship. Our expectation about the influence of CEO duality was in both directions and as such left to empirical evidence. Although CEO duality had a positive relationship with debt maturity in the regression for the entire sample, it was not significant. The positive relationship between CEO duality and debt maturity can be attributed to the opportunity and authority afforded the CEO-chair to carry out decisions and projects without levels of prior approval and paperwork; this means that the chairman-CEO would prefer more long term debt not only to allow him to carry out projects he/she chooses to but also to reduce the intensity of monitoring.

Interestingly, ownership concentration exhibits a positive relationship with debt maturity in two countries- Kenya and Nigeria- and a negative relationship with the other two countries- South Africa and Ghana- in the study. However, it is only in South Africa and Ghana that the relationship is significant. This means that as ownership concentration within South Africa and Ghanaian firms increase, there is a tendency for such firms to use more long term debt. This is highly likely because the cost of monitoring management in an attempt to ensure shareholder-management alignment is less when ownership concentration is high. Thus making monitoring more efficient and consequently the need for the use of short term debt as a disciplinary and monitoring tool is lessened.

Datta *et al.* (2005) opine that managerial ownership is effective in forcing firms to have more short term debt as the incentive of managers with a large ownership can be better aligned with that of shareholders by holding short-term debt which incurs less agency cost.

Managerial ownership exhibited a negative relationship with debt maturity across all sample countries in line with a priori expectations, albeit significant only in Nigeria and South Africa.

The control variables show quite a high level of consistency across countries and also with the results of the regression for the entire sample. Leverage was found to be positive and significant across all countries as was the case for the regression for the entire sample. Firm size was also found to be negative and not significant across all firms consistent with regression results for the entire sample. Although the size of the economy, a measure of economic development, was positively but not significantly related to debt maturity in the regression results for the entire sample, we find here that it exhibits a negative relationship across all countries with the exception of South Africa. Interestingly, we find that in South Africa the positive relationship between economic development and debt maturity is significant while economic development in Kenya exhibits a negative significant relationship with debt maturity. The negative relationship exhibited by Kenya is however, surprising as our a priori expectation was a positive relationship. However, it is possible that as a developed economy, the South African economy presents a lot of growth opportunities for firms. Firms with high levels of growth opportunities suffer from the underinvestment problem and are more likely to be financed with short-term debt.

Kenya, again contrary to the results from the other three countries and the results of the regression for the entire sample indicates a positive significant relationship between debt maturity and banking sector development. In all other sample countries banking sector development exhibited a negative relationship with debt maturity with South Africa's relationship being significant. Consistent with literature, results for the other three

countries indicate that, as the banking sector develops, banks tend to bank more on their comparative advantage in obtaining information and monitoring to lend more short term debt.

Stock market development was generally found to be positively related with debt maturity across all countries, albeit significant only in Kenya, with the exception of South Africa where a negatively significant relationship was found between debt maturity and stock market development. The relationship between stock market development and debt maturity in South Africa although at variance with that in the regression results for the entire sample is not surprising as Deesomsak *et al*. (2009) and Dermiguc-Kunt and Maksimovic (1999) argue that there is an incentive for firms in countries with developed stock markets to switch from long-term debt to equity, as the additional liquidity of the stock market encourages risk taking from well informed investors. This finding is not strange as the South African stock exchange is known to be one of the most developed on the continent.

5.6 Conclusion

This chapter was aimed at characterizing the data used in the study and presenting and analysing data from the multivariate data analysis. Thus, the chapter presented an idea of the average long term debt employed by sub-Saharan African firms, across the entire sample, sample firms and industries. The chapter also drew out patterns of long term debt as they occurred over the sample for the period under discussion.

In addition, the regression results presented indicate that broadly, corporate governance influences the debt maturity structure decisions across sub-Saharan Africa. The debt

maturity decisions a firm take can help attenuate the inefficiencies of the corporate governance systems in a region perceived to be characterized by high agency costs. Board size and ownership concentration were found to be positively and significantly related to debt maturity. While managerial ownership was found to be negatively significant in explaining debt maturity decisions across sub-Saharan Africa. Furthermore, national culture was also found to significantly negatively influence the debt maturity decisions taken across sub-Saharan African firms with high uncertainty avoidance societies utilizing relatively less long-term term debt that low uncertainty avoidance societies. The controls used in the study are widely consistent with prior empirical studies.

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

This chapter provides a summary of the findings of the study and concluding comments on the study. The chapter also identifies key areas for future research and makes recommendations on the basis of findings for both practitioners and policy makers.

6.2 Summary

This empirical study was carried out to investigate the effects of corporate governance and national culture on the debt maturity structures of listed firms within the sub-Saharan African region. Empirical results indicate that board size, ownership concentration and managerial ownership significantly influence debt maturities of sample firms. While board size and ownership concentration influence debt maturity structure positively, managerial ownership has a negative effect on debt maturity structure. The study also reveals a negative relationship between national culture, measured by Hofstede (2001) uncertainty avoidance index, and debt maturity structures of firms in the sub-Saharan African region.

This is to say that firms with larger boards and higher ownership concentration will use more long term debt as a result of their effectiveness in monitoring the activities of managers; whereas firms with smaller boards and lower ownership concentration will have to augment the efforts of the corporate governance systems by employing less long term debt or more short term debt, thus invoking the disciplinary role of short term debt.

The negative relationship between managerial ownership and debt maturity suggests that as managerial equity holdings increase the interests of managers and shareholders are aligned, making the agency costs of equity a less severe problem for the firm while the agency costs of debt becomes more severe. Firms with high proportions of managerial equity holdings, have managers who would use more short term debt to alleviate the negative impact of agency costs of debt; without any aversion to the increased exposure to external monitoring. Thus the use of short-term debt primarily in the region is indicative of weak corporate governance systems and high agency costs.

The study also shows a negative significant relationship between national culture and the debt maturity structures of sub-Saharan African firms. This shows that in countries where the people are anxious about taking on risks and would rather avoid uncertain and unpredictable situations- high uncertainty avoidance societies, short term debt is primarily used in the debt maturity structure of firms. It is important that the influence that culture has on debt maturity is understood because as Aggarwal and Goodell, (2009) and Williamson (2000) argue, the ability of financing decisions to alleviate the impact of agency costs and asymmetric information problems to a large extent depends not only on the formal institutions but the informal institutions such norms, values, customs and religion.

Thus, the use of short-term debt primarily in sub-Saharan Africa is possibly not entirely an issue of in accessibility of long term debt but perhaps a response to a society characterized by high agency costs and weak corporate governance systems. Finally this phenomenon could also be explained by the possibility that the sub- Saharan African society is fraught

with high levels of uncertainty and people who are culturally unwilling to accept ambiguous and unpredictable situations.

6.3 Conclusions

We conclude that corporate governance and national culture influence debt maturity structures after taking into account other firm and country level controls which we find to be generally consistent with prior empirical literature. We also conclude that the level of financial development in an economy significantly influences debt maturity structures of firms. A positive relationship is found between stock market capitalization and debt maturity structure while the impact of the banking sector development yields a negative significant relationship with the corporate debt maturities of sub-Saharan African firms. This is indicative that the development of the banking sector, could possibly lead to an increase in the amount of total leverage in an economy but not to the lengthening of debt maturities offered. This is probably because of the comparative advantage banks have in monitoring and controlling short term debt. The positive relationship that market capitalization yields is also indicative that capital market development is one of the key ways in which access to long term debt can be enhanced in an economy. However, the size of the economy does not have a direct impact on the debt maturity structure of firms in sub-Saharan Africa.

6.4 Recommendations

The findings from this study have important implications for researchers, practitioners and policy makers alike. In countries with firms characterized by high agency costs and weak corporate governance systems, firms should use more short term debt to augment the efforts of corporate governance at reducing agency costs. This is because debt has been

shown to have a peculiar disciplinary role in the reduction of firms' agency costs of managerial discretion.

The primary use of short-term debt in African economies could be as a result of misplaced emphasis on the development of the banking sector as against the development of the stock market. The study reveals that a growth in the banking sector will not necessarily see a turnaround of the situation for firms interested in employing more long term debt and governments interested in making long term debt available for development. As a result such firms should consider listing in order to access more long term debt; but prior to that, governments which would want to see more long term debt available to firms should take steps to develop their capital markets. As firms list on the stock market and consequently, gain access to longer term debts they must bear in mind the role of short term debt in controlling the agency problem and appropriately choose a debt maturity structure which reflects the severity of the agency problem on the ground.

The findings of this study have important implications for international firms who wish to invest in sub-Saharan Africa. This study implies that in making decisions on the structure of debt they intend to employ, it would be important to consider the national culture of the country they would want to invest in. If the country is one characterized by high uncertainty avoidance, it would be useful for the company to look at other foreign sources of capital apart from the local debt market if it intends to pursue a long term project which it would have to finance with long term debt.

6.5 Future Research

The study also presents room for future studies in the area of debt maturity structure. This study focuses on understanding the determining factors of debt maturity structure; future studies could however explore the relationship between debt maturity structure and firm performance in sub Saharan Africa. Other studies could seek to investigate the impact of national culture on other corporate decisions within the continent, for example the relationship between national culture and capital structure decisions in Africa.

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Appendix: Correlation Matrix

	DM	BS	BC	CEO	OWN	MOWN	LEV	SIZE	H_UAI	EDEV	BDEV	MKCAP
DM	1											
BS	0.0492**	1										
BC	-0.0297	0.0609**	1									
CEO	-0.0471**	-0.183***	0.0527**	1								
OWN	-0.0081	-0.1366***	0.152***	0.1371***	1							
MOWN	-0.078**	-0.0441**	0.0322*	-0.0176	0.061**	1						
LEV	0.3227***	0.0386*	-0.2639***	-0.1094***	-0.1443***	-0.0148	1					
SIZE	-0.0087**	-0.2722***	-0.0848***	0.1034***	0.183***	0.03	0.0341*	1				
H_UAI	-0.0441***	-0.0663***	0.5006***	0.2650***	0.3117***	0.0257	-0.3658***	0.0306	1			
EDEV	0.0608**	0.1258***	-0.6047***	-0.3279***	-0.3265***	-0.0249	0.3579***	-0.1101***	-0.6065***	1		
BDEV	0.0678**	0.1181***	-0.6125***	-0.3004***	-0.3107***	-0.0279	0.3771***	-0.0836***	-0.6292***	0.6888***	1	
MKCAP	0.0791**	0.1153***	-0.5829***	-0.2777***	-0.2831***	-0.027	0.3449***	-0.0877***	-0.6553***	0.6491***	0.6558***	1