

**THE EFFECT OF FINANCIAL MARKET DEVELOPMENT
ON CAPITAL AND DEBT MATURITY STRUCTURE OF
FIRMS IN SELECTED AFRICAN COUNTRIES**

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**FACULTY OF BUSINESS AND ACCOUNTANCY
UNIVERSITY OF MALAYA
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ORIGINAL LITERARY WORK DECLARATION

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ABSTRACT

Spurred by the finance-growth literature establishing that development of the financial system promotes growth in the economy, some African countries introduced financial sector development policies to accelerate economic growth. Introducing these policies (examples include removal of sectoral allocation of credit, interest rate deregulation, privatisation of state-owned banks, relaxation of foreign participation in investment activities in the domestic stock exchange, cross-listing of shares across different stock exchanges etc.), besides enhancing economic growth also facilitates firms' access to financial markets for external capital. This is particularly important for firms in Africa because access to external finance is one of the obstacles facing firms in the region. A comparison of financial market development indicators between countries in Africa and other developing regions by earlier studies showed that African financial markets lag behind in some indicators, which may be attributed to some of the issues that besiege financial markets in Africa. These issues include difficulty in accessing external funds by firms, information asymmetry, high transaction costs, and illiquidity of the market. With the introduction of market development measures meant to enhance firms' access to finance, earlier studies on capital and debt maturity structure decisions of firms in African countries largely overlooked the effect of the development measures on these two key financial decisions. Thus, supply-side factors affecting firms' re-balancing of capital and debt maturity structure are yet to be researched. Given this scenario, this thesis investigates the effect of financial market development on corporate capital and debt maturity structure within a framework that allows for the determination of adjustment costs and speed of adjustment. The annual financial and accounting data of publicly-listed non-financial firms and country level data in nine African countries over the period 2003-2012 are compiled and analysed. These countries are classified either as emerging or frontier markets. The countries in the study are Botswana, Egypt, Ghana, Kenya,

Mauritius, Morocco, Nigeria, South Africa and Tunisia. The two-step system generalized methods of moments technique is used in analysing the data. Results of the analysis indicate that the financial intermediation theory of an increase in debt financing following banking sector development is not supported for the banking sector. However, a decline in debt finance supports the hypothesis that development in the stock market leads to a substitution effect with equity being substituted for debt. Furthermore, firm-level data (used as control variables) supports dynamic trade-off theory of capital structure, contracting and signalling theory of debt maturity structure for firms in the study. This reflects the dynamism in capital and debt maturity decisions and indicates that transaction costs due to market imperfections may hinder firms from reaching optimal capital structure. In summary, the results suggest that while stock market development to an extent has been successful in promoting the use of equity, financial system policy makers need to put more effort into developing the banking sector to improve debt usage. This may be achieved by introducing and implementing banking sector development measures that lowers the cost of debt finance making it readily accessible.

ABSTRAK

Atas ransangan kajian-kajian lepas berkenaan perkembangan kewangan, yang menunjukkan perkembangan sistem kewangan menggalakkan perkembangan ekonomi, sesetengah negara-negara Afrika memperkenalkan polisi perkembangan sektor kewangan untuk mempercepatkan perkembangan ekonomi. Polisi-polisi (contohnya penyingkiran peruntukan kredit untuk sektor, penyahkawalseliaan kadar faedah, penswastaan bank milik kerajaan, pelonggaran penyertaan luar negara dalam aktiviti pelaburan dalam bursa saham dalam negeri dan sebagainya), selain dapat meningkatkan perkembangan ekonomi, juga membantu syarikat untuk menceburi pasaran kewangan modal luar. Ini adalah penting terutamanya untuk syarikat-syarikat di Afrika kerana menceburi pasaran kewangan modal luar adalah salah satu halangan yang mereka hadapi di rantau tersebut. Satu petunjuk perkembangan pasaran kewangan yang membandingkan negara-negara di Afrika dan rantau membangun yang lain, menurut kajian lepas, menunjukkan bahawa pasaran kewangan Afrika ketinggalan dalam sesetengah petunjuk-petunjuk, yang menyumbang kepada isu- isu yang mengancam pasaran kewangan di Afrika. Isu- isu tersebut termasuk kesulitan syarikat- syarikat dalam menceburi dana luar, maklumat yang tidak simetri, kos transaksi yang tinggi, dan kecairan pasaran. Dengan memperkenalkan kaedah-kaedah perkembangan pasaran untuk eningkatkan penceburan syarikat- syarikat dalam kewangan, kajian lepas terhadap keputusan modal dan hutang jatuh tempo dalam syarikat-syarikat di negara- negara Afrika telah menunjukkan pengabaian kajian terhadap kesan kaedah perkembangan terhadap kedua-kedua keputusan kewangan penting ini. Dengan itu, faktor pihak pembekal yang menjejaskan imbang semula struktur modal dan hutang jatuh tempo syarikat- syarikat masih belum dikaji. Diberikan senario ini, tesis ini menyiasat kesan perkembangan pasaran kewangan terhadap struktur modal dan hutang jatuh tempo korporat dalam rangka kerja yang membenarkan keputusan pelarasan kos dan kelajuan keputusan. Data kewangan dan akaun tahunan yang disenarakan kepada

awam untuk syarikat-syarikat bukan kewangan dan peringkat negara di sembilan negara-negara Afrika dalam jangka tahun 2003-2012 telah disusunatur dan dianalisis.

Negara-negara ini dikelaskan sebagai pasaran-pasaran baru atau peneraju. Negara-negara dalam kajian adalah Botswana, Mesir, Ghana, Kenya, Mauritius, Morocco, Nigeria, Afrika selatan dan Tunisia. Teknik kaedah detik umum sistem dua langkah telah digunakan untuk menganalisis data. Keputusan analisis menunjukkan bahawa teori kewangan pengantaraan untuk peningkatan hutang kewangan selepas perkembangan sektor perbankan, tidak menggalak sektor perbankan. Tetapi, penurunan dalam hutang kewangan meyokong hipotesis bahawa perkembangan dalam pasaran saham menyebabkan kesan penggantian hutang dengan ekuiti. Tambahan pula, data peringkat syarikat (yang diguna sebagai pembolehubah kawalan) menyokong teori tarik ulur bagi struktur modal, teori kontrak dan isyarat bagi struktur hutang jatuh tempo untuk syarikat-syarikat dalam kajian tersebut. Ini menunjukkan ciri- ciri dinamik dalam keputusan modal dan hutang jatuh tempo dan menunjukkan bahawa kos transaksi yang disebabkan oleh ketidaksempurnaan pasaran mungkin menghalang syarikat-syarikat daripada mencapai struktur modal yang optimum. Kesimpulannya, keputusan-keputusan ini mencadangkan bahawa apabila pasaran saham telah berkembang ke tahap tertentu dan berjaya dalam menggalakkan penggunaan ekuiti, pembuat polisi sistem kewangan perlu memberikan lebih banyak usaha dalam perkembangan sektor perbankan untuk meningkatkan penggunaan hutang. Ini mungkin dapat dicapai dengan memperkenalkan dan melaksanakan kaedah perkembangan sektor perbankan yang menurunkan kos hutang kewangan, membolehkan ia sedia diceburi.

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LIST OF ABBREVIATIONS

ASEA	:	African Stock Exchange Association
ATVR	:	Annualized Traded Value Ratio
BSE	:	Botswana Stock Exchange
CASE	:	Cairo and Alexandria Stock Exchange
CSCS	:	Central Securities Clearing System
EGX	:	Egyptian Stock Exchange
GDP	:	Gross Domestic Product
GLS	:	Generalized Least Squares
GMM	:	Generalized Methods of Moments
IFC	:	International Finance Corporation
IMF	:	International Monetary Fund
JSE	:	Johannesburg Stock Exchange
LSE	:	London Stock Exchange
MSCI	:	Morgan Stanley Capital International
NPV	:	Net Present Value
NSE	:	Nairobi Stock Exchange
OLS	:	Ordinary Least Squares
PPP	:	Purchasing Power Parity
SEM	:	Mauritius Stock Exchange
SME	:	Small and Medium Scale Enterprises
S & P	:	Standard and Poor
TSE	:	Tunis Stock Exchange
WFE	:	World Federation of Exchanges

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CHAPTER 1 : INTRODUCTION

1.0 Chapter Overview

This chapter consists of ten sections. Sections 1 and 2 present the thesis background and a brief review of African financial markets. Section 3 highlights the problem statement from where the research objectives and questions given in Sections 4 and 5 are derived. Section 6 briefly describes the methodology used in the investigations, while Sections 7, 8 and 9 detail the scope of the study, contribution of the thesis and the operational definition given to some terms used in the thesis. The last section of the chapter, Section 10, outlines the structure of the thesis on a chapter-by-chapter basis.

1.1 Background of the Thesis

The seminal study of Modigliani and Miller (1958) on capital structure irrelevancy laid the foundation of capital and debt maturity structure studies in corporate finance. The study stated that under perfect market conditions, the capital structure adopted by a firm will not have any effect on firm value. Nonetheless, subsequent research in corporate finance abounds with theoretical and empirical literature that gives evidence contradicting the irrelevancy theory.

By relaxing the assumptions of the irrelevancy theory, some of these studies (Baker & Wurgler, 2002; Barclay & Smith, 1995; Jensen & Meckling, 1976; Myers & Majluf, 1984; Myers, 1977) came up with theories that explain the effect of certain factors on firm value necessitating that firms take them into consideration in capital and debt maturity structure decisions. For example, Jensen and Meckling (1976) considered the effect of agency cost of capital on firm value while Myers and Majluf (1984) focused on how information asymmetry between firm managers and outside investors affected firm value. In terms of debt maturity, Barclay and Smith (1995) argued that firms may use the maturity structure of debt to signal firm quality while Myers (1977) argued that shorter

debt maturity period may be used to reduce problems arising from underinvestment. Nevertheless and in spite of the multitude of research that abounds in the field of capital and debt maturity structure decisions, corporate finance still lacks an all-inclusive theoretical framework for capital and debt maturity structure because there is still no single accepted theory to explain the two important firm-level financial decisions (Barclay & Smith, 2005; Fosu, 2013).

Nonetheless, studies carried out after Modigliani and Miller (1958) provide useful insights in explaining the rationale behind capital and debt maturity structure decisions of corporate entities. These studies identify that factors influencing the financial structure of firms may be divided into firm-specific and non-firm-specific factors. Firm-specific factors include age of the firm, size of the firm, profitability, growth opportunity available to the firm among others that are directly within the control of the firm (Abor & Biekpe, 2009; Akinlo, 2011; Barclay & Smith, 1995; Frank & Goyal, 2009; Dang, 2011; Rajan & Zingales, 1995). Non-firm-specific factors such as the macroeconomic condition of the economy, the level of development of a country's financial market and the type of legal system operating in the country among others factors, originate from outside the firm and influence the financial structure (Ağca, De Nicolò, & Detragiache, 2013; Antoniou, Guney, & Paudyal, 2008; Booth, Aivazian, Demirgüç-Kunt, & Maksimovic, 2001; Cho, El Ghoul, Guedhami, & Suh, 2014; De Jong, Kabir, & Nguyen, 2008; Fan, Titman, & Twite, 2012; Kirch & Terra, 2012).

One of the important non-firm-specific factors is suppliers of external capital in the form of financial markets. Attesting to their importance on firm leverage, Faulkender and Petersen (2006) showed that it is important that firms consider supply-side variables that reduces firms constraint to capital and increase leverage ratio when making capital and debt maturity decisions. In relation to this, previous studies that incorporated supply-side determinants of capital and debt maturity structure argued that development of

financial markets usually leads to reduction in costs associated with the use of external finance. Some of these costs are transaction costs, financial distress costs, bankruptcy costs and agency costs in addition to reduction in information asymmetry (Agarwal & Mohtadi, 2004; Demirgüç-Kunt & Maksimovic, 1996).

Financial markets are able to reduce external cost of financing because of the intermediary role they play in the financial system. In particular, banks and the stock market, through their intermediation role, are able to reduce transaction and agency costs, provide ample liquidity to the financial system and alleviate information asymmetry issues such as moral hazard and adverse selection (Murinde, 2012). By alleviating these constraints, firms needing external financing for investment projects find it easier to approach the markets to seek either debt or equity finance. However, the state of development and condition of financial markets may impede firms' access to external finance, especially if the markets are not well developed (Fan, Wei, & Xu, 2011).

In developed financial markets, market imperfections such as information asymmetry, illiquidity of the market and high transactions costs are neither likely to influence financing decisions nor impede access to finance by firms' resident in such markets. This is due to the markets high liquidity that encourage trading and have well-organized mechanisms for efficient risk management and capital allocation (Chami, Fullenkamp, & Sharma, 2010; Levine, 2002). In contrast to developed financial markets, developing financial markets are characterised by illiquidity, high transaction costs, information asymmetry issues, limited source of external finance etc. (Murinde, 2012). These issues in addition to a risky macroeconomic environment limit firms' access to external finance.

The differences in financial markets of developed and developing countries therefore suggest that firms in both countries encounter different scenarios when faced with capital and debt maturity decisions. In particular, firms in developing countries will

have more challenges in terms of severity of agency costs, information asymmetry, transactions costs among others that may affect access to external capital when compared with firms in more developed markets. Highlighting a consequential effect of the difference in financial market development as it relates to average share of bank loans for the period 2005 to 2012, the World Bank global development report of 2015 shows that in developing countries, banks account for an average of 50% of loans that fall due in less than a year. This is in contrast to developed markets whose banks have an average of 40% of loans falling due within the same period. This suggests that bank loans are of a longer-term maturity in developed markets (60%) and thus firms domiciled therein will have more access to loans to finance long-term investments that promote firm growth. The next section gives a brief overview of African financial markets with a more detailed discussion in Chapter 3.

1.2 Financial Markets in Africa

The finance-growth literature with supporting empirical evidence, posits that development of the financial system leads to growth in the economy (Beck & Levine, 2004; Levine, 2005; Murinde, 2012; Narayan & Narayan, 2013; Saci & Holden, 2008; Zhang, Wang & Wang, 2012). This position is one of the reasons why several African countries introduced financial development policies and measures in the financial system. Some of these policies include removal of sectoral allocation of credit, liberalization of interest rates, privatization of state-owned banks, introduction of corporate governance policies, shoring up of banks' deposit capital, automation of manual trading platforms and establishment of new stock exchanges including regional exchanges among other reforms. These measures were designed to develop the markets to encourage participation in market activities by firms, investors and other stakeholders, which will ultimately induce growth in the economy. Supporting this view, Beck, Maimbo, Faye and Triki (2011) noted that a channel through which finance transformed African economies into a

growing economy was through the provision of credit and capital to new business, support for established firms in increasing their productive capacity and provision of a reliable source of long-term funds through liquid capital markets. They showed that development of the markets provided a conducive environment for firms (borrowers) and investors (creditors) to interact.

Some previous studies on financial markets in Africa (Adjasi & Biekpe, 2006; Allen, Otchere & Senbet, 2011; Ojah & Kondongo, 2014) have shown that the objective of introducing these developmental policies was achieved to an extent. The achievement suggests that firms' access to external capital (debt or equity) was enhanced with the removal of impediments through market development. However, despite the positive achievement, financial markets in Africa still lag behind when compared to other developing countries. As observed in Table 1.1, which shows the mean values of financial market indices of selected developing countries over the period 2003 – 2012, the indicators for most African countries in the referenced table with the exception of South Africa lagged behind developing countries in Latin America (*) and Asia (*).

Table 1.1: Mean Values of Selected Financial Market Indices (2003 – 2012)

Country	Listed domestic companies, total	Market capitalization of listed companies (% of GDP)	Market capitalization of listed companies (current \$'Billion)	Stocks traded, turnover ratio (%)	Domestic credit to private sector (% of GDP)	Domestic credit provided by financial sector (% of GDP)	Domestic credit to private sector by banks (% of GDP)
Egypt	490	54.48	74	40.91	42.61	85.90	42.61
Kenya	53	32.15	10	9.13	26.08	37.78	26.13
Mauritius	69	53.60	5	6.26	81.59	103.94	81.53
Morocco	68	62.65	50	21.74	58.00	90.52	57.89
Nigeria	207	20.13	39	14.93	19.05	19.10	18.95
South Africa	385	197.14	80	52.14	141.90	177.84	69.87
*Brazil	384	59.57	888	55.61	46.34	89.75	44.75
*India	4999	75.59	958	91.29	44.19	65.52	44.19
*Malaysia	970	141.02	283	33.41	109.07	123.99	108.89

Source: Calculations from data obtained from World Bank Development Indicators.

A similar comparison of selected African countries with emerging and developed countries in Ojah and Kodongo (2014) also reported low values in terms of financial market indices for African countries. The low values point to the relative underdevelopment of financial markets for most countries in the region suggesting that firms may encounter impediments in the process of seeking external funds for investment. The higher indices for Latin America and Asian countries, on the other hand, suggest a more enabling financial environment for corporate entities and investors to interact.

1.3 Problem Statement

One of the important non-firm related factors that affect capital and debt maturity structure decisions of firms in Africa is the level of development of the financial market. This is because information asymmetry, high transaction costs, low level of financial intermediation, illiquid markets and agency costs, issues common to developing financial markets, are identified to be some of the constraints firms encounter in accessing external capital in the continent's markets (Murinde, 2012; Ojah & Kodongo, 2014). Added to these issues is the near absence of bond markets that promote private sector activities in the provision of an alternative debt market.

The low level of private sector participation in bond market activities suggests that firms rely primarily on the private debt market (commercial bank debt) for external debt requirements. Activities of the private sector in bond markets are low because bond markets in Africa are still in the infancy stage and most transactions conducted in them are government transactions (Mu, Phelps & Stotsky, 2013; Ncube, 2007, World Bank, 2015). This situation as noted by Ncube (2007) and the World Bank development report (2015), leads to a crowding out effect of corporate debt by government debt with firms competing with each other in the private debt market. Furthermore, and in the case of debt finance, the presence of the aforementioned issues may prevent firms from

frequently adjusting to the desired leverage ratio due to costly adjustment costs. This limitation suggests that such firms operate at below target leverage and are not operating optimally (Öztekin & Flannery, 2012).

Another important non-firm factor that affects the capital and debt maturity structure that firms adopt is the country's institutional feature such as the type of legal system (English common law or French civil law), the regulatory quality and government's effectiveness at implementing financial sector policies. These institutional features have an indirect effect on the developmental level of financial markets. For instance, in countries where the regulatory quality is high or where the government is highly committed to ensuring that financial sector policies are implemented, financial market participants gain some level of confidence in the system. Thus, market activities take place in a financial environment where participants feel safe to undertake financial contracts because they know the system will protect them. The confidence and safety derived from the markets encourage market activities and help it to develop and grow. However, these institutional qualities are noted to be poor or low in developing countries with negative consequential effect of limiting firms' access to external capital and reduced debt maturity structure (Fan et al., 2012).

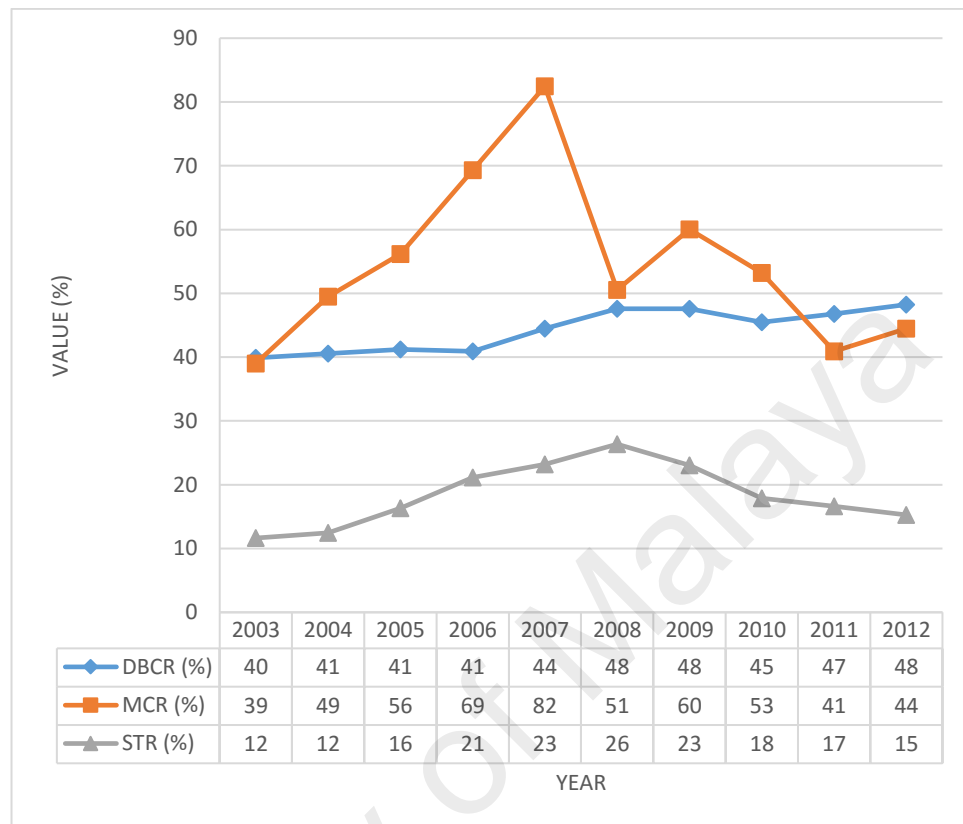
The occurrence of the above-mentioned problems, which may be attributed to the developing status of African financial markets, limits firms' access to external funding and ultimately inhibits firms' growth where internally sourced capital is inadequate. This is because firms' growth is partly a function of their access to capital to fund investments that enhance firms' development (Fan et al, 2011). Corroborating this problem, the World Bank global development report for 2015/2016 notes that financial market development in developing economies (African economies inclusive), are imperfect; a situation that causes shortage of long-term finance for firms and limits their growth. Added to this are weak institutional features, weak contract enforcements and instability in the

macroeconomic environment, which lead to a short maturity period for the few existing financial instruments. It is in the light of the limitations attributed to the low level of development of African financial markets that this thesis seeks to investigate to what extent existing developmental measures over the period 2003-2012 in financial markets (bond and equity market) in Africa have affected the capital and debt maturity structure decisions of firms.

Some of the measures include privatization of state-owned banks, introduction of corporate governance policies, relaxation of foreign participation in the domestic stock market, automation of trading platforms, establishment of regional stock exchanges, removal of credit control policies, etc. The expectation at the introduction of these policy measures is that the process will ameliorate some of problems identified in the market. These include injection of liquidity into the system, reduction in costs associated with debt and equity financing, provision of alternative finance outlets (debt or equity), promotion of efficient capital allocation to productive investments and efficiency in market risk management (Agyei-Ampomah, 2011; Dahou, Omar, & Pfister, 2009).

In evaluating the success or otherwise of these policies for the period of study, Figure 1.1 shows a rising and falling trend in selected financial market development indicators for selected countries over the period 2003 – 2012 although there is a general average rising trend in the three indicators. These indicators are domestic credit to the private sector by commercial banks (DBCR), stock market capitalization (MCR) and stock market turnover ratio (STR). The figure shows that over the period 2003 - 2012, there was an increase in DBCR from 40% to 48% , MCR from 39% to 44% and STR from 12% to 15%. Despite the rise and fall in the values, it is noted that values for 2012 are higher than values at the beginning of the period, 2003. Therefore, it can be deduced that there are positive changes in the selected indicators over the period of the study. The drop in stock market indicators (MCR and STR) in the post -2007 period is attributed by

previous studies to the contagion effect of the 2007/2008 global financial crisis (Allen & Giovannetti, 2011; Boorman & Christensen, 2010).



Note: DBCR, MCR and STR denote domestic credit to the private sector by commercial banks, stock market capitalization and stock market turnover ratio respectively.

Figure 1.1: Average values of selected financial market indicators in selected countries (2003 - 2012)

Source: World Bank Development Indicators (2013)

Also related to stock market development is the upward rise in the number of exchanges in the region. In terms of establishment of stock exchanges, the number of stock exchanges in the continent has considerably risen from a modest 5 in 1960 to 27 as at the end of 2012 (inclusive of two regional exchanges) where stock market activities for 38 countries take place. The rise in these market indicators suggests improvement in market activities and indicators, thus, the expectation is that there will be a consequential effect on firms' access to external finance in terms of availability and maturity structure.

This may in turn influence firms' choice in the use of debt or equity. Chapter 3 of the thesis discusses the various market developments in the selected countries.

However, to the best of the researcher's knowledge, there is a dearth in research that investigates to what extent these developmental measures have succeeded in promoting the use of either debt and its maturity structure or equity by firms in African countries. Most of the theoretical and empirical literature on these two key corporate financial decisions is besieged by studies in developed countries where the financial markets are well developed.¹ The dearth of research therefore brings up the question of the factors that would matter in corporate finance decisions relating to capital and debt maturity structure given the lower level of development of the financial markets in Africa.

The investigation of the effect of financial market development on capital and debt maturity structure becomes more pertinent taking into consideration the assertion of Kearney (2012) that financial markets in developing countries are increasingly being used to investigate and re-examine theories derived from developed markets. This suggests that an investigation of capital and debt maturity structure in developing markets (African markets in this thesis) might give deeper insights and provide empirical evidence for prevailing theories in order to make new discoveries because of the different features in both markets. This is of particular importance in this study given the developmental measures put in place by African countries to make the markets more accessible and bring it on a par with developed markets. Furthermore, the availability of more recent data (country and firm level) makes it germane to test the assertion of Kearney (2012).

In view of the aforementioned discussions and arguments, this thesis hopes to provide new insights into capital and debt maturity structure decisions of firms in African countries given the limitation in provision of external finance by financial markets. The

¹ Antoniou et al. (2008); (2006); (2008), Drobetz and Wanzenried (2006), Fama and French (2002), Frank and Goyal (2009), Hovakimian and Li (2011), Jensen (1986), Jensen and Meckling (1976), Myers and Majluf (1984), Myers (1977), Ozkan (2001) and Rajan and Zingales (1995).

investigation takes into consideration efforts made at developing financial markets to alleviate problems arising from agency conflicts, information asymmetries and other problems encountered by firms.

1.4 Research Objectives

Consequent upon identifying the problem statement, this section sets out four objectives to determine the extent to which developments in the financial markets of African countries (specifically the banking sector and stock market) influence the capital and debt maturity structure decisions of firms that are listed on the domestic stock exchange of nine African countries. The first three objectives focus on capital structure (debt and equity) while the fourth is on debt maturity.

The four objectives are:

Research Objective 1: To examine the influence of banking sector development on the capital structure of firms in African countries.

Research Objective 2: To determine the influence of stock market development on the capital structure of firms in African countries.

Research Objective 3: To investigate firms' instantaneous adjustment to target leverage in African countries.

Research Objective 4: To examine the influence of banking sector development on the debt maturity structure of firms in African countries.

The above-mentioned objectives are used to address the problem statement and depart from previous studies in two ways: first by focusing on market development factors (supply-side) unlike previous studies from African countries that examined only the demand-side of capital structure in the form of firm-specific determinants; second, by providing empirical evidence on debt maturity structure of African firms, an area largely

un-researched. This thesis thus investigates both capital and debt maturity structure decisions from the supply-side view in the form of market development using firm-level and macroeconomic determinants as control factors. The investigations of the objectives in this thesis enrich existing literature by providing an African-centred study that considers common peculiarities of the countries in the study. This is achieved by determining the extent to which developments in the banking sector and stock market have influenced corporate capital and debt maturity structure given that one of the aims of introducing developmental measures in the market is to improve firms' access to capital.

1.5 Research Questions

In order to achieve the objectives stated in the preceding section, the thesis draws upon the following research questions:

Research Question 1: To what extent does banking sector development influence the capital structure of firms in African countries?

Research Question 2: To what extent does stock market development influence the capital structure of firms in African countries?

Research Question 3: Do firms in African countries instantaneously adjust to target leverage?

Research Question 4: To what extent does banking sector development influence the debt maturity structure of firms in African countries?

The answers to the research questions above fill the identified gap in literature pertaining to capital and debt maturity structure decisions for firms in African countries. This is against the backdrop of deficiencies identified in the financial markets and efforts made to reduce the adverse effect of the deficiencies.

1.6 Methodology of the Thesis

The methodology employed in the thesis consists of both descriptive and econometric analysis.² The descriptive statistics precede the econometric technique used for panel data obtained from publicly-listed non-financial firms and macro level data of nine selected African countries from 2003 to 2012. In terms of the econometric technique, Dang, Kim, and Shin (2015) identified certain issues with corporate finance data such as the one in this study. These include unobserved heterogeneity, endogeneity and autocorrelation, which the use of pooled ordinary least squares and generalized linear squares methods are unable to tackle.

Nevertheless, research has come up with methods such as the instrumental variable technique that takes care of these issues. Accordingly, a dynamic panel estimation technique based on the generalized methods of moments (GMM) approach developed by Hansen (1982) is employed. The technique appropriately handles panel data that has issues with serial correlation, heteroskedasticity and non-normality. Arellano and Bond (1991) further developed the method in the light of its identified weakness and is known as the difference GMM. The difference GMM estimation technique performs better than other methods such as the ordinary least squares (OLS) and the generalized least squares (GLS) method especially where the model has a lagged dependent variable in addition to unobserved fixed effects.

However, due to the observed weakness of the difference GMM, Arellano and Bover (1995) and Blundell and Bond (1998) introduced the system GMM which is considered more efficient than the difference GMM. In addition, Flannery and Hankins (2013) noted that unbalanced panel datasets with small time period and large sample (small T and large N); are best estimated with the GMM estimation technique. Noting that

² Detailed discussion of the methodology employed in the thesis is given in Chapter 4

the panel data in this study is unbalanced with a small time period (t) and large sample (n), the thesis employs the estimation method that best suits the data set in order to obtain parameter estimates that are unbiased and consistent. The discussion of the GMM technique is extensively covered in Chapter 4.

1.7 Scope of the Thesis

There are 27 stock exchanges in Africa however; the scope of the thesis is limited to non-financial firms that are listed in nine countries (Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa and Tunisia). These countries are selected because they have the most active stock markets and banking sector in the region. Furthermore, the classification of the financial markets of these countries as emerging and frontier markets by Morgan Stanley Capital International (MSCI) and Dow Jones Indexes country classification signifies their potential of becoming investment havens for international investors seeking to diversify their investment opportunities to earn higher returns on investment. The classification is based on the increase recorded in their growth rates and other indicators of financial system development.

Further buttressing the economic importance of these countries, the International Monetary Fund (IMF) economic outlook report for 2013 reported that emerging markets and developing economies grew at a faster rate than advanced economies. The growth rate for emerging markets and developing economies was 5.1% while that of advanced economies was 1.2%.

Table 1.2: Regional and Country Growth Rate (2012)

<u>A. Region</u>	<u>Growth rate (%)</u>
Developing Asia	6.6
Latin America and the Caribbean	3.0
Middle East and North Africa	4.7
Sub-Saharan Africa	4.8
<u>B. Country</u>	
Botswana	3.8
Egypt	2.2
Ghana	7.0
Kenya	4.7
Morocco	3.5
Nigeria	6.5
South Africa	2.5
Tunisia	3.6
*Brazil	0.9
*India	4.0
*Malaysia	5.6

Source: World Economic Outlook (IMF, 2013)

A breakdown of emerging and developing economies in terms of regional growth in Table 1.2 shows that developing Asian countries in Panel A had the highest growth rate at 6.6% followed by Sub-Saharan African countries at 4.8%. Following Sub-Saharan countries are Middle East and North Africa at 4.7% while Latin America and the Caribbean had the lowest growth rate of 3.0%. Individually, African countries in Panel B grew faster than Brazil while Ghana, Kenya and Nigeria had rates higher than India suggesting favourable economic conditions. The World Bank Global Economic Prospects for 2013 reported similar statistics with the IMF 2013 report in terms of growth rate for these regions and countries. In a related study, Chuhan-Pole et al. (2012) added that one-third of African countries had an average growth rate of 6% as at 2012. These growth rates suggest a favourable and booming economy that may attract international investors to the domestic economy. The attraction of these investors signifies positive development in the markets such as injection of liquidity and more avenues for risk diversification among other benefits of market development.

In an earlier study, Senbet and Otchere (2008) had noted that despite the low capitalization and thinness of trading that constitute challenges in financial markets of African countries (particularly, the stock market), the markets continue to perform well with the returns being comparable to markets in Asia and Latin America. The mean return of stock exchange for 12 African countries inclusive of the nine countries in this study for the period 1990 – 2006 was given as 21.8% while that of Malaysia and Mexico were given as 22.97% and 24.85% respectively.³ These figures indicate that African economies may provide alternative diversification opportunities for international investors. However, for the purpose of this thesis, the countries used in for the investigations are those that have markets that are classified as emerging and frontier markets.⁴

Furthermore, the credit market is limited to the private debt market (commercial banks) and excludes the public debt market (bond market). This is due to the relative underdevelopment of the bond market in Africa. Confirming the underdevelopment of the bond market, Mu et al. (2013) posited that the bond market in Africa is still in its infancy stage and that most of the activities in the market are mostly government-based activities. This situation tends to lead to a crowding out effect of corporate debts by government securities. Thus, investigating bond market development concerning access to debt finance, will mostly investigate government debt and not private sector debt.

1.8. Contribution of the Study

The contribution of the thesis is two-folds namely: enrichment of empirical knowledge and a practical contribution in terms of financial sector development policies.

³ The African countries are Botswana, Egypt, Ghana, Ivory Coast, Kenya, Mauritius, Morocco, Namibia, Nigeria, South Africa, Tunisia and Zimbabwe.

⁴ Ivory Coast, Namibia and Zimbabwe are excluded in the thesis.

a) Enrichment of Empirical Knowledge

Given the limited literature on corporate capital structure and debt maturity structure from an African perspective, this thesis enriches the empirical literature in a number of ways. Firstly, it provides evidence that shows how development in the banking sector and stock markets of selected African countries have influenced the capital structure and debt maturity structure choice of non-financial firms that are listed in the domestic capital market. This is a departure from prior studies in that most of the existing studies on capital structure emanating from the region focus on internal factors i.e. firm-specific determinants (Abor & Biekpe, 2009; Akinlo, 2011; Gwatidzo & Ojah, 2009; Ramjee & Gwatidzo, 2012). This thesis goes beyond the firm-level factors to include country-level determinants that are not within the control of the firm but are put in place mostly by regulatory or economic policy makers. Firm-level determinants in this thesis are treated as control factors with the main emphasis on market development. In addition, and to my knowledge, there is dearth of empirical evidence supporting debt maturity structure theories for African firms. Hence, the empirical findings of the study provide a framework for investigating non-financial firms in Africa given the peculiarities in the financial markets and efforts made to develop them.

The second contribution in the area of enriching empirical knowledge is in the number of countries used for the study. In this thesis, capital and debt maturity structure dynamics of non-financial firms in nine African countries are examined unlike previous studies that investigated single countries for capital structure studies (Abor & Biekpe, 2009; Akinlo, 2011; Ghazouani, 2013; Gwatidzo & Ojah, 2009; Kyereboah-Coleman, 2007; Ramjee & Gwatidzo, 2012; Salawu & Agboola, 2008). This suggests that to a certain extent the findings of this thesis may be generalized to non-financial firms in countries with the same institutional features. Thirdly, the literature on debt maturity structure of non-financial firms in Africa is sparse. Most of the studies are on capital

structure and neglect the investigation of debt maturity structure decision, an important component of capital structure. This is unlike the studies for firms in developed and other developing countries outside Africa where empirical evidence abounds.⁵ Empirical findings from the thesis therefore provide evidence that can be used in literature by future researchers and academics on the debt maturity structure of non-financial firms in Africa. Thirdly is with the use of a variable that directly captures private sector credits (credit granted to the corporate sector). Since the unit of analysis is corporate firms, the variable used to determine the level of credit granted to the sector should exclude other sectors and focus only on corporate debts. Fourth is the study of capital structure within a dynamic framework as against a static framework that earlier studies employed (Abor & Biekpe, 2009; Akinlo, 2011; Gwatidzo & Ojah, 2009; Kyreboah-Coleman, 2007, Salawu & Agboola, 2008). A dynamic framework implies that capital structure decisions in the current period are likely to be influenced by previous period decisions. It also provides a framework for the determination of adjustment costs and speed of adjustment that might occur because of imperfections in the financial market. These imperfections may result in costly adjustment costs that may prevent the firm from attaining the desired target debt ratio. These two aspects of capital structure (lagged debt ratio and adjustment costs) have largely been ignored in the previous studies noted earlier.

The fifth empirical contribution is with the use of the GMM technique for the econometric analysis. This method is considered suitable for the nature of the dataset in the thesis i.e. an unbalanced dynamic panel data with issues like unobserved heterogeneity, endogeneity and serial correlation common to capital structure studies. In addition, GMM is more robust and less biased when compared to other estimation methods such as the ordinary least squares and generalized least squares that comprises of the random and fixed effects estimation techniques (Flannery and Hankins, 2013). The

⁵ Some of these studies include Antoniou, Guney, & Paudyal (2006); Barclay and Smith (1995); Dang (2011); Fan et al. (2012); González and González (2014); Kirch and Terra (2012), Mateus and Terra (2013).

GMM as noted by Roodman (2009) also gives better coefficient estimates when the data has a small time period but large sample such as the period and sample in this study (599 firms and nine years of annual data). The present study improves on the methodology adopted by previous research on African studies such as Abor and Biekpe (2009), Akinlo (2011), Gwatidzo and Ojah (2009) and Kyreboah-Coleman (2007).

b) Policy / Economic Contribution

With regards to their practical contribution in terms of financial sector development policies, the findings of this thesis provide a feedback to financial market regulators and policy makers about the effectiveness or otherwise of the various policy measures put in place to remove imperfections and develop the banking sector and stock markets. It provides a template to enable them to review effective and non-effective policies so that the aim of developing the markets is achieved. Furthermore, a review of existing policies will enable decision makers to come up with tailor-made or specific policies that will suit the particular requirements of the corporate sector and not just blanket made policies.

1.9 Operational Definition of Terms

The following are definitions given to some key terms for the purpose of this study:

a) Financial market development: this is adapted from the definition given to financial development by the World Bank in the global financial development report of 2015/2016. The report defines financial development as the “process of reducing the costs of acquiring information, enforcing contracts and making transactions” (World Bank, 2015, p.xvii). Relating this definition to the present thesis, financial market development is defined as improvements made in African financial markets to ease firms’ access to external finance (debt and equity) and improve the capital allocation process. These improvements include lowering of costs associated with transaction and information acquisition, reduction in information asymmetry and other improvements in financial markets that increase firms’ capacity to obtain external capital by making it readily

available. However, as discussed in the scope of the study, financial markets in this thesis are limited to the banking sector and stock market. Banking sector development is measured in terms of domestic credit granted to the private sector by commercial banks while stock market development is measured in terms of stock market liquidity and trading activities. Although there are several indicators that evaluate banking sector and stock market development, the thesis uses only those that effectively relate to the unit of analysis of the thesis and aptly capture the research objectives.

b) Emerging markets: In determining the countries that are classified as emerging markets, this thesis draws upon the definition and classification given by the Dow Jones Index and Morgan Stanley Capital International country classification system. The system defines emerging markets as markets that are less accessible to foreign investors in comparison to developed markets but show some level of openness.

c) Frontier markets: Similar to the classification and definition of emerging markets, frontier markets are also selected based on the Dow Jones Index and Morgan Stanley Capital International country classification system. According to the classification system, these markets have a lower level of accessibility than emerging markets, have notable limitations in the regulatory and operational environments and have smaller investment landscape.

d) Capital structure: Capital structure generally refers to how a firm finances its investments in terms of debt or equity or a combination of both debt and equity. For the purpose of this thesis, capital structure is defined and measured in terms of debt ratio.

e) English common law countries: These countries follow the English common law code. Under this system, laws are formulated and interpreted using judicial pronouncement examples.

f) French civil law countries: These countries follow the French code law. Unlike English common law, laws here are formed and interpreted by legal experts with the use of statutes and codes and not by judicial pronouncements.⁶

g) Adjustment costs: For the purpose of this thesis, adjustment costs consist of direct cost of accessing debt or equity markets and extent of information asymmetry between relevant stakeholders in firm management. The components of the adjustment cost are adapted from Öztekin & Flannery (2012).

1.10 Organization of the Thesis

The thesis is organized into six chapters in order to address the research questions and achieve the stated objectives. The chapters in the thesis are structured as follows:

Chapter 1, the introductory chapter, presents the research background in relation to capital and debt maturity structure decisions. The chapter gives a brief examination of the current state of financial markets in Africa and compares it with markets in other developing countries laying the foundation for the motivation of the study. This is followed by presentation of the problem statement, research objectives and research questions. In addition, the scope and contribution of the thesis is given. It concludes by providing the structure of the thesis where the contents of each chapter are presented.

Chapter 2, the literature review chapter, discusses theoretical and empirical literature pertaining to financial market development, capital and debt maturity structure. It also provides the theoretical framework from which the research hypotheses are derived.

Chapter 3 describes the selection criteria in terms of market development for the countries investigated in this thesis in addition to giving an overview of development in the banking sector and stock market collectively and individually. Furthermore, it

⁶ The definitions given to English common law and French civil law countries are retrieved from www.worldbank.org/pppic

compares development indicators of debt and equity markets of African countries with other developing regions and sheds light on challenges encountered by African firms in accessing external capital.

Chapter 4 describes the research design, approach and methodology of the study. The chapter details the research process by giving a description of the data, variable selection, research models and estimation techniques used in answering the research questions.

Chapter 5 reports and discusses the empirical results of the estimations in relation to existing literature. The chapter also includes a section that investigates the robustness of the main regression specifications.

Chapter 6, the concluding chapter, presents the summary of the major findings of the thesis. In addition, policy implications, limitations as well as recommendations for future research are given.

University of Malaysia

CHAPTER 2 : LITERATURE REVIEW: RELATED THEORETICAL FRAMEWORK AND EMPIRICAL STUDIES

2.0 Introduction

This chapter consists of six sections. The first three sections review theoretical literature on financial market development (as related to the banking sector and stock market), capital structure and debt maturity structure upon which this thesis is structured. Following the theoretical literature review, the fourth section discusses and reviews extant empirical literature that provides supporting evidence for the various theories. Through this process, research gaps in existing literature are identified and the research hypotheses used in addressing the gap are developed in the fifth section. The chapter concludes with a chapter summary in the sixth section.

2.1 Theoretical Literature: Financial Market Development

The finance-growth literature posits that development of financial markets has a positive effect on the economy of a country. According to the proponents of this strand of literature, developed financial systems enhance economic growth through the functions performed by the financial system (Beck & Levine, 2004; Djalilov & Piesse, 2011; Levine, 2005; Narayan & Narayan, 2013; Zhang et al., 2012). Theoretically, financial markets through the intermediation role they play, lower transaction and agency costs, alleviate information asymmetry issues (such as moral hazard and adverse selection) and provide ample liquidity to the financial system (Benston & Smith, 1976; Bernanke & Gertler, 1989; Diamond, 1984; Jensen & Meckling, 1976; Rajan & Zingales, 1998).

Following a successful intermediation process, financial markets create wealth and opportunities for efficient re-allocation of resources from surplus to deficit units. Consequently, they provide a conducive environment for efficient risk diversification (Chami et al., 2010). When this happens, it prompts firms to rebalance their capital

structure in order to benefit from the gains of developing the markets. This forms the underlying basis by which corporate finance studies try to explain the relationship between financial market development and capital structure. Specifically, corporate finance theory emphasises the role of banks and stock markets in ameliorating information asymmetry and reducing transaction costs through the intermediation function in trying to explain the relationship between financial market development and capital structure decisions.

Affirming this position, Demirgüç-Kunt and Maksimovic (1996) explain that the developmental level of a country's financial market alters the capital structure of a firm when the firm tries to optimise its financing option to reduce costs that comes with taxes and other market imperfections. Development of the markets leads to changes in the importance of the different imperfections. This situation makes a firm issue only beneficial security that eventually change the capital structure.

However, developed and developing financial markets have different features suggesting differences in capital structure decisions in both markets. As an illustration, in developed markets, constraints encountered with the use of external finance (debt or equity) such as transaction costs and information gathering costs, are low. Consequently, firms domiciled in such markets have easier access to external finance (Beck & Levine, 2004; Levine, 2005). Wurgler (2000) also asserts that there is better allocation of capital in developed markets because of low transaction costs and availability of liquidity that assists firm managers in making financing and investment decisions. Specifically, the stock market's ability to reflect firm-specific information into stock prices reduces information asymmetry and makes it easier for managers to differentiate between good and bad investments.

In contrast to developed markets, developing markets are characterised by a number of issues. These include high levels of asymmetric information, illiquidity, high transaction and issuance costs, low level of financial intermediation, limited sources of external financing, small market size and at times, a crowding out effect of the private sector by the public sector in the debt market (Beck et al., 2011; Dahou et al., 2009). The presence of these issues suggests a limitation on the market's ability in effectively performing the intermediary role. This same position is affirmed by Fan et al. (2011) who note that the inability of the market to carry out the intermediation function in developing markets means firms have poor access to external finance. This may limit its ability to invest optimally in projects that have positive net present values (NPV). With regards to financial market development and as discussed earlier in Section 1.7 (scope of the thesis), development in financial markets for the purpose of this study is limited to development in the banking sector and the stock market.

2.1.1 Banking Sector

There are three main approaches to how banks' role as financial intermediaries affects a firms' choice of external financing. One of the approaches is the transaction cost reduction approach (Benston & Smith, 1976). In the study, the authors note that financial intermediaries such as banks create specialised financial products that are sold in forms (e.g. loans) demanded by individuals. The financial intermediaries are able to provide these products at reduced transaction costs by taking advantage of economies of scale that come with search costs, documents processing and acquisition of information about the borrower. This suggests that debt financing will be readily available from the banks because they have lower transaction costs.

Another approach is the delegated monitoring approach of Diamond (1984). This approach helps in minimising problems that arise due to information asymmetry between debt holders and firms through monitoring. By monitoring borrowers, banks are able to gather useful information for market participants who incorporate the information into their decision making process in order to avoid default risk. The assumption here is that lenders do not have the time nor the skill required for this and hence delegate it to the banks. One of the ways by which such information is gathered is through the bank-customer relationship. A bank that has a good relationship with the borrower will be able to know if there are issues that might jeopardise the repayment of the loan and enable it to take remedial action on time.

The third approach is the liquidity provision approach of Bryant (1980) and Diamond and Dybvig (1983). The liquidity approach involves the issuance of liabilities in the form of deposits by the banks with a maturity period shorter than the bank's assets and relies on the law of averages to lessen effects of the mismatch. In other words, banks offer liquid and low price-risk contracts (liabilities) but invest in relatively illiquid and higher price-risk securities (assets). By issuing demand deposits, the banks improve competition in the market and enable better risk sharing between investors who need liquidity at different times.

The underlying bases for these three approaches (transaction costs, information asymmetry and liquidity) are issues that impede firms' access to external capital in developing countries in general and African countries in particular. It is on account of this that the thesis examines the extent to which measures taken to remove these issues and develop the market to promote the use of debt finance have been successful.

2.1.2 Stock Market

The stock market performs three major functions in relation to the use of equity finance by firms. The first is that it helps to provide liquidity and opens up opportunities for risk diversification. Secondly, it plays a key part in managing conflicts that may arise between the various stakeholders in the firm and, lastly, it transfers information about potential investments to investors that are incorporated into their investment making decisions. Combining these three functions, stock markets help in minimising moral hazard and adverse selection issues that result from information asymmetry (Grossman & Stiglitz, 1980). By minimising these issues, lending to firms becomes less risky because investors are able to make informed decisions about investments. Because of these informed decisions, firms are able to raise more equity finance from the stock market.

2.2 Capital Structure Theories and Determinants

The following two subsections discuss related theoretical literature on capital structure and determinants.

2.2.1 Capital Structure Theories

Capital structure theories provide the underlying theoretical basis for explaining observed firms' financing decisions. A detailed revision of the different theories provides answers to the question of why firms' capital structure differs from each other. Accordingly, this section examines and discusses three common theories that guide the capital structure that firms adopt.

The irrelevancy theory of capital structure by Modigliani and Miller (1958) is one of the earliest theories developed. The theory argues that under perfect market conditions with certain assumptions, the capital structure of the firm does not matter because it does not have any effect on the value of the firm, i.e. the value of a firm is independent of its

capital structure.⁷ This implies that any given combination of debt and equity will not cause a change in firm value. The Modigliani and Miller (1958) irrelevancy theory demonstrates the conditions under which the firm's value is not affected by its choice of either debt or equity in perfect market conditions.

However, subsequent research queries whether the assumptions for the irrelevancy theory really hold in reality given the existence of transaction costs, bankruptcy costs and taxes. For example, as argued by Miller (1977), the fixed interest payments to debt holders act as a tax advantage of using debt by reducing the tax payable by firms (corporate taxes). This suggests the existence of a tax benefit with the use of debt. Another example is firm's inability to make regular debt repayments. This action may result in bankruptcy and financial distress costs. These two instances negate the assumptions of Modigliani and Miller (1958). Noting that these assumptions may in fact not hold, extant literature has come up with several other theories that try to explain the factors firms consider in adopting a particular capital structure. However, despite the different theories that abound, there is still no single theory that explains the variations in capital structure of firms. Three of these theories are discussed below:

a) **Trade-off Theory:** The trade-off theory relaxes the assumptions of irrelevancy theory of capital structure and considers the importance of the desired target debt. It posits that firms will try to balance the tax advantage of debt against the associated costs (bankruptcy and financial distress costs). The reason for this is that with increased borrowing, firms tend to default on loan repayment thereby increasing the likelihood of financial distress and bankruptcy costs. However, this does not make such firms use less debt because interest payments are tax deductible (debt benefits). Therefore, there has to be a trade-off where the two (costs and benefits) balance off. Kraus and Litzenberger

⁷ These assumptions are perfectly rational investors; absence of transaction costs and taxes; perfect market competition.

(1973) provide one of the early studies on the trade-off theory. The study gives a clear argument of the trade-off between tax benefits and bankruptcy costs.

In addition, the trade-off theory assumes that a firm has a target debt ratio that it tries to achieve and subsequently makes adjustment towards this target. By so doing, optimal capital structure is achieved when the present value of the marginal benefits and marginal costs are equal (Frank & Goyal, 2009; Gungoraydinoglu & Öztekin 2011; Myers, 1984; Shyam-Sunder & Myers, 1999). The argument here is that financial distress may decrease firm value due to increased borrowing that results in default on interest payments. This action exposes the firm to bankruptcy cost or financial distress cost. Nevertheless, the benefit of debt via tax deductibility of interest payment lures firms to use more debt to finance investments.

A second reason why firms use more debt is that debt mitigates manager and shareholder conflicts of interest because managers have the incentive to waste free cash flow on inferior investments. In this way, the use of debt adds discipline to management. However, Jensen and Meckling (1976) assert that this leads to agency problem between shareholders and managers because it limits the free cash flow available to managers.

There are two versions of the trade-off theory, namely the static trade-off and the dynamic trade-off theory. The static trade-off theory takes the observed debt ratio as the optimal debt ratio and does not consider shocks that may push a firm away from the desired debt level. In a recent study, Ghazouani (2013) views the static trade-off theory in terms of models that are related to bankruptcy costs and those related to agency costs. While the models related to bankruptcy costs infer a trade-off between tax advantages of debt financing against costs of financial distress as discussed earlier, the agency cost based on Jensen and Meckling (1976) is concerned with costs that result from the conflict of interest between:

- (i) shareholders and managers: this occurs when there is conflict between shareholders and managers that do not have complete ownership of the entity. In this situation, managers rather than maximising firm value, tend to be more concerned with maximising their own actions. This action brings about a conflict of interest.
- (ii) shareholders and creditors: this occurs when shareholders are willing to engage in risky projects as against what creditors want. This is because if the project fails, the creditors endure the effect of the failure more than the shareholders do.

With these points about agency costs in mind, the argument of Jensen and Meckling (1976) that an optimal capital structure is achieved at the point where total agency cost is lowest (agency cost of debt plus agency cost of equity) holds forth as depicted in Figure 2.1. The figure shows a graphical representation of the trade-off theory in terms of agency costs as presented in Ghazouani (2013).

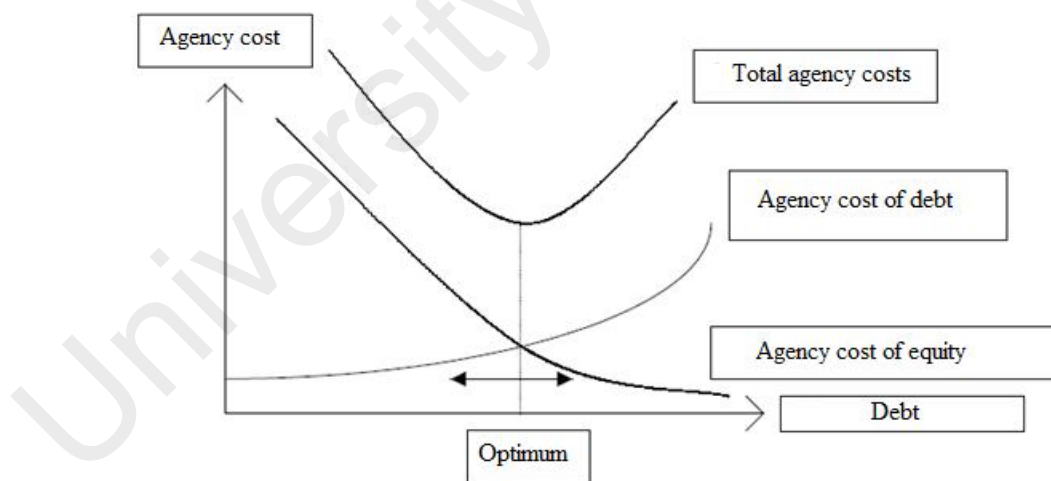


Figure 2.1: Financing Structure and agency costs of debt

Source: Ghazouani (2013)

In contrast to the static trade-off theory, the dynamic trade-off theory considers shocks and market frictions that may move a firm away from its target capital structure. Furthermore, studies on dynamic trade-off argue that costly adjustment costs, e.g. transaction costs due to market imperfections, may hinder a firm from reaching the desired debt ratio. In particular, Fischer, Heinkel and Zechner (1989) and Leary and Roberts (2005) argue that the existence of adjustment costs prevents frequent re-balancing of capital structure following deviations from the target capital structure. In addition, Hovakimian, Opler, and Titman (2001) note that a firm will remain at the point that is not the optimal capital structure because it is cheaper for it to do so because of costly adjustment costs. The speed of adjustment which is inversely related to adjustment cost is an indication of how fast the firms adjust back to target leverage following deviations.

Based on these reasons, the observed debt ratio is noted to be different from the target debt ratio (Drobtetz & Wanzenried, 2006). Nevertheless, Faulkender, Flannery, Hankins, and Smith (2012) argue that firms which need external capital to make up for the shortfall in retained earnings will issue securities that will keep them closer to the target capital structure. For this reason, they have to maintain low adjustment costs that will enable them access debt finance.

Despite the arguments for the trade-off theory, critics of the theory opine that in reality, costly adjustment costs make it difficult for a firm to have an optimal capital structure, especially in situations of serious financial market imperfections and poor institutional qualities. This is because adjustment costs are likely to be high in such markets (Myers & Majluf, 1984). Another criticism of the theory is that it overemphasises the benefit of debt financing when compared to equity financing and overlooks the benefits of equity financing (Myers & Majluf, 1984). Jensen and Meckling (1976) in their own critique argued that the assumption that firms use more debt than equity will

encourage risk shifting behaviour that leads to wealth being shifted from the debt holder to the holder of equity. This will happen when the equity holder is involved in risky investment that benefits the firm if successful but, if unsuccessful, erodes the tax benefit of debt.

b) Pecking Order Theory: Because of the criticism of the trade-off theory, Myers and Majluf (1984) came up with the pecking order theory. With the pecking order theory, firms follow a hierarchical financing schedule and uses retained earnings as the first choice in funding their financing need. Where it is insufficient, debt financing comes as the next option and equity finance is used as the last resort. The hierarchical schedule is because of the agency cost and information asymmetry associated with debt and equity finance with the cost being higher in equity. With the pecking order theory, firms do not have target debt ratios but rather have changes in capital structure when an imbalance occurs in internal cash flows and investments with positive NPV.

Myers and Majluf (1984) provided a theoretical explanation for the pecking order theory by using asymmetric information between firm managers and outside investors to demonstrate how the theory works. They noted that investors take into consideration the asymmetric information between them and firm managers in making investment decisions. This is because investors believe that firm managers have better information about the firms than they do and therefore, firm managers will overprice securities when they are issued. Due to the perceived overpricing, investors may not buy the securities even though the projects have positive NPV and this may result in an underinvestment problem for the firm.⁸ To prevent the underinvestment problem, Myers and Majluf (1984) opined that firm managers would finance new investments first with retained earnings of the firm and where not sufficient, debt should be used. The use of debt sends a signal of

⁸ The underinvestment problem occurs when firms with outstanding debt contracts are unable to take on profitable investment opportunities (Myers, 1977).

the quality of the firm to outside investors in addition to indicating the absence of overpricing and minimal information asymmetry. Equity is used as a last resort in the event that retained earnings and debt are insufficient to finance the new investment.

The pecking order theory is not without its own criticism. Adedeji (1998) argued that it ignores the effect of factors such as interest rate, supplier of capital and government intervention on a firm's decision to use retained earnings, debt or equity. Cull and Xu (2005) put a similar viewpoint forward when they argued that cost of debt financing may be lower than cost of internal funds when monetary policy is introduced in an economy during periods of financial crisis. This motivates the firms to use debt finance rather than retained earnings. The points raised in these arguments imply that factors other than agency cost and information asymmetry are taken into consideration when firms choose the capital structure to adopt.

c) **Market Timing Theory:** A more recently developed theory is the market timing theory and is premised on favourable market conditions such that firms issue equity when the cost of issuance is advantageous to the firm. Conversely, the firms utilize debt financing when cost of debt is favourable (Baker & Wurgler, 2002; Huang & Ritter, 2009). The underlying assumption with this theory is that firms examine the current conditions of the market (debt and equity) when financing is required and make use of the one that is most favourable. This theory, according to Celik and Akarim (2013) is mostly applicable in inefficient and segmented markets where the capital structure of firms follows the condition of the money and capital markets. In this type of market, firm managers usually take advantage of information asymmetries for existing shareholders' benefit. However, if conditions in both markets are not favourable, the managers can defer issuance and if favourable, raise funds even if they do not currently need it (Frank & Goyal, 2009). Empirical survey evidence supporting the market timing theory is given in

Graham and Harvey (2001) where managers acknowledge that they timed the market at one point in time.

The aforementioned theories suggest that several factors come into consideration in explaining a firm's capital structure. In addition to this, some studies have equally established that it is not necessary for the theories to be mutually exclusive. In other words, two different theories may be applicable at the same time in a given study. For instance, De Haan and Hinloopen (2003) found that for firms in Holland, the trade-off theory and the pecking order theory are both important in explaining their capital structure. Other studies that found that more than one theory is important in explaining capital structure include Antoniou et al. (2008); Hovakimian et al. (2001) and Titman and Tsyplov (2007).

2.2.2 Determinants of Capital Structure

Existing literature apart from establishing theories that explain capital structure decisions also identifies the factors that are important in the determination of firms' capital structure. These factors are usually used in explaining the theories of capital structure. Factors commonly identified are categorised into firm-specific and non-firm-specific. Firm-specific determinants are usually within the control of the firm and include profitability, firm size, age of the firm, tangibility of assets, and growth opportunity among others. Factors that usually come under non-firm-specific include macroeconomic, financial institutions (suppliers of capital), the legal origin of a country and institutional factors. These two groups are discussed as follows:

a) Non-Firm-Specific Determinants: This part of the thesis discusses factors that are classified as non-firm-specific factors and are covered in three segments:

i) **Financial Market Development:** Firms' access to finance is partly a function of the financial markets through the role they play as financial intermediaries that resultantly

paves the way for positive investment opportunities that promote growth (Fan et al., 2011). Buttressing this point further, Fan et al. (2012) asserted that financial institutions influence the way firms are financed through the provision of either debt or equity. The development of these financial institutions puts in place an efficient transfer of resources from lenders to borrowers (investors and firms in this case) and risks are more aptly distributed. For example, in a study to determine how this occurs, Wurgler (2000) found that efficient capital allocation is done better in countries with developed financial systems. This because of the stock market's ability to reflect firm-specific information into stock prices in developed markets thereby reducing asymmetric information in addition to low transaction costs and liquidity availability. Similarly, Dahou et al. (2009) stressed the important role of financial market development in channelling available resources from surplus to deficit units for productive use. They noted that through the intermediary function, financial markets stimulate investments when they provide a conducive environment for carrying out contractual transactions. Thus, development of financial markets that comes with reduced transaction costs, reduced information asymmetry and provision of much needed liquidity is expected to have a positive effect on the use of external finance by corporate firms.

ii) Legal System and Institutional Factors: The type of legal system operating in a country is also important in determining the choice of either debt financing or equity financing by firms. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998) argued that legal rules and the quality of enforcement are important determinants of the form and complexity of financial agreements. They stated that the legal protection offered by the legal system to investors to reduce agency problems and information asymmetry between the various stakeholders of the firm influence investors' decision to provide funds for firm financing. They equally noted that legal structures without adequate protection to investors worsen information asymmetries, agency costs and contracting costs. La Porta

et al. (1998) concluded that firms in countries where the legal structure is weak usually have lesser access to external capital, which in turn limits investment opportunities and lowers economic growth. In particular and relating to the type of legal system in place in a country, La Porta et al. (1998) documented that the legal protection offered to investors in English common law countries is stronger than those offered in French civil law countries. This was evidenced by firms in English common law countries being more leveraged than firms are in French civil law countries. This is because in the English common law countries, the legal protection offered to investors mitigates information asymmetry and agency costs more than in French civil law countries where these issues are more severe due to the lower protection offered to investors. Likewise, the same better legal protection to shareholders and creditors that mitigates agency costs and information asymmetry are obtainable in developed markets/countries. This implies that firms in such countries face lesser constraint in financing and have more access to external finance in the form of either debt or equity or both.

Relating these assertions to adjustment costs, the expectation is that it will be lower for firms in developed markets and English law countries for the same reason that agency costs and information asymmetry are less severe. They should therefore have faster speed of adjustments (Öztekin & Flannery, 2012). Conversely, firms in developing countries should have slower speed of adjustment due to higher adjustment cost. In terms of debt maturity structure, Demirgüç-Kunt and Maksimovic (1999) showed that there is more use of long-term debt by firms in English common law countries and developed markets than firms in French civil law countries and developing markets. The recent work of Fan et al. (2012) also confirmed that the above-mentioned assertions are still relevant.

Related to the legal system are factors that define the quality of enforcement of existing laws especially as it concerns the financial system. These include government effectiveness, regulatory quality and the rule of law. According to Antoniou et al. (2008),

higher rule of law leads to efficiency in enforcement of legal regulations inclusive of bankruptcy laws. This suggests that firms in countries where the rule of law is high use less debt in order to reduce the risk of bankruptcy. In a similar argument, Cho et al. (2014) showed that stronger creditor protection discourages firm managers and shareholders from using debt finance in order not to lose control of the firm when financial distress arises. They further noted that this is based on the view of the firms (demand-side) unlike the assertion of La Porta et al. (1998) which is looked at from the investors (supply-side) angle.

In contrast, De Jong et al. (2008) argued that in countries where law enforcement is efficient, firms tend to have high leverage because efficiency in law enforcement increases the ability of creditors to recover borrowed funds. The reverse is expected to be the case in countries where law enforcement is poor and as such less debt is used (Fan et al., 2012). To test these assertions, the present study makes use of measurements given by the Worldwide governance indicators of the World Bank that consist of traditions and institutions by which a country is governed.⁹ Noting that previous studies had used data from La Porta et al. (1997, 1998), the World Wide Governance database of the World Bank is considered to give a better, more comprehensive and up-to-date data on institutional measurements. This reinforces the basis of this thesis using the same database.

iii) **Macroeconomic Determinants:** Apart from firm-specific determinants, literature also establishes that macroeconomic variables are important determinants of capital structure as evidenced in the demand and supply of capital by firms in financial markets. Economic growth and inflation are two important and consistent determinants of capital structure in theoretical literature. These two factors according to Booth et al. (2001)

⁹ Kirch and Terra (2012) argue that by documenting a wide range of factors describing different parts of the institutional and financial system of different countries, the database provides a detailed perspective concerning the level of financial development and the quality of the institutional environment in each country.

indicate the degree of stability in an economy. The theoretical explanation given for the effect of the state of the economy i.e. gross domestic product on capital structure is two folds: firstly, given a booming economy, there is increase in stock price, a lowering of bankruptcy costs, increase in collateral value and increase in taxable income and cash. Consequently, firms are able to borrow more while the reverse is the case during a recession (Frank & Goyal, 2009; Gertler & Gilchrist, 1993). This implies that firms borrow against real investment opportunities and not speculative activities; secondly, Haas and Peeters (2006) and Frank and Goyal (2009) both argued that recessions worsen agency problems and this results in a reduction in managers' wealth compared to shareholders' wealth. In other words, recession increases the agency conflict between inside and outside stakeholders. Accordingly, for the trade-off theory, there is an increase in the use of debt financing during periods of boom in the economy while the reverse is the case for the pecking order theory.

In addition to economic growth, inflation is another macroeconomic factor that is important in determining the capital structure choice. High inflation increases the real value of tax deductions on debt. Thus during periods of high inflation, firms tend to have higher leverage ratio in order to take advantage of the tax deductions (Frank & Goyal, 2009; Taggart, 1985). Another line of argument given by Demirgüç-Kunt and Maksimovic (1999) is that inflation reflects government's efforts at managing the economy and the local currency's stability in maintaining long-term contracts. Therefore, a stable or low inflation rate will encourage the use of debt contracts.

b) Firm-Specific Determinants: Several firm-specific factors that originate from the internal operations of the firm are identified in existing literature to be important determinants of capital structure and are used in explaining the various theories. Some of the determinants consistently used include profitability, asset tangibility, firm size, growth opportunity and non-debt tax shield (Antoniou et al., 2008; Frank and Goyal,

2009). The factors represent proxies for tax benefits, agency costs, financial distress/bankruptcy costs and information asymmetries. While factors such as asset tangibility and firm size are used as inverse proxies to represent the likelihood of bankruptcy and asymmetric information (Frank & Goyal, 2009; Rajan & Zingales, 1995), future growth opportunity and profitability are proxies for tax advantage of debt and need for extra financing in addition to the likelihood of bankruptcy and agency costs (Barclay & Smith, 1999; Mazur, 2007; Myers & Majluf, 1984).

The various factors identified exhibit different behaviours depending on the theory being investigated as shown below:

i) Profitability: The relationship between leverage and profitability under the trade-off theory can either be positive or negative. Profitable firms have lower cost of financial distress that makes interest tax shield more useful to them, thus the use of more debt (Frank & Goyal, 2009; Jensen, 1986). On the other hand, Kayhan and Titman (2007) and Tsplakov (2008) argued that because certain firms aggressively store up profit, the relationship tends to be a negative one in dynamic trade-off models. This is because the firms build up profit to increase productive capacity that results in reduced profits due to the outflow associated with spending to increase productive capacity. With the pecking order theory, a firm's profitability is negatively related to the leverage ratio. This is because firms prefer the use of internal finance as against external finance due to asymmetric information associated with external finance. Thus the more profit a firm retains to finance investment, the less debt it employs in its capital structure (Antoniou et al., 2008; Booth et al., 2001; Haron, Ibrahim, Nor, & Ibrahim, 2013; Ramjee & Gwatidzo, 2012).

ii) Asset Tangibility: Tangibility of assets lowers the cost of financial distress for two reasons: firstly, tangible assets (property, plant and equipment) are easier to value by outsiders than intangible assets; secondly, shareholders find it difficult to substitute high-

risk assets for low risk ones. For these reasons, the trade-off theory predicts a positive relationship between leverage and tangibility (Akhtar & Oliver, 2009; Frank & Goyal, 2009; Haron et al., 2013; Harris & Raviv, 1991). Hence, the more tangible assets the firm has, the more debt it can employ to finance investment. The prediction of the pecking order theory, on the other hand, is ambiguous because it gives both a positive and negative prediction. A negative prediction is predicated on the low information asymmetry associated with tangible assets that lowers cost of equity issuance, thus equity will be preferred over debt. On the other hand, and in the presence of adverse selection that has to do with the type of assets in place, tangibility will have a positive relationship with leverage (Frank & Goyal, 2009; Karadeniz, Kandir, Balcilar, & Onal, 2009; Mazur, 2007; Mukherjee & Mahakud, 2010).

iii) Firm Size: The trade-off theory predicts that the larger the size of the firm, the higher the debt ratio of the firm will be. This prediction is premised on the assumption that larger firms are more diversified, have a low default risk and less debt related agency cost (Frank & Goyal, 2009; Zou & Xiao, 2006). The pecking order theory conversely predicts an inverse relationship between leverage and firm size. According to Frank and Goyal (2009), this is because larger firms are usually older and build up profit over the years to finance investments compared with smaller firms. Rajan and Zingales (1995) argue, in addition, that because information asymmetry in larger firms is small, the odds of undervaluing new equity issue is low therefore such firms will issue equity to meet up with their financing need.

iv) Growth Opportunity: Growth opportunity is another important firm-specific factor that determines the capital structure a firm adopts. The trade-off theory predicts an inverse relationship between growth opportunity and leverage because growth escalates financial distress and lowers free cash flow issues (Frank & Goyal, 2009; Myers, 1977; Rajan & Zingales, 1995). Thus the higher the growth opportunity, the lower is the debt

ratio and vice versa. The pecking order theory, on the other hand reasons that firms accrue debt over time to finance investments that continuously grow as the firm grows (Chen, 2004; Frank & Goyal, 2009; Tong & Green, 2005). Consequently, the larger the firm, the more debt it uses to finance investments.

v) Non-debt Tax Shield: Evidence of the effect of non-debt tax shield on capital structure predicts a positive and negative effect for the trade-off theory. An argument put forward for the positive effect is that if non-debt tax shield consists mainly of depreciation; the firm will have more tangible assets that generate high level of depreciation and tax credit. These type of assets (tangible assets) increases the firm's capacity to take on more debt because of the collateral value and thereby save on tax. Hence, the more non – debt tax shield the firm has, the higher its debt ratio (Antoniou et al., 2008; Barclay & Smith, 2005; Chang, Lee, & Lee, 2009). On the other hand, a negative effect is predicated on the argument that because non–debt tax shields are sometimes considered to be substitutes for tax benefits of debts, it may lead to each firm having an internal optimal leverage. This is because more non-debt tax shields in a firm's book imply the probability that it has lesser taxable income, a lesser expected corporate tax rate, and a lesser payoff expected from interest tax shields. Consequently, firms that have higher levels of non–debt tax shield tend to have lower debt levels (De Miguel & Pindado, 2001; Fama & French, 2002; Ngugi, 2008; Ozkan, 2001).

Table 2.1 presents the summary of the predictions of the determinants of dynamic trade-off theory.

2.3 Debt Maturity Structure Theories and Determinants

According to Barclay, Marx, and Smith (2003), capital structure can be broken down into various segments such as leverage, debt maturity structure, contracts, convertibility and importance. They argue that the different parts of capital structure (e.g. leverage and maturity structure of debt) may be complements rather than being independent of each

and suggest they be jointly determined in capital structure studies. However, studies on capital structure (for example Ağca et al., 2013; Antoniou et al., 2008; Fan et al., 2012; Gungoraydinoglu & Öztekin, 2011; Lee, Oh, & Park, 2014) focus on only the leverage part and ignore other aspects such as debt maturity structure implying that it is independent of others. This thesis considers this argument and examines debt maturity structure while jointly determining the leverage aspect. The subsequent subsections examine theories and determinants that underpin the debt maturity structure literature.

2.3.1 Debt Maturity Structure Theories

Stiglitz (1974) extends the capital structure irrelevancy theory of Modigliani and Miller (1958) by considering a wider range of financial policies such as debt maturity structure and dividend policy in a multi-period setting. He concluded that under certain assumptions, the debt maturity structure of a firm has no effect on firm value, similar to the irrelevancy theory of Modigliani and Miller.¹⁰ However just like in the case of the irrelevancy theory, a relaxation of the assumptions (existence of transaction costs, tax, financial distress and bankruptcy costs and other frictions) show that debt maturity structure matters and has effect on the value of the firm. Theories of debt maturity structure are usually explained in terms of signalling, contracting costs and tax arguments (Barclay & Smith, 1995).

a) Signalling Theory: The proponents of this theory argue that debt maturity structure of a firm signals the quality of a firm. For instance, if the market is unable to differentiate between low and high quality firms, high quality firms will choose to issue short-term debt to indicate their quality. This mostly occurs when credit deterioration is higher in long-term debt than short-term debt, a situation that makes transaction costs of rolling over of short-term debt affordable for good quality firms (Cai, Fairchild & Guney,

¹⁰ The assumptions are the same as under the Modigliani and Miller assumption i.e. perfectly rational investors; absence of transaction costs and taxes; perfect market competition.

2008). In another argument, the use of long-term debt may signal that a firm is a high quality firm with low information asymmetry. This is based on the assumption that firms use short-term debts to alleviate information asymmetries (Berger et al., 2005; Cai et al., 2008). The higher liquidity risk in long-term debt is also another issue that proponents of the signalling theory consider. According to Barclay and Smith (1995), low and high quality firms prefer to issue short-term debt rather than long-term debt due to the higher liquidity risk in long-term debt. Besides, compared to short-term debts, pricing of long-term debt is more responsive to changes in firm value, especially if they are positively correlated. Accordingly, if the market is unable to differentiate between low and high quality firms, high quality firms will want to issue short-term debts while low quality firms will issue long-term debts (Kale & Noe, 1990). In this way, the signalling theory may be linked to information asymmetry especially when maturity structure is seen as a way of alleviating adverse selection problem as noted by Akerlof (1970) by providing a credible pointer to the market.

b) Contracting Costs: the contracting cost argument is based on agency costs that cause underinvestment problems in situations where projects with positive NPV's are not undertaken. The underinvestment problem is more pronounced in firms with higher growth opportunities where internal resources are not enough to finance growth and thus they are in need of external financing (Stephan, Talavera & Tsapin, 2011). In order to lessen this problem, Myers (1977) posits that firms use more short-term debt and decrease the maturity structure of debt. In addition, short-term debt and shorter maturity structure alleviates asset substitution issues because of its low sensitivity to firm value unlike long-term debts.¹¹ Furthermore, the constant monitoring by investors reduces agency costs (Barnea, Haugen, & Senbet, 1980). In contrast to the underinvestment strand, Cai et al. (2008) theorise that long-term debt may assist in regulating the overinvestment activities

¹¹ Asset substitution problem according to Stephan et al. (2011) is when firms attempt to exchange low-risk assets for high-risk assets when they have risky debts in their portfolio.

of firm managers, thus, firms should employ more long-term debt. Overinvestment activities arise when the little or lack of long-term debt in firms' portfolio serve as incentives for firm managers to engage in negative NPV projects in order to get more privileges. Thus, optimal debt maturity may be attained by trading-off cost and benefits of short-term debt (Cai et al., 2008).

c) **Tax Arguments:** The expectation here is that firms prefer to use long-term debt as against short-term debt when the interest rate is upward sloping after making adjustment for default risk (Brick & Ravid, 1985). This is because using long-term debt is expected to bring down expense from tax resulting in an increase in firm value. This happens when savings from tax shield increase due to the use of more long-term debt. The reverse is the case with a downward sloping interest rate because firm value increases with the use of short-term debt. Countering this argument, Lewis (1990) and Ozkan (2002) note that tax has no effect on debt maturity structure when optimal debt ratio (leverage) and debt maturity structure decisions are taken at the same time unlike Brick and Ravid (1985) who assume that the leverage decision is taken before the debt maturity decision.

2.3.2 Determinants of Debt Maturity Structure

In this subsection, the determinants of debt maturity structure are discussed in terms of non-firm-specific and firm-specific factors.

a) **Non- Firm-Specific Determinants:** In developed financial markets, banks and stock markets facilitate firms' access to long-term debt because there is more transparency, therefore issues with information asymmetry are not common (Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012). This argument suggests a positive relationship between market development and debt maturity structure. Nevertheless, theoretical literature also showed that liberalization in the banking sector in developing

countries has a negative effect on a firm's access to debt and that the effect is different for both long-term and short-term debt. This is more pronounced in markets that are besieged by information asymmetry issues due to poor information disclosure and weak institutions, a common feature in developing countries. The reason for this, as argued in González and González (2014) is that the increase in banking competition as a result of liberalization in the banking system brings down the ability of banks to facilitate relationship lending to firms whose credit qualities are not well known. Hence, they have less access to long-term debt implying more short-term debt and therefore shorter-term maturity.¹²

However, since debt contracts are financial contracts, the extent to which creditors and borrowers are committed to the contract is dependent on the legal system and institutional factors that encourage the monitoring and enforcement of such contracts. The law and finance literature posits that legal systems based on English common law offer better protection to investors than the French civil law system (La Porta et al., 1998). An inefficient legal system, as argued by Diamond (1993), results in the use of more short-term debt than long-term debt because with short-term debt borrowers find it more difficult to defraud creditors. This also suggests that the maturity structure of debt will tend towards the short-term.

Similarly, Demirgüç-Kunt and Maksimovic (1999) contend that with short-term debts there is a constant review of firms' decisions by creditors before substantial losses are accumulated. The constant revision reduces the default rate. In another argument put forward by Fan et al. (2012), two institutional factors that are associated with the legal system; weak legal rules and low quality law enforcement; promote the use of financial

¹² This is in line with the model in Petersen and Rajan (1995) that although banking liberalization increases bank competition and therefore debt availability, the information asymmetry issue associated with the use of long-term debt reduces its availability to firms whose credit quality cannot be confirmed. This is because of the inability of the banks to charge higher interest rates and without knowing the true value of the firm.

instruments that are contractually easy to interpret. This implies the prevalence of debts with short-term maturity. Based on these theoretical arguments, an inverse relationship is expected between an inefficient legal system and debt maturity structure.

b) Firm-specific Determinants: Existing theoretical and empirical literature shows that firm-specific determinants of leverage ratio and debt maturity structure are the same. While growth opportunity, leverage and firm size are proxies used in explaining the contracting cost theory, other firm-specific variables, such as asset tangibility (asset maturity) and profitability are used in explaining the signalling theory (Alcock, Finn & Tan., 2012; Antoniou et al., 2006; Cai et al., 2008; Dang, 2011; Gopalan, Song & Yerramili, 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Stephan et al., 2011).

For instance, growth opportunity, which acts as a proxy for expected future growth, is expected to have a negative relationship with debt maturity structure when firms try to alleviate underinvestment problems. This is because growing firms may mitigate agency problems due to underinvestment with the use of more short-term debt and shorter maturity structure. In a similar manner, the periodic evaluation of firms when short-term debts are issued may reduce agency costs of monitoring. This indicates that in a contracting cost hypothesis, growth opportunity has a negative effect on debt maturity structure (Antoniou et al., 2006, Cai et al., 2008; Stephan et al., 2011). Nevertheless, firms that try to alleviate overinvestment problems may have to employ more long-term debt to increase maturity structure (Cai et al., 2008). This posits that the expected sign for growth opportunity is positive. Therefore, from the previously mentioned arguments, the relationship between growth opportunity and debt maturity is ambiguous in a contracting cost hypothesis.

Concerning the size of the firm in the contracting cost hypothesis, it is argued that because larger firms have less information asymmetries and agency problems than small firms do, they usually have easier access to long-term debts. In addition, larger firms tend

to use more long-term debts because they enjoy the benefits of economies of scale that lower costs unlike small firms that rely on short-term debts with shorter maturity. Thus, firm size should have a positive relationship with debt maturity (Dang, 2011; Mateus & Terra, 2013; Stephan et al., 2011). Nevertheless, Barclay and Smith (1995) contend that because issuance costs for public debts are more expensive for small firms than large firms, small firms will choose private debt (mostly short-term maturity) over public debt due to its lower cost.

Leverage is another firm-specific variable that has a positive relationship with debt maturity structure. This is because firms that have high leverage ratios try to control bankruptcy costs and risk by increasing debt maturity. Although higher debt ratio increases the likelihood of liquidation, the issuance of long-term debt delays the firms' exposure to this risk (Antoniou et al., 2006; Cai et al., 2008). Also, alluding to the positive effect of leverage on debt maturity, Flannery (1986) and Gopalan et al. (2014) showed that refinancing risk is reduced when firms borrow more long-term debts. On the other hand, Dennis, Nandy, and Sharpe (2000) argued that because leverage ratio reduction and a short-term debt maturity mitigates agency costs of underinvestment, the relationship between leverage and debt maturity should be negative i.e. it should be an inverse relationship. Hence, the relationship between leverage and debt maturity structure is mixed as seen in the literature.

Tangibility of assets under the signalling hypothesis has a positive relationship with debt maturity.¹³ This is because of the nature of the assets that enable the firm to take on long-term debts with the assets serving as collateral for the loan. At the same time, it also controls for risk and financial distress costs (Antoniou et al, 2006; Fan et al., 2012;

¹³ For the purpose of this thesis, asset tangibility is taken to be the same as asset maturity. This is because both variables are measured in the same way in studies such as Antoniou et al. (2006); Cai et al. (2008) Stephan et al. (2011) and Fan et al. (2012). In these studies, asset maturity refers to where firms match the maturity of assets to the maturity of the debt although they (asset tangibility and asset maturity) are measured in the same way.

Kirch and Terra, 2012). In terms of asset maturity, Alcock et al. (2012) argued that transaction costs, particularly short-term debt refinancing costs are minimised when firms match the maturity of liabilities to assets.

Profitability signals the quality of the firm and is expected to have a negative relationship with debt maturity structure, on the one hand. This is because only good quality firms will be able to afford the rollover costs of short-term debts when long-term debts deteriorate faster than short-term debts (Cai et al., 2008). This implies that profitable firms will be able to afford the transaction costs of short-term debts. On the other hand, profitable firms have longer debt maturity structures because firm profit increases with longer-term maturity when firms borrow more to increase tax shields (Fan et al., 2012). This suggests a positive relationship between profitability and debt maturity structure.

2.4 Review of Empirical Literature

The preceding sections discussed the theoretical literature (in terms of theories and determinants) that underpins capital and debt maturity structure research that serves as a guide for this thesis. The next subsections review the empirical literature in relation to the objectives stated in Chapter 1 and this is done in line with the different objectives.

2.4.1 Financial Market Development and Capital Structure

One of the early studies that provided an insight into important determinants of capital structure is Rajan and Zingales (1995). The study investigated factors that are important in determining capital structure decisions of firms in seven industrialised countries.¹⁴ Rajan and Zingales (1995) found that at aggregate level, firm leverage is similar across the seven countries and institutional differences between the countries were not able to explain the observed difference in capital structure decisions. Consequently, they conclude that a better understanding of the effect of institutional differences on capital

¹⁴ These countries are Canada, Germany, Japan, Italy, the United Kingdom and the United States of America.

structure may provide detailed justifications as to why there are variations in capital structure determinants/decisions across countries.

Several cross-country studies have tried to investigate the effect of different institutional features/environments on capital structure in countries at different levels of development. These studies can be grouped into three, namely: those that investigated firms in developed countries, those that focused on firms in developing countries and cross-country studies combining firms in both developing and developed countries. The resulting empirical evidence from these studies showed that country-specific factors are important determinants of capital structure decisions.

a) Developed Countries: Commencing with empirical evidence from developed countries, Bancel and Mittoo (2004) in a cross-country survey study of sixteen European countries showed that in addition to firm-specific factors, the quality of the legal system in the countries studied is an important determinant in the use of debt but not so for equity.¹⁵ They found that debt-related factors are influenced more by the quality of the legal system than those that are equity related. They argued that this might be as a result of the higher agency cost of debt in countries where the quality of the legal system is poor. This lends support to the assertion of La Porta et al. (1998) that a country's legal system influences the availability of external finance due to agency problems associated with using external finance. Nevertheless, the investigation of the effect of financial markets was absent in the study.

In a later and similar study of four European countries (Germany, France, Netherlands and the United Kingdom), Brounen, De Jong, and Koedijk (2006) included an investigation of the effect of financial markets on capital structure decisions. They found that financial markets are important factors that influence financial decisions but

¹⁵ The legal system in the study was classified into English, French, German and Scandinavian.

did not find evidence supporting the assertion that agency problems are important in capital structure decisions. Specifically, they found that while firms in bank-based economies (Germany and France) were less concerned about stock price movements, the firms in capital market-oriented economies (Netherlands and the United Kingdom) were more concerned about a dilution in the earnings per share because it is used as a measure for performance. The study also employed the survey method and compared the results with those obtained for studies that investigated firms in the United States.

Antoniou et al. (2008) examined the effect of financial orientation and legal system on capital structure in two major capital market-oriented economies (the United Kingdom and the United States) and three major bank-oriented economies (France, Germany and Japan).¹⁶ They noted that the capital market-oriented economies have higher levels of transparency and investor protection than bank-based economies. Using the generalized method of moments estimation technique, they found that the capital structure choice of a firm is not only dependent on the economic tradition of the country but also on firm-specific factors and the legal tradition as asserted by La Porta et al. (1998). Factors such as size of the firm, growth opportunity, term structure of interest rate and share price performance were all seen to have a positive effect on leverage in the five countries. The impact of asset tangibility, equity premium, effective tax rate and profitability were however, seen to vary across the countries with the degree of importance being country specific. More importantly, the study showed that firm-specific determinants were more important in capital market-oriented economies than in bank-based ones. From this result, they argued that generalizing the results obtained from a particular type of economy to another one with different institutional, legal and economic features may not hold. This argument serves as one of the justifications for this thesis i.e.

¹⁶ The United States and the United Kingdom follow the English common law, France use the French civil law, Germany use code law traditions and Japan is a mixture of civil and code law.

the fact that African financial markets have institutional and economic features that are not on a par with developed economies.

b) Developing Countries: The literature on developing markets differs from developed markets mainly because of the different institutional features between the countries. For instance, information disclosure by firms and institutions in developing countries is poor. This has the potential effect of increasing information asymmetries that can equally have an impact on capital structure decisions as depicted by capital structure theories. Another common institutional feature in developing countries is the extensive ownership and regulation of the financial system by the government. As noted by Booth et al. (2001), this can have a major effect on corporate financing decisions because it is reflected in price controls in the security market and programmes that dictate credits to selected sectors of the economy (also referred to as sectoral allocation of credit). To remove the potential effects of these and some other bottlenecks, some developing economies introduced market development measures such as removal of sectoral credit allocation and interest rate deregulation among other measures as discussed extensively in Chapter 3.

Booth et al. (2001) examined firms in ten developing countries with different institutional structures to determine if these countries have the same set of capital structure determinants with developed countries.¹⁷ Using data from 1980 – 1990 and within a static framework (random effects model), the study found that firm-specific factors that affect capital structure decisions in these countries were the same as those of developed countries but country-specific variables reflect some differences in how these decisions are made. Specifically, Booth et al. (2001) found that in developing countries, firms have a significantly lower amount of long-term debt than in developed countries.

¹⁷ Brazil, India, Jordan, Korea, Malaysia, Mexico, Pakistan, Thailand, Turkey and Zimbabwe.

Support for the findings in Booth et al (2001) can be premised on the argument of La Porta et al. (1998) that in developed countries the regulatory quality is higher and, as such, firms here employ more long-term financing than short-term. The legal system in developed countries also provides a conducive environment for long-term financial contracts due to institutional qualities that strengthen the system. Other factors attributed to the low use of long-term financing in developing countries are the level of development of the capital markets, gross domestic growth rate and inflation rate. Nevertheless, Booth et al. (2001) note that the heterogeneity of the sample countries in the study due to the wide range in institutional differences may be a problem in economic modelling when trying to account for variations in leverage ratios.

In a closely related study but within a dynamic fixed effects framework and using aggregate firm-level data, Agarwal and Mohtadi (2004) reported evidence of banking sector development favouring debt financing while stock market development favours equity finance in a sample of 21 developing countries for the period 1980-1997. The markets in the study were selected from Asia, Africa, Europe and Latin America. Although the study is somewhat similar to this thesis, a few issues differentiate the two studies. The first is that out of the 21 sample countries in the study, only Egypt, South Africa and Zimbabwe provided evidence from an African perspective. Secondly, the variables used to proxy banking sector development are considered inappropriate because they include credit granted to the government and public sector.¹⁸ As noted by Beck and Levine (2004), the use of these variables makes it difficult to isolate credit specifically meant for the private sector. Since the focus of this study is on corporate firms and banking sector, the variable used to measure credit provided by the banking sector should capture credit meant for the corporate sector. Thirdly, Holderness (2014) illustrated that

¹⁸ The variables are ratio of banks liabilities (M3) to gross domestic product and ratio of bank deposit of domestic assets to gross domestic product.

aggregate data like that used in Agarwal and Mohtadi (2004) is unable to control for firm-level determinants unlike when individual firm data is used. The use of aggregate data it is argued, results in false inference about individual firms.

In contrast to the findings of Agarwal and Mohtadi (2004), Ağca et al. (2013) recently showed that following banking sector reforms, there is less use of debt by corporate firms in a sample of 17 emerging market economies. The study drew up a reform index based on five types of reforms, namely: interest rate deregulation, banking competition, bank privatisation, banking sector supervision and credit allocation. The study found that reforms pertaining to bank supervision, interest rate and credit allocation had negative and significant effect on leverage ratio. However, there was no evidence to show that bank competition and privatization had any effect on leverage. They further argued that the reforms that had negative impact on leverage led to more stringent lending standard and higher cost of finance that subsequently led to less use of debt by the firms in the countries that were investigated. The coefficients of firm-specific factors were found to have signs predicted by the static and the pecking order theory of capital structure in previous studies. The study employed the generalized method of moments estimation technique. Although the study examined 17 developing countries, South Africa was the only African country in the study effectively opening up the gap for a study of other African countries. As pointed out earlier, Antoniou et al. (2008) had put up an argument about generalizing the result of a particular economy to another one.

c) Combination of Developing and Developed countries: One of the earliest in studies in this group is Demirgüç-Kunt and Maksimovic (1996) who examined the effect of stock market development on financing choices of firms in 30 developed and developing countries. Using firm-level aggregate data, they found that development in the stock market promotes equity financing while banking sector development encourages the use of more debt finance in the total sample. Market capitalization and

stock market turnover ratio was used to proxy stock market development while three separate variables; bank liquid's liability to GDP, ratio of domestic credit to the private sector and ratio of deposit bank domestic assets to GDP were used to measure development in the banking sector. However, on breaking down the sample into developed and developing countries, they found that while equity finance replaced long-term debt finance in developed countries, the reverse was the case in developing countries. This is because development of the stock market in developing countries only increased the level of debt in large firms' books, not for small firms. The increase in debt was attributed to the market's ability to aggregate firm information that induces lenders to extend credit to firms whose stock is traded in the market.

In another study examining the importance of firm-specific and country-specific factors in the determination of capital structure decision in 42 developed and developing countries, De Jong et al. (2008) reported that the impact of firm-specific factors on capital structure varies across the countries investigated. More importantly, they found that in addition to the direct effect of country-specific factors on the leverage ratio, country-specific factors also have an indirect effect on capital structure decisions through its effect on firm-specific factors.

For instance, for the direct impact, observed differences in capital structure across the countries were explained by country-specific factors like gross domestic product, bond market development and creditor right protection. For the indirect impact, the quality of law enforcement and health of the economy was found to strengthen the effect of firm-level factors like profitability, growth opportunity and liquidity. This is in addition to the direct impact that law enforcement and health of the economy have on capital structure. The study used pooled ordinary least squares and seemingly unrelated regression technique for analysing the data to determine if differences exists in the coefficients reported for each country. The financial market variables used in the study

are the stock market development measured as ratio of stock market capitalization to GDP and bond market development measured as the ratio of bond market capitalization to GDP. The study did not examine the banking sector, a major source of external finance for corporate firms in developing markets. Although De Jong et al. (2008) had a large number of countries in their study, no African country was included in it. As argued by Narayan and Narayan (2013) and Antoniou et al. (2008), therefore, it is inappropriate to generalize the findings to African countries.

In another study to examine the effect of stronger creditor protection on leverage ratio in a sample of 48 developing and developed countries, Cho et al. (2014) reported that stronger creditor protection led to a decline in long-term leverage. They argued that this is because of the reluctance of investors and firm managers to use debt because stronger creditors' protection increased the likelihood of losing control of the firm in the event of bankruptcy or financial distress. This view is focused on the demand-side (firms need for external finance). However, by including supply-side factors (financial markets) in the investigation, they showed that certain firm-level and country characteristics reduce the effect of the demand side factors. This according to them suggested that the need for external finance by firms outweighs the fear of losing control of the firm. The firm-level and country characteristics included in the study are profitability, growth opportunity, firm size, asset tangibility, research and development, liquidity, inflation and gross domestic product. Supply-side variables in the study include stock market development, debt market development and the overall development of the market.

The review of the empirical literature in this section revealed that most of the existing studies exclude firms from African countries in the investigation, thus creating a gap in the literature. Furthermore, generalizing the findings in existing literature to this group of firms may not be ideal because of the difference in level of development as noted by Antoniou et al (2008). Noting that a few of the countries had introduced developmental

policies into the financial system to promote firm access to external finance, this thesis examines financial indicators in emerging and frontier economies to determine how the development has influenced the use of external finance (debt and equity).

2.4.2 Capital Structure: Target Leverage, Adjustment Costs and Speed of Adjustment

Hovakimian et al. (2001) defined target leverage as the debt ratio that a firm will choose in the absence of information asymmetries, transaction costs and other adjustment costs. This implies that a firm frequently adjusts its debt level because of these issues and thus adjustment to target leverage is dynamic. The argument for a dynamic study of the trade-off theory of capital structure is premised on the existence of shocks that may push a firm away from its desired debt level. When this happens, a firm's desire to reach the desired level may be hindered by costly adjustment costs that make the observed and optimal debt ratio for firms different. This is due to the regular adjustment made towards a moving target leverage by the firms since they may not be operating at the desired level of leverage (Ozkan, 2001; Öztekin & Flannery, 2012). A factor that firms who exhibit target leverage behaviour have to take into consideration is the cost of adjustment towards the target (Haas & Peeters, 2006).

The cost of adjustment determines the speed at which the firm moves towards an optimal debt ratio. This is in contrast to the static trade-off theory that assumes the observed and optimal debt ratio are the same. By so doing, it ignores expensive adjustment cost that may prevent the firm from attaining the desired debt ratio. Studies on trade-off theory in developing and specifically African studies were investigated within a static framework as noted in Chapter 1 (Abor & Biekpe, 2009; Gwatidzo & Ojah, 2009; Kyereboah-Coleman, 2007).

Because of the dearth of literature on dynamic trade-off theory of capital structure for firms in developing countries, most of the supporting empirical evidence of the theory

(dynamic trade-off) and cost of adjustment in non-financial firms is concentrated in developed countries rather than in developing countries (Haron et al., 2013; Rasiah & Kim, 2011). An example of a developed country study is the investigation of target leverage and speed of adjustment for Swiss firms by Drobetz and Wanzenried (2006). They documented that faster growing firms and firms that are far away from target leverage adjust easily with higher speeds of adjustment when the economy is booming. Similar findings of target leverage adjustment were reported for US firms in Flannery and Rangan (2006) with firms having mean speed of adjustment estimated at 30% per year. They equally pointed out that the 30% speed of adjustment is three times higher than is usually reported in literature which underscores the need for studies on target leverage behaviour.

Antoniou et al. (2008) also documented evidence of firms adjusting to optimal target leverage in a sample of non-financial firms in market and bank-based economies (France, Germany, Japan, the United States and the United Kingdom). The adjustment speed of firms in market-based economies (United States of America and United Kingdom) was found to be higher than that of firms in bank-based economies (Germany, Japan, and France). They argued that this is because firms in bank-based economies do not need to rely on debt financing as a signal of firm quality to investors unlike firms in market-based economies. Another argument put forward is that firms in bank-based economies weighed the cost of being off target against agency costs. If the cost of being off target was lower than the cost of adjustment, the firms adjust slowly and do not bear significant agency costs. Thus for firms in bank-based economies in the study, the cost of being off target was lower than the adjustment cost, hence the slower speed of adjustment. Nevertheless, the study reported adjustment cost of 74% in the pooled sample for all the countries investigated.

In another study, De Miguel and Pindado (2001) investigated 133 non-financial firms in Spain and noted that firms in Spain use mostly debt sourced from the private debt market rather than the bond market. One of the reasons attributed for this is that the bond market in Spain is less developed compared to the market in the United States, the United Kingdom and Germany. They also noted that private debt mitigates the agency cost of debt in addition to lessening the effects of adverse selection and moral hazard. This is due to the benefit derived from monitoring of creditors and the possession of firm information that reduces information asymmetry among firms and creditors. De Miguel and Pindado (2001) argued that these reasons explained why Spanish firms had lower adjustment costs (21%) than firms in countries with developed bond markets such as the United States. Other studies indicating target leverage behaviour and speed of adjustment in firms include: Hass and Peeters (2006) for transition economies in Central and Eastern Europe and Hovakimian and Li (2011) for US firms.

Empirical evidence from developing countries is sparse and reports varying speed of adjustment when compared to developed countries. For example, Getzmann, Lang, and Spremann (2014) examined the determinants of capital structure and speed of adjustment towards target leverage in a sample of 1,239 non-financial firms listed in Asian financial markets for the period 1995 to 2009.¹⁹ Using the system generalized method of moments estimation, they found that non-financial firms in Asia exhibit target leverage behaviour with adjustment speed ranging from 24% to 45%. This speed of adjustment is comparable to those of US firms reported in Flannery and Rangan (2006). Haron et al. (2013) also reported evidence from 590 non-financial firms in Malaysia indicating that Malaysian firms make adjustment to target leverage when deviations occur. Using a partial

¹⁹ These covered stock markets in China, India, Indonesia, Japan, Malaysia, Pakistan, Philippines, Singapore, South Korea, Taiwan and Thailand.

adjustment model and the generalized method of moments technique, they reported adjustment cost of 0.43 and adjustment speed of 0.57.

Another study from a developing country on dynamic leverage ratio is that of Arioglu and Tuan (2014). The study investigated the adjustment speed of non-financial firms in Turkey and found the speed of adjustment to be about 29%. This implies that firms in Turkey exhibit target leverage behaviour such that when deviations occur from the target due to frictions, they try to rebalance the leverage ratio to close the gap created by the friction.

As noted earlier, prior empirical literature on target leverage in African countries was mostly investigated within a static framework in addition to being single country studies (Akinlo, 2011; Kyereboah-Coleman, 2007; Salawu & Agboola, 2008). The problem with this type of investigation as discussed earlier, is that they do not take into consideration the existence of shocks that may push a firm away from its target leverage and costly adjustment costs that prevents the firm from readjusting. Öztekin and Flannery (2012) note that the institutional features of a country, such as the state of development of the markets, that make the issuance of debt and equity finance costly, should make firms in that country have slow speeds of adjustment. However, the previous studies did not consider this in their investigation opening up the unanswered question of firms target leverage behaviour in African countries.

Nevertheless, few recent studies examined target leverage within the context of non-financial firms in Africa. One of the studies is Ramjee and Gwatidzo (2012) who investigated 178 non-financial South African firms to determine if they adjust to target leverage using firm-level variables (asset tangibility, profitability, size, age, risk, tax and growth). In the study, the speed of adjustment and adjustment cost were examined within a dynamic framework for the period 1998 to 2008 using the generalized method of moment estimation technique. Adjustment speeds that ranged from 0.623 to 0.655 for

total debt and 0.785 to 0.802 for long-term debt were reported for the firms.²⁰ They attributed the high speed of adjustment to low adjustment cost because firms in South Africa depend more on bank financing (private debt) than bonds (public debt). They contended that banks are able to offer lower transaction costs relative to the bond market because the bond market is underdeveloped, therefore, the reliance on bank credit. They also argued that the excess capital and inexpensive financing from bank deposits enable banks to offer lower debt financing costs. A comparable speed of adjustment is also reported for South Africa in Öztekin and Flannery (2012) in a cross-country study of 37 developing and developed countries with only South Africa representing the African region.

In the second study, Ghazouani (2013) reported evidence of target leverage adjustment for a sample of 20 non-financial firms in Tunisia by using the one-step and two-step difference generalized methods of moment approach. In contrast to the findings of Ramjee and Gwatidzo (2012), they found that the firms in the study have higher adjustment costs of 0.836 for the one-step and 0.817 for the two-step methods. The study period was from 2004 to 2010 and employed firm-level determinants (size, growth, profitability, guarantees and risk). The higher adjustment costs of Tunisian firms were explained in terms of the debt market being dominated by banks due to the underdevelopment of the Tunisian bond market. The banks in the study were noted to have inefficient and cumbersome quality control measures and did not follow due procedure in the granting of credits. Hence, the reason why the adjustment costs was found to be high.

²⁰ This implies adjustment costs between 0.345 and 0.377 for total debt while that of long-term debt is between 0.198 and 0.215.

Jooma and Gwatidzo (2013) extended the works of Ramjee and Gwaditzo (2012) and Ghazouani (2013) by examining firms in four African countries over the period 2001 – 2011, also using firm-level determinants in the regression specification.²¹ The study revealed that the firms in the countries investigated exhibited target leverage behaviour with adjustment cost and speed differing from country to country depending on the definition given to leverage. The speed of adjustment reported ranged from 17.9% to 60.2%. Firms in Nigeria and South Africa had lower transaction costs in adjusting to target leverage when compared to those in Ghana and Kenya. The lower transaction cost was attributed to better developed bond markets in Nigeria and South Africa although the study excluded bond market development variable and employed only firm-level variables. They also found that the speed of adjustment was faster in short-term debt ratio as against long-term debt ratio indicating higher costs of adjustment for long-term debt.

Recalling the assertion of Öztekin & Flannery (2012) that institutional features are important in determining adjustment costs, the review of literature on African studies in this section shows that existing research on African firms largely ignores this aspect by investigating debt ratio using only firm-level determinants. In addition, findings from these studies may affect the generalization to firms in other African countries mainly due to the small number of firms investigated. Consequently, this thesis extends the literature on dynamic trade-off theory by including macroeconomic and institutional features. These variables are used in investigating the dynamic trade-off theory (target leverage adjustment) in nine African countries for a sample of 599 non-financial firms within a framework that allows for the determination of adjustment costs and speed of adjustment given the peculiarities in the operating environments of the firms. Thus, in addition to firm-level determinants, macroeconomic factors used in this thesis are gross domestic

²¹ Ghana, Kenya, Nigeria and South Africa.

product and inflation while institutional features are rule of law, regulatory quality and government effectiveness.

2.4.3 Banking Sector Development and Debt Maturity Structure

As argued in Demirgüç-Kunt and Maksimovic (1999), financial intermediaries such as banks influence the financial structure of banks through their monitoring function. The authors contend that developed banking sectors ease firms' access to external finance and an increase in the availability of short-term debts through the economies of scale obtained from monitoring of creditors. Nevertheless, they still argued that the same economies of scale and monitoring ability equally enable them to offer long-term loans that are unavailable in a market with no intermediaries. Thus, the question of the effect of banking sector development on debt maturity structure is unclear.

Studies on debt maturity structure in developed countries showed that in developed stock markets, the maturity structure of debt is longer and that firms substitute equity for debt because of the diversification opportunities offered by the stock market (Deesomsak, Paudyal, & Pescetto, 2009; Demirgüç-Kunt & Maksimovic, 1999). At the same time, the information transmission mechanism of the market to stakeholders reduces information asymmetry problems common with long-term debt and thus promotes the use of long-term debt because it becomes less risky for investors (Grossman, 1976).

Recently, Fan et al. (2012) documented that the country in which a firm is domiciled is important in capital structure and debt maturity decisions for a sample of 39 developed and developing countries over the period 1991-2006 with South Africa being the only African country in the study. Specifically, they noted that suppliers of capital (especially banks) in countries with larger banking sectors influence the debt maturity ratio by preferring to lend to firms mostly on a short-term basis. They also reported

evidence of a crowding effect of corporate sector debts by public (government) debts in developing countries, a situation that makes the corporate sector borrow less.

Nevertheless, empirical evidence from Kirch and Terra (2012) showed that development in the financial system does not have any significant effect on debt maturity structure in a sample of 359 non-financial firms in five South American countries (Argentina, Brazil, Chile, Peru and Venezuela) for the period 1996-2007. In the study, they defined debt maturity as the ratio of long-term debt to total debt. The quality of the institutions on the other hand, was found to be a major determinant of the debt maturity structure in addition to other firm-specific factors such as lagged debt maturity (positive), firm size (positive), business risk (positive), asset tangibility (positive), tax (negative) and credit rating of the firm (negative).

In a departure from previous studies, González and González (2014) decomposed debt maturity structure into total, long and short term debt to determine if the effect of banking liberalization and other country institutional factors are the same for short and long term categories of debt (total debt measured overall availability of debt). The study used annual data of firms in 37 developing and developed countries for the period 1995 to 2004. The main empirical findings showed variations in the effect of banking liberalization on the use of debt finance across the countries in the study. Specifically, following banking liberalization, there was an increase in debt availability especially for firms in countries where there were stronger supervision and lower protection of creditor and property rights. The increase in total debt was attributed to an increase in short-term debt rather than long-term debt. They argued that the larger information asymmetries issues in long-term debt reduced the benefits of banking liberalization unlike short-term debt that does not rely so much on relationship banking. However, maturity structure reduced more in developed than in developing countries.

The review of literature in this section revealed the dearth of research on debt maturity structure for African firms. This is of particular importance given the market development measures introduced in some African countries. The expectation is that constraints hindering firms' access to external debt are reduced such that debt level is increased and at the same time made affordable. If this is in place, firms may be able to take on more long-term debt to promote firm growth against short-term debt common in developing countries. This thesis therefore fills up the gap in debt maturity structure literature by investigating the effect of banking sector development on debt maturity structure in addition to the applicability of western styled debt maturity theories to African firms.

2.5 Hypothesis Development

Following the theoretical literature discussed earlier, this section makes a presentation of how the hypotheses used in answering each of the research questions are developed. For the purpose of this thesis and as explained in Chapter 1, the first three objectives relates to capital structure while the fourth is concerned with debt maturity structure.

a) Banking Sector Development and Capital Structure

The three main financial intermediary functions of banks (transaction cost reduction, liquidity provision and delegated monitoring) suggest increase in credit availability following successful intermediation process (Benston & Smith, 1976; Diamond, 1984; Diamond & Dybvig, 1983). It then follows that more debt financing will be available for firms at low cost for those who need it as a source of external finance. However, the success of financial intermediaries in reducing transaction costs and providing ample liquidity to increase firms' access to debt finance depend on how developed the intermediaries are (Chami et al., 2010; Fan et al, 2012). Noting that the sampled countries introduced measures to develop the banking sector, the research question for this part of the thesis is:

Research Question 1: To what extent does banking sector development influence the capital structure of firms in African countries?

The above question is answered by investigating the extent to which banking sector development in the form domestic credit to the private sector by commercial banks influences the debt ratio of firms in African countries. The expectation is that following successful financial intermediation through banking sector development that reduces the cost of debt finance and increases debt availability, firms will employ more debt finance in their capital structure. Thus, the expected influence is positive. Accordingly, the testable hypothesis for research question 1 is:

Hypothesis 1: There is a positive and significant relationship between domestic credit to the private sector by commercial banks and debt ratio of firms in African countries.

b) Stock Market Development and Capital Structure

In Section 2.1, the theoretical literature review showed that financial intermediation theory as related to the stock markets provides liquidity, alleviates information asymmetry issues and reduces agency conflict between stakeholders. Consequently, investors are more willing to provide capital in the form of equity to firms in the stock market (Demirgüç-Kunt & Maksimovic, 1996; Grossman & Stiglitz, 1980). When this happens, there is a substitution of equity finance for debt finance thereby leading to reduction in debt ratio. This argument forms the basis for research question 2:

Research Question 2: To what extent does stock market development influence the capital structure of publicly-listed firms in African countries?

Research question 2 is used in fulfilling objective 2 that seeks to determine the influence of stock market development on the capital structure of firms in African countries. The expectation here is that there will be a reduction in the debt ratio suggesting more use of equity. Accordingly, the testable hypothesis used in answering research question 2 is:

Hypothesis 2: There is a negative and significant relationship between stock market turnover and debt ratio of firms in African countries.

c) Target Leverage Adjustment

The theoretical literature reviewed earlier in Section 2.2.1 under the trade-off theory suggests that firms try to balance the tax advantage of debt financing against their associated costs in achieving an optimal debt ratio. Within a dynamic framework, when shocks move firms away from the target debt ratio, costly adjustment costs may prevent firms from adjusting to the optimal debt ratio (Ozkan, 2001, Flannery & Ragan, 2006; Öztekin & Flannery, 2012). These costs are particularly important for firms in developing countries where market imperfections lead to costly adjustment costs (Öztekin & Flannery, 2012). This forms the basis for research question 3:

Research Question 3 Do firms in African countries instantaneously adjust to target leverage?

In order to answer research question 3, this thesis investigates the dynamic trade-off theory of capital structure to determine the adjustment costs and speed of adjustment for firms in selected African countries. It is expected that due to market imperfections in the financial markets of the selected countries, firms domiciled therein will incur costly adjustment costs that may affect target leverage adjustments. This implies that the firms might be under-adjusted and are operating below target leverage. Accordingly, the testable hypothesis for answering the research question is:

Hypothesis 3: There is a significant and positive instantaneous adjustment to target leverage by African firms.

d) Banking Sector Development and Debt Maturity Structure

The financial intermediation theory posits that providers of debt finance (banks and bond market) facilitates firms' access to long-term debt, which suggests a positive relationship between debt market development and maturity structure, especially for long-term debt (Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012). On the other hand, banking liberalization policies to develop the banking sector in developing countries have led to a negative effect on firms' debt maturity structure especially for long-term debt (Petersen & Rajan, 1995). Research question 4 therefore draws on these theoretical literatures:

Research Question 4: To what extent does banking sector development influence the debt maturity structure of firms in African countries?

The expectation following banking sector development is that more credit in the form of long-term debt is available for firms to access, which in turn will increase the maturity structure of debt. Therefore the hypothesis for research question 4 is:

Hypothesis 4: There is a significant relationship between domestic credit to the private sector by commercial banks and the debt maturity structure of firms in African countries.

Table 2.2 presents a summary of the research questions, objectives, hypothesis statement and related theoretical literature.

2.6 Chapter Summary

This chapter reviewed important theoretical literature that governs both capital structure and debt maturity decisions with empirical evidence supporting the various theories. The review established the existence of other factors apart from firm-specific factors that are important in determining the capital and debt maturity structure of a firm. These include macroeconomic factors, legal origin, associated institutional factors that strengthen the legal system of a country and the level of development of the financial market. From the review, the following gaps that this thesis addresses are:

- i) The review identified the absence of an ‘Afrocentric’ literature that supports western styled theories of capital and debt maturity structure. This is particularly important because of differences in the level of financial market development and institutional features between developing and developed countries. Thus, generalizing findings from developed countries to developing ones may be biased. Noting that African countries had implemented market development policies over the years to improve firms’ access to external capital among other reasons, this thesis investigates the effect of these developments on financial decisions of firms in nine developing countries in Africa.
- ii) Variables used to measure banking sector development in previous studies did not reflect credit granted to the private sector by commercial banks but credit granted to the system as a whole. The use of variables that do not solely capture domestic credit given by commercial banks to the corporate sector implies that public sector credits as well as credits to other sectors are included in the measurement. In addition credit granted by other sectors in the financial system (development banks and other specialised financial intermediaries) are also captured by these variables. Given that, the focus of this thesis is on banking and corporate sector, the thesis addressed the issue of variable misrepresentation by using variables that focus on the banking sector and non-financial firms.
- iii) The review also revealed that previous studies on African firms did not consider the effect of adjustment costs on firms’ debt ratio, and where it did, only firm-specific factors were considered. The imperfections in the financial markets in African countries may result in costly adjustment costs for firms that try to attain optimal debt ratios when shocks move them away from target debt ratio. In addressing this problem, the present thesis examines non-firm-specific factors in addition to firm-specific factors to determine the effect of adjustment costs on firms’ adjustment to target optimal debt ratio.

Chapter 3, which follows next, discusses in detail the various measures put in place by financial and regulatory policy makers to develop financial markets (banks and stock markets) of the selected countries. The expectation is that these measures will ameliorate the issues and difficulties encountered by firms in accessing external finance by providing a conducive environment for financial contracting to take place. This is to enable firms to embark on investments that stimulate growth both at firm-level and at macro (country) level.

Table 2.1: Theoretical Prediction of Firm-Specific and Macroeconomic Determinants of the Dynamic Trade-off and Pecking Order Theory

Determinant	Trade-off theory	Pecking order theory
Profitability	+ / -	-
Asset Tangibility	+	-
Firm Size	+	-
Growth Opportunity	-	+
Non-debt Tax Shield	+ / -	-
Gross Domestic Product	+	-
Inflation	+	-

Source: Review of related literature

Table 2.2: Theoretical Prediction of Banking Sector and Stock Market Development on Capital Structure

	Debt	Equity
Banking sector development	+ve	-ve
Stock market development	-ve	+ve

Source: Review of related literature

Table 2.3: Summary of the Research Objectives, Questions and Hypothesis Statement of the Thesis

Research objectives	Research questions	Hypotheses	Theoretical literature
RO1 To examine the influence of banking sector development on the capital structure of firms in African countries.	RQ1 To what extent does banking sector development influence the capital structure of firms in African countries?	Hypothesis 1 There is a positive and significant relationship between domestic credit to the private sector by commercial banks and debt ratio of firms in African countries.	Benston & Smith, 1976; Diamond, 1984; Diamond & Dybvig, 1983
RO2 To determine the influence of stock market development on the capital structure of firms in African countries.	RQ2 To what extent does stock market development influence the capital structure of publicly-listed firms in African countries?	Hypothesis 2 There is a negative and significant relationship between stock market turnover and debt ratio of firms in African countries.	Demirgüç-Kunt & Maksimovic, 1996; Grossman & Stiglitz, 1980.
RO3 To investigate firms' instantaneous adjustment to target leverage in African countries.	RQ3 Do firms in African countries instantaneously adjust to target leverage?	Hypothesis 3 There is a significant and positive instantaneous adjustment to target leverage by African firms.	Flannery & Öztekin, 2012; Flannery & Ragan, 2006; Ozkan, 2001
RO4 To examine the influence of banking sector development on the debt maturity structure of firms in African countries.	RQ4 To what extent does banking sector development influence the debt maturity structure of firms in African countries?	Hypothesis 4 There is a significant relationship between domestic credit to the private sector by commercial banks and the debt maturity structure of firms in African countries.	Barclay & Smith, 1995; Demirgüç-Kunt & Maksimovic, 1999; Myers, 1977

CHAPTER 3 : OVERVIEW OF FINANCIAL MARKET DEVELOPMENT IN SELECTED AFRICAN COUNTRIES

3.0 Introduction

This chapter consists of five sections examining financial market development as it relates to the objectives stated in Chapter 1, i.e. banking sector and stock market development in the selected countries. Section 1 begins by discussing the classification and selection criteria for the countries used in the study in terms of market development shedding light on the reason for limiting the number of countries to nine. Section 2 presents issues, challenges and general development measures in financial markets in Africa including a comparison with other developing regions. Thereafter, Section 3 details the distinct features of development in each of the selected country. Section 4 gives a trend analysis that compares the indicators of financial market development between the selected countries while Section 5 summarizes the chapter.

3.1 Classification and Selection Criteria

As discussed in the previous chapter under the scope of the thesis, financial markets in the countries selected for this study are classified as emerging and frontier markets by the Dow Jones Index and Morgan Stanley Capital International (MSCI). It should be pointed out that certain factors are considered before a country is categorised as either an emerging or a frontier economy.

According to the Dow Jones Classification Indices for 2014, a country is required to fulfil two out of three of eligibility criteria in order to be classified as a frontier economy while emerging markets are required to fulfil a minimum of four out of nine inclusive of the requirement for frontier economies. Developed economies, on the other hand, are required to fulfil all of the ten conditions. Panel A in Table 3.1 details the requirement for Dow Jones classification.

Table 3.1: Classification and Selection Criteria for Developed, Emerging and Frontier Economies

Classification criteria	Frontier	Emerging	Developed
DOW JONES (A)			
<u>Initial eligibility criteria</u>			
Full domestic capitalization over \$2.5 billion	Minimum of two X	X	X
Domestic annual turnover value over \$1 billion	X	X	X
Exchange development ratio over 5%		X	X
<u>Additional criteria</u>			
Full domestic capitalization		X	X
Settlement period of T+3 or better		Minimum of three X	X
Sovereign debt rating of BB+ or above		X	X
Non-occurrence of hyperinflation			X
No significant foreign ownership restrictions			X
Freely traded foreign currency			X
<u>GDP Criteria</u>			
GDP (PPP) per capita greater than \$15,000)			X
MORGAN STANLEY CAPITAL INTERNATIONAL (B)			
<u>Economic development</u>	No requirement	No requirement	Country GNI per capita 25% above the World Bank high income threshold* for 3 consecutive years
Sustainability of economic development			
<u>Size and liquidity requirement</u>			
Number of companies meeting the standard index criteria	2	3	5
Company size (full market cap)	\$630mm	\$1260mm	\$2519mm
Security size (floatation cap)	\$49mm	\$630mm	\$1260mm
Security liquidity	2.5% ATVR	15% ATVR	20% ATVR
<u>Market accessibility criteria</u>			
Openness to foreign ownership	At least some	Significant	Very high
Ease of capital inflows/outflows	At least partial	Significant	Very high
Efficiency of the operational framework	Modest	Good & tested	Very high
Stability of the institutional framework	Modest	Modest	Very high

Source: S & P Dow Jones Indices (2014) and Morgan Stanley Capital International (2014)

The selection criteria used by Morgan Stanley Capital International presented in Panel B of Table 3.1 shows that in order to be classified as a frontier, an emerging or a developed market, a country must fulfil the requirements set for each market. The requirement consists of three main criteria, namely: economic development, size and liquidity and market accessibility. The three criteria are further broken down to reflect the specific features of each market type.

In this thesis, three of the selected countries are classified as emerging and six of them fall under the frontier category for both classification index. The emerging economies are

Egypt, Morocco and South Africa while the frontier economies are Botswana, Ghana, Kenya, Mauritius, Nigeria and Tunisia.

3.2 African Financial Markets: Trending Issues, Challenges and Performance

Spurred by the finance-growth literature as discussed in Chapter 1, most African countries introduced financial sector development policies in order to develop the economy as well as the financial system. The world economic outlook report of the World Bank and International Monetary Fund for 2013 showed that while the mean output growth for Sub-Saharan and North African countries were higher than those of advanced countries, Latin and Caribbean countries, it was lower than the reported values for developing Asia.²² The reported growth rates of African economies suggest some level of success in the implementation of developmental policies.

Despite the growth in the economy of African countries however, financial markets in these countries still lag behind other developing regions in market development indices as observed in Table 3.2.

Table 3.2 : Comparison of Selected Financial Market Development Indicators in Developing Countries in East Asia and Pacific, Latin America and Sub-Saharan Africa (Average values for 2003 to 2012)

Market development indicator	No. of listed domestic companies	Market capitalization (\$'million)	Stock traded (\$'million)	Domestic credit to private sector by commercial banks (%)
East Asia and Pacific	4,377	3,828,945	5,059,115	106
Latin America and Caribbean	1,235	1,482,775	630,339	29.79
Sub-Saharan Africa	747	428,758	184,140	35.04

Source: World Bank Development Indicators

The financial indices in Table 3.2 further confirm the state of underdevelopment of African financial markets. All the indicators with the exception of domestic credit to the private sector by banks, for East Asia and Pacific and Latin America and Caribbean

²² As shown in Table 1.2

countries have higher values than Sub-Saharan Africa. Sub-Saharan African countries however outperform Latin America and Caribbean countries in the domestic credit to the private sector by commercial banks indicator.

Further evidence of the state of African financial markets was reported in Ojah and Kodongo (2014) who showed that African financial markets for the period of their study were mostly characterized by low level of liquidity, small size and few large firms (having the majority of the total market capitalization) that dominate the markets. Institutional investors form a minority in the market. The illiquidity of the markets implies thinness of trading and low business volume, which discourages investors, thus prevents deepening and enlargement of the market. In earlier studies, Beck et al. (2011) and Dahou et al. (2009) identified some of the problems and challenges that besiege financial markets in Africa. These include the difficulty in allocating existing resources for productive use and how to reduce constraints in financing that arise when accessing funds for investment by firms among other challenges. These problems may be linked to the various imperfections in the markets such as high transaction costs, high agency costs and information asymmetry. The imperfections in African financial markets subsequently result in firms' difficulty in accessing external capital (debt or equity).

Further highlighting the state of underdevelopment of African financial markets, Papaioannou (2007) noted that the capital accumulation process, which plays a major role in the development of financial markets in underdeveloped and developing countries is not efficient in African countries and that it needs improvement. Similarly, Moss, Ramachandran, and Standley (2007) asserted that in order for financial markets in Sub-Saharan African developing countries to improve equity investment, there is need to develop financial markets by increasing the liquidity level and size of the markets.

Nevertheless, Standley (2010) argued that the process of developing a financial market is a long-term project and therefore proposed that the institutional, policy, legal

and regulatory environments in which markets operate be made conducive to enable its development. Putting this framework in place will accordingly set up structures that give a better definition to property rights, enforcement of contracts and investor protection.

The recommendations for developing the markets by the aforementioned authors are not new to financial sector regulatory authorities and policy makers in African financial markets. This is because prior to the recommendations, the authorities in these economies had put in place policies meant to develop the financial markets and ameliorate problems identified in the markets with a view to providing a conducive environment for enhancing domestic and foreign investment.²³ An observation of selected financial market indicators in Table 3.4 showed that the closing values for the period of study are higher than the beginning period (with the exception of number of listed companies) suggesting that these measures have succeeded to an extent in improving firms' access to external finance (both debt and equity) in the selected countries. Nevertheless, Ayyagari, Demirgüç-Kunt, and Maksimovic (2012) and Ncube (2007) noted that most of the firms in African countries primarily rely on bank debt for external finance implying dominance of bank debt over equity capital. However, the capital market has recently begun to play a more significant role.

On a general level and common to all the countries selected for this study are developments in the banking sector. These included expansion in banks' networks within the domestic market and across the continent, strengthening of commercial banks' capital base, improvement in risk management and corporate governance practices, the liberalization of state-controlled banking systems, increase in credit to the private sector and the adoption of technology based banking (Mlachila et al., 2013). The capital markets witnessed similar developments in terms of growth in the number of stock markets in the continent, increase in value of market capitalization of existing stock markets and the

²³ Murinde (2012) pointed out that most of these reforms started in the 1990s.

relaxation of restrictions on foreign investments / investors in domestic stock markets.²⁴

Other developments in the banking sector include adoption of an automated trading system instead of a manual one, enhanced investor protection laws and corporate governance codes, cross-listing of shares of different companies in the various exchanges and improved manpower supply by employing personnel that have the requisite skills to work in the market (Beck et al, 2011). Table 3.3 presents a summary of the developments in the banking sector and stock market of the sample countries for this study (Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa and Tunisia) classified under four major headings.

²⁴Number of stock exchange increased from five in 1960 to 27 in 2012. See Appendix A for the list of stock exchanges in Africa. Market capitalization of the 27 stock exchanges increased from \$250 billion to over \$1 trillion between 2002 and 2007.

Table 3.3: Summary of Developments Recorded in the Banking Sector and Stock Market in Selected African Countries

Type	Related development measures (Bank)	Related development measures (Stock market)
Ownership structure	Relaxation of foreign ownership of banks Introduction of investor and creditor protection laws Introduction of corporate governance codes Privatization of state-owned banks Bank consolidation exercise that lead to mergers and acquisitions ²⁵	Relaxation of foreign participation in investment in listed securities ²⁶ Introduction of investor and creditor protection laws Introduction of corporate governance codes
Technology	Introduction of mobile banking and electronic platforms to carry out transactions e.g. online banking platforms	Automation of trading platforms from manual based ones in the stock market Cross-listing of shares across different stock exchanges ²⁷
Manpower development	Investment in human capital development to acquire the requisite skills needed in the system	Investment in human capital development to acquire the requisite skills needed in the system
Bank / Stock Market activities	Adoption and implementation of Basel II framework in the banking sector	Increase in the number of stock exchange in the continent ²⁸ Increase in the value of stock market capitalization ²⁹ Establishment of regional stock exchanges ³⁰ Reduction in settlement period of transactions to T + 3 ³¹

Source: Adapted from Beck et al., 2011; Bolbol, Fatheldin, & Omran, 2005; Mlachila et al., 2013

In measuring financial system performance via financial market development indicators, Beck, Feyen, Ize, and Moizeszowicz (2008) and Čihák, Demirgüç-Kunt, Feyen, and Levine (2012) advocated that it should be done along functional lines i.e. how well an indicator achieves the objective it was set up for. This was based on the deficiencies observed in the measurement of the central concept (functionality of the financial system)

²⁵ For instance in Nigeria, commercial banks were required by law to increase the minimum capital from \$15 million to about \$192 million in 2004. This set in a series of mergers and acquisitions by the existing deposit money banks in order to meet the requirement. The banking consolidation exercise saw a reduction in the number of banks from 89 to 24 but with stronger capital base (www.cenbank.org).

²⁶ In Egypt, for example, although the socialist reform policies before the 1990s had negative effects on the financial markets, opening up the markets to foreign investors in the 90s succeeded in freeing up the markets with activities picking up.

²⁷ For example, the Johannesburg Stock Exchange (JSE) in South Africa has an agreement with the London Stock Exchange (LSE), which allows cross dealings between the two exchanges. The aim of this agreement was to open up the market and increase participation by outside investors in addition to injecting liquidity into the domestic market (www.jse.co.za)

²⁸ An increase from five in 1960 to 27 in 2012.

²⁹ Market capitalization of the 27 stock exchanges increased from \$250 billion to over \$1 trillion between 2002 and 2007.

³⁰ Examples are the Abidjan-based Bourse Régionale des Valeurs Mobilières (BVRM) serving Francophone countries in West Africa and Bourse Régionale des Valeurs Mobilières d'Afrique Centrale, or BVMAC, based in Gabon. Serving five central African countries.

³¹ The number of days it takes for transactions to clear.

in prior studies. These deficiencies as related to the present thesis were identified to be in different forms such as:

- i) Efficiency in measuring firm quality vis-à-vis information that guarantees efficient resource allocation,
- ii) Provision of an operative mechanism that manages, pools and diversifies risks,
- iii) Mobilization of savings from surplus units to productive units.

Nevertheless, the aforementioned authors noted that the roles of the financial market such as mobilising resources from lenders to borrowers, efficient risk allocation among participants in the market, transaction cost reduction, implementation of corporate governance etc. are difficult to define and measure. They also noted that financial market development qualities should be segregated into relevant units such as size (depth), reach (access), efficiency, and soundness (referred to as the 4x2 matrix of the financial system because it covers aspects of financial institutions and financial markets). In view of these two observations, they adopted the following units and measurements to assess the relationship between the financial system and key financial sector policies:

- i) Size (depth) is measured in relation to deposits, credit or total assets,
- ii) Reach (access) denotes availability and use of financial services across geographical and income divisions,
- iii) Efficiency in the use of resources used to provide financial services for effective financial intermediation by financial institutions and markets,
- iv) Soundness refers to the ability of the financial system to sustain and withstand exogenous shocks.

In view of the challenges in quantitatively measuring development in the financial system, Beck et al. (2008) and Čihák et al. (2012) pointed out that the 4x2 matrix does not directly capture features of financial sector policies such as supervision and regulation

but rather closes the gap between policy measures and the intended objective. By so doing, it serves as an intermediate indicator with direct links to the policy objective.

For the purpose of this thesis, financial market indicators are limited to those that relate to the size and efficiency of the banking sector and stock market because they have direct bearing on the objectives of the thesis. Banking sector indicators include domestic credit to the private sector by banks (% of GDP), domestic credit provided by the financial sector (% of GDP) and domestic credit to the private sector (% of GDP). Stock market development indicators are market capitalization of listed companies, stocks traded and listed domestic companies. However in Chapter 4 (research design and methodology), the indicators are narrowed down to only those that capture the variables of interest with reasons given as to why they are selected.

Table 3.4 presents the average values of banking sector and stock market development indicators for the countries used in this study for the period 2003-2012. Panel A in Table 3.4 gives the average of banking sector development indicators and shows a rising trend in the three indicators. The same rising trend is seen in Panel B for stock market development indicators from 2003 up to 2007 especially for market capitalization of listed stocks and stocks traded total value. Thereafter, there was a fall in the value of the indicators with the countries not being able to achieve the pre-2008 figures. Previous studies attributed this fall to the contagion effect of the 2007 financial crisis that was felt more in the stock market than in the banking sector (Allen & Giovannetti, 2011; Boorman & Christensen, 2010). Also from Table 3.4, it is observed that the number of listed domestic companies declined all through the period of the study. Despite the decline observed in the values of these indicators (post 2007), the starting values in 2003 are observed to be lower than the ending values in 2012 suggesting positive development in the indicators.

Table 3.4: Banking Sector and Stock Market Development Indicators in Selected African Countries³² (Average statistics: 2003-2012)

Banking Sector Development Indicators (A)				Stock Market Development Indicators (B)		
Year	Domestic credit to private sector by banks (% of GDP)	Domestic credit provided by financial sector (% of GDP)	Domestic credit to private sector (% of GDP)	Market capitalization of listed companies (Current US\$' million)	Stocks traded, total value (Current US\$' million)	Listed domestic companies, total
2003	39.88	64.92	46.88	36,624	12,027	1,827
2004	40.57	66.44	48.46	60,854	19,174	1,633
2005	41.23	66.62	49.94	78,626	25,935	1,585
2006	41.28	65.11	51.24	101,921	42,116	1,461
2007	44.92	66.45	54.85	129,706	58,271	1,384
2008	48.10	67.19	55.88	80,044	57,404	1,288
2009	48.17	71.15	56.83	102,490	47,950	1,211
2010	46.23	72.16	55.71	97,563	44,061	1,114
2011	47.57	73.25	56.36	78,417	45,271	1,117
2012	49.05	77.48	58.58	90,907	38,041	1,111

Source: World Bank Development Indicators

Furthermore, Table 3.4 shows that the trend of development in the banking sector as indicated by domestic credit may outweigh development in the stock market especially after the global financial crisis of 2007 / 2008 implying that the sector was more resilient to the effect of the crisis.

3.3 Country-Specific Market Development Measures

While the previous section discussed development of financial markets on a broad level by summarizing the overall development for all the nine countries, this section examines specific countries' efforts at developing the banking sector and the stock market for each of the selected countries.

a) Botswana: The Botswana banking sector prior to 1990 was relatively small with two commercial banks dominating the scene while others were largely government owned under state control. The banks were not actively engaged in financial intermediation and licensing of new banks was restrictive with older banks having the power to object to the entry of newer banks. Interest rate control was also in place to keep

³² Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa and Tunisia.

borrowing rates low to encourage borrowing for productive purposes/investment (Jefferis & Tacheba, 2010). However, this purpose was not achieved because among other issues, the low interest rates rather encouraged borrowing for unproductive investments. Similarly, the dominant role of government in the sector did not encourage market forces to play their role in the credit allocation process. In addition, the banks did not encourage long-term lending to promote the long-term investment necessary for growth. Due to the identified problems, policies to address these issues were put in place starting from the 1990s. Some of these policies included the abolition of interest rate control, easing of entry requirements for new banks, removal of sectoral allocation of credit and a strengthening of the regulatory framework to improve supervisory powers (Jefferis & Tacheba, 2010).

The Botswana Stock Exchange (BSE) established in 1989, remains a fundamental part of the Botswana financial sector. The listed companies on the exchange represent the diversity of the industries which include tourism, wholesale and retail services, information technology, banking and financial services. The BSE in order to encourage information disclosure to the public and other investors in making informed decisions on investments has in place, a pre-listing and post-listing requirement that is observed by issuers of securities that are listed on the exchange.³³

b) Egypt: The Egyptian banking sector is one of the oldest and largest in Africa. Although financial sector reforms started as early as the 1970s, modern financial sector reform did not begin until the 1990s. This had the aim of fully liberalizing the sector to make the banks more competitive and efficient. The reforms include deregulation and privatization of state-owned banks, bank mergers, recapitalization, modernisation of the payment system, enhancement of corporate governance policy and an overall overhauling of the legal and regulatory framework (Nasr, 2012). In 2005, the

³³ <http://www.african-exchanges.org/members/botswana-stock-exchange>

Financial Sector Development Policy Loan to enhance the investment environment was introduced. Prior to the introduction of the development policy loan, banks were required to shore up their capital to a minimum of \$87 million in 2002 to meet the capital adequacy ratio under Basel II standards. The introduction of these reforms as noted by Murinde (2009) also removed entry restrictions encountered by foreign banks into the local financial market. This action enabled several foreign banks to have majority shareholdings in Egyptian banks while others have registered branches instead of subsidiaries in Egypt.

The Egyptian Stock Exchange (EGX) is unarguably one of the oldest stock markets in the Middle East and Africa. Its origin and existence can be traced back to 1883 just a few years ahead of the JSE and ranks second largest to it. It consists of two exchanges namely the Cairo and Alexandria Stock Exchange (CASE). The Alexandria Stock Exchange was established in 1883 while the Cairo Stock Exchange came into existence in 1903. The EGX in its efforts at strengthening its position in the international capital market and developing the quality and depth of the EGX, joined a number of international stock exchange associations in addition to signing memoranda of understanding with a few. Some of these international associations include WEF, African Stock Exchange Association (ASEA), Union of Arab Stock Exchange and the International Organization of Securities Commissions (IOSCO).³⁴ In 2007, there was a reduction in transaction cycle for the clearing of securities from T+3 to T+2 cycles to enable a faster turnaround time for market and trading activities.

Some of the policies introduced by the Egyptian government, which falls under the socialist reform policies occurring between the 1960s and 1990s had a severe effect on the EGX. An example of the socialist reform policy is the nationalization law of foreign-

³⁴ <http://www.egx.com.eg/english/homepage.aspx>

owned enterprises that led to drastic reduction in market activities when it was enacted. It was not until the early 1990s when policies aimed at freeing up the market and geared towards privatization were introduced that market activities picked up again (Bolbol et al., 2005). In 1992, as part of the reform measures, a new capital market law was passed to encourage private investments and increase investors' protection. This had the objective of strengthening financial disclosures, allowing investors full access to the market and increasing investors' rights. The purpose of enacting the law was achieved because of the remarkable increase witnessed in market activity between 1992 and 2002. According to Bolbol et al. (2002), this was evidenced by the various performance measures that all showed increased activities. For instance, they noted that market capitalization expressed as a percentage of GDP rose from 7.8% to 30.1%, value traded increased from 0.4% to 7.4%, the number of listed companies increased to 1,150 from 627 while the value of shares traded rose to \$832.9 million from \$22.7 million.

c) Ghana: The banking sector in Ghana like other African countries is largely influenced by government intervention. According to Antwi-Asare and Addison (2000), this occurred because of the attempt made by the government to rapidly promote industrialization in the country. There was government intervention in virtually all spheres of the financial sector and financial policies were geared towards the attainment of the industrialization drive. Notable among the policies in place were interest rate controls and credit ceilings on lending to make cheap credits available to the industries. The banks were also required to maintain high amounts of reserve requirements with the Central Bank of Ghana (Antwi-Asare & Addison, 2000). Banking sector reforms which began in the 1980s in Ghana aimed at removing imperfection in the system, increase investment, quicken the pace of industrialization and development and provide the huge capital required for investments in the industrial sector. Reform measures included the privatization of state-owned banks, de-regularization of interest rates and removal of

control on credits. There were also measures to improve regulatory and supervisory functions by the regulatory authorities that give priorities to risk management and capital adequacy.

The stock market in Ghana, established in 1990, is young compared to other stock markets in the sample with trading activities commencing in 1991. It became a public company limited by guarantee in 1994. This explains its lower level of development when compared to other markets in the sample countries.

d) Kenya: In East Africa, Kenya has the largest and most developed banking system when compared with other countries in the same region. Prior to the reforms and like most of the other countries in the present study, the sector was not liberalized with most of the banks being under state control. Liberalization of the interest rate was introduced in 1991. The introduction of capital adequacy ratio for commercial banks came into being in 1998. In recent years, measures have been taken to improve corporate governance, risk classification and risk management. There has also been an increase in liquidity in the financial system due to recapitalization of the banks and has made the banks less prone to crisis/shocks.³⁵

The Nairobi Stock Exchange (NSE) was established in 1954 but dealing in shares was restricted to the resident Europeans in the community. It was not until 1963 when Kenya obtained independence that trading was opened to resident Africans and Asians. Structural reforms began in 1984 with the International Finance Corporation (IFC) and Central Bank of Kenya's implementation of a blueprint entitled 'Development of Money and Capital Markets in Kenya'. The purpose of the blueprint was to create a conducive environment for the growth and development of the country's capital market. In 2004, an electronic system of clearing and settlement was introduced into the stock market. Among other key reforms are the introduction of corporate governance policies and the

³⁵ <http://www.centralbank.go.ke/>

strengthening of regulatory bodies charged with supervisory powers. In 2012, the NSE signed a memorandum of understanding with the Somalian Stock Exchange Investment Corporation with the purpose of establishing a working relationship in the exchange of securities that involves trading, settlement, delivery and other stockbroking activities.³⁶

e) **Mauritius:** At the time of its independence from colonial rule in 1968, Mauritius inherited a bank based financial system with 11 banks in existence. The policies that were in place then included interest rate regulation by the monetary authorities, sectoral allocation of credits, the enforcement of cash and liquid asset ratio. This continued until the 1980s when credit control was relaxed slightly although a credit ceiling was still in place. The 1980s also heralded a period of reforms and by the 1990s, most of the financial sector controls put in place were removed³⁷. For instance, the interest rate was fully deregulated and credit ceilings removed. As at September 2012, the banking sector in Mauritius comprised 21 banks.³⁸

The Mauritius Stock Exchange (SEM) was established in 1989 as a private limited company and became a public company in 2008. In order to reflect the changing nature and requirements of stock markets worldwide, the SEM reformed its technical, operational and regulatory framework. After the removal of exchange control in 1994, participation in the market was opened to foreign investors who were also exempted from obtaining approval for trading in shares. The automated system of trading was launched in 2001 to facilitate the trading, clearing and settlement of securities. SEM became a member of the World Federation of Exchanges in 2005. In 2006, a market designed for small and medium-scale enterprises (SME) was set up to enhance the SMEs participation

³⁶ <http://www.african-exchanges.org/members/nairobi-se>

³⁷ http://www.mba.mu/banking_industry.php

³⁸ <https://www.bom.mu/>

in the stock market. This was expected to boost the SMEs ability to raise capital for investment and growth.³⁹

f) Morocco: Prior to the reforms in the Moroccan banking system, the system was noted to be deep under state control. For example, the Bank Al-Maghrib (The Central Bank of Morocco) had direct control over the banks in the area of credit allocation. However, with the liberalization of the sector that commenced in the 1990s, some of the state controls were given up. The liberalization of the sector introduced an era of open banking systems and universal banks.⁴⁰ Notable among this reform is the restructuring of the legal framework that governed the banking sector, the consolidation of prudential regulations and the deregulation of the banking sector. Other reform measures are the constraints on credit removal, removal of compulsory employment for Moroccans, the liberalization of lending rates and the establishment of the interbank foreign exchange market⁴¹. According to the Moroccan banking supervision annual report of 2012, the Moroccan banking system utilizes the Basel II accord with ongoing actions to implement Basel III. As at the end of 2012, the total number of credit institutions in Morocco was 86 with 19 banks, six offshore banks, 36 finance companies and 25 other financial institutions.⁴²

The stock market in Morocco was established in 1929 and was not left out of the reforms. Prior to the reforms in the 1990s, the market had remained inactive for a long period of time but following wide-ranging reform measures, activities in the market picked up again. The market was privatized in 1993. Some of the reform measures introduced include a new legal framework, reduction in transaction and commission rates, introduction of an electronic trading system and the setting up of a central securities

³⁹ <http://www.african-exchanges.org/members/se-of-mauritius>

⁴⁰ www.casablancafinancetcity.com

⁴¹ <http://www.finances.gov.ma>

⁴² www.bkam.ma

depository (Jefferis & Smith, 2005). The adoption and use of new listing requirements were introduced in 2004 and 2005. The corporate governance code was adopted in 2009 and a road show in major Moroccan cities to create awareness about the stock market was also organized (ASEA, 2009).

g) Nigeria: Before the introduction of the reforms in the Nigerian financial sector, the banking sector was seen to be weak, fragmented and mostly financing short-term credits. Many of the banks were engaged mainly in short-term lending with limited lending to the private sector. Thus in order to correct this anomaly and improve credit granted to the private sector, reforms in the banking sector were introduced. Most notable of the reforms was the 2004 ‘consolidation exercise’ where the banks were required to increase the minimum capital from \$15 million to about \$192 billion. These requirements set in motion a series of mergers and acquisitions in the industry because banks that could not meet the requirement had to either merge with other banks or were acquired by stronger banks to prevent their licence being revoked. This consolidation exercise saw a reduction in the number of banks from about 89 to 24. Other reforms include the strengthening of the regulatory and supervisory powers by the Central Bank of Nigeria to have a risk-based approach as required by the Basel II accord and the implementation of corporate governance policies. Some of the leading banks in the country also opened up branches in other African countries.

Activities in the Nigerian capital market (known as the Nigerian Stock Exchange, (NSE) began in 1961 when the law establishing the market was enacted. Most of the reforms in the market started in the 1980s with the liberalization of the market. One of such reform is the second-tier market for securities that was introduced in 1985 to enable medium and small-scale enterprises to have access to finance from the market. Also in 1992, the Central Securities Clearing System (CSCS) was established to facilitate transactions regarding the payments and settlements in the market and the slow manual

call over system was upgraded to automation in 1999. In order to enhance integration with other exchanges in the continent, the NSE partnered with the exchanges in Kenya, Ghana and South Africa in 2002. In 2006, the foreign listing sector was revived. Other reforms introduced in 2006 included the recapitalization of capital market operators, reduction in transaction costs, granting of concessions to firms unable to meet the stringent requirements of the market to enable them to raise new funds and facilitating mergers and acquisitions.⁴³ The NSE is a member of the World Federation of Exchanges. According to the NSE 2012 market review report, the market capitalization of listed equities grew by 37.36% from N6.54 trillion to N8.98 trillion (2011-2012), while the number of listed companies and the number of listed equities at the end of 2012 were 191 and 198 respectively.⁴⁴ To improve market participation by corporate entities, the market-making programme was introduced in 2012.

h) South Africa: South Africa, compared to other markets and economies in the continent, has well-established financial markets that compare favourably with markets in developed economies and is said to be the most advanced in the continent. For instance the banking sector has over the years, undergone a series of reforms in the area of consolidation, technology and innovation. This process has made the banking sector relatively stable and well capitalized. One such reform took place in 2005 when the banking sector was opened up to allow foreign investors to participate in local banking business. At the same time, the local banks were permitted to open up branches, subsidiaries etc. outside South Africa. According to the 2012 / 2013 World Economic Forum competitive survey, South African banks were rated 2nd in 144 countries for soundness and 3rd in the area of financial sector development. The banking sector as at the end of 2012 had 17 registered banks, two mutual banks, 12 local branches of foreign

⁴³ <http://www.nse.com.ng/>

⁴⁴ <http://www.nse.com.ng/MarketNews>

banks and 41 foreign banks with approved local representative's offices.⁴⁵ The early implementation of Basel II in 2001 enabled the risk management system of the banks to be robust to the implementation of Basel III that took place in early 2013.

The Johannesburg Stock Exchange (JSE) is the largest and second oldest stock market in Africa. It is also a member of the World Federation of Exchanges (WFE) and ranked 17th in the federation as at 2012. As at the end of 2012, its market capitalization was \$903 billion.⁴⁶ In 2001, the JSE had an agreement with London Stock Exchange (LSE) to allow cross-dealings between the two exchanges in order to open up the market and increase participation by investors. The JSE market trading system, which is fully automated, is called the JSE TradeElect and is operated under licence from the LSE. The system is adjusted to work with the specific needs of the JSE. In order to improve transparency in the market and gain investors' confidence, the real time stock exchange and news service were launched in 1997. The JSE is one of the three stock markets in Africa classified as an emerging market by Dow Jones S & P indices, Morgan Stanley Capital International (MSCI) and the International Financial Corporation (IFC) emerging market indices. The JSE plays a key role in the African Stock Exchange Association with plans to create a pan-African exchange to enable investors to trade in shares from Ghana, Namibia, Zimbabwe and Zambia and to later expand to other parts of Africa.⁴⁷

i) Tunisia: Just like its Moroccan counterpart in the Northern African region, the Tunisian banking system was characterized by a high level of government intervention prior to the reforms that commenced in the 1980s. Some of these included the regulation of credit allocation, regulation of interest rates and a limitation placed on foreign banks' participation in the domestic sector. These actions inhibited growth and competition in the sector. These reforms began with the liberalization of the sector in the

⁴⁵ www.banking.org.za

⁴⁶ <http://www.african-exchanges.org/members/jse-ltd>

⁴⁷ <http://www.african-exchanges.org/members/jse-ltd>

1980s that aimed at setting up a market-based and private-sector driven market. The reform measures introduced were intended to enhance the deposit mobilization drive that was expected to lead to efficient allocation of available resources. Some of these measures include the liberalization of interest rates, the opening up of the sector for foreign participation, strengthening of prudential regulations and banking supervision and the privatization of state-owned banks (Ali & Sghaier, 2012). The measures mentioned above are still ongoing.

The Tunis Stock Exchange (TSE) was established as a public institution in 1969 and became a limited company in 1995. This heralded the introduction of reforms in the sector as parts of efforts to liberalize the market. The electronic system of trading commenced in 1996 to promote efficiency and transparency in pricing of securities. Furthermore, to enhance the participation of medium and small-scale firms in the TSE, the Alternative Market was launched in 2007.⁴⁸ This made the market more open to companies unable to meet the more stringent requirements of the main market at competitive costs.

3.4 Trend Analysis of Indicators of Banking Sector and Stock Market Development

The previous section examined the various market development measures on a country-by-country basis. This section follows up by examining the trend in development in terms of indicators used in measuring banking sector and stock market development. Although in Table 3.4 three banking sector and three stock market development indicators were reported, this section discusses four consistently used measures in literature. These indicators measure the size and liquidity of the banking sector and stock market as noted in Beck et al. (2008). Two constantly used indicators in literature for measuring banking

⁴⁸<http://www.bvmt.com.tn>

sector development are the domestic credit provided by the banking sector to the private sector expressed as a percentage of GDP (Beck et al., 2008; Beck & Levine, 2004; Saci & Holden, 2008) and banks' liquid liability expressed as a percentage of GDP (Agarwal & Mohtadi, 2004; Saci & Holden, 2008). Likewise, two development indicators are discussed in the context of stock market development. The first indicator is market capitalization of listed companies expressed as a percentage of GDP (Rajan & Zingales, 2003; Beck et al., 2008; Saci & Holden, 2008). The second indicator is stock market turnover expressed as a ratio of the value of traded shares for the period to average market capitalization for the period (Beck et al., 2008; Saci & Holden, 2008).

3.4.1 Banking Sector Development

The first indicator here is domestic credit provided by banks to the private sector. The World Bank development indicator defines it as financial resources provided to the private sector by other depository corporations (i.e. deposit taking corporations except central banks), such as through loans, purchases of non-equity securities, and trade credits and other accounts receivable, that establish a claim for repayment. This indicator specifies the role of banks in the provision of debt finance to the private sector. Although, it does not directly measure transaction costs, higher levels of domestic credit implies increase in financial services and financial intermediation (Saci & Holden, 2008). In addition, the indicator excludes credits to other sectors other than the private sector such as public debts and focuses directly on corporate debts. (Beck & Levine, 2004). These two reasons make it a better and more efficient indicator than other indicators such as broad money expressed as a percentage of GDP and liquid liability expressed as a percentage of GDP.

Table 3.5: Domestic Credit to the Private Sector by Commercial Banks (% of GDP) in Selected African Countries (2003-2012)

	Botswana	Egypt	Ghana	Kenya	Mauritius	Morocco	Nigeria	South Africa	Tunisia
2003	19.98	53.90	12.49	24.60	73.25	42.41	13.82	120.71	60.75
2004	21.94	54.04	13.17	26.79	73.05	42.60	13.14	132.43	58.95
2005	19.76	51.17	15.54	25.93	75.28	46.12	13.24	144.15	58.29
2006	20.48	49.29	11.09	26.08	71.72	48.62	13.18	163.37	57.33
2007	22.66	45.52	14.49	26.93	75.04	58.37	25.25	167.54	57.96
2008	25.40	42.80	15.88	29.90	84.76	63.17	33.75	147.35	60.05
2009	29.39	36.09	15.66	30.29	82.74	64.68	38.49	152.08	62.03
2010	25.29	33.07	15.29	33.83	87.86	68.67	24.84	153.95	68.60
2011	27.52	31.15	15.05	38.15	91.43	71.99	20.94	144.68	75.47
2012	31.75	29.11	16.12	36.59	100.80	73.34	20.85	151.07	75.23
Mean	23.42	42.61	14.48	29.91	81.59	57.99	21.75	147.73	63.47

Source: World Bank Development Indicators

From Table 3.5, it is observed that over the ten-year period, South Africa has the highest mean ratio at 147.73%. This implies a high level of financial intermediation that eases firms' access to credit. This is followed by Mauritius at 81.59% while Ghana has the least ratio at 14.48%. A general rising trend is observed in all the countries from 2003 to 2007 except Egypt whose ratio declined up to 2012. According to Nasr (2008, 2012), the fall in Egypt's ratio was due mainly to constraints and high cost of debt finance prevalent in the Egyptian banking sector. The ratio for Nigeria initially rose from 25.25% in 2007 to 38.49% in 2009 but declined to 20.85% in 2012. South Africa had a ratio of 167.54% in 2007, declined to 147.35% in 2008 and rose to 152.08% in 2009. However, as at the end of 2012, it had risen to 151.07%. Egypt had a ratio that consistently declined all through the six-year period from 45.52% in 2007 to 29.11% as at 2012. Table 3.5 thus suggests that positive developments were recorded with the indicator in most of the countries except Egypt.

The second indicator, the ratio of liquid liability to GDP, is an indicator of the size of the banking sector in relation to the economy as a whole and shows the level of liquidity provided by the banking sector. The World Bank development indicator database defines it as the sum of currency and deposits in the central bank, transferable deposits and electronic currency, time and savings deposits, foreign currency transferable deposits,

certificates of deposit, and securities repurchase agreements, travellers' cheques, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. Unlike the domestic credit to the private sector, it does not reflect how savings are allocated to investments and does not exclude private sector credits but measures only the supply of money in the economy (Beck & Levine, 2004; Saci & Holden, 2008). Thus, it may not be a good indicator of the development in the banking system.

Table 3.6: Liquid Liability to GDP in Selected African Countries (2003-2012)

	Botswana	Egypt	Ghana	Kenya	Mauritius	Morocco	Nigeria	South Africa	Tunisia
2003	47.88	96.98	31.05	39.02	95.55	77.79	20.20	63.17	101.23
2004	46.88	96.63	32.72	39.33	101.23	80.03	18.26	64.27	51.98
2005	44.43	97.10	32.11	38.91	102.21	88.40	17.73	69.88	53.53
2006	41.56	97.35	23.26	39.71	97.23	96.05	19.04	76.17	54.67
2007	48.09	96.17	25.72	42.32	98.08	106.92	27.97	82.75	56.50
2008	51.71	88.37	27.46	42.54	100.00	107.87	36.42	84.83	58.54
2009	53.54	83.13	28.25	44.14	99.46	107.34	40.77	80.95	61.65
2010	45.89	80.72	29.62	50.08	100.35	110.30	32.80	78.33	63.62
2011	42.81	75.77	30.55	50.98	98.94	112.66	33.68	77.30	67.59
2012	44.16	74.08	31.28	50.62	100.49	113.90	36.51	75.18	66.73
Mean	46.70	88.63	29.20	43.77	99.35	100.13	28.34	75.28	63.60

Source: World Bank Development Indicators

Table 3.6 shows that Morocco has the highest mean liquidity ratio of 100.13% among the countries in the sample during the period of the study. This is followed by Mauritius and Egypt. The country with the least mean ratio is Nigeria at 28.34%. Four of these countries (Morocco, Ghana, Kenya and Tunisia) had rising trends from 2007 to 2012 while Egypt declined all through the period. Nigeria rose from a ratio of 27.97% in 2007 to 40.77% in 2009 but closed with 36.51% in 2012. South Africa had a ratio of 82.75% in 2007, rose to 84.37% in 2008 and declined to 75.18% in 2012. Botswana ratio as at 2007 was 48.09% and rose to 53.54% in 2009, which declined to 44.16% as at 2012. Mauritius had a ratio of 98.08% in 2007 and rose to 100% in 2008. By 2009, it declined to 99.46% to close at 100.49% in 2012. The observed rising and falling trend indicates variations in the level of money supply in the economy. However, as mentioned earlier,

the indicator only measures the level of money supply and may not be a good measurement of banking sector development in terms of providing credit in the economy.

3.4.2 Stock Market Development

The first indicator for stock market development to be discussed is stock market capitalization ratio. Defined by the World Bank development indicator database as share price multiplied by the numbers of shares outstanding, market capitalization ratio is an indication of the size of the stock market and is expected to positively associate with the ability of the market in allocating capital and managing risks (Rajan & Zingales, 2003; Saci & Holden, 2008). In Table 3.7, it is observed that South Africa is consistently the most capitalized market with a mean ratio of 205.36% while Ghana has the least mean ratio at 13.82%. Market capitalization ratio from the table is also seen to be on the increase over the period 2003-2007 for all the countries. However, a decline is noticed from 2008 with none of the countries able to attain its pre-2007 level as at 2012 (period of the study). This period (2008-2012) coincides with the global financial crisis of 2007 / 2008 with previous studies attributing the reduction to the contagion effect of the crisis on the stock market (Allen & Giovannetti, 2011; Boorman & Christensen, 2010).

Table 3.7: Market Capitalization of Listed Companies (% of GDP) in Selected African Countries (2003-2012)

	Botswana	Egypt	Ghana	Kenya	Mauritius	Morocco	Nigeria	South Africa	Tunisia
2003	28.37	32.65	18.68	28.03	34.86	26.40	14.03	159.16	8.98
2004	28.45	48.85	29.77	24.17	37.25	44.01	16.47	207.92	8.47
2005	24.54	88.83	15.47	34.07	41.65	45.73	17.24	228.86	8.91
2006	38.97	86.97	15.84	50.56	53.45	75.20	22.57	273.95	12.93
2007	53.82	106.75	9.61	49.15	72.71	100.36	51.88	291.28	13.78
2008	32.00	52.75	11.90	35.83	35.71	73.97	23.44	179.86	14.25
2009	42.33	47.60	9.65	35.17	53.65	69.20	19.66	248.19	20.91
2010	29.65	37.69	10.98	44.91	76.57	76.18	22.17	174.91	24.07
2011	26.86	20.63	7.83	30.35	68.15	60.57	15.98	130.16	20.81
2012	31.63	22.07	8.51	36.34	67.64	54.84	21.47	159.33	19.46
Mean	33.66	54.48	13.82	36.86	54.16	62.65	22.49	205.36	15.26

Source: World Bank Development Indicators

The second commonly used indicator is the stock market turnover ratio defined as the total value of shares traded during the period divided by the average market capitalization for the period. The stock market turnover ratio is an indicator of the level of liquidity in the market and shows the significance and reliability of information that is available in the market. An increase in this ratio in markets in developing countries suggests developments in the market, low transaction costs (which facilitate transfer of funds) and an increase in the number of firms in the market (Rousseau & Wachtel, 2000; Saci & Holden, 2008). Table 3.8 shows that JSE is the most liquid in the group followed by Egypt. Generally, a rising trend is seen for the countries up to 2007 -2008 when a decline is noticed. This implies that liquidity in the markets was generally on the rise in the markets until 2007-2008. The decline thereafter is attributed by previous studies to the contagion effect of the global 2007 /2008 global financial crisis (Allen & Giovannetti, 2011; Boorman & Christensen, 2010).

Table 3.8: Stock Traded, Turnover ratio (%) in Selected African Countries (2003-2012)

	Botswana	Egypt	Ghana	Kenya	Mauritius	Morocco	Nigeria	South Africa	Tunisia
2003	4.50	12.33	4.20	7.46	6.04	6.38	11.27	45.45	7.14
2004	2.15	17.10	3.22	8.54	4.41	8.78	13.91	45.03	8.86
2005	1.81	42.97	3.15	9.83	6.05	15.86	11.46	39.32	16.50
2006	2.27	54.82	2.14	14.63	4.42	35.26	13.64	48.80	14.26
2007	2.24	45.61	3.88	10.64	7.97	42.09	28.15	54.99	13.31
2008	3.05	61.85	5.19	11.83	8.85	31.05	29.30	60.61	25.48
2009	2.64	60.07	1.96	4.59	8.06	45.73	11.01	57.27	16.23
2010	3.35	43.04	3.37	8.60	5.87	16.29	12.54	50.74	17.17
2011	3.55	33.53	4.13	7.12	6.92	9.78	9.21	64.26	10.98
2012	2.60	37.79	1.64	8.07	4.01	6.21	8.79	54.93	13.49
Mean	2.82	40.91	3.29	9.13	6.26	21.74	14.93	52.14	14.34

Source: World Bank Development Indicators

A comparison of banking sector indicators with stock market indicators in Tables 3.5 to 3.8 revealed that indicators for the banking sector outperform (due to the higher and more stable values) those for the stock market and was less affected by the global financial crisis of 2007 /2008. In addition, the three countries whose stock market are classified as emerging markets by the Dows Jones Index and MSCI led in stock market development

indicators but not in banking sector development indicating that the stock markets in this group of countries are more developed.

3.5 Chapter Summary

This chapter started with the selection criteria used for the countries in terms of emerging and frontier economies to lend credence to the argument that this group of countries have better developed banking sectors and stock markets than other countries in Africa. However, a comparison with other developing regions (East Asia and Pacific; Latin America and Caribbean) showed that African countries in terms of financial development lag behind despite comparable economic growth rates. To meet up with other regional markets as well as open up the markets to ease firms' access to external capital, some of the countries introduced market development measures. The development indicators showed that to an extent and on a broad level, the policies introduced succeeded in alleviating and reducing some issues faced in the markets. This is observed through increases in some of the indicators used in measuring financial market development. Nevertheless, it appears that more work still needs to be done to make the markets comparable to those in Asia and Latin America.

In addition, a country-by-country evaluation revealed that South Africa outperforms other countries in this study in most of the indicators followed by Egypt and Morocco. The stock market and banks in these three countries were established before those in the other countries so it may be argued that this factor contributed to their level of development. The other countries (Nigeria, Botswana, Ghana, Kenya, Mauritius and Tunisia) have financial markets that are younger than these three (South Africa, Egypt and Morocco) hence their lower level of development. Nonetheless, the comparative analysis lends support to the classification of these markets by Morgan Stanley Capital International (MSCI) and the Dow Jones Indexes Country Classification System as emerging and frontier markets. While South Africa, Egypt and Morocco are classified as

emerging markets, Nigeria, Botswana, Ghana, Kenya, Mauritius and Tunisia are classified as frontier markets. The positive developments in the banking sector and stock market over the period of this study (2003-2012), suggest improvement made in the market for external capital, which may have a consequential influence on firms' access to and use of debt or equity finance for potential investments. The influence is expected to be in the form of increase in the use of debt finance (more debt) or increase in equity finance (therefore, reduced debt). Furthermore, an expectation of market development is that it will enhance the availability of long-term capital needed for firm growth. These two expectations form the underlying foundation of the current study. The next chapter describes the methods and procedures adopted in investigating the expectations.

CHAPTER 4 : DATA AND METHODOLOGY

4.0 Introduction

This chapter, divided into four sections, describes the data and method employed in this thesis. Section 1 gives the country and data sample description. Section 2 provides details of the method, model and estimation technique employed in answering the research questions. It also describes the post-estimation tests to confirm validity of the regression specifications and the robustness test conducted in the study. Section 3 defines and describes the various dependent and independent variables used in the study. Section 4 concludes with a chapter summary.

4.1 Sample Country Selection and Data Description

Recalling from the introductory chapter, nine countries are selected to conduct the investigations in this thesis: Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa and Tunisia. There are two reasons for the selection of this group of countries.

The first reason is their growing economic importance and alternative investment opportunity outlets implied in their financial markets classification as emerging and frontier markets by the Dow Jones Index and Morgan Stanley Capital International. Confirming the alternative investment opportunity outlet, Allen et al. (2011) noted that despite lagging behind in financial sector indicators (compared to other developing regions such as Asia and Latin America), the impressive performance of the African stock market over the years makes the region an untapped market for global investors who wish to increase the risk-return trade-off of their investments. Thus, the reason for selecting countries with active stock markets. Secondly, focusing on this group of countries with similar market characteristics according to Fan et al. (2011) and Kirch and Terra (2012),

allows researchers to carry out thorough investigation of important institutional variables, which are difficult to tackle in cross-country studies.⁴⁹

The study period is from 2003 to 2012.⁵⁰ The units of analysis are publicly-listed firms on the domestic stock exchange of each of the selected countries. The study as is common with prior capital structure research, excludes financial firms, real estate firms, holding asset management companies and other regulated firms because they are highly regulated and require stringent capital requirements (Ağca et al., 2013; Arioglu & Tuan, 2014; Cho et al, 2014; Fan et al., 2012; Öztekin & Flannery, 2012; Ramjee & Gwatidzo, 2012). The secondary data pertaining to the research topic was collected personally from three databases; Datastream for firm-level data, World development indicators and world-wide governance indicators of the World Bank for country level data.

Annual firm-level data is constructed using data from balance sheets and income statements of publicly-listed firms obtained from Datastream while country level data is obtained from World Bank development indicator and world-wide governance indicators for the period 2003 – 2012.⁵¹ The final sample consists of an unbalanced panel of 599 firms because some of the firms had missing observations in some years. To reduce the potential effect of outliers on the results, a robust regression estimation technique is employed in estimating the coefficients following the procedures of Frank and Goyal (2008) and Verardi and Croux (2009).⁵²

4.2 Method, Model and Estimation Technique

This section, subdivided into six subsections, provides the description of the method used in the analysis in terms of descriptive and inferential statistics. It also gives the models

⁴⁹ The market characteristics are in terms of emerging and frontier market classification criteria.

⁵⁰ The study period is guided by data availability because most of the firm-level data for the selected countries in Datastream were not available prior to 2003.

⁵¹ Datastream is an international company that maintains a financial database consisting of balance sheet, income statement and cash flow statement information for firms in different countries. It tries to standardise company accounts in order to ease international comparisons.

⁵² Econometrics literature also establishes that GMM (the technique used in this study) is robust with respect to heteroskedasticity and non-normality of data as discussed in Subsection 4.2.4.

used in testing the various research hypotheses in addition to providing a justification for the estimation method employed. This is followed by a description of post-estimation tests used to determine the reliability and validity of the estimation technique. The section concludes with a description of the robustness test where the firms in the study are grouped according to financial market classification (emerging and frontier) to investigate the robustness of the coefficients in the regression specifications.

4.2.1 Descriptive Statistics

The first statistical test conducted on the data is the descriptive analysis, which provides a snapshot of the data in terms of the mean, standard deviation, minimum and maximum values of the different variables. These statistics describes the basic features of the variables. Correlation analysis is subsequently used to establish the bivariate relationship between the variables in the study. This is done to:

- i. Determine the direction and strength of the relationship between the dependent variables and the explanatory variables.
- ii. Detect the presence or absence of multicollinearity.

4.2.2 Inferential Statistics

The hypotheses stated in Chapter 2 are tested with the use of inferential statistics employing panel data regression technique. Panel data study is a longitudinal study that involves both cross-sectional and time series data, which relates to information about objects over time (Baltagi, 2008; Gujarati & Porter, 2009). Since this thesis uses firm and country level data in nine different countries over a ten-year period, panel data is considered an appropriate technique. Some of the advantages identified for using panel data as noted by Baltagi (2008) and Flannery and Hankins (2013) are:

- i. Tackling more complex problems such as heterogeneity of data
- ii. Taking into consideration the effect of any omitted variable

- iii. Providing more observation points with different individual cross section units
- iv. Ensuring there is less collinearity between the variables
- v. Allowing for a dynamic study of the units of interest (firms)

Explaining the omitted variable problem, Delcoure (2007) added that integrating cross-sectional and time series properties in panel data reduces problems that are associated with omitted variables and prevents the model from being mis-specified. This is of particular importance in this thesis because of the non-availability of a proxy for industry effects and other variables (e.g. tax and managerial ability) that are omitted. Furthermore, Flannery and Hankins (2013) note that most corporate finance studies, especially capital structure studies usually have datasets that are sometimes made up of unbalanced panels and explanatory variables that are serially correlated with endogeneity issues. Hence, the use of panel data analysed with a generalized method of moments (GMM) specification to run the regression equations in this thesis is considered appropriate because it takes care of the issues identified above.⁵³

As noted in the beginning of this section, panel data consists of cross-sectional and time series data. Time series data is however, noted to have problems with non-stationarity of data implying that the dataset has unit roots. This problem according to Gujarati and Porter (2009) might result in biased estimates of regression coefficients. Therefore, in order to avoid spurious regression results, the dataset is examined for unit roots using the Fisher type panel unit root test proposed by Maddala and Wu (1999). The Maddala and Wu test is chosen because it can handle unbalanced panel data like that in this study.

⁵³ The detailed explanation of the GMM is given in Section 4.2.4

4.2.3 Research Models⁵⁴

The research models used in estimating the coefficients and testing the various hypotheses in the panel regression are given as:

a) **Banking Sector and Capital Structure Development**

Research Question 1: To what extent does banking sector development influence the capital structure of firms in African countries?

Hypothesis 1: There is a positive and significant relationship between domestic credit to the private sector by commercial banks and debt ratio of firms in African countries.

To answer this research question and adapting from Antoniou et al (2008) capital structure as proxied by the three different measures of leverage ratio is modelled as given in equations (4.1) to (4.3):

$$\text{TDR} = f(\text{lagged TDR, banking sector development, firm-specific, macroeconomic and institutional variables}) \quad (4.1)$$

$$\text{LTDR} = f(\text{lagged LTDR, banking sector development, firm-specific, macroeconomic and institutional variables}) \quad (4.2)$$

$$\text{STDR} = f(\text{lagged STDR, banking sector development, firm-specific, macroeconomic and institutional variables}) \quad (4.3)$$

Where:

TDR = total debt ratio

LTDR = long-term debt ratio

STDR = short-term debt ratio

Banking sector development variable is domestic credit to the private sector by commercial banks.

⁵⁴ Appendix B presents the breakdown of the equations into the individual variable components.

Firm-specific variables consist of asset tangibility, profitability, growth opportunity, firm size and non-debt tax shield.

Macroeconomic variables consist of gross domestic product and inflation.

Institutional variables consist of regulatory quality, rule of law and government effectiveness, dummy variable for the legal system that takes a value of 1 for English common law countries and 0 for French civil law countries, dummy variable that takes the value of 1 for firms in South Africa and 0 for firms in other countries.⁵⁵

b) Stock Market Development and Capital Structure

Research Question 2: To what extent does stock market development influence the capital structure of publicly-listed firms in African countries?

Hypothesis 2: There is a negative and significant relationship between stock market turnover and debt ratio of firms in African countries.

A modified model of equation (4.1) to (4.3) is used to answer research question 2 where the stock market development variable takes the place of the banking sector development variable and is given as:

$$\text{TDR} = f(\text{lagged TDR, stock market development, firm-specific, macroeconomic and institutional variables}) \quad (4.4)$$

$$\text{LTDR} = f(\text{lagged LTDR, stock market development, firm-specific, macroeconomic and institutional variables}) \quad (4.5)$$

$$\text{STDR} = f(\text{lagged STDR, stock market development, firm-specific, macroeconomic and institutional variables}) \quad (4.6)$$

⁵⁵ The dummy is introduced to determine whether there is a significant difference in debt ratio between firms in English common law countries and those in French civil law countries. A significant coefficient of the legal system dummy would imply that the type of legal system operating in a country has a significant influence on the debt ratio. A similar approach is adopted in Antoniou et al. (2008) and Mateus and Terra (2013). Noting that firms in South African firms dominate the sample, the dummy is introduced to determine the influence of South African firms in the equation. A significant coefficient will imply that South African firms largely influence the results.

The main explanatory variable of interest here is the stock market development variable, and is proxied by the stock market turnover ratio.

c) Firms' Instantaneous Adjustment to Target Leverage

Research Question 3: Do firms in African countries instantaneously adjust to target leverage?

Hypothesis 3: There is a significant and positive instantaneous adjustment to target leverage by African firms.

Research question 3 is examined within the framework of a model that gives room for the determination of adjustment costs and speed of adjustment. Although the models are similar to models (4.1) to (4.6) above, they do not include the banking sector and stock market development variables. This will enable determination of target leverage behaviour in the absence of market development. The model, adapted from Drobetz and Wanzereid (2006) and Haron et al. (2013) is given as below:

$$\text{TDR} = f(\text{lagged TDR, firm-specific, macroeconomic and institutional variables}) \quad (4.7)$$

$$\text{LTD} = f(\text{lagged LTDR, firm-specific, macroeconomic and institutional variables}) \quad (4.8)$$

$$\text{STDR} = f(\text{lagged STDR, firm-specific, macroeconomic and institutional variables}) \quad (4.9)$$

All variables are as defined in previous equations.

Examining the effect of lagged period leverage on current leverage enables the determination of whether a firm has a target leverage and the speed of adjustment if there is a target leverage (Flannery & Ragan, 2006). Equation (4.7) to (4.9) is modelled as a function of firm-specific and country-specific variables, which are also used to examine the factors that determine target leverage and costs of adjustment (Ozkan, 2001; Ramjee & Gwatidzo, 2012). The adjustment parameter given by the coefficient of the lagged debt ratio serves as a proxy for adjustment cost and has an inverse relationship with the speed

of adjustment (given by $1 - \beta_1$). A coefficient value for the lagged debt ratio that lies between 0 and 1 implies the existence of target leverage behaviour (Antoniou et al., 2008; Öztekin & Flannery, 2012).

d) Banking Sector Development and Debt Maturity Structure

Research Question 4: To what extent does banking sector development influence the debt maturity structure of firms in African countries?

Hypothesis 4: There is a significant relationship between domestic credit to the private sector by commercial banks and the debt maturity structure of firms in African countries.

The investigation of a firms' debt maturity structure according to Barclay et al (2003) and Kirch and Terra (2012) is closely linked to the capital structure decision. For this reason, they argued that leverage ratio should be treated as an endogenous variable in the regression model for debt maturity structure. Adapting from the specification in González and González (2014), the debt maturity structure is broken down into long-term and short-term debt components and modelled as period lagged debt maturity structure ratio as given in equation (4.10) and (4.11) to test hypothesis 4:

$$\text{LTDMR} = f(\text{lagged LTDMR, banking sector development, firm-specific, macroeconomic and institutional variables}) \quad (4.10)$$

$$\text{STD MR} = f(\text{lagged STD MR, banking sector development, firm-specific, macroeconomic and institutional variables}) \quad (4.11)$$

Where,

LTDMR = long-term debt maturity structure

STD MR = short-term debt maturity structure

4.2.4 Estimation Technique: Generalized Methods of Moments

Section 4.2.2 of this chapter justified the use of a panel data set to run the regression analysis. However, in running the regression, a number of factors are considered before choosing the appropriate estimation technique. These issues include residual serial correlation, unobserved heterogeneity and endogeneity. While unobserved heterogeneity and endogeneity are due to non-zero correlation between firm fixed effects and a regressor, serial correlation may be due to persistence of the dependent variable or measurement errors (Dang, Kim & Shin, 2015). These issues and ways by which they are addressed by the chosen estimation technique are discussed in this section.

Given that the basic regression specification for a dynamic panel is:

$$Y_{i,t} = \gamma Y_{i,t-1} + \beta X_{i,t} + \mu_i + \eta_t + \varepsilon_{i,t} \quad (4.12)$$

Where Y_{it} = the dependent variable for firm i at period t ,

$Y_{i,t-1}$ = a period lagged dependent variable of firm i at period t

$X_{i,t}$ = explanatory variables of firm i at period t

μ_i = time-invariant unobservable firm-specific effects (e.g. managerial ability, attitude towards risk, managerial motivation, etc.)

η_t = time-specific effects that are common to all firms but change through time (e.g. macroeconomic effects such as interest rates, inflation, etc.)

$\varepsilon_{i,t}$ = time-varying error term

γ and β are coefficients to be estimated

The dependent variable is lagged one period ($t-1$) to capture the effect of past performance of the dependent variable (in this case, leverage) on current performance (t). Previous studies, such as Antoniou et al. (2008), Flannery and Hankins (2013) and Dang et al. (2015), showed that estimating equation (4.12) with pooled ordinary least squares method (OLS) yields biased estimates because firm fixed effects (μ_i) is unobservable. In

addition, the correlation between the firm fixed effects (μ_i) and the lagged dependent variable (Y_{it-1}) leads to coefficient estimates that are inconsistent.

The aforementioned authors in the preceding paragraph, also showed that using generalized least squares method (fixed effects or random effects) estimator controls for the unobserved firm effects by first differencing of the variables but the method introduces endogeneity into the regression specification. This is because the error term ($\varepsilon_{i,t}$) becomes correlated with the lagged dependent variable ($Y_{i,t-1}$), which also gives biased estimates. However, they note that the correlation reduces as the time period (panel length) increases because the error term becomes a smaller piece of the average error term.

Inferring from these authors, the combination of a lagged dependent variable and firm fixed effects to control for serial correlation and unobserved time-invariant differences across firms in capital structure studies leads to biased and inconsistent estimate of the coefficients in a dynamic panel. This situation is further worsened in short panels as noted by Flannery and Hankins (2013). This implies that estimating equations (4.1) to (4.11) with the ordinary least squares (OLS) or the generalized least squares (GLS) method will yield inconsistent and biased estimates. To address these issues, Anderson and Hsiao (1982) proposed an instrumental variable technique. This method uses the second lag of the lagged dependent variable ($Y_{i,t-2}$) as instrument for first difference of the period lagged dependent variable ($Y_{i,t-1}$) to eliminate time-invariant effects.

However as observed by Arellano and Bond (1991) and Dang et al. (2015), first differencing of the variables as proposed by Anderson and Hsiao (1982) may not yield efficient estimators because the method does not exploit all available moment conditions. Using the generalized method of moment (GMM) of Hansen (1982), Arellano and Bond (1991) obtained estimators that use additional moment conditions created by deeper

lagged levels of the dependent variable. They applied the difference of each variable to both the dependent and explanatory variables in the regressions and introduced instrument variables from the lagged levels of the regressors. This technique is known as the difference GMM. Despite the advantage over the method of Anderson and Hsiao (1982) by exploiting all available information of the moment conditions to obtain more efficient estimates of the model, it is noted that with the difference GMM, the lagged levels of the regressors may be poor instruments in the presence of serial correlation in the errors. This may subsequently lead to biased estimates (Baum, 2006).

For this reason, Arellano and Bover (1995), Blundell, and Bond (1998) argue that the first differencing method of Arellano and Bond (1991) does not give enough information about the first differenced variable, especially if they are serially correlated.⁵⁶ They therefore suggested that in addition to first differencing of the regressors, lagged first differences should also be used as instruments in a levels equation. This technique, known as the system GMM, consists of two types of simultaneous equations, one in lagged difference of the dependent variable as instruments for equation in levels and another one in lagged levels of the dependent variables as instruments for equation in first difference. The effects of time-invariant variables are eliminated in first difference but are estimated in levels. This process increases the efficiency of the estimation.

Consequently, this thesis uses the two-step system GMM for estimating equation (4.1) to (4.11). Moreover, it (GMM) is designed for dynamic panel datasets that have small time period and many individual units, endogeneity issues, autocorrelation and unobserved time-invariant fixed effects. Besides, using GMM estimation techniques does not require a complete knowledge of the distribution of the data as noted in Antoniou et al. (2008). Examples of capital structure studies that used two-step system GMM includes Ağca et al. (2013) González and González (2014) and Matemilola et al. (2013).

⁵⁶ This is because the lagged levels are weak instruments for the first differenced variables.

4.2.5 Post Estimation / Validity Tests

To ensure that the results obtained from the two-step system GMM are robust and valid, this thesis considers the following:

- i. The use of two-step system GMM technique, which in addition to the advantages of using GMM, is robust to panel -specific autocorrelation and heteroskedasticity.
- ii. Hansen test for the joint validity of instruments and over identification. The null hypothesis of the Hansen test is that the instruments are exogenous as a group and valid only if the null is not rejected. If this rejected, it implies that the model is over-identified and it does not fit into the GMM framework (Roodman, 2009).
- iii. Arellano and Bond test for autocorrelation; AR(1) and AR(2) which both follow a normal distribution $N(0,1)$ with a null hypothesis of no autocorrelation and applied to the differenced residuals. Arellano and Bond (1991) contend that instruments are valid only in the absence of no second order serial correlation in the residuals of AR (2) although negative first-order serial correlation is expected in the residuals of AR (1) by default (Roodman, 2009).
- iv. Time dummies: Time dummies are included to remove universal time-related shocks from the errors and prevent possible forms of cross-individual and contemporaneous correlation. The inclusion of time dummies according to Roodman (2009) makes the assumption of no correlation among idiosyncratic disturbances probably.
- v. The Goodness of Fit (Wald Test): A Wald test is used for testing the goodness of fit of the model and indicates that the model fits the data well. It has the null hypothesis that the set of coefficients of the model is simultaneously equal to zero. The chi-square is used for testing the hypothesis. The non-rejection of the null hypothesis indicates that the independent variables in the model are not good predictors of the dependent variable while a rejection will indicate otherwise.

4.2.6 Robustness Test: Country Classification

Noting that the classification of these economies had been based on how developed the stock markets were, as discussed in Chapter 3, it is probable that the influence of market development on firm debt ratio in countries with more developed markets (in this case, emerging markets) may be different from those in the less developed markets (frontier markets). To determine whether this is the case or not, robustness test is conducted for estimates of each of the regression specifications in equations (4.1) to (4.11) to ensure that the interpretations of the results are robust to the two classifications. In these equations (4.1 to 4.11), firms in emerging and frontier market economies were merged in single regressions to determine the influence of market development on debt ratio.

Therefore, in order to determine if the results are robust to country classification, the firms are split into two samples of those in emerging markets and those in frontier markets.⁵⁷ Instead of conducting separate regression analysis for each subsample, a single dummy variable regression is conducted where firms in countries classified as emerging markets take the value of 1 and those in countries classified as frontier markets take the value of 0. A significant coefficient of the dummy variable (DEF) will indicate that there is a significant difference in the influence of market development on debt ratio in countries classified as emerging and frontier markets in Africa. On the other hand, a non-significant variable would indicate otherwise.

The equations for the robustness tests are modified versions of equations (4.1) to (4.11) which take the general form:

$$Y_{i,t} = \gamma Y_{i,t-1} + \beta X_{i,t} + DEF + \mu_i + \eta_t + \varepsilon_{i,t} \quad (4.13)$$

The difference between equations (4.1) to (4.11) and (4.13) is that market classification dummy variable (DEF) is added to the explanatory variables while legal system dummy

⁵⁷ Appendix B shows the breakdown of firms according to how each country's market is classified.

(DLS) and South African dummy (DSA) are excluded from the specifications. The dummy variable (DEF) takes the value of 1 if the firm is in a country with an emerging market and 0 otherwise. All other variables remain the same. As with previous equations, the two-step system GMM is employed to run the regression estimates in order to be consistent with the estimation technique. The results of the robustness estimations are compared to those obtained in equations (4.1) to (4.11) and are robust if they are qualitatively similar. A similarity in the results would imply that results obtained from the main analysis are consistent with those obtained from the robustness regression equations.

4.3 Variable Description

Subsections 4.3.1 and 4.3.2 of this section give a description of the dependent and independent variables used in the thesis. All the variables are obtained from the literature reviewed in Chapters 2 and 3. Table 4.1 provides a summary of the various variable definition and related literature.

4.3.1 Dependent Variables

a) Capital Structure / Leverage Ratio

From the literature reviewed earlier, it is noted that there are several ways that capital structure is measured, implying that there is no uniform or single method of measuring it. In view of this, some researchers are of the opinion that capital structure should be calculated or measured according to the purpose of the analysis (Bevan & Danbolt, 2002; Rajan & Zingales, 1995). Based on this, the current thesis uses measures that take into account the form of external financing that is available to firms in the study. An example is trade credit (a form of short-term debt) that is an important source of financing for firms in developing countries (Fisman & Love, 2003). This thesis therefore incorporates total

debt, long-term debt and short-term debt into the measures and definitions for capital structure.

Another issue in capital structure studies is determining whether to use book value or market value. Arguments put forward for the use of book value instead of market value include the point that book value is less susceptible to market fluctuations and is a more stable measure (Antoniou et al., 2008; Cho et al., 2014; Matemilola, Bany-Ariffin, & McGowan, 2013). A second argument is that the use of book value reflects management target debt ratio because market value depends on other factors that are outside the control of the firm and may not reflect the real reasons behind management decisions (Thies & Klock, 1992). In addition, Öztekin and Flannery (2012) observed that results for book value and market value of leverage are comparable because they give similar results. Nevertheless, some authors argue for the use of market value because it reflects better; the current and future positions of the firms (Barclay, Morellec, & Smith, 2006; Frank & Goyal, 2009). Therefore, for the purpose of this thesis, book value is used based on the arguments for using book value and the unavailability of market values for some of the variables.

Taking into consideration the issues highlighted in the preceding paragraph, three different measures taken from literature are used as proxies for capital structure. The first is total debt ratio that is measured as the ratio of book value of total debt to book value of total assets (Ağca et al., 2013; Cho et al., 2014; Fan et al., 2012; Öztekin and Flannery, 2012). The total debt ratio is decomposed into long-term and short-term debt ratios. The decomposition into long-term debt ratio and short-term debt ratio will enable the determination of differences in the use of debt based on how debt ratio is defined. Long-term debt ratio is calculated as the ratio of book value of long-term debt to book value of total assets (Cho et al., 2014; Fan et al., 2012; Ramjee & Gwatidzo, 2012) while short-term debt ratio is measured as book value of short-term debt to book value of total assets

(Fan et al., 2012; Ramjee & Gwatidzo, 2012). Long-term debt consists of all interest-bearing financial obligations excluding amounts due within one year; short-term debt represents the portion of debt payable within one year including current portion of long-term debt while total debt is the sum of long-term and short-term debt.⁵⁸

b) Debt Maturity Structure

Barclay et al. (2003) contend that there is a need for researchers working on capital structure studies to treat leverage decisions and debt maturity decisions as complements rather than being independent of each other as explained in Chapter 2. In order to obtain the proxy for debt maturity structure, total debt is decomposed into long-term debt maturity and short-term debt maturity structure. Long-term debt maturity is calculated as the ratio of long-term debt to total debt (Alcock et al., 2012; Fan et al., 2012; Gopalan et al., 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Stephan et al., 2011) while short-term debt maturity is measured as the ratio of short-term debt to total debt (Johnson, 2003; Ruan et al., 2014). Although most studies use the ratio of long-term debt to total debt as the proxy for debt maturity structure, in addition to using the long-term debt maturity structure, this thesis follows the approach of Johnson (2003) and Ruan et al. (2014) by also using an alternative measure. The approach of using an alternative measure serves as a robustness test for the debt maturity specification especially given that firms in this study use more short-term debts than long-term debts.

4.3.2 Independent Variables

This subsection defines the various independent variables in the study and consists of banking sector development, stock market development, firm-specific, macroeconomic and institutional variables. The main independent variables of interest are the financial market variables (bank and stock market) while other regressors (firm-specific,

⁵⁸ Definitions obtained from Worldscope Database Data Definitions Guide, Issue 14.2, 2013

macroeconomic and institutional variables) are treated as control variables for the purpose of the investigations in this thesis.

a) Financial Market Development: Banking Sector

Some of the measures that are used to proxy banking sector development in literature include domestic credit to the private sector by commercial banks expressed as percentage of gross domestic product, banks liquid liabilities to gross domestic product ratio and bank deposit of domestic assets to gross domestic product ratio. For the purpose of this study, ratio of domestic credit to private sector by commercial banks to GDP is used to proxy banking sector development. This is because unlike the two other ratios, it excludes credit to the government and public enterprises. It also excludes loans granted by development banks and other financial institutions and focuses directly on credit granted to the private sector (Alves & Ferreira, 2011; Beck et al., 2008; Beck & Levine, 2004). Consequently, it is considered appropriate for this thesis because the units of analysis of the thesis are publicly-listed firms. Higher levels of the ratio according to Saci and Holden (2008) suggest increased financial services and increased level of financial intermediation to the private sector. With increased financial intermediation and services, it is expected that the level of credit available in the form of debt finance will also increase hence, a rise in debt ratio of firms.

b) Financial Market Development: Stock Market

Two variables mostly used to proxy stock market development are market capitalization and market turnover ratio. While the first one is an indication of the size of the stock market with respect to total market capitalization of all listed firms, the latter indicates the liquidity level and trading relative to the size of the market. For the purpose of this study, stock market turnover ratio is used due to the advantages liquidity measure has over capitalization measure. The first is that even though a market may be highly capitalized, it might be illiquid thus discouraging trading and issuance activities.

However, if stakeholders know that the market is liquid, they are encouraged to participate in market activities (Booth et al., 2001). Secondly, Beck and Levine (2004) argued that illiquid markets discourage investors to lend on a long-term basis but a liquid market removes this disincentive and promotes lending for longer-term maturities. Consequently, stock market turnover ratio is measured as the value of the traded shares for a period divided by the average market capitalization for the period. A high turnover ratio suggests the presence of low transaction costs in the market and high level of trading activity (Agarwal & Mohtadi, 2004; Saci & Holden, 2008). Lower transaction costs and increased trading activities increased investors' confidence in the markets thus encouraging them to participate in market activities. Resultantly, equity finance becomes an alternative to debt finance for firms leading to a decline in debt ratio (Demirgüç-Kunt & Maksimovic, 1996)

Further support for the choice of proxies (domestic credit to private sector by commercial banks and stock market turnover ratio) is found in Beck et.al. (2008) who identified ten core indicators that are used to measure development in financial institutions and markets.⁵⁹ Of the ten indicators identified in their study, the two measures selected for this thesis rank high for both banks and the stock market.

⁵⁹ The markets and institutions are categorised into banks, stock markets, bond markets and institutional investors.

Table 4.1: Variable definition and related literature

Variable	Definition	Related literature
<u>Dependent variables</u>		
<u>Leverage</u>		
Total debt ratio (TDR)	Ratio of total debt to total assets	Ağca et al., 2013; Cho et al., 2014; Fan et al., 2012; González & González, 2014; Öztekin and Flannery, 2012
Long-term debt ratio (LTDR)	Ratio of long-term debt to total assets	Fan et al., 2012; Cho et al., 2014; González & González, 2014; Ramjee & Gwatidzo, 2012
Short-term debt ratio (STDR)	Ratio of short-term debt to total assets	Fan et al., 2012; González & González, 2014; Ramjee & Gwatidzo, 2012
<u>Debt Maturity Structure</u>		
Long-term debt maturity (LTDMR)	Ratio of long-term debt to total debt	Alcock et al., 2012; Fan et al., 2012, Gopalan et al., 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Stephan et al., 2011
Short-term debt maturity (STDMR)	Ratio of short-term debt to total debt	Johnson, 2003; Ruan et al., 2014
<u>Independent Variables</u>		
<u>Financial Market Development</u>		
Banking sector development (BCR)	Ratio of domestic credit to the private sector by commercial banks to GDP	Alves & Ferreira, 2011; Beck & Levine, 2004; Beck et al., 2008; Saci & Holden, 2008
Stock market development (STO)	Ratio of value of traded shares for a period to average market capitalization for the same period (stock market turnover ratio)	Agarwal & Mohtadi, 2004; Beck & Levine, 2004; Booth et al., 2001; Demirgüç-Kunt & Maksimovic, 1996; Saci & Holden, 2008
<u>Control variables</u>		
<u>Firm-Specific</u>		
Asset tangibility (TAN)	Ratio of net fixed assets to total assets	Alcock et al., 2012; Antoniou et al., 2006, 2008; Barclay et al., 2003; Cai et al., 2008; Dang et al., 2011; Fan et al., 2012; Frank and Goyal, 2009; Gopalan et al., 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Stephan et al., 2011
Profitability (PROF)	Ratio of operating income to total assets	Alcock et al., 2012; Antoniou et al., 2006, 2008; Barclay et al., 2003; Cai et al., 2008; Dang et al., 2011; Fan et al., 2012; Frank and Goyal, 2009; Gopalan et al., 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Mazur, 2007; Stephan et al., 2011

Table 4.1: Variable definition and related literature (Cont'd)

Variable	Definition	Related literature
<u>Firm-Specific</u>		
Growth opportunity (GRW)	Ratio of capital expenditure to total assets	Frank and Goyal, 2009; Goyal, Lehn, & Racic, 2002
Firm size (SZ)	Natural logarithm of sales	Alcock et al., 2012; Antoniou et al., 2006, 2008; Barclay et al., 2003; Cai et al., 2008; Dang et al., 2011; Fan et al., 2012; Frank and Goyal, 2009; Gopalan et al., 2014; Kirch & Terra, 2012; Mateus & Terra, 2013; Stephan et al., 2011
Non-debt tax shields (NDTS)	Ratio of depreciation expense to total asset	Antoniou et al., 2008; Fan et al., 2012; Frank & Goyal, 2009; Rajan & Zingales, 1995
<u>Macroeconomic</u>		
Inflation (INF)	Annual rate of change of consumer price index	Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012
Gross domestic product (GDP)	Annual percentage growth rate of GDP	Frank & Goyal, 2009; Haas & Peeters, 2006, Haron et al., 2013
<u>Legal System and Institutional Factors</u>		
Legal origin (DLS)	Dummy variable that takes the value of 1 for English common law countries and 0 for French civil law counties	Alves & Ferreira, 2011; Cho et al., 2014; La Porta et al., 1998
Legal rule (RL)	Takes a value between -2.5 and 2.5	Kaufmann, Kraay, & Mastruzzi, 2011; Kirch & Terra, 2012
Regulatory quality (RQ)	Takes a value between -2.5 and 2.5	Kaufmann et al., 2011; Kirch & Terra, 2012
Government effectiveness (GE)	Takes a value between -2.5 and 2.5	Kaufmann et al., 2011; Kirch & Terra, 2012

Source: Review of related literature in Chapter 2

c) **Firm-Specific Variables**

Theory and empirical literature suggests that firm-specific variables that determine debt ratio and debt maturity structure are the same (Fan et al., 2012; Kirch & Terra, 2012; Mateus & Terra, 2013). For this reason, the same firm-specific variables are used for the empirical analysis of both debt ratio and debt maturity structure as done in extant literature. Serving as control variables, they are used in explaining capital and debt maturity theories. The first part (I) of this subsection discusses firm-level determinants of debt ratio while the second part (II) explains firm-level determinants of debt maturity structure.

(I) **Firm-specific determinants (Debt Ratio):** The literature reviewed in Chapter 2 highlighted the different variables that serve as proxies for asymmetric information, agency costs, transaction costs, bankruptcy costs and tax advantages.⁶⁰ The variables, definitions, predictions and previous studies that used the same determinants are given below:

i. **Tangibility of Assets:** It is argued that asset tangibility lowers cost of financial distress because creditors can easily determine the market value of tangible assets (Alves & Ferrira, 2011; Antoniou et al., 2008). In addition, assets substitution by firms is reduced when debts are secured with tangible assets thus reducing agency costs and lowering borrowing costs (Jensen & Meckling, 1976). Particularly related to this thesis, Antoniou et al. (2008) observed that asset tangibility is an important determinant in countries where the predominant sources of debt finance are banks who require collateral to secure the credit granted. These reasons suggest that debt ratio will be higher for firms with tangible assets, more so that the predominant source of debt finance in the sampled countries is bank debt. Thus, a positive relationship is expected between debt ratio and asset

⁶⁰ Although some studies include tax, this thesis excludes tax. This is partly based on the argument of Demircuc-Kunt and Maksimovic (1999) that complications in tax regimes in terms of federal and domestic tax laws across different countries makes comparison difficult. Another reason for the non-inclusion of tax as one of the explanatory variables is the limitation in obtaining tax data. A similar approach of excluding variables with limited data is adopted in Fan et al. (2012).

tangibility. Asset tangibility is calculated as net fixed assets divided by total assets. Previous studies that used the same measure include Alves and Ferreira, 2011; Antoniou et al., 2008; Barclay et al., 2003; Fan et al., 2012; Frank and Goyal, 2009; Rajan and Zingales, 1995. Net fixed assets comprise of property, plants and equipment.

ii. Profitability: Consistent with the traditional theory of capital structure (static trade-off), a positive relationship is expected between firm profitability and debt ratio. According to Frank and Goyal (2009), firms will take on more debt in order to enjoy the benefit of interest tax shields, thereby increasing profit. The dynamic trade-off model on the other hand, predicts a negative relationship between profitability and debt ratio. Kayhan and Titman (2007) and Tsplakov (2008) argued that the negative prediction is because of profit that is built up by firms, which is used to increase productive capacity and is reflected as outflows in firms' books. Therefore, because this thesis examines the dynamic trade-off model, the relationship between firm profitability and debt ratio is expected to be negative. Profitability is measured as the ratio of operating income to total assets. Previous studies that used same measure are Antoniou et al. (2008), Barclay et al. (2003), Fan et al. (2012), Frank and Goyal (2009) and Mazur (2007).

iii. Growth Opportunity: Growth opportunities available to firms are also important key firm-level determinant of debt ratio. According to Antoniou et al. (2008), increase in growth opportunities increases financial distress costs thus constraining firm managers to maintain a low debt level in order to mitigate the costs. Secondly, they added that firms would rather issue equity than debt due to overvaluation that is expected to increase growth when information asymmetry is present. Under these two scenarios, growth opportunity is expected to have an inverse relationship with debt ratio. Although some studies used the market to book ratio as proxy for growth opportunity, the ratio of capital expenditure to total assets serves as proxy for growth opportunity in this thesis.⁶¹ This is

⁶¹ Antoniou et al. (2008), Fan et al. (2012 and Frank and Goyal (2009) measured growth opportunity as book value of total assets less book value of equity plus market value of equity to book value of total assets.

because of the unavailability of market value of equity used in calculating growth opportunity in previous studies for most of the firms in the present thesis. Earlier studies that also used capital expenditure to total assets as proxy for growth opportunity include Frank and Goyal, (2009) and Goyal, Lehn, and Racic (2002).

iv. Firm Size: Traditional capital structure theory predicts a positive relationship between firm size and debt ratio. Studies such as Frank and Goyal (2009) and Zou and Xiao (2006) argued that this is because larger firms tend to be more diversified, have low default risk and therefore less debt-related agency costs. For these reasons, large firms are able to take on more debt finance. Antoniou et al. (2008) argued that larger firms have the capacity to borrow more in order to take advantage of the tax benefit of debt. This is in addition to the low information asymmetry they have that enables them to have easy access to the debt market at lower costs than do smaller firms. Thus, we expect a positive association between firm size and debt ratio. Firm size is measured as the natural logarithm of sales as done in Antoniou et al. (2008), Barclay et al. (2003), Fan et al. (2012), Frank and Goyal (2009) and Rajan and Zingales (1995).

v. Non-debt Tax Shield: The prediction of the trade-off theory for non-debt tax shield is two folds (positive and negative). The argument put forward for a positive effect is that tangible assets increase firm capacity to take on more debt in their capital structure. By so doing, they are able to save on tax through tax credits and non-debt tax shield that consists mainly of depreciation (Antoniou et al, 2008; Barclay & Smith, 2005; Chang et al., 2009). A negative prediction on the other hand is expected when non-debt tax shields are considered as substitutes for tax benefits of debts. This according to studies such as De Miguel and Pindado (2001), Fama and French (2002) and Ozkan (2001) may lead to firms having internal optimal leverage because non-debt tax shield will imply lesser taxable income, lesser corporate tax rate and lesser payoff expected from interest shields. Consequently, higher levels of non-debt tax shield will lead to lower debt level. In this

thesis, non-debt tax shield is calculated as ratio of depreciation expense to total asset following studies such as Antoniou et al. (2008), Fan et al. (2012) Frank and Goyal (2009) and Rajan and Zingales (1995).

The five firm-level determinants discussed above are used as control variables in the debt ratio regression specifications and are used to explain related theories.

(II) Firm-specific determinants (maturity structure): As noted in the beginning of this section, empirical literature on capital and debt maturity structure showed that they have common determinants that further reinforces the argument of Barclay et al. (2003) that they should be jointly determined because they are complements rather than substitutes. Because of this, the thesis uses the same set of determinants for debt maturity structure and is measured in the same way. In addition, Kirch and Terra (2012) added that because debt maturity structure decision is closely linked to firms' capital structure decision, leverage should be included and treated as an endogenous variable in the model. The definitions and predictions for various variables based on revived literature are as below:

i. **Asset Tangibility:** A positive relationship is expected between asset tangibility and debt maturity structure because firms match the structure of their assets to the maturity period of debt to mitigate the underinvestment problem (Myers, 1977). Hence, firms with more tangible assets will have longer-term loans while the reverse is the case for firms with few tangible assets. Another argument for the positive relationship is that tangible assets mitigates bankruptcy risks as well as financial distress costs (Fan et al., 2012; Kirch & Terra, 2012). Asset tangibility is measured as ratio of net fixed assets to total assets following the same measurement as used by Antoniou et al. (2008), Barclay et al. (2003) and Fan et al. (2012).

ii. **Profitability:** In terms of profitability, it is argued that when firms borrow more to increase the tax benefit of long-term debt, profitability should be positively associated

with debt maturity structure (Barclay et al, 2003). In addition, profitable firms are signals to creditors that they have the capacity for loan repayment, hence, we expect a positive coefficient for profitability. In this thesis, profitability is measured as ratio of operating income to total assets.

iii. Growth Opportunity: Under the contracting cost theory, firm growth opportunity is expected to have a negative relationship with debt maturity structure because short-term debts mitigate agency problems that are related to leverage (Myers, 1977). This implies that firms are able to lessen the underinvestment problem by issuing short-term debts. In addition, Antoniou et al. (2006) added that the periodic evaluation of firms during issuance of short-term debts might reduce agency costs of monitoring. Another reason added by Barnea et al. (1980) is that short-term debts alleviate asset substitution issues due to its low sensitivity to firm value. Growth opportunity is measured as the ratio of capital expenditure to total assets.

iv. Firm Size: As argued by Dang (2011) and Mateus and Terra (2013), size of the firm is positively related to debt maturity structure because large firms have smaller information asymmetry and agency related issues than small firms do. For this reason, large firms have easier access to long-term debts. In another argument by Antoniou et al. (2006) and Barclay and Smith (1995), the positive relationship between firm size and debt maturity structure was ascribed to the costly issuance cost of long-term debt that makes small firms opt for short-term debt from the private debt market rather than long-term debt from public debt market. Thus, it is expected that large (small) firms will have a positive relationship with long-term (short-term) maturity structure. Firm size is measured as natural logarithm of sales following Antoniou et al. (2006) and Dang (2011).

v. Leverage: The relationship between leverage and debt maturity structure is two fold i.e. negative and positive. On the one hand, Dennis et al. (2000) argued that it is negative because a lower debt ratio and short-term debt maturity mitigates agency cost of

underinvestment. On the other hand, Antoniou et al. (2006) maintained that although higher debt ratio increase the probability of liquidation, long-term debt maturity decreases the likelihood of its occurrence. Thus, higher debt ratio is positively associated with long-term debt maturity. The ratio of total debt to total assets is used to proxy leverage (Antoniou et al., 2006; Dennis et al., 2000).

d) Macroeconomic Variables

As discussed in Chapter 2, macroeconomic variables also influence firms' capital structure and debt maturity structure justifying the inclusion of two commonly used variables namely inflation and gross domestic product in this study.

i) Inflation: Inflation as measured by the World Bank development indicator database is the consumer price index and reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services. Inflation reflects governments' ability in maintaining stability of the local currency that facilitates long-term financial contracts (Fan et al., 2012). Thus, it is expected that it will have an inverse effect on debt ratio i.e. when inflation is low and stable; debt ratio will be high and vice versa. An inverse relationship is expected because most debt contracts are in nominal rates and uncertainty about future rates tend to push creditors away from debts especially long-term debts (Cho et al., 2014; Fan et al., 2012).

ii) Gross domestic product growth rates: Gross domestic growth rate, as measured by the World Bank development indicator database, is the annual percentage growth rate of GDP. During periods of expansion, Frank and Goyal (2009) argued that firm borrowings go up in order to take advantage of tax deductions. It could also be argued that during periods of boom, collateral values go up to support debt finance. Accordingly, we expect a positive influence of gross domestic product on debt ratio.

In order to control for the overall macroeconomic factors that are common to all firms but vary from time to time, time dummies are included in the regression

specifications (Roodman, 2009). The time dummies are dummy variables; $n=T-1$, where T is the number of years for the study. This is equal to 1 for a given year and 0 otherwise. This implies that there are nine time dummies in this study ($10-1$). The inclusion of time dummies also enables the estimation to capture the effects of other unobservable factors that vary with time but are constant for all firms (Flannery & Hankins, 2013; McMillan & Camara, 2012; Roodman, 2009).

e) Legal System and Institutional Variables

To represent the legal origin of a country, sampled countries are grouped into English common law and French civil law countries. Countries that use the English common law are represented with a dummy variable that has the value of one while those using the French civil law countries have the value of zero. Following Kaufmann et al. (2011) and Kirch and Terra (2012), the present study uses three institutional factors that define and shape the quality of enforcement of existing laws in relation to the financial sector. These are regulatory quality, rule of law and government effectiveness. In addition, these three factors have direct bearing on laws and policies that are related to financial regulation as discussed in Chapter 2. The variables have values that range between -2.5 and 2.5 with higher values indicating efficient regulation, better enforcement of rule of law and better government effectiveness. The definitions and values of the three variables are obtained from worldwide governance indicators of the World Bank and as listed:

- i) Regulatory quality: this measures the ability of the government to formulate and implement sound policies in promoting private sector development such as the ease of access to capital market and regulatory enforcement etc.
- ii) Rule of law: the variable measures the level of confidence financial agents have in societal rules as well as in abiding by the rules. Specifically and relating to this thesis, it measures the quality of contract enforcement and property rights. In addition, it also

captures the efficiency of the legal framework for challenging regulations, confidence in the judicial system, efficiency of legal means to protect property rights etc.

iii) Government effectiveness: this captures the quality of policy formulation and implementation and credibility of the government's commitment to such policies as well as the degree of independence from political pressures etc. Relating to this thesis, it measures the degree of government's commitment towards policies aimed at market development and the quality of such policies.

Concerning the expected effect of the aforementioned institutional features, the expectation is that they will strengthen the legal system operating in the country such that financial contracts are sealed in environments that protect relevant stakeholders such as creditors, borrowers and investors. This will provide some level of confidence to the stakeholders in actively participating in market activities.

4.4 Chapter Summary

This chapter described and gave justifications for the data, variable selection and estimation technique used in answering the research questions in the thesis. Although several estimation techniques were identified to be suitable to run the dynamic panel regression specifications, this study adopted the two-step system generalized methods of moments. This is because of the advantages it has over other methods, especially as it relates to the nature of the dataset in this thesis. Furthermore, the validity and suitability of the estimation technique is confirmed through a number of post-estimation tests and robustness check. The next chapter presents the empirical results and discussions of findings from the estimations.

CHAPTER 5 : EMPIRICAL RESULTS AND DISCUSSION OF FINDINGS

5.0 Introduction

This chapter, divided into seven sections, presents the empirical results and discussion of the descriptive and panel data regression models given in Chapter 4. The first three sections present results of the descriptive statistics, correlation analysis and unit roots test. Section 4 reports the regression estimates obtained from the two-step system GMM together with the discussion and implication of findings for the study. Section 5 reports the result of the post-estimation tests conducted to confirm the validity of the regression specifications while Section 6 checks the robustness of earlier reported estimates in Section 4. The last section (7) gives a brief summary of the chapter.

5.1 Descriptive Statistics

The final panel data set obtained from Datastream consists up of 599 non-financial publicly-listed companies in the selected countries for the period 2003 to 2012.⁶²

Figure 5.1 shows the percentage distribution of the firms according to the countries and it is observed that South Africa has the highest number of firms in the study representing 41% of the total sample size. This is followed by Egypt (22%) and Nigeria (10%). The number of firms from Botswana is the least at 1%. From the distribution pattern, it may be that the results will be driven by data from South African firms. Therefore as noted in Section 4.2.3, a dummy variable is introduced into the equations to check the extent to which the effect of financial market development on South African firms is different from the rest of the sampled firms. A significant coefficient of the dummy variable will suggest that there is a significant difference in the effect of market development on debt ratio between firms in South Africa and other countries in the study.

⁶² Appendix B gives the breakdown of firms by country, legal tradition and market classification.

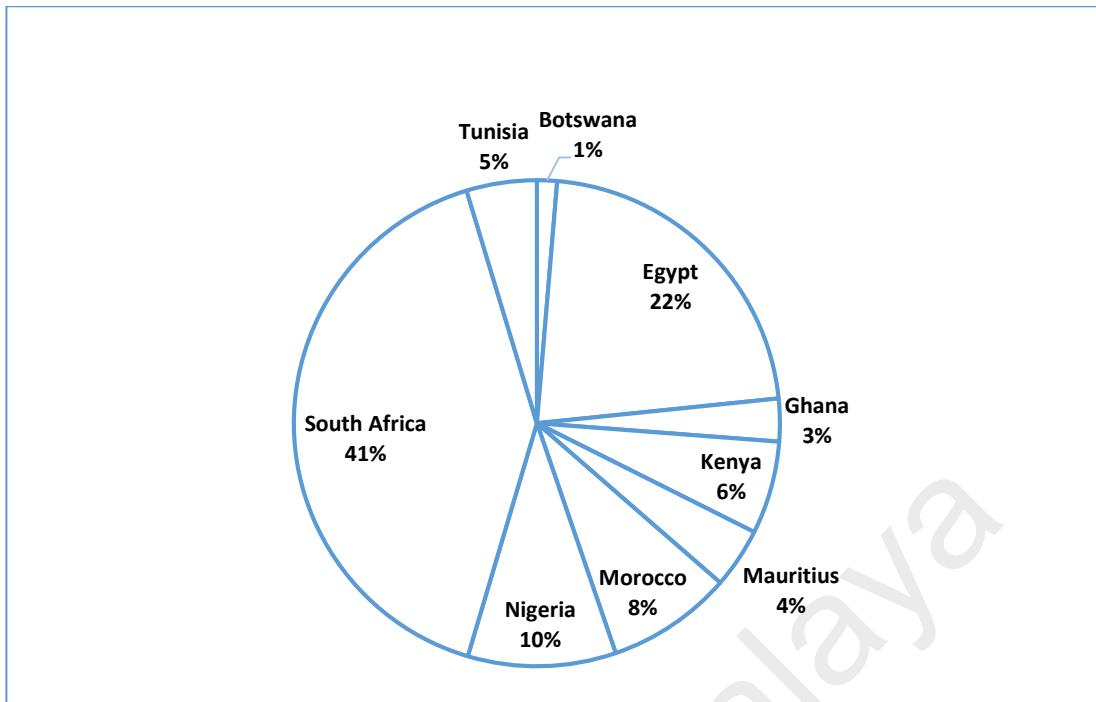


Figure 5.1: Distribution of firms according to country
 Source: Author's computation of firm data obtained from Datastream

A further breakdown of the total number of firms into subsamples according to the legal origin of the countries in order to test the assertion of La Porta et al. (1998) indicates that firms in English common law countries outnumber those in French civil law countries as shown in Figure 5.2.

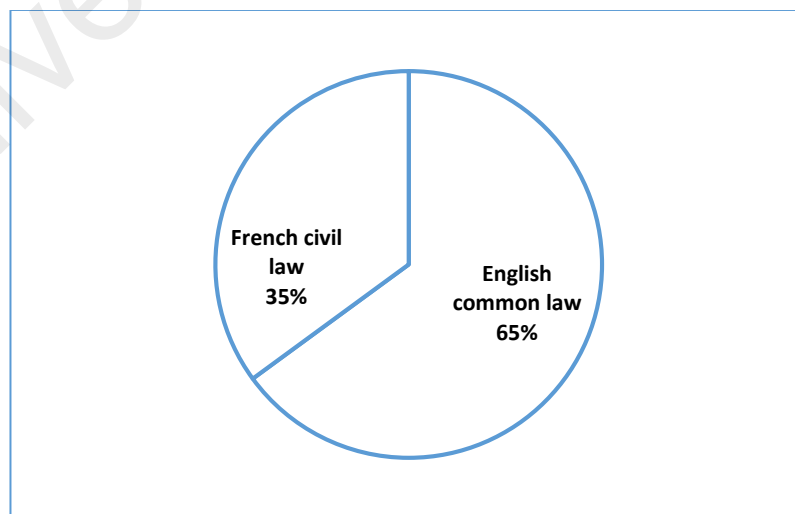


Figure 5.2: Distribution of firms according to country's legal system
 Source: Author's computation of firm data obtained from Datastream

In the same way that a dummy variable was used in determining the influence of South African firms, a dummy variable is also included in the model to determine if there is a significant difference in the effect of market development on debt ratio for firms in English common law and French civil law countries.

The descriptive statistics of the dependent and independent variables of the data set are presented in Tables 5.1 and 5.2. While Table 5.1 presents that of the full sample, Table 5.2 gives the descriptive statistics based on the legal origin.

In terms of the dependent variable (debt ratio) for the full sample in Table 5.1, the mean of short-term debt ratio at 0.095 is just slightly higher than that of long-term debt ratio at 0.094. Although the difference between the two ratios seems small, it suggests that the use of short-term debt is more prevalent than the use of long-term debt. This may be due to the greater variability of the long-term debt ratio of 0.170 when compared to the short-term debt ratio of 0.141. Nevertheless, the mean total debt ratio of 0.189 is low when compared to the debt ratio for developing and developed countries reported in Fan et al. (2012) as 0.26 and 0.20 respectively. This implies that the firms in the sample are less leveraged when compared to the firms in Fan et al. (2012) where South Africa was the only African country. However, the table (5.1) also shows that the three debt ratios have maximum values that exceed one. Given the definition of debt ratio (debts to total assets), the values indicate that firms in the sample have more debts than assets. This suggests the existence of a high level of financial risk because debts exceed assets. Nonetheless, to avoid the potential effect of outliers due to the high value of debt ratio, a robust regression technique is employed for the coefficient estimations as noted in Chapter 4.

Concerning the debt maturity structure for the full sample, the short-term debt maturity structure (STD MR) has a greater mean (0.617) than the long-term debt maturity structure (0.383). In addition, the long-term debt maturity structure value of 0.383 is

comparable to that reported in Fan et al. (2012) for a sample of developing countries as 0.36 but not for developed countries reported as 0.61. The higher value of STD MR suggests a higher proportion of short-term debt in the debt structure of firms in the sample.

Table 5.1: Summary Statistics (Full Sample)

Variables	Mean	Standard deviation	Minimum	Maximum
TDR	0.189	0.224	0	3.712
LTDR	0.094	0.170	0	3.712
STDR	0.095	0.141	0	3.142
LTD MR	0.383	0.355	0	1
STD MR	0.617	0.355	0	1
BCR	0.908	0.551	0.111	1.675
STO	0.383	0.199	0.016	0.643
PROF	0.083	0.369	-17.642	1.850
TAN	0.351	0.302	0	6.705
NDTS	0.037	0.035	-0.001	0.688
GRW	0.068	1.967	-122.798	6.619
SZ	13.59	2.449	0	20.190
INF	0.073	0.044	0.009	0.262
GDP	0.043	0.023	-0.078	0.150
GE	0.060	0.540	-1.2	0.93
RQ	0.134	0.478	-1.32	0.98
RL	-0.117	0.547	-1.52	1.01

Note: Variables are as defined in Table 4.1

However, the standard deviations of the two maturity structure variables are observed to be the same. Turning to the main explanatory variables of interest, the banking sector development variable (BCR, domestic credit to the private sector by commercial banks to GDP) has a mean ratio (0.908) that is higher than the stock market development variable (STO, stock market turnover ratio) given as 0.383. This suggests that debt in the form of banking sector credit is used more as a source of external finance than equity from stock market by the sampled firms.

The summary statistics for the full sample of firms according to the legal origin of the countries (English common law and French civil law) is presented in Table 5.2. A comparison of the two samples shows that total debt ratio and long-term debt ratio have higher means (0.195 and 0.103 respectively) in English common law countries than in French civil law countries (0.178 and 0.079). On the other hand, short-term debt ratio has a higher mean in French civil law countries (0.099) compared to short-term debt ratio in

English common law countries (0.092). The higher mean for debt ratio in the form of long-term debt in English common law countries suggests that it is more in use than short-term debt while the reverse is the case for firms in French civil law countries for short-term debt ratio. These findings are consistent with the assertion of La Porta et al. (1998) that the legal system in English common law countries encourages long-term debt financial contracts unlike that of French civil law countries. In terms of debt maturity structure, the mean of long-term debt maturity structure is higher in English common law countries (0.404) than in French civil law countries (0.343) while short-term debt maturity structure is lower in English common law countries at 0.596 compared to French civil law at 0.657. This finding is also consistent with the legal system assertion as found in the debt ratio.

The two main explanatory variables of interest (BCR and STO) are observed to have higher means in English common law countries than in French civil law countries. While the average value of the banking sector development variable (BCR) in English common law countries is 1.124, that of French civil law countries is 0.484. In terms of stock market development variable, the mean value for English common law countries is 0.391 while that of French civil law countries is 0.366 although the margin of difference is not as high as that of the banking sector development variable. The higher means in English common law countries suggest a higher level of banking sector and stock market development than French civil law countries. In order to determine whether the higher development will have an effect on debt ratio and maturity structure, a dummy variable representing the legal tradition is added to the regression specifications as noted in Chapter 4.

Table 5.2: Summary Statistics (English Common Law and French Civil Law)

Variables	English common Law				French civil Law			
	Mean	Standard deviation	Minimum	Maximum	Mean	Standard deviation	Minimum	Maximum
TDR	0.195	0.238	0	3.712	0.178	0.193	0	2.155
LTDR	0.103	0.186	0	3.712	0.078	0.131	0	2.155
STDR	0.092	0.145	0	3.141	0.099	0.132	0	1.202
LTDMR	0.404	0.347	0	1	0.343	0.369	0	1
STDMR	0.596	0.347	0	1	0.657	0.369	0	1
BCR	1.124	0.557	0.111	1.675	0.484	0.133	0.291	0.755
STO	0.391	0.211	0.016	0.643	0.366	0.172	0.0621	0.619
PROF	0.079	0.445	-17.642	1.850	0.089	0.117	-0.864	0.964
TAN	0.351	0.337	0	6.705	0.351	0.219	0	0.993
NDTS	0.038	0.036	0	0.688	0.036	0.033	-0.0004	0.306
GRW	0.048	2.413	-122.798	6.619	0.106	0.169	-0.969	1.052
SZ	14.044	2.582	0	20.189	12.713	1.874	6.498	18.714
INF	0.073	0.041	0.014	0.262	0.073	0.049	0.009	0.183
GDP	0.042	0.024	-0.078	0.150	0.047	0.019	-0.02	0.078
GE	0.219	0.569	-1.2	0.93	-0.252	0.281	-0.77	0.58
RQ	0.304	0.489	-1.32	0.98	-0.199	0.202	-0.62	0.18
RL	-0.095	0.544	-1.52	1.01	-0.160	0.551	-1.5	0.2

Note: Variables are as defined in Table 4.1

5.2 Pairwise Correlation Analysis

The bivariate relationship between variables in the models is examined before estimating the regression equations. This is done through a pairwise correlation analysis of the coefficients that assists in determining the direction and strength of the relationship irrespective of the existence of other variables. In addition, it also helps to detect the presence of multicollinearity among the regressors in the model.

The results of the pairwise analysis are presented in Tables 5.3 to 5.5 for the period 2003 – 2012. Table 5.3 is divided into two panels: A and B. Panel A gives the result of the correlation between the three measures of leverage ratio and firm-specific variables while Panel B gives the correlation outcome between the leverage ratios and domestic credit to the private sector by commercial banks, stock market turnover ratio, macroeconomic and institutional factors that has an influence on the legal system. Table 5.4 also has two panels: C and D. Panel C presents the correlation result between the two measures of debt maturity structure and firm-specific determinants while Panel D gives that of domestic credit to the private sector, inflation, gross domestic product and other institutional variables. Table 5.5 gives the correlation coefficients between all the independent variables excluding the dependent variables.

Panel A in Table 5.3 shows that the correlation coefficients reported for the three different measures of debt ratio and firm-specific variables is low and mostly statistically significant. The low values imply the absence of multicollinearity that may be an issue while estimating the equations. Two of the measures of debt ratio, total debt ratio and long-term debt ratio are significantly and highly correlated (0.777) but it does not pose a problem because they are used as dependent variables in separate models. Short-term debt on the other hand is significantly and negatively correlated with both total debt ratio and long-term debt ratio.

In terms of firm-specific variables, profitability has negative correlation coefficients with all the three measures of leverage but significant only for total debt ratio and long-term debt ratio. Asset tangibility has positive correlation with total debt ratio and long-term debt ratio but a negative one with short-term debt ratio. Non-debt tax shield is positively correlated with total debt and long-term debt ratios but has a negative correlation with short-term debt ratio.

Panel B in Table 5.3 presents the correlation coefficients between the three measures of leverage and other non-firm specific independent variables. It is observed that similar to results in Panel A of Table 5.3, the correlation coefficients are low therefore there are no multicollinearity issues. The main variables of interest, i.e. domestic credit to the private sector by commercial banks and stock market turnover, have positive and significant correlation coefficients with long-term debt ratio while the signs for short-term debt ratio are negative. For total debt ratio, domestic credit to the private sector by commercial banks is positively correlated and significant while stock market turnover is negative and significant.

Table 5.3: Pairwise Correlation between Leverage Ratio and Independent Variables

Panel A							
<u>Leverage and firm-specific factors</u>							
	TDR	LTDR	PROF	TAN	NDTS	GRW	SZ
TDR	1.000	-	-0.107***	0.124***	0.100***	-0.013	0.010
LTDR	0.777***	-	-0.109***	0.139***	0.099***	-0.006	0.006
STDR	-0.276***	-0.535***	-0.039	-0.309***	-0.096	-0.019	0.120
Panel B							
<u>Leverage, banking sector development, stock market development, macroeconomic and institutional factors</u>							
	BCR	STO	INF	GDP	GE	RQ	RL
TDR	0.006	-0.042***	-0.020	-0.017	0.010	-0.005	-0.013
LTDR	0.108***	0.032***	-0.060***	-0.040***	0.111***	0.101***	0.054***
STDR	-0.042***	-0.050***	0.068***	0.019***	-0.012***	-0.011***	-0.111***

Note: *, **, *** indicates significance at 10%, 5% and 1% respectively. Variables are as defined in Table 4.1

Just as reported in panels A and B of Table 5.3, the observed correlation coefficients between the two measures of debt maturity structure (long-term debt maturity and short-term debt maturity) in panels C and D of Table 5.4 are low indicating absence of multicollinearity for both firm-specific and non-firm-specific variables. The main independent variable of interest, domestic credit to the banking sector by commercial banks has a positive coefficient with long-term debt maturity but negative with short-term debt maturity. Both, however are significant.

Table 5.5, which presents the results of the correlation analysis between the independent variables, shows that almost all the variables have low values except for stock market turnover and domestic credit to the private sector by commercial banks, which has a positive value of 0.637. However, since the two variables are not included in the same regression specification, multicollinearity will not be an issue to the estimation results.

A summary of the pairwise correlation analysis for all variables in Tables 5.3 to 5.5 shows that most of the coefficients have low values (below 0.5). The low values according to Cohen, Cohen, West, and Aiken (2013) indicate the variables have low correlation. The variables whose correlation coefficients are above 0.5 are considered highly correlated and hence, they are used in different regression models as noted in the preceding paragraph.

Table 5.4: Pairwise Correlation between Debt Maturity Structure and Independent Variables

Panel C							
<u>Debt maturity structure and firm-specific factors</u>							
	LTDMR	TDR	PROF	TAN	NDTS	GRW	SZ
LTDMR	1.000	0.276***	0.016	0.162***	0.098***	0.022	0.124***
STDMR	-1.000***	-0.276***	-0.016***	-0.162**	-0.098***	-0.022	-0.124***
Panel D							
<u>Debt maturity structure, banking sector development, macroeconomic and institutional factors</u>							
	BCR	INF	GDP	GE	RQ	RL	
LTDMR	0.222***	-0.132***	-0.115***	0.209***	0.188***	0.119***	
STDMR	-0.222***	0.132***	0.115***	-0.209***	-0.188***	-0.119***	

Note: *, **, *** indicates significance at 10%, 5% and 1% respectively. Variables are as defined in Table 4.1

Table 5.5: Pairwise Correlation between Independent Variables

	PROF	TAN	NDTS	GRW	SZ	BCR	STO	INF	GDP	GE	RQ	RL
PROF	1.000											
TAN	0.031**	1.000										
NDTS	0.010	0.211***	1.000									
GRW	0.033**	0.071***	0.035**	1.000								
SZ	0.164***	0.120***	0.040***	0.034**	1.000							
BCR	-0.036**	-0.144***	0.020	-0.006	0.060***	1.000						
STO	-0.025*	-0.131***	-0.048**	0.002	-0.034**	0.637***	1.000					
INF	0.032**	0.112***	-0.089**	0.001	0.047***	-0.423***	-0.053***	1.000				
GDP	0.023	0.060**	0.019	-0.014	-0.025*	-0.378***	-0.245***	0.163***	1.000			
GE	-0.033**	-0.111***	0.046***	0.017	-0.124**	0.284***	0.371***	-0.461***	-0.339***	1.000		
RQ	-0.032**	-0.091***	0.031**	0.007	-0.062**	0.350**	0.392***	-0.323***	-0.269***	0.388***	1.000	
RL	-0.025*	-0.064***	-0.011	0.014	-0.195**	0.465***	0.288***	-0.326***	-0.229***	0.363***	0.347***	1.000

*, **, *** denotes significance at 10%, 5% and 1% respectively. Variables are as defined in Table 4.1

5.3 Unit Root Test

The result of the unit root test is presented in Table 5.6. The Maddala and Wu unit root test is based on the Phillips-Perron fisher unit roots test and reports four test statistics namely inverse chi-squared P, inverse normal Z, inverse logit L* and modified inverse chi-squared PM. Although, the four test statistics reject the null of the series having unit roots, only the result of the inverse normal Z is reported based on the argument of Choi (2001) that it provides the best trade-off between size and power. The results in Table 5.6 indicate that the variables in the dataset are stationary at level meaning that the dataset does not contain unit roots and coefficient estimates will not be spurious.

Table 5.6: Fisher Panel Unit Roots Test at Levels

Variable	Maddala-Wu (based on Phillips-Perron Test)
TDR	-14.839 (0.000) ***
LTDR	-13.326 (0.000) ***
STDR	-17.112 (0.000) ***
LTDMR	-9.589 (0.000) ***
STDMR	-9.589 (0.000) ***
PROF	-10.847 (0.000) ***
TAN	-7.313 (0.000) ***
NDTS	-11.309 (0.000) ***
GRW	-103.120 (0.000) ***
SZ	-7.872 (0.000) ***
BCR	-2.139 (0.000) ***
STO	-6.688 (0.000) ***
INF	-24.031 (0.000) ***
GDP	-25.758 (0.000) ***
GE	-14.820 (0.000) ***
RQ	-6.352 (0.000) ***
RL	-4.175 (0.000) ***

Probability values are reported in parentheses. *** Indicate the rejection of the null hypothesis that the panel has a unit root at 1% significance level. The standard Maddala-Wu Fisher-type test is distributed as X^2 with $2N$ degrees of freedom. All the tests are conducted using Stata 11. The Phillips-Perron test is reported because it is more robust to serial correlation when compared with the augmented Dickey-Fuller test. Variables are as defined in Table 4.1

5.4 System Generalized Methods of Moments Regression: Results and Discussion

The results of the correlation analysis presented in Tables 5.3 to 5.5 indicated the absence of multicollinearity and enabled determination of the strength and direction of association between the dependent and independent variables while those in Table 5.6 showed that the dataset does not contain unit roots. These results provided the basis to carry on and estimate the regression coefficients. Back in Chapter 4, Section 4.3.4, it was noted that the use of either pooled ordinary least squares or generalized least squares method (fixed effects or random effects) to estimate the regression coefficients may give biased estimates due to issues common to capital structure studies (serial correlation, endogeneity and unobserved heterogeneity). Accordingly, the two-step system generalized method of moments (GMM) technique is employed to answer the research questions and test the various hypotheses.

The following subsections (5.4.1 to 5.4.4), which are presented according to the research objectives, detail the empirical results from the two-step system GMM estimation and discussions of the findings. The discussion part is written along the lines of theoretical and previous empirical literature reviewed in Chapter 2 in order to express important arguments and justifications, which synthesise and generalizes the findings in a meaningful way. This is to avoid omitting important and relevant foundations of the study. The subsections are divided into two parts: the first part (**a**) presents the empirical results of the two-step system GMM while the second part (**b**) discusses the results in relation to the research objective and existing literature.

5.4.1 Banking Sector Development and Capital Structure

a) The first objective sought to examine the influence of banking sector development on the capital structure of firms in African countries. To test the hypothesis related to the objective, regression equations (4.1) to (4.3) in Chapter 4 are estimated with the two-step system GMM. Table 5.7 presents the result of the regression equation for the dependent variables; total debt ratio (TDR), long-term debt ratio (LTDR) and short-term debt ratio (STDR) for the firms in the study. From the table, it is observed that the main explanatory variable of interest (BCR) is not significant for either total debt ratio or long-term debt ratio. However, it is significant at the 5 % significance level in the column for short-term debt ratio with a negative coefficient (-0.055). This implies that banking sector development in the form of domestic credit to the private sector by commercial banks in African countries has a negative effect on the use of short-term debt by non-financial firms. The non-significance of total debt and long-term debt implies the effect is dependent on the definition given to debt ratio. Hence, the hypothesis is not supported although short-term debt ratio has a significant negative coefficient.

In terms of the dummy variables for the legal system and South African firms, only the dummy for legal system is observed to be significant. Table 5.7 shows that the legal system dummy variable coefficient is positive and significant (0.028) only in the column for short-term debt ratio. This implies that banking sector development in the form of credit to the private sector by commercial banks has different effects on short-term debt ratio for firms in English common law countries and those in French civil law countries. Consequently, two separate regression equations are estimated to determine the different effects under English common law and French civil law countries. The results are presented in Table 5.8. The non-significance of the South African dummy indicates that banking sector development has the same effect on capital structure for firms in South Africa as in other countries.

Table 5.7: Two-Step System Generalized Method of Moments Regression Estimates for the Effect Banking Sector Development on Leverage Ratio (Full Sample)

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.593*** (0.123)	-	-
LTDR _{i,t-1}	-	0.571*** (0.134)	-
STDR _{i,t-1}	-	-	0.593*** (0.094)
Banking sector development variable			
BCR	-0.005 (0.011)	-0.006 (0.007)	-0.055** (0.021)
Firm-level variables			
PROF	-0.009 (0.015)	-0.003 (0.009)	-0.017* (0.010)
TAN	0.051** (0.024)	0.019 (0.013)	-0.089** (0.038)
NDTS	-0.113 (0.174)	-0.004 (0.138)	-0.024 (0.207)
GRW	0.004** (0.002)	0.001 (0.001)	-0.000 (0.001)
SZ	0.003 (0.002)	0.002 (0.002)	-0.009*** (0.003)
Macroeconomic variables			
INF	-0.010 (0.059)	-0.023 (0.034)	-0.007 (0.117)
GDP	-0.221** (0.086)	-0.121* (0.063)	-0.019 (0.202)
Institutional variables			
GE	0.031* (0.018)	0.019 (0.015)	-0.055* (0.029)
RQ	-0.026* (0.016)	-0.004 (0.012)	0.034 (0.028)
RL	-0.001 (0.007)	-0.003 (0.006)	-0.002 (0.008)
DLS	0.004 (0.009)	0.002 (0.007)	0.028* (0.016)
DSA	-0.019 (0.027)	-0.014 (0.019)	0.055 (0.047)
Test statistics			
AR (1)	-3.39 (0.001)	-3.04 (0.002)	-6.32 (0.000)
AR(2)	-0.44 (0.658)	0.29 (0.770)	-0.47 (0.636)
Hansen Statistics	33.49 (0.443)	33.55 (0.256)	37.97 (0.762)
Wald chi ²	5.79 (0.000)	8.69 (0.000)	40.74 (0.000)
Number of groups	596	596	596
Number of instruments	48	44	60
Number of observations	4064	4064	4064

Note: This table presents the results of equations (4.1), (4.2) and (4.3) using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi-square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

Regarding firm-specific factors in Table 5.7, profitability of assets and size of firm are significant only in the column for short-term debt ratio with negative coefficients (-0.017 and -0.009 respectively) while growth opportunity is significant only in the column for total debt ratio with a positive coefficient (0.004). Tangibility of assets, on the hand has a significant and positive coefficient (0.051) with total debt ratio but a significant and negative coefficient (-0.089) with short-term debt ratio. In terms of macroeconomic and other institutional factors that affect the legal system, gross domestic product is observed to have significant negative values in the column for total debt ratio and long-term debt ratio (-0.221 and -0.121) while the regulatory quality has a significant negative coefficient (-0.026) in only the total debt ratio column. Government effectiveness at being committed to policy implementation has significant values for both total debt ratio (0.031) and short-term debt ratio (-0.055) although the coefficient signs are different.

Consequent upon the results in Table 5.7, the second part of this subsection details the implications in line with previous literature.

b) Research question 1 used in investigating Objective 1 sought to know the extent to which banking sector development, in the form of domestic credit to the private sector by commercial banks, influences the capital structure of publicly-listed non-financial firms in African countries. Theoretical literature portrays that development in the banking sector should lower agency cost, transaction costs and reduce information asymmetry. This process, according to Demirgüç-Kunt & Maksimovic (1996) should result in an increase in debt availability. However, the findings reported in Table 5.7 suggest that the effect for the sampled firms is not as postulated by financial intermediation theory; rather than an increase in debt ratio, a decline is observed. The decline is noted to be dependent on the definition of debt ratio as seen in the significant decrease in short-term debt ratio following banking sector development. This is implied by the inverse and significant

coefficient of the proxy for banking sector development (BCR) in the column for short-term debt ratio (-0.055).

Nevertheless, the negative effect on debt ratio is in line with the findings of Ağca et al. (2013) that following some specific banking sector reforms, debt ratio of firms declines especially for reforms that tend towards bank supervision, interest rate liberalization and credit allocation. They argued that these reforms led to stringent lending standards that increased the cost of debt finance. In a similar argument, Faulkender and Peterson (2006) noted that monitoring costs and less than perfect financial contracts increase the cost of debt for firms in imperfect markets where development of the sector did not remove all financial market imperfections. A recall from Chapter 3 of the discussion on some of the development measures introduced in the banking sectors of the sampled countries include interest rate liberalization, removal of sectoral credit allocation and implementation of corporate governance codes among other measures taken to strengthen governance and supervision process. The expectation is that constraints encountered in accessing debt finance are removed such that debt availability increases and firms' access to credit becomes easier.

Contrary to expectations however, debt ratio declined rather than increased as observed in Table 5.7. This might perhaps be due to an increase in the cost of obtaining debt finance and may be explained in terms of cost of debt arising from imperfect financial contracting. It may also be that the firms found an alternative form of external finance. The findings are however in contrast to that of Agarwal and Mohtadi (2004) who found that development in the banking sector led to a corresponding increase in debt finance.

Furthermore, inferring from literature reviewed in Chapter 2, the decline in short-term debt ratio following banking sector development may be ascribed to higher adjustment costs. This is observed by comparing the coefficients of the lagged short-term debt ratio

in Tables 5.7 and 5.10.⁶³ The value of the lagged short-term debt ratio in Table 5.7 is higher at 0.593 than that reported in Table 5.10 as 0.507. This suggests that adjustment cost associated with banking sector development is higher than when the variable is not accounted for in the regression specification.

Although the main aim of the objective and hypothesis is to test the effect of banking sector development on debt ratio, the results of the estimation show that control factors (firm-specific, macroeconomic and institutional factors) are also important determinants of debt ratio as identified in previous studies. The importance of these variables however differs based on the definition of debt ratio.⁶⁴ Each of the three measures of debt ratio is discussed under the following headings:

Total Debt Ratio (TDR): When debt ratio is defined as total debt to total assets, tangibility of assets, growth opportunity, gross domestic product, government effectiveness and regulatory quality are important determinants. The significant and positive sign of tangibility of assets (0.051) suggests that firms with tangible assets are able to take on more debt finance because the assets serve as collateral to secure the loan in addition to reducing financial distress cost. This is in line with the prediction of the trade-off theory, which is consistent with previous studies such as Akhtar and Oliver (2009) and Frank & Goyal (2009). Nonetheless, evidence of pecking order theory is also presented in the results in Table 5.7 through the signs and significance of growth opportunity and gross domestic product. The significant and positive effect of growth opportunity (0.004) implies that growing firms accrue debt over time to finance investments that continuously grow as the firm grows. The proxy for growth opportunities (capital expenditure) according to Frank and Goyal (2009), represents financial outflows that increase financing deficit. Furthermore, the significant and negative sign of the gross

⁶³ The coefficient as explained in Section 4.2.3 (c) is also a proxy for the adjustment parameter /cost.

⁶⁴ Alves and Ferreira (2011) also found that the relationship between debt ratio and its determinants is dependent on how debt ratio is defined.

domestic product (-0.221) indicates that during periods of boom in the economy, firms are more profitable with higher retained earnings to finance investments instead of using debt (Frank & Goyal, 2009).

Regarding institutional factors, government effectiveness has a significant and positive coefficient (0.031) while the regulatory quality is negative (-0.026) and significant. The positive coefficient of government effectiveness (which captures government commitment towards policies aimed at market development) is consistent with the supply-side view that efficiency in law enforcement encourages investors to provide funds for firms because it increases the ability of creditors to recover borrowed funds. The rationale is that if the government is committed to making the markets conducive for stakeholders, for instance, creditors will be willing to make credit available to firms. A similar finding is reported in De Jong et al. (2008). In contrast, the negative coefficient of regulatory quality is consistent with the argument of Antoniou et al (2008) and Cho et al. (2014) that firms are reluctant to use debt when the quality of regulation strengthens investors' protection because of the fear of losing control of the firm. This implies that firms will employ less debt in their financial structure due to the fear of loss of control.

Long-term Debt Ratio: When leverage ratio is defined as the ratio of long-term debt to total assets, only gross domestic product is seen to have a negative and significant effect on the leverage ratio (0.121). As earlier suggested, this implies that during periods of boom, firms retain more earnings to finance investments.

Short-term Debt Ratio: Apart from the coefficient of development in the banking sector in the column for short-term debt ratio, those of profitability (-0.017), tangibility of assets (-0.089), firm size (-0.009), government effectiveness (-0.055) and the legal system (0.028) are also important determinants of short-term debt ratio. The firm-specific variables are consistent with the predictions of the pecking order theory that firms follow

a hierarchy in financing decisions preferring to use retained earnings followed by debt and equity as the last option (Frank & Goyal, 2009; Haron et al., 2013; Ramjee & Gwatidzo, 2012).

Because of the significance of the legal system dummy variable in the column for short-term debt ratio, firms in the full sample were split into two samples comprising of firms in English common law countries and those in French civil law countries. Two separate regression equations were estimated for the two samples. Table 5.8 presents estimates of the regression specification, which is followed by an analysis of the results.

The coefficient for the banking sector development variable (BCR) in Table 5.8 is significant only in the English common law sample with a negative sign (-0.045) but is not significant in the French civil law sample. The significance of the banking sector development variable in the English common law sample indicates that short-term debt ratio declines for firms only in English common law countries but not for firms in French civil law countries. In other words, the explanation given earlier in this section for the decline in short-term debt ratio is applicable only to firms in English common law countries but not for those in French civil law countries. Thus, as explained earlier, the decline may be due to specific banking sector development policies introduced in English common law countries that increased cost of finance/adjustment costs that led to decline in short-term debt ratio. These policies are concerned with interest rate deregulation, removal of sectoral credit allocation and banking supervision. The negative effect of banking sector development on debt ratio of firms in English common law countries is, however, in contrast to the law and finance view (La Porta et al., 1998) that the legal system in English common law countries offers stronger protection to investors.

Table 5.8: Two-Step System Generalized Method of Moments Regression Estimates for the Effect Banking Sector Development on Short-Term Debt Ratio (Sample Split According to Legal Tradition)

	English common law	French civil law
Lagged dependent variable		
STDR _{i,t-1}	0.580*** (0.098)	0.599*** (0.149)
Banking sector development variable		
BCR	-0.045** (0.023)	0.004 (0.126)
Firm-level variables		
PROF	-0.038** (0.015)	0.132 (0.102)
TAN	0.079** (0.039)	-0.169* (0.086)
NDTS	-0.066 (0.272)	0.402 (0.300)
GRW	0.002 (0.007)	-0.201 (0.146)
SZ	-0.008*** (0.003)	-0.015* (0.008)
Macroeconomic variables		
INF	-0.069 (0.157)	0.491 (0.398)
GDP	-0.054 (0.252)	-0.292 (0.550)
Institutional variables		
GE	-0.126** (0.061)	-0.065 (0.067)
RQ	0.045 (0.043)	-0.031 (0.076)
RL	0.057 (0.041)	-0.012 (0.013)
Test statistics		
AR (1)	-5.73 (0.000)	-3.75 (0.000)
AR(2)	-0.068 (0.493)	-3.75 (0.879)
Hansen Statistics	38.51 (0.742)	49.43 (0.067)
Wald chi ²	33.26 (0.000)	18.24 (0.000)
Number of groups	386	207
Number of instruments	59	50
Number of observations	2627	1361

Note: This table presents the results of equation (4.3) split into English common and French civil law countries without the South African dummy, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses) The equation is estimated using the two-step system generalized method of moments estimation technique with STATA 11 software. The dependent variable is STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

The stronger protection encourages investors / creditors to lend to the firm thereby increasing debt availability and therefore more use of debt, which seems not to be the case for the sample of firms in this thesis. Nonetheless, it is consistent with the view of Cho et al. (2014) that stronger protection to investors discourages the firm from using debt due to the fear of losing control of the firm.

The two macroeconomic variables (GDP and INF) are not significant and government effectiveness is significant only in English common law countries with a negative sign (-0.126). Government effectiveness, which captures the degree of commitment of government towards policies that develop the market and its quality also suggest a decline in short-term debt ratio with a negative coefficient of -0.126. This might imply that, for instance, if policies aimed at strengthening investors' protection are introduced, firms may be discouraged from using debt finance due to the fear of giving up ownership of the firm in case of financial distress as argued by Antoniou et al. (2008) and Cho et al. (2014).⁶⁵

The signs and significance of the firm-specific variables in Table 5.8 also differ for firms in both samples. For instance profitability on one hand, is significant with a negative sign (-0.380) only for firms in English common law countries. Tangibility of assets, on the other hand, is significant in both samples although with different signs (0.788 for English common law and -0.169 for French civil law). However, firm size is significant in both samples with the coefficient having the same negative sign (-0.008 for English common law and -0.015 for French civil law).

Table 5.8 shows that there is a marked difference regarding the effect of profitability and asset tangibility in both samples although firm size has the same effect in both. For the English common law sample, there is evidence of both trade-off and

⁶⁵ The argument of Choi et al. (2014) and Antoniou et al. (2008) is based on the demand side view (firms) while that of La Porta et al. (1998) is looked at from the supply-side view (creditors / investors).

pecking order theory. Earlier studies also showed that the existence of more than one theory in a study need not be mutually exclusive (Antoniou et al., 2008; De Haan & Hinloopen, 2003; Titman & Tsyplakov, 2007). Evidence of trade-off theory is observed for tangibility of assets (significant value of 0.079) while pecking order theory is implied in profitability (significant value of -0.038) and firm size (significant value of -0.008).

Firms in French civil law countries strictly follow the pecking order theory as evidenced by the significance of asset tangibility (-0.169) and firm size (-0.015). This implies that firms in French civil law countries in this study adhere to a hierarchal financing list (retained earnings, debt and equity) as postulated by the pecking order theory of capital structure.

5.4.2 Stock Market Development and Capital Structure

a) The second objective sought to determine the influence of stock market development on the capital structure of firms in African countries. To fulfil this objective, a modified regression specification of equation (4.1) to (4.3) was used to test hypothesis 2 where the stock market development variable replaced the banking sector development variable as given in equations (4.4) to (4.6) for the three different definitions of debt ratio. Empirical results for the three ratios are presented in Table 5.9. The coefficient of the main independent variable of interest, stock market turnover ratio, although negative in all three models, is significant only in the column for short-term debt ratio (-0.070). This indicates support for the hypothesis only when debt ratio is defined in terms of short-term debt ratio. The significance and signs of firm-specific variables are equally not the same across the three different measures of debt ratio. For instance, the coefficient of profitability is significant and negative only in the column for short-term debt ratio (-0.019). Tangibility of assets, though significant for total debt ratio (0.051) and short-term debt ratio (-0.112), has different signs in both. Growth opportunity is positive and

Table 5.9: Two-Step System Generalized Method of Moments Regression Estimates for the Effect Stock Market Development on Leverage Ratio (Full Sample)

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.602*** (0.121)	-	-
LTDR _{i,t-1}	-	0.569*** (0.128)	-
STDR _{i,t-1}	-	-	0.468*** (0.132)
Stock market development variable			
STO	-0.003 (0.017)	-0.007 (0.010)	-0.070** (0.032)
Firm-level variables			
PROF	-0.010 (0.014)	-0.003 (0.009)	-0.019** (0.008)
TAN	0.051** (0.024)	0.019 (0.013)	-0.112** (0.045)
NDTS	-0.118 (0.174)	-0.004 (0.135)	-0.083 (0.225)
GRW	0.005** (0.002)	0.001 (0.001)	-0.001 (0.001)
SZ	0.003 (0.002)	-0.001 (0.002)	-0.012*** (0.004)
Macroeconomic variables			
INF	-0.005 (0.064)	-0.011 (0.036)	0.129 (0.122)
GDP	-0.218*** (0.085)	-0.112* (0.062)	0.144 (0.193)
Institutional variables			
GE	0.028* (0.017)	0.016 (0.014)	-0.084** (0.035)
RQ	-0.027 (0.016)	-0.005 (0.012)	0.020 (0.027)
RL	-0.001 (0.006)	-0.002 (0.005)	0.001 (0.010)
DLS	0.006 (0.009)	0.001 (0.007)	-0.009 (0.017)
DSA	-0.003 (0.017)	-0.001 (0.010)	-0.005 (0.008)
Test statistics			
AR (1)	-3.43 (0.001)	-3.08 (0.002)	-4.34 (0.000)
AR(2)	0.44 (0.663)	0.029 (0.774)	-0.75 (0.456)
Hansen Statistics	33.31 (0.452)	33.48 (0.259)	22.61 (0.913)
Wald chi ²	5.96 (0.000)	9.28 (0.000)	22.86 (0.000)
Number of groups	596	596	596
Number of instruments	48	44	48
Number of observations	4064	4064	4064

Note: This table presents the results of equations (4.4), (4.5) and (4.6) using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

significant (0.005) for total debt ratio while size of the firm is negative and significant (-0.012) for short-term debt ratio.

In terms of macroeconomic and institutional variables, GDP is significant and negative in the column for total debt ratio (-0.218) and long-term debt ratio (-0.112) but not for short-term debt ratio. Government effectiveness is significant in both total debt ratio and short-term debt ratio but with different signs (0.028 and -0.084 respectively). The second macroeconomic variable (inflation) and other institutional variables (regulatory quality and rule of law) do not have significant effect on the three different measures of leverage ratio.

b) In hypothesis two, effect of stock market development in the form of increase in stock market liquidity (stock market turnover ratio) on debt ratio of listed non-financial firms for the three different measures of debt ratio is investigated. As reported in Table 5.9, stock market turnover ratio has a significant negative effect only in the short-term debt ratio column (-0.070). This negative effect is consistent with the financial intermediation theory that stock market development minimizes information asymmetry by reducing moral hazard and adverse selection issues (Grossman & Stiglitz, 1980). When this happens, according to Demirgüç-Kunt and Maksimovic (1996) investors are more at ease and willing to provide equity capital to firms suggesting an increase in stock market indicators inclusive of liquidity. Consequently, firms are able to raise more equity finance from the market and this leads to a substitution effect such that debt finance is replaced with equity finance and thus, a decline in use of debt. This is associated with stock market development that increases liquidity, minimises moral hazard and adverse selection issues, thus increasing investors' confidence in providing equity for firms (Demirgüç-Kunt & Maksimovic, 1996; Grossman & Stiglitz, 1980).⁶⁶

⁶⁶ A fall out of asymmetric information.

The same argument as in the preceding paragraph may be applied to the results presented in Table 5.9 for the sampled firms in this study because some of the challenges encountered by firms in accessing external finance in the financial markets of the sampled countries include information asymmetry problems and illiquidity that limit firms' access to funding from the market. In order to improve access to equity finance, stock market development policies were introduced as discussed in Chapter 3. These policies, to an extent, improved market activities as observed in Table 3.4 for stock market capitalization and value of stock traded for the period of study. Thus, it can be inferred that the stock market was made more conducive by the removal of impediments encountered in the stock markets by firms seeking equity capital as an alternative to debt finance. As a result, development of the stock market in the form of increasing stock market liquidity led to a decline in debt ratio suggesting that firms substitute equity for debt. This finding is consistent with that of Agarwal and Mohtadi (2004) for a sample of 21 developing countries.

An important observation in Table 5.9 regarding the decline in short-term debt ratio following stock market development is that the decline appears to support the result reported earlier in Table 5.7 for short-term debt ratio. From this observation, it may be that the fall in short-term debt ratio in Table 5.7 is due to the firms substituting equity for debt, i.e. the use of an alternative source of external finance. It is also observed that the adjustment cost for short-term debt ratio in Table 5.9 is 0.468, which is lower than that in Table 5.7 given as 0.593 indicating a higher adjustment cost for banking sector development as against stock market development.

A comparison of the results reported in Table 5.7 and 5.9 in terms of significant variables (with the exception of STO and legal system dummy variable) show a similarity in the two tables with the exception of regulatory quality. Regulatory quality is significant in Table 5.7 for total debt ratio but not significant in any of the models in Table 5.9. The

similarity in the result may perhaps be due to the banking sector and stock market being subsets of markets for external capital. Thus, developments in both sectors aim to achieve the same purpose, which is to improve firms' access to finance at affordable costs. For that reason, variables for both sectors investigate how development in financial markets influences firms ability to obtain external capital from the markets (although the form of capital may differ). In contrast to the significance of the legal tradition dummy variable in Table 5.7, the dummy variable in Table 5.9 is not significant implying that there is no legal system specific effect for the sampled firms in terms of stock market development.

Due to the similarity in the significance or otherwise of other control variables in Tables 5.7 and 5.8, and to avoid repeating the same argument, the explanation and discussion given in the previous section (5.4.1) for the earlier table (5.8) is also applied for the variables in this section.

5.4.3 Firms' Instantaneous Adjustment to Target Leverage

a) The third objective investigates firms' instantaneous adjustment to target leverage in African countries. In other words, do they exhibit target leverage adjustment? If yes, what is the cost of adjustment? This investigation is against the backdrop that African financial markets are imperfect as noted in Chapter 3. Imperfect markets, as argued by Öztekin and Flannery (2012), make firms incur costly adjustment costs while re-balancing to target leverage. The regression specification in equations (4.7) to (4.9) was used to test the hypothesis and the results are presented in Table 5.10. It will be recalled that the regression specifications do not include market development variables in order to determine the separate effect of firm-specific and other non-firm-specific variables on target leverage without the market development variables. The results show that the hypothesis is supported across the three debt ratios (TDR, LTDR and STDR).

Table 5.10: Two-Step System Generalized Method of Moments Regression Estimates for Firms' Instantaneous Adjustment to Target Leverage (Full Sample)

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.639*** (0.122)	-	-
LTDR _{i,t-1}	-	0.565*** (0.189)	-
STDR _{i,t-1}	-	-	0.507*** (0.133)
Firm-level variables			
PROF	-0.010 (0.012)	-0.005 (0.009)	-0.019** (0.008)
TAN	0.058** (0.029)	0.027* (0.016)	-0.098** (0.041)
NDTS	-0.151 (0.182)	-0.007 (0.152)	-0.069 (0.218)
GRW	-0.005** (0.003)	0.001 (0.008)	-0.001 (0.001)
SZ	0.003 (0.005)	0.001 (0.004)	-0.011*** (0.004)
Macroeconomic variables			
INF	0.038 (0.073)	-0.007 (0.065)	0.076 (0.116)
GDP	-0.033 (0.129)	-0.046 (0.118)	0.190 (0.197)
Institutional variables			
GE	0.047 (0.029)	0.021 (0.027)	-0.081** (0.036)
RQ	-0.044 (0.034)	-0.012 (0.033)	0.011 (0.027)
RL	-0.002 (0.014)	-0.002 (0.016)	-0.001 (0.010)
DLS	-0.005 (0.079)	-0.007 (0.086)	-0.012 (0.016)
DSA	-0.005 (0.047)	0.024 (0.027)	0.005 (0.008)
Test statistics			
AR (1)	-3.50 (0.000)	-2.67 (0.008)	-4.51 (0.000)
AR(2)	-0.37 (0.710)	0.26 (0.795)	-0.63 (0.527)
Hansen Statistics	28.86 (0.420)	30.19 (0.178)	24.10 (0.871)
Wald chi ²	5.65 (0.000)	7.01 (0.000)	25.65 (0.000)
Number of groups	596	596	596
Number of instruments	42	38	47
Number of observations	4064	4064	4064

Note: This table presents the results of equations (4.7), (4.8) and (4.9) using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

Back in Chapter 4, it was noted that the regression specifications (4.7 to 4.9) for investigating the dynamic trade-off theory allow for determination of adjustment costs and speed of adjustment through the coefficient of the lagged dependent variable. Therefore, as observed in Table 5.10, the positive and statistically significant below 1 coefficient for the lagged dependent variables ($TDR_{i,t-1}$, $LTDR_{i,t-1}$ and $STDR_{i,t-1}$) in the three columns for debt ratio implies that firms instantaneously adjust to target leverage.

The existence of an adjustment process is consistent with the dynamic trade-off theory of capital structure (Antoniou et al., 2008; Öztekin & Flannery; 2012). The adjustment parameter (also the adjustment cost) given by β_1 is reported as 0.639, 0.565 and 0.507 respectively for $TDR_{i,t-1}$, $LTDR_{i,t-1}$ and $STDR_{i,t-1}$ respectively.

In terms of firm-specific variables, their coefficients in Table 5.10 are observed to have different signs and statistical significance depending on how debt ratio is defined. Therefore, in interpreting the results and following previous studies, firm-specific variables are used in explaining theories of capital structure with emphasis on determining if non-financial firms in African countries exhibit target leverage ratio behaviour.

b) Hypothesis 3 tested the instantaneous adjustment to target leverage, in other words, dynamic trade-off theory in non-financial firms in selected African countries. This is against the background that previous studies examined the trade-off theory within the static framework thereby excluding the investigation of how adjustment costs due to market imperfections affect a re-balancing of the capital structure. As observed in Table 5.10, the coefficient of the lagged dependent debt ratio for the three measures of leverage are all positive, significant and are between 0 and 1 (0.639, 0.565 and 0.507 for $TDR_{i,t-1}$, $LTDR_{i,t-1}$ and $STDR_{i,t-1}$ respectively). This indicates that an adjustment process takes place when deviations occur to move the firm away from the desired target leverage consistent with the dynamic trade-off theory of capital structure (Antoniou et al., 2008; Öztekin & Flannery, 2012). These positive and significant values further confirm that

market frictions due to imperfect markets affect the speed at which the firm moves towards the desired debt ratio. In view of this, total debt ratio has the highest adjustment cost at 0.639 while short-term debt ratio is the least at 0.507. As noted earlier, the cost of adjustment determines the adjustment speed of the firm towards optimal debt ratio. Therefore, the coefficients of the lagged dependent leverage ratios suggest that short-term debt ratio has the fastest speed of adjustment at 0.493 (1-0.507). Next is long-term debt ratio at 0.435 (1-0.565) while total debt is slowest at 0.361 (1-0.639).

In order to have a meaningful interpretation of the adjustment cost results in Table 5.10, a comparison is made with the adjustment costs obtained in some previous studies for developing and developed countries. For example, Haron et al. (2013) reported adjustment costs of 0.43 for Malaysian firms. The lower cost for Malaysian firms indicates that non-financial firms in Africa have higher adjustment costs, which may be as a result of the more developed financial system in Asia as observed in Table 3.2. This is in addition to the argument of Öztekin and Flannery (2012) that the level of development of a country's financial market has an effect on the issuance of financial securities.

Compared to adjustment costs for African firms reported in Gwatidzo (2013) and Ramjee and Gwatidzo (2012) for firms in Tunisia and South Africa respectively, the costs in Table 5.10 show that South African firms have lower costs while Tunisian firms have higher costs. Specifically, adjustment costs for South African firms reported in Ramjee and Gwatidzo (2012) are between 0.345 and 0.377 for total debt ratio and 0.198 and 0.215 for long-term debt ratio. In the case of Tunisian firms, the adjustment costs reported in Ghazouani (2013) are higher than those in this thesis. This may be due to the harsh operating environment and inefficient banking system observed to be present in the banking system in Tunisia as noted by Ghazouani (2013). Although these two studies (Ghazouani, 2013; Ramjee & Gwatidzo, 2012) examined African firms, they are single

country studies and are in contrast to the present thesis that includes firms in nine different countries. Furthermore, the differences in the cost of adjustment might be due to the larger sample size used in this study and the inclusion of institutional and macroeconomic variables omitted in Ghazouani (2013) and Ramjee and Gwatidzo (2012).

In terms of comparing the results with those of firms in developed countries, the adjustment costs in this thesis are lower and contradicts literature that suggests market imperfections should make the cost higher (Öztekın & Flannery, 2012).⁶⁷ This may partly be due to firms in Africa depending on banks (private debt) as a major source of debt finance because of the underdevelopment of the bond market (Ayyagari et al., 2012; Ncube, 2007). The private debt market, according to Barclay et al. (2003) and De Miguel and Pindado (2001), has lower floatation/transaction costs than public debt markets (bond market). Therefore, because the firms in the sample get debt finance mostly from the private debt market, the cost is likely to be lower than if it had been obtained from the public debt market. This is unlike firms in developed economies where the bond markets (public debt market) are more developed but with higher transaction costs.

Lending more support for the low adjustment cost is another argument put forward by Faulkender et al. (2012) that firms who need external capital to make up for the shortfall from retained earnings need to maintain low adjustment costs that will enable them to have access to debt finance. They maintain that this will keep them closer to the target capital structure by issuing securities that keeps the adjustment cost low. This implies that firms in this study might be keeping adjustment cost low to have easy access to debt finance from external sources.

Firm-level variables are also important in determining the applicability of the dynamic trade-off theory. Evidence from firm-specific variables in Table 5.10 supporting

⁶⁷ As reported in Antoniou et al. (2008) for France, Germany, Japan, the United Kingdom and the United States; Flannery and Rangan (2006) for the United States in Chapter 2.

target leverage is observed when leverage ratio is defined as total debt ratio and is implied by the significant coefficients of asset tangibility (0.058) and growth opportunity (-0.005). However, in the case of long-term debt ratio, only the positive and significant coefficient of asset tangibility (0.027) indicates evidence of the trade-off theory. Consistent with previous studies (Akhtar & Oliver, 2009; Frank & Goyal, 2009; Haron et al., 2013; Ramjee and Gwatdizo, 2012), the positive and significant coefficient for asset tangibility implies that tangible assets lower the cost of financial distress for two reasons. Firstly, tangible assets such as property, plant and equipment are easier to value by outsiders than intangible assets, thus can be readily used as collateral. Secondly, shareholders find it difficult to substitute high-risk assets for low risk ones. The negative coefficient for growth opportunity supports the view that growth escalates financial distress and lowers free cash flow issues, therefore, to mitigate these issues, firms use less debt. (Antoniou et al, 2008; Frank & Goyal, 2009; Rajan & Zingales, 1995). For these reasons and as presented in the results, it may be inferred that non-financial firms in the sampled countries follow the dynamic trade-off theory when leverage ratio is defined in terms of total debt and long-term debt ratio.

Although the research question here is to test for the existence of dynamic trade-off theory, results from short-term debt ratio estimation showed evidence that points to dynamic trade-off and pecking order theories. The presence of two different theories with short-term debt ratio is not surprising because previous studies (Antoniou et al., 2008; De Haan & Hinloopen, 2003; Titman & Tsyplakov, 2007) had argued that the presence of more than one theory in a study might not be mutually exclusive. Nevertheless, the presence of pecking order theory appears to give a better explanation as to why the adjustment costs are lowest for the lagged short-term debt ratio. This is because retained earnings are the first choice of finance in pecking order theory hence lesser adjustment costs are incurred. According to the theory, if retained earnings are insufficient to finance

investments, debt finance is considered as an alternative before equity due to the higher agency costs in equity issuance.

The sign of the significant coefficient for profitability indicates a dynamic trade-off and pecking order theory. Relating this sign to the objective of investigating dynamic trade-off theory, the negative and significant sign of the profitability coefficient (-0.019) implies that the sample of firms in this study in terms of short-term debt ratio follows the dynamic trade-off theory. Kayhan and Titman (2007) argued that an inverse relationship between debt ratio and profitability would occur because firms store up profit to build up productive capacity that will show as outflows in their books. On the other hand, pecking order theory also predicts a negative relationship with debt ratio. With the pecking order theory, it is explained that firms consider retained earnings before other options if there is a need for finance. In other words, they prefer internal finance to external finance because of asymmetric information associated with external finance. Thus, higher firm profits imply growth in retained earnings, which are used to finance investments. This reduces the need for debt finance and less debt is observed in the capital structure (Antoniou et al., 2008; Haron et al., 2013; Ramjee & Gwatidzo, 2012). Considering the two arguments for the existence of a negative relationship between debt ratio and firm profitability, the sign of the profitability variable for the purpose of this thesis is interpreted to indicate the existence of the dynamic trade-off theory.

Further evidence supporting the pecking order theory is observed for asset tangibility and firm size in Table 5.10 for short-term debt. Consistent with the findings of Karadeniz et al. (2009) and Mukherjee and Mahakud (2010), the significant and negative sign for asset tangibility (-0.098) suggests that the effect of asset tangibility on short-term debt ratio may be as a result of low information asymmetry associated with tangible assets. The low information asymmetry makes debt costlier than equity hence, the inverse sign in other words; firms will opt for equity, finance rather than debt. The significant and

negative coefficient for firm size (-0.011) also confirms the prediction of the pecking order theory that because bigger firms are older and have been in existence longer than small firms, they are able to hold back more profit to use as retained earnings. Accordingly, they use retained earnings to finance investments (Frank and Goyal, 2009). This is in contrast to studies such as Antoniou et al. (2008) and Ramjee and Gwatidzo (2012) who reported positive and significant coefficients for firm size implying that larger firms have higher debt ratios than smaller firms do. This is because larger firms have easier access to the debt market as a result of the low information asymmetry with which they are associated.

5.4.4 Banking Sector Development and Debt Maturity Structure

a) The fourth objective is concerned with examining the influence of banking sector development on the debt maturity structure of firms in African countries. Regression specification (4.10) and (4.11) decomposed into long-term debt maturity (LTDMR) and short-term debt maturity (STD MR) was used in testing the hypothesis. Table 5.11 reports the estimates from the equations.

It is observed from Table 5.11 that the coefficients of the lagged dependent variables are positive, significant and between 0 and 1 indicating a dynamic adjustment process. The coefficient of banking sector development variable (BCR) is significant and negative (-0.073 at 5% significance level) in only the column for short-term debt maturity implying support for the hypothesis that banking sector development significantly influences debt maturity structure but only for short-term debt maturity. Control variables with significant coefficients under the long-term debt maturity column are total debt ratio (0.219), profitability (0.026), tangibility of assets (0.079) and firm size (0.010) all with positive signs. In the case of short-term debt maturity, total debt ratio (-0.199), tangibility of assets (-0.085) and firm size (-0.010) are also significant but with negative signs.

Table 5.11: Two-Step System Generalized Method of Moments Regression Estimates for Debt Maturity Structure (Full Sample)

	LTDMR	STDMR
Lagged dependent variables		
LTDMR _{i,t-1}	0.560*** (0.036)	-
STDMR _{i,t-1}	-	0.562*** (0.037)
Banking sector development variable		
BCR	0.068 (0.042)	-0.073** (0.034)
Firm-level variables		
TDR	0.219*** (0.038)	-0.199*** (0.042)
PROF	0.026** (0.012)	-0.018 (0.012)
TAN	0.079** (0.031)	-0.085** (0.036)
NDTS	-0.008 (0.181)	-0.101 (0.193)
GRW	0.003 (0.009)	-0.001 (0.005)
SZ	0.010** (0.004)	-0.010** (0.004)
Macroeconomic variables		
INF	0.015 (0.129)	0.004 (0.126)
GDP	-0.128 (0.226)	-0.089 (0.204)
Institutional variables		
GE	0.036 (0.028)	-0.042 (0.030)
RQ	-0.019 (0.035)	0.021 (0.031)
RL	0.002 (0.013)	-0.003 (-0.012)
DLS	0.036 (0.091)	-0.050 (0.074)
DSA	0.016 (0.014)	0.011 (0.040)
Test statistics		
AR (1)	-11.40 (0.000)	-11.18 (0.000)
AR(2)	-0.53 (0.593)	-0.54 (0.587)
Hansen Statistics	41.84 (0.434)	45.31 (0.297)
Wald chi ²	74.15 (0.000)	64.19 (0.000)
Number of groups	596	596
Number of instruments	57	57
Number of observations	4064	4064

Note: This table presents the results of equations (4.10) and (4.11) using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are LTDMR and STDMR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

Institutional and macroeconomic factors are observed to be insignificant in Table 5.11. The implication of these findings in relation to existing literature and the current study is discussed next in (b).

b) The regression results presented in Table 5.11 indicate that the effect of banking sector development (the explanatory variable of interest) and other significant firm-level determinants on debt maturity depends on the definition given to debt maturity structure. For instance, in the column for short-term debt maturity the coefficient of banking sector development variable (BCR) is significant and negative (-0.073) at 5% level of significance but not significant in the case of long-term debt maturity. The discussion of the result is therefore in two parts. The first part is on short-term debt maturity while the second part discusses long-term debt maturity.

Short-term Debt Maturity: According to Demirgüç-Kunt and Maksimovic (1999), important concerns in financial theory literature relating to firms' choice of capital and maturity structure are agency costs and information asymmetry. Nonetheless, the ability of firms to mitigate these concerns in financial contracts largely depends on firms' characteristics and the institutional environment in which firms operate. Literature reviewed in Chapters 2 and 3 revealed that the institutional environment, especially the financial environment, of the sample countries is developing implying that agency cost and asymmetric information are of particular concern to firms domiciled in them. Thus, to lessen adverse effects of the underdeveloped status of the financial and institutional environment, policies to make the market for capital more developed were introduced.

The expectation is that following banking sector development, maturity structure of debt will be longer because development would have mitigated agency costs and information asymmetry concerns, which in turn will encourage monitoring and enforcement of financial contracts. The effect on maturity structure will be felt through

longer maturity periods of debt. However, the results reported in Table 5.11 indicate otherwise, especially for short-term debt maturity structure where it is observed that the effect of banking sector development is negative and significant (-0.073). This implies that as the banking sector develops (in the form of increase in domestic credit to the private sector by commercial banks), the maturity structure of short-term debt is further shortened. Although this result is contrary to what is expected, it is consistent with the findings in Fan et al. (2012) who also found a negative and significant relationship between suppliers of capital (banks) and maturity structure of debt. They argued that this is because banks prefer to lend short-term due to the comparative advantage they have concerning short-term loans. This is in addition to information asymmetry concerns associated with long-term debt, especially in developing countries (where there is major reliance on bank debt). González and González (2014) also contended that the presence of high information asymmetry in developing financial markets reduces firms' access to debts with longer maturity structures.

In consonant with these views and as discussed in Chapter 3, one of the aims of developing the banking sector in African countries was to reduce problems that are associated with information asymmetry and improve firms' access to debt of longer-term maturity. However, the results suggest that this is not the situation for the sampled firms because rather than increasing the maturity structure, the reverse is the case. The inverse relationship might imply that information asymmetry is still present in the markets, hence, banks' reluctance to lend for longer periods (in other words, development of the banking sector did not alleviate information asymmetry problems as expected).

In terms of firm-specific factors, the negative and significant effect of leverage (-0.199) on short-term debt maturity supports the argument of Dennis et al. (2000) that short-term debt and a short-term debt maturity mitigates agency costs of underinvestment. This implies that in order to lessen the effect of agency costs, firms will have reduced

debt ratio with shorter maturity period. In addition, the negative and significant coefficient of firm size (-0.010) supports the argument of Barclay and Smith (1995) that smaller firms have more short-term debt and therefore, short-term maturity because of the lower cost of debt from the private debt market (commercial banks).

In Chapter 2, the argument of Barclay et al. (2003) that capital structure decisions and debt maturity structure decisions are complements rather than substitutes that should be jointly determined in capital structure studies was presented. This argument is supported in this study because leverage (total debt ratio) is seen to be an important determinant of long-term and short-term debt maturity.

Long-term Debt Maturity: The non-significance of the effect of banking sector development on long-term debt maturity structure is consistent with the findings of Kirch and Terra (2012) and González and González (2014). While the former found that financial development did not have any effect on long-term debt maturity structure for a sample of firms in five South American countries, the latter found that banking liberalization had no effect on long-term debt maturity structure for developing countries. Although, Kirch and Terra (2012) also found that institutional factors are important in determining debt maturity structure, the results reported in Table 5.11 show otherwise for non-financial firms in the selected countries for this study, i.e. the institutional variables are not important in determining debt maturity structure. In other words, country-specific factors are not important determinants of the long-term maturity structure for non-financial firms in the selected African countries. This may be due to the lower quality of the institutional variables when compared with those in earlier reported studies.

In terms of firm-specific determinants, the coefficients and signs of statistically significant variables (leverage; 0.219, profitability; 0.026, asset tangibility; 0.079 and firm size; 0.010) reported in Table 5.11 show that firm-level determinants are more important than country determinants. Consistent with previous findings, the positive and

significant coefficients of these four determinants imply that firms that have higher debt ratios, are more profitable, have more tangible assets and are large, tend to use more long-term debt, hence longer-term maturity in their financial structure. The significance of the leverage variable suggests that it influences long-term debt maturity structure in a positive way, i.e. when leverage increases, long-term maturity also increases. This is consistent with the studies of Alcock et al. (2012) and Antoniou et al. (2006) which found that firms who have high leverage ratios try to reduce their exposure to bankruptcy costs and risk by increasing long-term debt maturity. Likewise, the significance of profitability is in line with the findings of Fan et al. (2012) that profitable firms have longer debt maturity structures because firm profit increases with longer-term maturity when firms borrow more to increase tax shields. This is however in contrast to the findings of Rajan and Zingales (1995) that profitable firms have less debt and shorter maturity because they have enough retained earnings to finance investment, hence, they do not need debt finance or long-term debt.

Another important firm-level variable in Table 5.11 is asset tangibility. As argued by Fan et al. (2012) and Kirch and Terra (2012), tangible assets enable firms to take on more long-term debts because the assets serve as collateral for the loan while also controlling for financial distress costs. Another explanation may be that firms try to match the quality of their assets to the maturity structure of their debt, supporting the argument of Cai et al. (2008) and Stephan et al. (2011). Lending support to earlier studies, firm size is found to have a positive and significant effect on debt maturity. Thus, as argued by Alcock et al. (2012), Dang (2011) and Mateus and Terra (2013), larger firms have less information asymmetries and agency problems than small firms, therefore, they have easier access to long-term debts.

Summarising the effect of firm-level determinants on long-term debt maturity structure suggests that firm size and leverage ratio provides evidence of the contracting

cost hypothesis (trade-off between transaction cost of short-term debt against interest rate of long-term debt) while profitability and asset tangibility gives evidence of the signalling hypothesis (in terms of firm quality). These two theories further provide proof of the reliance on bank debt (usually given in the form of short-term debt) by firms in African countries because of the underdevelopment of the bond market.

The support for the signalling hypothesis may be due to the use of short-term bank debts that are subject to frequent monitoring with associated high refinancing costs. This implies that high quality firms make use of short-term debt to signal their quality to the market because they can afford the refinancing costs. On the other hand, short-term debts with shorter maturity are used to alleviate information asymmetry issues; therefore, it will be a signal to the market that firms with short-term debts are trying to reduce problems associated with information asymmetry. The latter explanation regarding information asymmetry seems to be applicable to the firms in this study. This is because of the nature of the African financial banking sector as discussed in Chapters 1 and 3. It was noted that bank debt is the dominant form of debt finance for firms and that the financial landscape largely lacks transparency. Therefore, in order to avoid problems that may result due to the opaque nature of the system, banks would rather lend on a short-term than on a long-term basis. This finding is consistent with findings of studies done in other developing countries such as Cai et al. (2008) for Chinese firms and Stephan et al. (2011) for firms in Ukraine.

Support for the contracting cost hypothesis by firms in this study is mainly derived from the use of bank debt (private debt) which gives lower transaction costs than the bond market (public debt) as postulated by Barclay and Smith (1995). Furthermore, the high agency costs in the financial landscape in African countries would suggest that firms resident therein reduce underinvestment problems by maintaining short-term debt

maturity. The study is unable to provide evidence or otherwise of the tax hypothesis due to the non-inclusion of tax variables as explained in Chapter 4, Section 4.3.2.

5.5 Post Estimation / Validity Tests

Test statistics for the post-estimation tests to confirm the validity and robustness of regression specifications in equations (4.1) to (4.11) show that each of the results reported in Tables 5.7 to 5.11 are valid. For example, the test statistics for no autocorrelation in AR (2) residuals in all the tables showed that the null hypothesis cannot be rejected as observed in the non-significance of AR (2) coefficients. This indicates that there is no second order serial correlation in the AR (2) residuals. In addition, the null hypothesis of Hansen statistics that tests whether instruments used in the equations are over identified showed that it cannot be rejected implying that instruments are not over identified. In terms of the joint significance of the independent variables and being good predictors of the dependent variable, the Wald χ^2 statistics showed a rejection of the null hypothesis indicating that the variables are good predictors of the dependent variable due to the significance of the χ^2 statistics. We may thus infer that the regression specifications and the choice of estimation technique (two-step system GMM) is an appropriate econometric technique for answering the research questions and testing the various research hypotheses.

5.6 Robustness Test: Country Classification

In this section, the firms are grouped into two samples of those in emerging markets and those in frontier market as explained in the previous chapter. A dummy variable is created that has the value of 1 for firms in countries where the market is emerging and 0 for those in countries where the market is frontier. The dummy variable (DEF) is used to determine whether there is a significant difference in the influence of market development on debt ratio of the sampled firms. Single regression estimations, which include the dummy

variable, are specified to investigate the influence as described in equation (4.13). The results for the regression specifications for each objective are presented in Tables 5.12 to 5.15.

A comparison of regression estimates reported in Tables 5.7, 5.9, 5.10 and 5.11 (the main analysis) in Section 5.4 with those in Tables 5.12 to 5.15 in this section (robustness checks) for each objective shows that the results are qualitatively similar with little variation. This indicates that the estimates reported for the initial regression estimations are robust. The robustness is implied through the non-significance of the DEF variable in Tables 5.12 to 5.15 in addition to the independent variables of interest (BCR and STO) also having negative signs as reported in Tables 5.7, 5.9, and 5.11. The non-significance of the DEF variable indicates that there is no significant difference in the influence of market development on debt ratio for firms in countries whose financial markets are classified as emerging markets and those classified as frontier. However, it is observed that coefficients of some of the firm-specific variables differ. Post estimation tests (Wald test, AR(2) and Hansen test of over identification) to confirm validity of the robustness specifications also indicate that the regression specifications are valid and not spurious just as in earlier reported results.

Table 5.12: Robustness Test for the Effect of Banking Sector Development on Leverage Ratio

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.603*** (0.124)	-	-
LTDR _{i,t-1}	-	0.517*** (0.132)	-
STDR _{i,t-1}	-	-	0.547*** (0.128)
Banking sector development variable			
BCR	-0.007 (0.011)	-0.010 (0.009)	-0.042* (0.022)
Firm-level variables			
PROF	0.010 (0.014)	-0.006 (0.009)	-0.022** (0.009)
TAN	0.050** (0.024)	0.025 (0.016)	-0.101** (0.044)
NDTS	-0.110 (0.174)	-0.045 (0.135)	-0.047 (0.210)
GRW	0.005*** (0.002)	0.001 (0.002)	-0.001 (0.001)
SZ	0.004 (0.002)	0.003 (0.002)	-0.008*** (0.003)
Macroeconomic variables			
INF	-0.007 (0.056)	-0.024 (0.034)	-0.007 (0.115)
GDP	-0.202* (0.089)	-0.115* (0.066)	0.052 (0.198)
Institutional variables			
GE	0.033* (0.019)	0.021 (0.016)	-0.057* (0.032)
RQ	-0.029* (0.015)	0.002 (0.010)	0.039 (0.027)
RL	-0.001 (0.008)	-0.004 (0.008)	-0.005 (0.009)
DEF	-0.001 (0.009)	-0.001 (0.006)	-0.016 (0.017)
Test statistics			
AR (1)	-3.40 (0.001)	-2.93 (0.003)	-4.85 (0.000)
AR(2)	-0.43 (0.670)	0.19 (0.849)	-0.55 (0.580)
Hansen Statistics	33.25 (0.455)	38.35 (0.363)	26.74 (0.771)
Wald chi ²	6.08 (0.000)	8.43 (0.000)	29.20 (0.000)
Number of groups	596	596	596
Number of instruments	48	51	48
Number of observations	4064	4064	4064

Note: This table presents the results of the robustness equation (4.13) for the effect of banking sector development on debt ratio using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

Table 5.12 indicates that results reported in Table 5.7 are robust to firms in emerging and frontier markets as implied by the signs and significance of firm and non-firm-specific variables for the three measures of debt ratio. Specifically, the reported estimates of banking sector development variable for the three measures of debt ratio are seen to be consistent with those reported in Table 5.7.

In Table 5.13, it is observed that the signs of the significant variables are consistent with those reported in Table 5.9 for the effect of stock market development on debt ratio. In addition, the DEF variable is not significant indicating that stock market development has the same effect on debt ratio in emerging and frontier markets in the sampled countries for this thesis.

University of Malaya

Table 5.13: Robustness Test for the Effect of Stock Market Development on Leverage Ratio

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.615*** (0.122)	-	-
LTDR _{i,t-1}	-	0.520*** (0.122)	-
STDR _{i,t-1}	-	-	0.457*** (0.141)
Stock market development variable			
STO	0.005 (0.023)	0.001 (0.014)	-0.030** (0.044)
Firm-level variables			
PROF	-0.009 (0.014)	-0.003 (0.008)	- 0.019*** (0.008)
TAN	0.052** (0.024)	-0.032 (0.018)	-0.115** (0.048)
NDTS	-0.113 (0.174)	-0.051 (0.134)	-0.083 (0.225)
GRW	0.005*** (0.002)	0.001 (0.001)	-0.001 (0.001)
SZ	-0.003 (0.002)	0.001 (0.002)	- 0.016*** (0.004)
Macroeconomic variables			
INF	-0.011 (0.072)	-0.025 (0.039)	0.075 (0.118)
GDP	-0.203** (0.094)	-0.121* (0.068)	0.105 (0.195)
Institutional variables			
GE	0.029* (0.017)	0.013 (0.013)	-0.089** (0.037)
RQ	-0.030* (0.016)	-0.002 (0.011)	0.026 (0.027)
RL	0.001 (0.006)	-0.002 (0.006)	0.001 (0.009)
DEF	-0.005 (0.011)	-0.005 (0.007)	-0.029 (0.025)
Test statistics			
AR (1)	-3.39 (0.001)	-2.98 (0.003)	-4.06 (0.000)
AR(2)	-0.042 (0.674)	0.20 (0.843)	-0.78 (0.438)
Hansen Statistics	33.46 (0.445)	39.57 (0.314)	22.79 (0.909)
Wald chi ²	6.39 (0.000)	9.47 (0.000)	23.39 (0.000)
Number of groups	596	596	596
Number of instruments	48	51	48
Number of observations	4064	4064	4064

Note: This table presents the results of the robustness equation (4.13) for the effect of stock market development on debt ratio using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

A comparison of Table 5.14 with Table 5.10 shows that the signs of coefficients and the level of significance of variables are similar concerning the investigation of instantaneous adjustment to target leverage. However, the dummy variable DEF in Table 5.14 is not significant suggesting that there is no market classification specific effect in the sampled firms.

University of Malaya

Table 5.14: Robustness Test for Firms' Instantaneous Adjustment to Target Leverage

	TDR	LTDR	STDR
Lagged dependent variables			
TDR _{i,t-1}	0.617*** (0.120)	-	-
LTDR _{i,t-1}	-	0.573*** (0.126)	-
STDR _{i,t-1}	-	-	0.462*** (0.144)
Firm-level variables			
PROF	-0.009 (0.014)	-0.002 (0.008)	-0.018** (0.008)
TAN	0.052** (0.024)	0.023* (0.013)	-0.112** (0.048)
NDTS	-0.112 (0.172)	0.003 (0.137)	-0.074 (0.224)
GRW	-0.005** (0.002)	0.001 (0.001)	-0.001 (0.009)
SZ	0.003 (0.003)	0.001 (0.002)	-0.012*** (0.004)
Macroeconomic variables			
INF	-0.006 (0.061)	-0.022 (0.034)	0.047 (0.115)
GDP	-0.201 (0.094)	-0.101 (0.064)	0.097 (0.195)
Institutional variables			
GE	0.021 (0.016)	0.015 (0.013)	-0.089** (0.037)
RQ	-0.023 (0.016)	-0.005 (0.012)	0.026 (0.027)
RL	-0.001 (0.007)	-0.002 (0.006)	0.002 (0.009)
DEF	-0.003 (0.008)	-0.006 (0.004)	-0.030 (0.019)
Test statistics			
AR (1)	-3.41 (0.001)	-3.08 (0.002)	-4.00 (0.000)
AR(2)	-0.042 (0.677)	0.29 (0.768)	-0.76 (0.447)
Hansen Statistics	33.46 (0.445)	33.76 (0.248)	23.18 (0.898)
Wald chi ²	6.99 (0.000)	10.15 (0.000)	24.69 (0.000)
Number of groups	596	596	596
Number of instruments	47	43	47
Number of observations	4064	4064	4064

Note: This table presents the results of the robustness equation (4.13) for investigating firms' instantaneous adjustment to target leverage using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are TDR, LTDR and STDR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

In terms of investigating the robustness of results reported in Table 5.11 for the effect of banking sector development on debt maturity structure, Table 5.15 indicates that the dummy variable (DEF) coefficient representing firms in emerging and frontier markets is not significant. The non-significance of the variable suggests that there is no market classification specific effect on debt ratio for the sampled firms in this thesis.

A summary of results of the robustness tests reported in Tables 5.12 to 5.15 strengthen our findings of results obtained from the main regression specifications in equations (4.1) to (4.11).

University of Malaysia

Table 5.15: Robustness Test for the Effect of Banking Sector Development on Debt Maturity Structure

	LTDMMR	STDMMR
Lagged dependent variables		
LTDMMR _{i,t-1}	0.562*** (0.036)	-
STDMMR _{i,t-1}	-	0.565*** (0.037)
Banking sector development variable		
BCR	0.030 (0.020)	-0.035* (0.019)
Firm-level variables		
TDR	0.220*** (0.038)	-0.199*** (0.042)
PROF	0.026** (0.012)	-0.018 (0.011)
TAN	0.081** (0.033)	-0.083** (0.036)
NDTS	-0.018 (0.181)	-0.106 (0.192)
GRW	0.003 (0.008)	-0.001 (0.009)
SZ	0.010*** (0.002)	-0.009*** (0.002)
Macroeconomic variables		
INF	-0.006 (0.106)	0.037 (0.111)
GDP	-0.140 (0.201)	-0.084 (0.202)
Institutional variables		
GE	0.046 (0.029)	-0.049 (0.031)
RQ	-0.027 (0.027)	0.031 (0.028)
RL	0.004 (0.007)	-0.004 (0.007)
DEF	0.020 (0.015)	-0.022 (0.015)
Test statistics		
AR (1)	-11.39 (0.000)	-11.18 (0.000)
AR(2)	-0.52 (0.600)	-0.53 (0.597)
Hansen Statistics	42.06 (0.469)	45.10 (0.344)
Wald chi ²	78.19 (0.000)	68.78 (0.000)
Number of groups	596	596
Number of instruments	58	58
Number of observations	4064	4064

Note: This table presents the results of the robustness equation (4.13) for the effect of banking sector development on debt maturity structure using the two-step system generalized method of moments estimation technique with STATA 11 software, the coefficients and standard errors that are robust to heteroskedasticity (in parentheses). The dependent variables are LTDMMR and STDMMR. All variables are as defined in Table 4.1, Chapter 4. The Wald chi square, Arellano-Bond (AR1 and AR2) tests statistics and the Hansen Statistics are also included in the table with their P-values in parentheses. *, **, *** indicates 10%, 5% and 1% level of significance respectively. The table in addition, reports the number of groups, number of instruments and number of observations.

5.7 Chapter Summary

This chapter presented the descriptive and econometric results of regression specifications used in answering the research questions of the thesis. The two-step system GMM technique was employed to estimate regression specifications used in testing the research hypothesis. The method was used based on literature that indicates it is the most appropriate method for the data in this thesis. Results from the estimation reveal that in addition to firm-level, macroeconomic and institutional determinants, development in the banking sector and stock market are important factors to consider in capital and debt maturity structure decisions of non-financial firms listed on the stock exchange of the selected countries. However, this depends on the way the variables used to proxy the two financial decisions are measured. The results show evidence supporting the financial intermediation theory that stock market development leads to a substitution of equity for debt, especially for short-term debt, as observed in the decline of short-term debt ratio following banking sector and stock market development.

Relating the results to the effect of banking sector and stock market development on debt ratio and debt maturity structure of the sampled firms (Objectives 1 and 2), the investigations show that there is a decline in debt ratio and reduced maturity structure when the two decisions are defined in terms of short-term debt. In addition to this, the results also show that when debt ratio is defined in terms of short-term debt, the effect of banking sector development on debt ratio is different for firms in English common law countries and French civil law countries. While banking sector development significantly leads to a decline in short-term debt ratio for firms in English common law countries, it has no effect on firms in French civil law countries. The same effect of a decline in short-term debt ratio is observed for the effect of stock market development on debt ratio (Objective 2) although the legal system does not appear to play an important role here. The reduction in debt ratio suggests a substitution of equity for debt. Results from the

investigation of the fourth objective also reveal a shorter maturity period following banking sector development for short-term debt. These findings of reduced debt ratio indicate that financial intermediation theory of increase in debt and equity finance following market development is supported only for stock market development but not for banking sector development.

In determining the existence of instantaneous adjustment to target leverage as stated in Objective 3, the findings show the sampled firms promptly adjust to target leverage suggesting the presence of dynamic trade-off theory although there is also evidence of the pecking order theory. Furthermore, there is also evidence to show that adjustment costs reflect the level of development of the banking sector and stock market. Previous studies on African firms had largely ignored this dynamic aspect of the trade-off theory by not accounting for imperfect markets features (in terms of adjustment costs) and had investigated it within a static framework.

Robustness test results for the regression specifications also provide some level of comfort to the results obtained from the main regression analysis in terms of the key variables of interest. The next chapter, which concludes this thesis, gives an overall summary of the major findings and their implications in relation to the objectives set out in Chapter 1. In addition, limitations of the study and suggestions for future research are given.

Chapter 6 : CONCLUSION, IMPLICATIONS AND FUTURE RESEARCH

6.0 Introduction

This chapter concludes the thesis and consists of four sections. The first section presents a summary of the thesis by recalling some of the key points discussed in earlier chapters. The second section restates the major findings from the investigations in line with stated objectives. Subsequently, the third section discusses significant implications of these findings to academic researchers, relevant policy makers and industry players. Some of the limitations of the study are highlighted in the concluding section in addition to pointing out directions for future research by suggesting some ideas that may be investigated.

6.1 Summary of Thesis

Several studies carried out after the capital structure irrelevancy theory of Modigliani and Miller (1958) provide useful insights in explaining capital structure and debt maturity decisions. The studies identify the existence of other factors apart from firm-specific factors that determine the two financial decisions. These non-firm-specific factors include the level of development of the financial market of the country in which the firm is domiciled. Chapter 1 argues that the condition of financial markets might impede firms' access to external finance, especially if the markets are not well developed. Theoretical and empirical literature explains that the development of financial markets improves firms' access to external capital by providing financing options by way of debt or equity. Thus, firms that take advantage of favourable conditions in either market will have their financial structure altered by taking more debt (equity) finance and therefore less equity (debt).

The literature review in Chapter 3 concerning the state of financial markets in Africa, especially in the 1980s and 1990s (period preceding introduction of financial sector development policies), shows that the markets are relatively inefficient in capital allocation and incomplete in terms of access to capital. As a result, the markets are besieged with issues such as high level of information asymmetry, high agency costs, lack of transparency in information disclosure etc. that act as impediments to firms' access to external finance (debt or equity). In order to remove these impediments and improve access, several African countries introduced measures to develop the banking sector and the stock market. Despite the introduction of these measures, the African financial system still lags behind markets in other developing regions as observed in Chapter 3.

The underdevelopment of the markets suggests that accessibility and availability of external capital by firms in African countries might be a problem. The World Bank global development report for 2015/2016 shows that this problem is still an issue to contend with by noting that imperfect markets in developing countries (including countries in Africa) limit firms' access to finance for investment and growth. Nonetheless, research that examines to what extent the developmental measures introduced in African financial markets has succeeded in improving firms' access to external capital in the form of debt or equity financing (availability and maturity) is lacking. The dearth of research in this area lays the foundation for the investigation of Objectives 1, 2 and 4 of this thesis.

The third objective, which investigates firms' instantaneous adjustment to target leverage in African countries, is borne out of the knowledge that previous studies did not examine the dynamic nature of the trade-off theory. The non-investigation of the dynamic nature meant that the studies did not consider imperfect market features (e.g. transaction costs, information asymmetry, agency costs among others) that may give rise to costly adjustment costs preventing firms from re-balancing to the target debt ratio. Furthermore, much of the empirical literature on capital and debt maturity structure theory is western

based with few studies emanating from Africa. This raises the question of the appropriateness of generalizing the findings of such studies to African firms given the differences in institutional, financial, economic and financial features as noted by Antoniou et al. (2008) and Narayan and Narayan (2013). In addition, the observation of Kearney (2012) that developing countries and emerging markets provide a good testing ground for examining western styled theories justifies the investigations in this thesis. This is consequent upon hitherto unavailable data that has become available in recent times.

In view of the aforementioned background, this thesis investigates the effect of banking sector and stock market development on the capital and debt maturity structure in a sample of 599 publicly-listed non-financial firms in nine African countries with focus on the amount and type of debt. The study also determines the applicability of the dynamic trade-off theory of capital structure to firms in Africa. The investigations are carried out with the two-step system GMM estimation technique due to issues such as unobserved heterogeneity, serial correlation and endogeneity inherent in the data, which it (system GMM) handles. The next section presents the summary of major findings in relation to each of the four objectives.

6.2 Summary of Major Findings

The major findings from the investigations in the thesis are discussed in line with the objectives set out in Chapter 1 and are presented in the following subsections:

6.2.1 Banking Sector Development and Capital Structure

This objective examines the influence of banking sector development, in the form of domestic credit to the private sector by commercial banks, on the capital structure (debt ratio) of publicly-listed non-financial firms in African countries. The findings from the investigation reveal that increase in domestic credit to the private sector by commercial

banks is statistically significant only for short-term debt ratio with a negative coefficient (-0.055) but not for total debt and long-term debt ratios. Further investigation reveals that this is applicable only to non-financial firms in countries where the legal system is based on English common law with a negative coefficient (-0.045). The findings are, however, in contrast to theoretical literature of financial intermediation theory (Benston & Smith, 1976; Diamond, 1984; Diamond & Dybvig, 1983) of an increase in debt finance through reduced transaction costs and information asymmetry alleviation that are associated with banking sector development. Consequent upon the empirical results obtained from investigating the first objective and consistent with findings from previous literature (Ağca et al., 2013; Faulkender & Peterson, 2006), the decline in short-term debt ratio may be attributed to higher transaction costs as reflected in the adjustment costs following the measures put in place to develop the banking sector. The decline in short-term debt ratio may also be credited to banking sector development measures, which led to improved supervision process, better risk management process and improved lending standard. Simultaneous with these improvements were increased monitoring costs passed on to firms in the form of higher transaction costs, hence the decline in short-term debt ratio.

6.2.2 Stock Market Development and Capital Structure

The second objective stems from the argument that the stock market may serve as a substitute for the debt market for sourcing external capital. Consequently, an investigation of the influence of stock market development, in the form of stock market turnover (liquidity), on the capital structure (debt ratio) of publicly-listed non-financial firms in African countries is carried out. Noting that these countries had put in place measures to improve liquidity and encourage equity activities in their respective stock markets, findings of this thesis suggest that there is a substitution of equity finance for debt finance only when debt ratio is defined in terms of short-term debt with a statistically significant negative coefficient (-0.070). The substitution effect is consistent with the prior studies

of Agarwal and Mohtadi (2004), Demirgüç-Kunt and Maksimovic (1996) and the financial intermediation theory that stock market development minimizes moral hazard and adverse selection issues (Grossman & Stiglitz, 1980). Hence, firms are able to get more equity finance from the stock market. In addition, the decline in debt ratio may also be attributed to the lower adjustment cost following stock market development (0.468) when compared to the adjustment cost in the first objective for banking sector development (0.593). The lower cost suggests that equity finance is cheaper to obtain than debt finance. The type of legal system adopted in the countries, however, does not appear to have significant impact on debt ratio unlike in the case of banking sector development as observed in the non-significance of the legal system dummy variable and implies that there is no variation in debt ratio between the two types of legal system.

6.2.3 Firms' Instantaneous Adjustment to Target Leverage

The third objective investigates firms' instantaneous adjustment to target leverage (dynamic trade-off theory) for the sample of firms in the study in addition to determining the adjustment costs and speed of adjustment. This is against the background that previous studies examined the theory within a static framework and ignored market frictions that might lead to costly adjustment costs. While findings in the investigation of this objective reveal evidence of a dynamic target leverage ratio (which is the main concern of the third objective), it also shows that the pecking order theory is applicable to the firms particularly for short-term debt ratio implying that the theories are not mutually exclusive.⁶⁸ The existence of both theories is consistent with previous literature such as Antoniou et al. (2008), De Haan and Hinloopen (2003), Hovakimian et al. (2001) and Titman and Tsyplakov (2007).

⁶⁸ While the dynamic trade-off theory is supported by the signs and significance of coefficients of lagged debt ratios (+), asset tangibility (+), growth opportunity (-) and profitability (-), the signs and significance of coefficients of asset tangibility (-) and firm size (-) support the pecking order theory.

In addition, the adjustment costs for the firms in the study (proxied by coefficients of the lagged debt ratios) when compared with firms in another developing country (Malaysia for example) are higher.⁶⁹ This signifies a higher level of financial system development in the Asian country where market frictions are less and the market more transparent thus, the lower adjustment costs (consistent with the argument of Öztekin and Flannery, 2012). Nonetheless, compared to markets in developed countries (Japan, France, Germany, the United States, and the United Kingdom) in Antoniou et al. (2008), the adjustment costs for the sample of firms in this study are lower with faster speed of adjustment. The lower cost of adjustment is attributed to cheaper transaction costs resulting from the use of bank debt, the major source of external debt for the firms in the sampled countries as against the bond market that is common in developed countries. This is consistent with the arguments of Barclay et al. (2003) and De Miguel and Pindado (2001) that private debt markets have lower transaction costs.

6.2.4 Banking Sector Development and Debt Maturity Structure

The fourth objective of the thesis investigates the influence of banking sector development, in the form of domestic credit to the private sector by commercial banks, on the debt maturity structure of publicly listed non-financial firms in African countries. The findings show that the effect is sensitive to the way debt maturity structure is measured. When measured as long-term debt maturity ratio, banking sector development has no effect but when it is measured as short-term debt maturity ratio, there is a declining effect consistent with findings from Fan et al. (2012). This may be due to banks preference to lend for shorter-term maturities due to the information asymmetry issues with long-term debt maturity, especially in developing countries, African countries inclusive. Furthermore, the findings in the investigation reveal that firm-specific factors are able to

⁶⁹ As discussed in Section 5.4.3

explain debt maturity structure theories for the sample of firms in the study by providing evidence of the contracting cost and signalling theory of debt maturity. This is an important contribution made by this thesis due to the dearth of research in this area for African firms. For the long-term debt maturity ratio, evidence of the contracting cost hypothesis is observed through the significance of firm-level variables such as firm size and leverage while proof of signalling hypothesis was through the significance of profitability and asset tangibility.

Summarizing the findings of this thesis shows that the results support Hypotheses 2, 3 and 4 but not Hypothesis 1. Furthermore, the findings are consistent with previous literature on capital and debt maturity structure for firms in developing countries. The summary of the hypotheses statements and findings is presented in Table 6.1.

Table 6.1: Summary of Hypotheses Tests Related to Thesis Objectives

Research questions	Hypothesis	Thesis findings	Supported / Not Supported
RQ1: To what extent does banking sector development influence the capital structure of firms in African countries?	Hypothesis 1: There is a positive and significant relationship between domestic credit to the private sector by commercial banks and debt ratio of firms in African countries	Increase in domestic credit to the private sector by commercial banks has a significant declining effect on debt ratio of firms in African countries.	Not Supported
RQ2: To what extent does stock market development influence the capital structure of publicly-listed firms in African countries?	Hypothesis 2: There is a negative and significant relationship between stock market turnover and debt ratio of firms in African countries.	Increase in stock market turnover leads to a significant decline in debt ratio of firms in African countries.	Supported
RQ3: Do firms in African countries instantaneously adjust to target leverage?	Hypothesis 3: There is significant and positive instantaneous adjustment to target leverage by African firms.	Firms in African countries instantaneously adjust to target leverage.	Supported
RQ4: To what extent does banking sector development influence the debt maturity structure of firms in African countries?	Hypothesis 4: There is a significant relationship between domestic credit to the private sector by commercial banks and the debt maturity structure of firms in African countries.	Increase in domestic credit to the private sector by commercial banks has a significant declining effect on debt maturity structure of firms in African countries.	Supported

6.3 Implications of Findings

The main results from this thesis point out key implications to various stakeholders, which are presented from the perspective of three groups namely: researchers, policy makers and industry players. The researchers' group may come from the academic community or research unit of private entities such as banks or other think tanks concerned with capital and debt maturity structure decisions of corporate entities. Policy makers on the other hand, refer to monetary authorities such as those from the central banks or government agencies entrusted with developing financial markets while industry players refer to the unit of analysis, firms.

This thesis provides empirical literature for researchers investigating capital and debt maturity structure decisions of publicly-listed non-financial firms in Africa to rely on in view of the limited empirical literature emanating from African countries. The reliance comes from the large sample (599 firms in nine African countries) that allows generalization of the results to countries with similar features. The results have equally revealed important factors (non-firm and firm-specific) that significantly influence capital and debt maturity decisions of non-financial firms in African countries. This will enable researchers to determine the key areas to focus on while carrying out their various investigations. In terms of constructing models used in investigating these two key financial decisions in African corporate entities, the findings in this thesis show that it is important to consider the dynamic nature of the two financial decisions due to the effect of adjustment costs. Furthermore, the findings also show that short-term debt ratio and short-term debt maturity play a more significant role than their long-term counterparts do for non-financial firms in African countries. Thus, it is necessary to include short-term debts in the construction of variables that define capital and debt maturity structure in order to avoid model misspecification by using only long-term and total debt.

As for policymakers, findings from this thesis pointed out that while policies for developing the stock market appeared to be effective in reducing the use of debt finance suggesting a substitution effect, the same cannot be said for policies targeted at the banking sector for debt finance. Rather than make debt finance more affordable, the findings showed increase in adjustment costs of debt finance following developments in the banking sector. In view of this, it is recommended that policy makers and financial regulators should review existing development measures in the banking sector in order to stop implementation of the ineffective ones. Consequent upon the review, they should put in place measures that will make the cost of debt less expensive for firms while concurrently removing identified market frictions. For instance, credit bureau organizations or alternative mechanisms that allow information sharing between financial and industry players may be established to mitigate moral hazard and adverse selection problems arising from information asymmetry between firms (borrowers) and lenders (banks). If credit bureaus are in place, they are likely to improve the screening and monitoring process, which can lead to reduction in transaction costs through risk-based pricing that will reflect the credit worthiness of the borrower (industry players). In addition, the existence of such organizations may improve access to financial services and increase the maturity structure of debt.

It is also important for policy makers and financial system regulators to develop the bond market. This will provide an alternative to debt finance for firms who seek external debt rather than relying solely on the private debt market. It is expected that if the public debt market is well developed, firms will be able to access debt finance on a longer-term basis.

In terms of industry players (African publicly-listed non-financial firms), this thesis shows that the stock market offer lower adjustment costs to the firms than the banking sector implying that equity may be a cheaper source of external finance than

bank debt. Thus, in order to save cost and improve firm value, the equity market provides a less expensive alternative to the private debt market. Relating this to the underdevelopment of the bond market, it may also serve as a stimulus to financial sector policy makers to develop the public debt market in addition to reviewing the existing development measures in the banking sector as noted in the preceding paragraph. By so doing, options available for firms to obtain debt finance are increased which may also be cheaper than the equity and private debt market. The significance of firm-specific factors supporting capital and debt maturity structure theories also indicates that firms may improve their value when they take these factors into consideration during the financial decision making process.⁷⁰

6.4 Limitations of the Study and Suggestions for Future Research

The investigation conducted in this thesis has moderately provided an 'Afrocentric' study on the effect of financial market development on the capital and debt maturity structure of publicly-listed non-financial firms in Africa. However, as is common with every study, this thesis cannot be concluded without mentioning the limitations present during the course of the study. Firstly, although this thesis used 599 non-financial firms listed on the most active stock exchange in nine African countries, there might be a limitation on generalizing the results to firms in other African countries, financial firms and firms not listed on the stock exchange. In terms of generalizing to other African countries, especially those without a stock market, cognizance is taken of the fact that firms therein do not have access to the stock market and therefore do not have the option of using equity obtained from the stock market. Financial firms, on the other hand, may exhibit somewhat different capital requirements because of financial regulations that govern the structure of their capital. The implication for firms that are not listed on the stock exchange is that

⁷⁰ These theories are dynamic trade-off theory and pecking order theory for capital structure while debt maturity structure theories are contracting cost and signalling theory.

they make use of other sources of finance that may take different forms and are different from equity and debt. Some of these alternative forms of finance include venture capital, retained earnings and private capital.

Secondly, non-classification of firms into industrial groups may have an effect on results interpretation. As an illustration, firms in industries like mining and manufacturing may require capital of longer-term maturity than those in other sectors. The heavy capital requirement by these groups of firms dictates the capital structure they adopt either in terms of debt or in terms of equity. Another example is firms who have a large proportion of their assets in intangible form (e.g. software industries). The intangibility of the assets makes it difficult to determine the collateral value and hence may be a deterrent factor in for example, accessing long-term debt (maturity structure). Thirdly, due to the limited data period (ten years) for the firms, the thesis could only investigate the short-run effect of bank and stock market development on debt ratio and maturity structure. While a longer period of country level data was available, firm-level data was limited to ten years thus the inability to determine the long-term impact through cointegration effects. Fourthly, while the focus of this thesis was only on developments in the commercial banking sector and stock market, the existence of development banks may have an effect on the capital and debt maturity structure of firms. This is because this type of financial institution (development banks) is set up mainly to foster and promote growth of industries through the provision of an alternative source of finance especially for a longer-term period.

Future research may therefore view these limitations positively and use them as room for further improvement in new studies. The construction of a market development index to track changes/variations in developmental policies can also serve as a guide to conduct future research. This is particularly important given the observed fall in stock market development indicators following the 2007/2008 global financial crisis, a situation

that is likely to influence firms' access to capital. It is also worthwhile to explore the extent to which corporate governance policies influence the two financial decisions considering the importance of governance policies on firm activities.

It is hoped that by building on the aforementioned limitations and exploring suggested areas for future research, the frontier of knowledge presented in this thesis will be extended.

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REFERENCES

- Abor, J., & Biekpe, N. (2009). How do we explain the capital structure of SMEs in sub-Saharan Africa? Evidence from Ghana. *Journal of Economic Studies*, 36(1), 83-97.
- Adedeji, A. (1998). Does the pecking order hypothesis explain the dividend payout ratios of firms in the UK? *Journal of Business Finance & Accounting*, 25(9-10), 1127-1155.
- Adjasi, C. K., & Biekpe, N. B. (2006). Stock market development and economic growth: the case of selected African countries. *African Development Review*, 18(1), 144-161.
- Agarwal, S., & Mohtadi, H. (2004). Financial markets and the financing choice of firms: Evidence from developing countries. *Global Finance Journal*, 15(1), 57-70.
- Ağca, Ş., De Nicolò, G., & Detragiache, E. (2013). Banking sector reforms and corporate leverage in emerging markets. *Emerging Markets Review*, 17(0), 125-149. doi: <http://dx.doi.org/10.1016/j.ememar.2013.08.003>
- Agyei-Ampomah, S. (2011). Stock market integration in Africa. *Managerial Finance*, 37(3), 242-256.
- Akerlof, G. A. (1970). The market for “lemons: quality uncertainty and the market mechanism. *The Quarterly Journal of Economics*, 488-500.
- Akhtar, S., & Oliver, B. (2009). Determinants of capital structure for Japanese multinational and domestic corporations. *International Review of Finance*, 9(1-2), 1-26.
- Akinlo, O. (2011). Determinants of capital structure: evidence from Nigerian panel data. *African Economic and Business Review*, 9(1), 1-16.
- Alcock, J., Finn, F., & Tan, K. J. K. (2012). The determinants of debt maturity in Australian firms. *Accounting & Finance*, 52(2), 313-341. doi: 10.1111/j.1467-629X.2010.00397.x
- Ali, M. S. B., & Sghaier, A. (2012). Competition and banking efficiency: evidence from Tunisian banking industry. *Journal of Islamic Economics, Banking and Finance*, 8(1), 54-70.
- Allen, F., & Giovannetti, G. (2011). The effects of the financial crisis on Sub-Saharan Africa. *Review of Development Finance*, 1(1), 1-27.
- Allen, F., Otchere, I., & Senbet, L. W. (2011). African financial systems: A review. *Review of Development Finance*, 1(2), 79-113.

- Alves, P. F. P., & Ferreira, M. A. (2011). Capital structure and law around the world. *Journal of Multinational Financial Management*, 21(3), 119-150.
- Anderson, T. W., & Hsiao, C. (1982). Formulation and estimation of dynamic models using panel data. *Journal of Econometrics*, 18(1), 47-82.
- Antoniou, A., Guney, Y., & Paudyal, K. (2006). The determinants of debt maturity structure: Evidence from France, Germany and the UK. *European Financial Management*, 12, 161-194.
- Antoniou, A., Guney, Y., & Paudyal, K. (2008). The determinants of capital structure: Capital market-oriented versus bank-oriented institutions. *Journal of Financial and Quantitative Analysis*, 43(1), 59-92.
- Antwi-Asare, T., & Addison, E. (2000). *Financial sector reforms and bank performance in Ghana*. London, England: Overseas Development Institute.
- Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297.
- Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. *Journal of Econometrics*, 68(1), 29-51.
- Arioglu, E., & Tuan, K. (2014). Speed of adjustment: Evidence from Borsa Istanbul. *Borsa Istanbul Review*, 14, 126-131.
- Ayyagari, M., Demirgüç-Kunt, A., & Maksimovic, V. (2012). Financing of firms in developing countries: Lessons from research *World Bank Policy Research Working Paper 6036*.
- Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *The Journal of Finance*, 57(1), 1-32.
- Baltagi, B. (2008). *Econometric analysis of panel data* (4th ed.). Chichester: Wiley.
- Bancel, F., & Mittoo, U. R. (2004). Cross-country determinants of capital structure choice: A survey of European firms. *Financial Management*, 103-132.
- Barclay, M., Morellec, E., & Smith, C. (2006). On the debt capacity of growth option. *Journal of Business*, 79, 37-59.
- Barclay, M. J., Marx, L. M., & Smith Jr, C. W. (2003). The joint determination of leverage and maturity. *Journal of Corporate Finance*, 9(2), 149-167.
- Barclay, M. J., & Smith, C. W. (1995). The maturity structure of corporate debt. *The Journal of Finance*, 50(2), 609-631.

- Barclay, M. J., & Smith, C. W. (1999). The capital structure puzzle: Another look at the evidence. *Journal of Applied Corporate Finance*, 12(1), 8-20.
- Barclay, M. J., & Smith, C. W. (2005). The capital structure puzzle: The evidence revisited. *Journal of Applied Corporate Finance*, 17(1), 8-17.
- Barnea, A., Haugen, R. A., & Senbet, L. W. (1980). A rationale for debt maturity structure and call provisions in the agency theoretic framework. *The Journal of Finance*, 35(5), 1223-1234.
- Baum, C. F. (2006). *An introduction to modern econometrics using Stata*: Stata press.
- Beck, T., Feyen, E., Ize, A., & Moizeszowicz, F. (2008). *Benchmarking financial development*. World Bank Policy Research Working Paper 4638. Washington, DC: World Bank.
- Beck, T., & Levine, R. (2004). Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance*, 28(3), 423-442.
- Beck, T., Maimbo, S. M., Faye, I., & Triki, T. (2011). *Financing Africa: Through the crisis and beyond*. Washington, DC: World Bank.
- Benston, G. J., & Smith, C. W., Jr. (1976). A transactions cost approach to the theory of financial intermediation. *The Journal of Finance*, 31(2), 215-231. doi: 10.2307/2326596
- Berger, A. N., Espinosa-Vega, M. A., Frame, W. S., & Miller, N. H. (2005). Debt maturity, risk, and asymmetric information. *The Journal of Finance*, 60(6), 2895-2923.
- Bernanke, B., & Gertler, M. (1989). Agency costs, net worth, and business fluctuations. *The American Economic Review*, 14-31.
- Bevan, A. A., & Danbolt, J. (2002). Capital structure and its determinants in the UK- A decompositional analysis. *Applied Financial Economics*, 12(3), 159-170.
- Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143.
- Bolbol, A. A., Fatheldin, A., & Omran, M. M. (2005). Financial development, structure, and economic growth: The case of Egypt, 1974–2002. *Research in International Business and Finance*, 19(1), 171-194.
- Boorman, J., & Christensen, B. V. (2010). The impact of the global financial crisis on emerging and frontier markets in Africa. *Global Journal of Emerging Market Economies*, 2(1), 69–90. doi: 10.1177/097491010900200105

- Booth, L., Aivazian, V., Demirgüç-Kunt, A., & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance*, 56(1), 87-130.
- Brick, I. E., & Ravid, S. A. (1985). On the relevance of debt maturity structure. *The Journal of Finance*, 40(5), 1423-1437.
- Brounen, D., De Jong, A., & Koedijk, K. (2006). Capital structure policies in Europe: Survey evidence. *Journal of Banking & Finance*, 30(5), 1409-1442.
- Bryant, J. (1980). A model of reserves, bank runs, and deposit insurance. *Journal of Banking & Finance*, 4(4), 335-344.
- Cai, K., Fairchild, R., & Guney, Y. (2008). Debt maturity structure of Chinese companies. *Pacific-Basin Finance Journal*, 16(3), 268-297.
- Celik, S., & Akarim, Y. D. (2013). Does market timing drive capital structure? Empirical evidence from an emerging market. *International Journal of Economics and Financial Issues*, 3(1), 140-152.
- Chami, R., Fullenkamp, C., & Sharma, S. (2010). A framework for financial market development. *Journal of Economic Policy Reform*, 13(2), 107-135.
- Chang, C., Lee, A. C., & Lee, C. F. (2009). Determinants of capital structure choice: A structural equation modeling approach. *The Quarterly Review of Economics and Finance*, 49(2), 197-213.
- Chen, J. J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research*, 57(12), 1341-1351.
- Cho, S.-S., El Ghouli, S., Guedhami, O., & Suh, J. (2014). Creditor rights and capital structure: Evidence from international data. *Journal of Corporate Finance*, 25, 40-60.
- Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance*, 20(2), 249-272.
- Chuhan-Pole, P., Angwafo, M., Buitano, M., Dennis, A., Korman, V., & Sanoh, A. (2012). An analysis of issues shaping Africa's economic future. *Africa's Pulse*, 6, 1-24.
- Čihák, M., Demirgüç-Kunt, A., Feyen, E., & Levine, R. (2012). *Benchmarking financial systems around the World*. Policy Research Working Paper 6175. Washington, DC: World Bank.
- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2013). *Applied multiple regression/correlation analysis for the behavioral sciences*: Routledge.

- Cull, R., & Xu, L. C. (2005). Institutions, ownership, and finance: The determinants of profit reinvestment among Chinese firms. *Journal of Financial Economics*, 77(1), 117-146.
- Dahou, K., Omar, H. I., & Pfister, M. (2009). *Deepening African financial markets for growth and investment*. Paper presented at the Ministerial Meeting and Expert of the NEPAD-OECD Africa Investment Initiative, Johannesburg, South Africa.
- Dang, V. A. (2011). Leverage, debt maturity and firm investment: An empirical analysis. *Journal of Business Finance & Accounting*, 38(1-2), 225-258. doi: 10.1111/j.1468-5957.2010.02215.x
- Dang, V. A., Kim, M., & Shin, Y. (2015). In search of robust methods for dynamic panel data models in empirical corporate finance. *Journal of Banking & Finance*, 53, 84-98. doi: <http://dx.doi.org/10.1016/j.jbankfin.2014.12.009>
- De Haan, L., & Hinloopen, J. (2003). Preference hierarchies for internal finance, bank loans, bond, and share issues: Evidence for Dutch firms. *Journal of Empirical Finance*, 10(5), 661-681.
- De Jong, A., Kabir, R., & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm-and country-specific determinants. *Journal of Banking & Finance*, 32(9), 1954-1969.
- De Miguel, A., & Pindado, J. (2001). Determinants of capital structure: New evidence from Spanish panel data. *Journal of Corporate Finance*, 7(1), 77-99.
- Deesomsak, R., Paudyal, K., & Pescetto, G. (2009). The determinants of debt maturity structure: Evidence from the Asia Pacific region. *Journal of Multinational Financial Management*, 19(1), 26-42.
- Delcours, N. (2007). The determinants of capital structure in transitional economies. *International Review of Economics & Finance*, 16(3), 400-415.
- Demirgüç-Kunt, A., & Maksimovic, V. (1996). Stock market development and financing choices of firms. *World Bank Economic Review*, 10(2), 341-369.
- Demirgüç-Kunt, A., & Maksimovic, V. (1999). Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics*, 54(3), 295-336.
- Dennis, S., Nandy, D., & Sharpe, L. G. (2000). The determinants of contract terms in bank revolving credit agreements. *Journal of Financial and Quantitative Analysis*, 35(01), 87-110.
- Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3), 393-414.

- Diamond, D. W. (1993). Seniority and maturity of debt contracts. *Journal of Financial Economics*, 33(3), 341-368.
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *The Journal of Political Economy*, 401-419.
- Djalilov, K., & Piesse, J. (2011). Financial development and growth in transition countries: A study of central asia. *Emerging Markets Finance & Trade*, 47(6), 4 - 23.
- Drobetz, W., & Wanzenried, G. (2006). What determines the speed of adjustment to the target capital structure? *Applied Financial Economics*, 16(13), 941-958.
- Fama, E., & French, K. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 12, 1-34.
- Fan, J., Titman, S., & Twite, G. (2012). An international comparison of capital structure and debt maturity choices. *Journal of Financial and Quantitative Analysis*, 47(1), 23-56.
- Fan, J. P. H., Wei, K. C. J., & Xu, X. (2011). Corporate finance and governance in emerging markets: A selective review and an agenda for future research. *Journal of Corporate Finance*, 17, 207 - 214.
- Faulkender, M., Flannery, M. J., Hankins, K. W., & Smith, J. M. (2012). Cash flows and leverage adjustments. *Journal of Financial Economics*, 103(3), 632-646.
- Faulkender, M., & Petersen, M. A. (2006). Does the source of capital affect capital structure? *The Review of Financial Studies*, 19(1), 45-79.
- Fischer, E. O., Heinkel, R., & Zechner, J. (1989). Dynamic capital structure choice: Theory and tests. *Journal of Finance*, 44(1), 19-40.
- Fisman, R., & Love, I. (2003). Trade credit, financial intermediary development, and industry growth. *The Journal of Finance*, 58(1), 353-374. doi: 10.2307/3094490
- Flannery, M. J. (1986). Asymmetric information and risky debt maturity. *Journal of Finance*, 41(1), 19-37.
- Flannery, M. J., & Hankins, K. W. (2013). Estimating dynamic panel models in corporate finance. *Journal of Corporate Finance*, 19(0), 1-19. doi: <http://dx.doi.org/10.1016/j.jcorpfin.2012.09.004>
- Flannery, M. J., & Rangan, K. P. (2006). Partial adjustment toward target capital structures. *Journal of Financial Economics*, 79(3), 469-506.

- Fosu, S. (2013). Capital structure, product market competition and firm performance: Evidence from South Africa. *The Quarterly Review of Economics and Finance*, 53(2), 140-151.
- Frank, M. Z., & Goyal, V. K. (2008). Trade-off and pecking order theories of debt. In E. Eckbo (Ed.), *Handbook of Empirical Corporate Finance: Empirical Corporate Finance* (Vol. 2, pp. 135-202). North- Holland: Elsevier B.V.
- Frank, M. Z., & Goyal, V. K. (2009). Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1), 1-37.
- Gertler, M., & Gilchrist, S. (1993). The role of credit market imperfections in the monetary transmission mechanism: arguments and evidence. *The Scandinavian Journal of Economics*, 43-64.
- Getzmann, A., Lang, S., & Spremann, K. (2014). Target capital structure and adjustment speed in Asia. *Asia-Pacific Journal of Financial Studies*, 43(1), 1-30.
- Ghazouani, T. (2013). The capital structure through the trade-off theory: Evidence from Tunisian Firm. *International Journal of Economics and Financial Issues*, 3(3), 625-636.
- González, V. M., & González, F. (2014). Banking liberalization and firms' debt structure: International evidence. *International Review of Economics & Finance*, 29(0), 466-482. doi: <http://dx.doi.org/10.1016/j.iref.2013.07.008>
- Gopalan, R., Song, F., & Yerramilli, V. (2014). Debt maturity structure and credit quality. *Journal of Financial and Quantitative Analysis*, 49(04), 817-842.
- Goyal, V. K., Lehn, K., & Racic, S. (2002). Growth opportunities and corporate debt policy: the case of the U.S. defense industry. *Journal of Financial Economics*, 64(1), 35-59. doi: [http://dx.doi.org/10.1016/S0304-405X\(02\)00070-3](http://dx.doi.org/10.1016/S0304-405X(02)00070-3)
- Graham, J. R., & Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. *Journal of Financial Economics*, 60(2), 187-243.
- Grossman, S. (1976). On the efficiency of competitive stock markets where trades have diverse information. *The Journal of Finance*, 31(2), 573-585.
- Grossman, S. J., & Stiglitz, J. E. (1980). On the impossibility of informationally efficient markets. *The American Economic Review*, 393-408.
- Gujarati, D., & Porter, C. (2009). *Basic Econometrics* (Fifth ed.): The McGraw-Hill, New York, USA.

- Gungoraydinoglu, A., & Öztekin, O. (2011). Firm and country-level determinants of corporate leverage: Some new international evidence. *Journal of Corporate Finance*, 17, 1457 - 1474.
- Gwatidzo, T., & Ojah, K. (2009). Corporate capital structure determinants: Evidence for five African countries. *African Finance Journal*, 11(1), 1-23.
- Haas, R., & Peeters, M. (2006). The dynamic adjustment towards target capital structures of firms in transition economies. *Economics of Transition*, 14(1), 133-169.
- Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica*, 50(4), 1029-1054.
- Haron, R., Ibrahim, K., Nor, F. M., & Ibrahim, I. (2013). Factors affecting speed of adjustment to target leverage: Malaysia evidence. *Global Business Review*, 14(2), 243-262.
- Harris, M., & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance*, 46(1), 297-355.
- Holderness, C. G. (2014). Problems using aggregate data to infer individual behaviour: Evidence from law, finance, and ownership concentration. *Critical Finance Review*. (Forthcoming).
- Hovakimian, A., & Li, G. (2011). In search of conclusive evidence: How to test for adjustment to target capital structure. *Journal of Corporate Finance*, 17(1), 33-44.
- Hovakimian, A., Opler, T., & Titman, S. (2001). The debt-equity choice. *Journal of Financial and Quantitative Analysis*, 36(1), 1-24.
- Huang, R., & Ritter, J. R. (2009). Testing theories of capital structure and estimating the speed of adjustment. *Journal of Financial and Quantitative Analysis*, 44(2), 237-271.
- Jefferis, K., & Smith, G. (2005). The changing efficiency of African stock markets. *South African Journal of Economics*, 73(1), 54-67.
- Jefferis, K., & Tacheba, A. (2010). Botswana financial sector overview 2009/10: Capital Resources.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.

- Johnson, S. A. (2003). Debt maturity and the effects of growth opportunities and liquidity risk on leverage. *Review of Financial Studies*, 16(1), 209-236.
- Jooma, M. Y. H., & Gwatidzo, T. (2013). Partial adjustment toward target capital structure: Evidence from selected African countries. *Corporate Ownership & Control*, 10(3), 474-489.
- Kale, J. R., & Noe, T. H. (1990). Risky debt maturity choice in a sequential game equilibrium. *Journal of Financial Research*, 13(2), 155-166
- Karadeniz, E., Kandir, S. Y., Balcilar, M., & Onal, Y. B. (2009). Determinants of capital structure: Evidence from Turkish lodging companies. *International Journal of Contemporary Hospitality Management*, 21(5), 594-609.
- Kaufmann, D., Kraay, A., & Mastruzzi, M. (2011). The worldwide governance indicators: Methodology and analytical issues. *Hague Journal on the Rule of Law*, 3(02), 220-246.
- Kayhan, A., & Titman, S. (2007). Firms' histories and their capital structures. *Journal of Financial Economics*, 83(1), 1-32.
- Kearney, C. (2012). Emerging markets research: Trends, issues and future directions. *Emerging Markets Review*, 13(2), 159-183.
- Kirch, G., & Terra, P. R. S. (2012). Determinants of corporate debt maturity in South America: Do institutional quality and financial development matter? *Journal of Corporate Finance*, 18(980-993).
- Kraus, A., & Litzenberger, R. H. (1973). A state-preference model of optimal financial leverage. *The Journal of Finance*, 28(4), 911-922.
- Kyereboah-Coleman, A. (2007). The determinants of capital structure of microfinance institutions in Ghana. *South African Journal of Economic and Management Sciences*, 10(2), 270-279.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. W. (1997). Legal determinants of external finance. *Journal of Finance*, 52(3), 1131-1150.
- La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1998). Law and finance. *Journal of Political Economy*, 106, 1113-1155.
- Leary, M., & Roberts, M. (2005). Do firms rebalance their capital structures? *Journal of Finance*, 60, 2575-2619.

- Lee, H., Oh, S., & Park, K. (2014). How do capital structure policies of emerging markets differ from those of developed economies? Survey evidence from Korea. *Emerging Markets Finance and Trade*, 50(2), 34-72. doi: 10.2753/ree1540-496x500203
- Levine, R. (2002). Bank-based or market-based financial systems: Which is better? *Journal of Financial Intermediation*, 11(4), 398-428.
- Levine, R. (2005). Finance and growth: Theory and evidence. *Handbook of Economic Growth*, 1, 865-934.
- Lewis, C. M. (1990). A multiperiod theory of corporate financial policy under taxation. *Journal of Financial and Quantitative Analysis*, 25(01), 25-43.
- Maddala, G. S., & Wu, S. (1999). A comparative study of unit root tests with panel data and a new simple test. *Oxford Bulletin of Economics and statistics*, 61(S1), 631-652.
- Matemilola, B., Bany-Ariffin, A., & McGowan, C. B. (2013). Unobservable effects and firm's capital structure determinants. *Managerial Finance*, 39(12), 1124-1137.
- Mateus, C., & Terra, P. (2013). Leverage and the maturity structure of debt in emerging markets. *Journal of Mathematical Finance*, 3, 46.
- Mazur, K. (2007). The determinants of capital structure choice: Evidence from Polish companies. *International Advances in Economic Research*, 13(4), 495-514.
- McMillan, D. G., & Camara, O. (2012). Dynamic capital structure adjustment: US MNCs & DCs. *Journal of Multinational Financial Management*, 22(5), 278-301.
- Miller, M. H. (1977). Debt and taxes. *The Journal of Finance*, 32, 261-275.
- Mlachila, M., Dykes, D., Zajc, S., Aithnard, P.-H., Beck, T., Ncube, M., & Nelvin, O. (2013). *Banking in Sub-Saharan Africa; Challenges and opportunities*. Luxembourg: European Investment Bank.
- Modigliani, F., & Miller, M. H. (1958). The cost of capital, corporation finance and the theory of investment. *The American Economic Review*, 48(3), 261-297.
- Moss, T., Ramachandran, V., & Standley, S. (2007). Why doesn't Africa get more equity investment? Frontier markets, firm size and asset allocations of global emerging market funds. Working paper 112 Center for Global Development: Washington, DC
- Mu, Y., Phelps, P., & Stotsky, J. G. (2013). Bond markets in Africa. *Review of Development Finance*, 3(3), 121-135.

- Mukherjee, S., & Mahakud, J. (2010). Dynamic adjustment towards target capital structure: Evidence from Indian companies. *Journal of Advances in Management Research*, 7(2), 250-266.
- Murinde, V. (2009). *Global Financial Crisis: Implications for Africa's Financial System*. Paper presented at the European Development Report (ERD) 2009 Conference on "Financial markets adverse shocks and policy responses in fragile countries".
- Murinde, V. (2012). Financial development and economic growth: Global and African evidence. *Journal of African Economies*, 21(suppl 1), i10-i56.
- Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147-175.
- Myers, S. C. (1984). The capital structure puzzle. *The Journal of Finance*, 39(3), 574-592.
- Myers, S. C., & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13, 187-221.
- Narayan, P. K., & Narayan, S. (2013). The short-run relationship between the financial system and economic growth: New evidence from regional panels. *International Review of Financial Analysis*, 29, 70-78.
- Nasr, S. (2008). Access to finance and economic growth in Egypt. *Middle East and North African Region*. Washington, DC: World Bank.
- Nasr, S. (2012). *The Egyptian banking system: Post January 25th revolution*. Paper presented at the Cambridge Business & Economics Conference, University of Cambridge, UK.
- Ncube, M. (2007). Financial Services and Economic Development in Africa. *Journal of African Economies*, 16(suppl 1), 13-57. doi: 10.1093/jae/ejm025
- Ngugi, R. W. (2008). Capital financing behaviour: Evidence from firms listed on the Nairobi stock exchange. *The European Journal of Finance*, 14(7), 609-624.
- Ojah, K., & Kodongo, O. (2014). Financial Markets Development in Africa: Reflections and the Way Forward. In C. Monga & J. Y. Lin (Eds.), *The Oxford Handbook of Africa and Economics: Policies and Practices* Oxford: Oxford University Press.
- Ozkan, A. (2002). The determinants of corporate debt maturity: Evidence from UK firms. *Applied Financial Economics*, 12(1), 19-24.

- Ozkan, A. (2001). Determinants of capital structure and adjustment to long run target: Evidence from UK company panel data. *Journal of Business Finance & Accounting*, 28(1-2), 175-198.
- Öztekin, Ö., & Flannery, M. J. (2012). Institutional determinants of capital structure adjustment speeds. *Journal of Financial Economics*, 103(1), 88-112. doi: 10.1016/j.jfineco.2011.08.014
- Papaioannou, E. (2007). Finance and growth: A macroeconomic assessment of the evidence from a European angle. Working Paper No. 787: European Central Bank.
- Petersen, M. A., & Rajan, R. G. (1995). The effect of credit market competition on lending relationships. *The Quarterly Journal of Economics*, 110 (2), 407-443.
- Rajan, R. G., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance*, 50(5), 1421-1460.
- Rajan, R. G., & Zingales, L. (1998). Financial dependence and growth. *American Economic Review*, 88, 559 - 586.
- Rajan, R. G., & Zingales, L. (2003). The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics*, 69(1), 5-50.
- Ramjee, A., & Gwatidzo, T. (2012). Dynamics in capital structure determinants in South Africa. *Meditari Accountancy Research*, 20(1), 52-67.
- Rasiah, D., & Kim, P. K. (2011). A theoretical review on the use of the static trade off theory, the pecking order theory and the agency cost theory of capital structure. *International Research Journal of Finance and Economics*, 63, 150-159.
- Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal*, 9(1), 86.
- Rousseau, P. L., & Wachtel, P. (2000). Equity markets and growth: Cross-country evidence on timing and outcomes, 1980–1995. *Journal of Banking & Finance*, 24(12), 1933-1957.
- Ruan, W., Cullen, G., Ma, S., & Xiang, E. (2014). Ownership control and debt maturity structure: Evidence from China. *International Journal of Managerial Finance*, 10(3), 385-403.
- Saci, K., & Holden, K. (2008). Evidence on growth and financial development using principal components. *Applied Financial Economics*, 18, 1549 - 1560.

- Salawu, R. O., & Agboola, A. A. (2008). The determinants of capital structure of large non-financial listed firms in Nigeria. *The International Journal of Business and Finance Research*, 2(2), 75-84.
- Senbet, L., & Otchere, I. (2008). *African stock markets*. Paper presented at the seminar 'African finance for the 21st Century'. High-level seminar organized by the IMF Institute in collaboration with the Joint Africa Institute, Tunis-Tunisia.
- Shyam-Sunder, L., & Myers, S. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 51(2), 219-244.
- Standley, S. (2010). What are the determinants of financial market development in Sub-Saharan Africa? *Private Sector and Development*, 5, 17-19.
- Stephan, A., Talavera, O., & Tsapin, A. (2011). Corporate debt maturity choice in emerging financial markets. *The Quarterly Review of Economics and Finance*, 51(2), 141-151.
- Stiglitz, J. E. (1974). On the irrelevance of corporate financial policy. *American Economic Review*, 64(6), 851-866.
- Taggart, R. A. (1985). Secular patterns in the financing of US corporations. In B. M. Friedman (Ed.), *Corporate capital structures in the United States*. Chicago: University of Chicago Press.
- Thies, C. F., & Klock, M. S. (1992). Determinants of capital structure. *Review of Financial Economics*, 1(2), 40-52.
- Titman, S., & Tsyplakov, S. (2007). A dynamic model of optimal capital structure. *Review of Finance*, 11(3), 401-451.
- Tong, G., & Green, C. J. (2005). Pecking order or trade-off hypothesis? Evidence on the capital structure of Chinese companies. *Applied Economics*, 37(19), 2179-2189.
- Tsyplakov, S. (2008). Investment frictions and leverage dynamics. *Journal of Financial Economics*, 89, 423-443.
- Verardi, V., & Croux, C. (2009). Robust regression in Stata. *Stata Journal*, 9(3), 439-453.
- World Bank. (2015). *Global financial development report 2015/2016: Long-term finance*. Washington, DC: World Bank.
- World Economic Outlook (2013). *Hopes, realities, risks*. Washington, DC: International Monetary Fund.

- Wurgler, J. (2000). Financial markets and the allocation of capital. *Journal of Financial Economics*, 58(1), 187-214.
- Zhang, J., Wang, L., & Wang, S. (2012). Financial development and economic growth: Recent evidence from China. *Journal of Comparative Economics*, 40(3), 393-412.
- Zou, H., & Xiao, J. Z. (2006). The financing behaviour of listed Chinese firms. *The British Accounting Review*, 38(3), 239-258.

Websites

- http://www.msci.com/resources/products/indexes/global_equity_indexes/gimi/stdindex/MSCI_Market_Classification_Framework.pdf
- <http://www.african-exchanges.org/members/botswana-stock-exchange>
- <http://www.egx.com.eg/english/homepage.aspx>
- <http://www.centralbank.go.ke/>
- <http://www.african-exchanges.org/members/nairobi-se>
- http://www.mba.mu/banking_industry.php
- <https://www.bom.mu/>
- <http://www.african-exchanges.org/members/se-of-mauritius>
- <http://www.casablancafinancecity.com>
- <http://www.finances.gov.ma>
- <http://www.bkam.ma>
- <http://www.nse.com.ng/>
- <http://www.nse.com.ng/MarketNews>
- <http://www.banking.org.za>
- <http://www.african-exchanges.org/members/jse-ltd>
- <http://www.african-exchanges.org/members/jse-ltd>
- <http://www.bvmt.com.tn>
- <http://www.imf.org/external/pubs/ft/weo/2013/01/>

LIST OF PUBLICATIONS AND SYMPOSIUM ATTENDED

1. Rubi Ahmad & Oyebola Fatima Etudaiye-Muhtar (2015). Dynamic Model of Optimal Capital Structure: Evidence from Nigerian Listed Firms. *Global Business Review* (In press) (*SCOPUS-Cited Publication*)
2. Oyebola Fatima Etudaiye-Muhtar & Rubi Ahmad. (2015). The Effect of Financial Market Development on Corporate Capital Structure: Dynamic Panel Evidence from African Countries. *Journal of Applied Economic Sciences*. Vol 10, Issue 3 (33): 382-396. (*SCOPUS-Cited Publication*)
3. Oyebola Fatima Etudaiye-Muhtar & Rubi Ahmad. (2015). Empirical Evidence of Target Leverage, Adjustment Costs and Adjustment Speed of Non-Financial Firms in Selected African Countries. *International Journal of Economics and Financial Issues*. Volume 5. Issue 2. 482- 488. (*SCOPUS-Cited Publication*)
4. Oyebola Fatima Etudaiye-Muhtar & Rubi Ahmad (2014). Banking Sector Development and Corporate Leverage: Empirical Evidence from South African Firms, *International Journal of Economics and Finance*; Vol. 6, No. 8; 278-288. (*Non-ISI/Non-SCOPUS Cited Publication*)
5. Symposium on sustainable markets and governance organised by Centre for Financial Econometrics, School of Accounting, Economics and Finance, Deakin University, Australia (28-29 November, 2013). Paper presented: Financial Development, Global Financial Crisis and Economic Growth; Evidence from Selected African Economies.