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Does capital market development influence capital structure choices of firms?

Selatitsana, Phatsisi

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MASTER OF MANAGEMENT IN FINANCE AND INVESTMENT

RESEARCH TOPIC:

DOES CAPITAL MARKET DEVELOPMENT INFLUENCE CAPITAL STRUCTURE CHOICES OF FIRMS?

SUPERVISED BY: PROF ODONGO KODONGO

NAME: PHATSISI SELATITSANA, STUDENT NO. 2272885

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ABSTRACT

This study investigated on the influence of capital market development on capital structure choices of selected non-financial firms in emerging as well as in frontier markets from period 2010 to 2017. To measure capital market development, stock market turnover ratio and ratio of domestic credit to private sector by commercial banks to GDP were used. The study finds that beside firm specific factors and other country-level factors which are used to explain financing choices of firms, capital market development as well affects the financing decisions of listed firms. This study generally, discovers that the development of equity and debt markets are both significant in increasing access to funding by firms and therefore, inform the choice of debt ratios employed by firms both in emerging and frontier markets. The findings of this thesis found that emerging markets enterprises use equity markets as a substitute for debt funding, but the preferable source of finance for firms is long-term debt with the highest positive coefficient. Conversely, in frontier markets, firms are using stock market as a complementary to debt financing, but the most preferred source of financing is short-term debt having highest coefficient.

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DOES CAPITAL MARKET DEVELOPMENT INFLUENCE CAPITAL STRUCTURE CHOICES OF FIRMS

CHAPTER 1 INTRODUCTION

1.0 Background

Majority of capital structure theories are constructed based on the foundation laid by Modigliani and Miller (1958) of capital structure irrelevancy. It is the earliest and the recognized trade-off theory which explains the formulation of capital structure. In their study, Modigliani and Miller found the mix of debt and equity (capital structure) to have no impact on the value of the firm. That is, whether the firm is leveraged or not leveraged, the value gets to be the same as long as the operating profits and future prospects are similar under the perfect market conditions. But then, later other capital structure theories were established opposing capital structure irrelevancy theory, on the premises that in the real-world markets are not perfect. Amongst those theories were findings of Myers (1984) of a positive relationship between firm value and capital structure and that debt and equity are compliments rather than substitutes (Boyd & Smith, 1998).

The imperfections in the market are explained by a number of factors which have the influence on firm value and therefore, motivate reconsideration of capital structure choices. That is, there are actually fundamental determinants of capital structure, such as bankruptcy cost, (Baxter, 1967). The alternative hypotheses include pecking order framework by Myers and Majluf (1984) of the information asymmetry between business

managers and external investors. Actually, more studies were conceived and then more factors were found which do have the impact on capital structure, (Jansen & Meckling, 1976; Myers, 1984; Barclay & Smith, 1995; and Baker & Wurgler, 2002).

Furthermore, in later studies, the determinants of capital structure were grouped and then classified as micro-level (internal) variables and macro-level (external) variables. Some of the internal variables were identified to be growth opportunities, profitability, size of the firm, and age of the business, (Abor & Biekpe, 2009; Barclay & Smith, 1995; Oyesola, 2007 and Rajan & Zingales, 1995). On the other hand, some of these variables external to the firm were found to be macro-economic variables and the country's capital market development levels, (Demirgüç-Kunt & Maksimovic, 1996; and Fan et al., 2011). Then, some findings of "the impact of financial market development" were reduced transaction costs, decreased bankruptcy costs as well as reduction in information asymmetry, (Agarwal & Mohtadi, 2004; and Abor & Biekpe, 2009).

Later on, the investigations were made to discover whether these developments have the similar impacts across all the countries. Additional evidence came through comparisons of international capital structure practices, (Rajan & Zingales, 1995) and also through the sample of developing and developed countries, (Demirgüç-Kunt & Maksimovic, 1996; Agarwal & Mohtadi, 2004; Ojah & Kodongo, 2014 and Etudaiye-Muhtar & Ahmad, 2015). The common conclusion was that, some issues such as information asymmetry, high transaction costs and illiquid markets are major concerns in the developing countries but eased in the developed markets. That is, actually the

impact of capital market development on capital structure choices does differ in developed markets and developing markets.

Developing markets are further classified as more developed (emerging) and less developed (frontier). Since both are in developing markets, still their access to finance is said to be due to factors such as high costs, illiquid markets and information asymmetry. Emerging market is a phrase that was conceived in the "1980s" to characterize a country transitioning from developing to a developed status, (Kuepper, 2020). When emerging market economies began to mature, the term "frontier market" was conceived to classify an investable country with lower market capitalization and liquidity. Frontier markets are widely considered the "up-and-coming" emerging markets that are more hazardous to investors in terms of political risk, market maturity and transparency, (Kuepper, 2020).

Frontier market and emerging market embody some of the fastest growing capital markets and they offer investors high possible returns with potential returns higher in frontier markets in return for talking on the added risk, (Girard & Sinha, 2008; Speidell & Krohne, 2008; Uludag & Ezzat, 2016 and Kuepper, 2020). Given that, the literature on differential effects of capital market development in emerging and frontier markets address the supply (investors) side mostly than the demand (consumers of fund) side. Therefore, this paper tries to address the question of whether the developments in capital markets of both markets have the similar influence on capital structure choices of firms.

1.1 Empirical literature overview and some stylized facts

The evidence suggests that, developing countries tend to use less equity and more debt, especially short-term debt due to issues as relaxed legal systems, explicit bankruptcy, and infant bond markets, (Fan et al., 2011; Ojah & Kodongo, 2014). In view of both emerging and frontier markets, financing choices are explained by pecking order framework than the trade-off theory, and they are proven to use more debt dominated by short-term debt with the main financing option of commercial banks, (Giannetti, 2003; Doku et al., 2011; Bulent et al., 2013; and Nguyen et al., 2014).

Several studies proved the existence of the influence of capital markets development on capital structure choices of firms. The general findings show that there is a significant positive relationship between bank development and leverage and a negative relationship between stock market development and debt ratio, (Agarwal and Mohtadi 2004; Bokpin & Isshaq, 2008; Demirguc-Kunt & Levine, 1995; Demirguc-Kunt & Maksimovic, 1996; Etudaiye-Muhtar, & Ahmad, 2015; and Nwosa, 2018). Also, studies show that the financing choices of firms are complemented by financial system developments using equity market, bond market and banking industries, (Gavori, 2014; Tawiah, 2014; Zafar, 2019).

Now, very limited studies regarding capital market development provide little evidence showing the existence of differences of capital structure choices of firms in emerging and frontier markets. One of those is a comparative analysis between Ghana and India which shows a marginal increase of (1%) in Ghana over a decrease in debt of Indian

firms, (Tawiah, 2014). That is said to be due to high interest rates in Ghana and boosted shareholders' confidence in India. Thus, there are possibilities of differences between the two markets which can drive different choices in capital structure of firms. This is true as per Table 1 below, showing the mean values of market indicators of certain developing countries in both emerging and frontier markets. The indicators reflect some kind of differences in both markets with most frontier markets somehow lagging behind the emerging markets.

Table 1. ***Average values of selected capital markets indices from 2010 to 2017***

Country	Listed firms	Market capitalization	Liquidity value	Turnover ratio	Domestic credit to private sector by banks
Emerging					
Greece	237	21.95535	9.316376	45.13584	112.1023
Egypt	240	21.38164	7.064784	32.57916	29.05201
Saudi Arabia	167	61.7618	52.56551	88.05724	45.26472
India	5324	73.48642	39.35617	53.27218	50.9804
South Africa	323	261.8417	80.74403	28.80317	67.67979
Peru	205	46.20182	2.062716	4.297748	38.04304
Indonesia	493	45.1812	10.52596	23.46755	30.6334
	Average	**75.97285**	**28.80508**	**39.37327**	**53.39366**
Frontier					
Sri Lanka	269	26.8551	3.5602	12.2323	37.4108
Nigeria	191	11.2154	0.8922	5.9499	13.8899
Croatia	268	33.5131	1.0319	1.0263	66.0723
Vietnam	305	31.3842	13.0693	41.0863	109.3651
Slovenia	54	37.7663	10.0202	1.2323	22.3122
	Average	**28.1468**	**5.714773**	**12.30543**	**49.81007**

Data source: World Bank Development Indicators

The statistics from Table 1 display some differences on these markets with randomly 5 selected frontier markets and 7 emerging markets from 2010 to 2017. The equity

markets show more values in emerging markets measured by market capitalization, traded value and turnover ratio of 75.97%, 28.81%, and 39.37% respectively. On the other hand, there are 28.15%, 5.71%, as well as 12.31% in frontier markets. In view of these results, frontier markets follow the argument that developing countries tend to use more debt than equity with the main financing option of commercial banks, (Giannetti 2003; Doku at al., 2011; Fan at al., 2011; Bulent at al., 2013 and Nguyen at al., 2014). However, emerging markets values seem to be mixing the attributes of both developed markets (reflected by higher market capitalization of 75.97% compared to debt of 53.39%) and developing markets (indicated by lower turnover ratio and traded value). That is, even though these markets are trying to deviate from reliance on debt, developing markets issues such as illiquid markets hinder their progress.

Moreover, higher values in emerging markets indicate a more enabling financial environment for corporate entities and investors to interact. On contrary, low values in frontier markets indicate relatively slow developments of financial markets implying that firms encounter impediments in the process of seeking external funds for investments, (Etudaiye-Muhtar, 2016 and Ojah & Kodongo, 2014).

1.2 Problem statement

Capital structure, as per capital structure relevancy theories, does have an impact on firm's value, (Jansen & Meckling, 1976; Myers, 1984). It thus determines the success and sustainability of the firm's current and future performance. Kerr and Nanda (2009) found obtaining capital to be one of the biggest hurdles to starting and growing

businesses. Particularly, the level of capital market development in developing markets is an important factor contributing to low access to external funds to firms: this is due to capital market developments issues such as high agency costs, high transaction costs and asymmetry of information, (Demirgüç-Kunt & Maksimovic, 1996; Agarwal & Mohtadi, 2004; and Etudaiye-Muhtar & Ahmad, 2015).

Studies, in trying to address the issues of information asymmetry, bankruptcy costs, transaction costs and even agency costs, commonly generalize strategies across developing markets ignoring the possible differences in emerging and frontier markets. Some studies propose changes in securities regulations through Market Abuse Directive and Transparency Directive, (Christensen at al., 2016), public enterprise creation, (Ojah, 2009: 2011), increased aggregate savings, (Mersland & Strom, 2010 and Chummun & Ojah, 2016) and subordinated debt and syndicated loans, (Dennis & Mullineaux, 2000 and Herring, 2004).

However, some of these strategies are probably more applicable in emerging markets than frontier markets: for instance, Christensen at al. (2016) argue that even though stronger securities regulation may have significant liquidity benefits, countries with low-quality prior regulation require a series of institutional changes. Therefore, it is necessary to appreciate the development levels of the market in question, before implementing some policies and strategies.

Given these arguments, differences in the influence of capital market development on capital structure choices of enterprises in emerging markets relative to those in frontier

markets are not clear. Also, most of the studies were done before the recent developments in countries' capital markets; however, there are a few recent studies most of which are country-specific, such as the impact in Ghana, (Bokpin & Isshaq, 2008 and Doku at al., 2011), Vietnam, (Nguyen at al., 2014), and Nigeria, (Nwosa, 2018) while others have assessed the effects in regions such as Africa, (Ojah & Kodongo, 2014; Etudaiye-Muhtar, 2016).

Therefore, there is a gap when it comes to the differential influence in emerging markets and frontier markets. Considering the relations established previously, consistent with Ojah and Kodongo (2014), and Etudaiye-Muhtar (2016) and from Table 1 of financial market indices, there seem to be the possibility of distinctions between the effect of capital market development on capital structure choices in emerging markets and frontier markets which warrant close examination. Therefore, this study seeks to understand whether the relationship between capital market development and capital structure choices of firms is different in emerging markets as compared to frontier markets.

1.3 Objectives

The main objective of this study is to establish whether the development of capital market influence firms' capital structure choices differently in emerging and frontier markets. Specifically, the study seeks to attain the following objectives

1. To examine the effect of the level of development of capital market on capital structure choices of firms in the frontier and in emerging markets.

2. To ascertain the differential effects of the impact of capital market development on capital structure choices of firms in emerging and frontier markets.

1.4 Hypothesis testing

1. H_0: Capital market development in emerging and frontier markets does not have any impact on firms' capital structure choices.
2. H_0: Capital market development has indistinguishable impact on firms' capital structure choices in emerging and frontier markets.

1.5 Significance of study

Previous studies did focus more on the impact of capital market development on capital structure choices in the developing markets and developed markets. In addition to that, later similar studies focused dominantly on single countries and regional markets. This study therefore, seeks to bridge this gap by trying to ascertain whether the difference exists between emerging and frontier markets. Also, the study will provide more up-to-date view since most of prior studies were made in the earlier years. This study will offer insights and update various stakeholders about whether there is a difference between the impact of development in capital market on capital structure choices of businesses in emerging markets and frontier markets.

1.6 Methodology

This study will use secondary data on firms' capital structures, firm-specific variables which include tangibility of asset, size of the firm, liquidity, profitability, growth opportunity and tax related factors. Also, country-level variables such as of gross domestic product, inflation, and legal system will be used as explanatory variables.

Data will be derived from companies' annual financial reports, relevant capital markets and other related sources. Publicly listed non-financial firms on domestic stock markets are used as units of analysis in each of the selected emerging and frontier markets. The countries and companies selected will be both from emerging and frontier markets as per Morgan Stanley Capital International (MSCI) index.

The study will cover the period of 8 years starting from 2010 to 2017 of at least 20 listed firms in each stock market from emerging and frontier markets. Based on the variables identified, which are firm and country-level variables for 8-year period, panel data regression technique will be used. According to Etudaiye-Muhtar (2016) panel data techniques are useful in addressing complex problems such as heterogeneity, consider the effect of omitted variables, ensure collinearity and allows for dynamism of units. Prior to regression analysis, descriptive analysis and correlation analysis will be performed.

CHAPTER 2 LITERATURE REVIEW

2.1 Capital structure and its determinants

2.11 Capital structure theories

The funding decision of a firm results in a specific capital structure, which is the amount of debt and equity or hybrid securities employed by the firm to finance its operations and assets acquisition, (Saad; 2010). The capital structure is normally expressed as debt-to-equity ratio. The prevailing debate about firms' financing choices determinants or sometimes referred to as "capital structure" originates from the seminal paper by Modigliani and Miller (1958).

According to Modigliani and Miller (1958) firm's value is not affected by its capital structure, following certain key assumptions. Under MM world, the assumption is that of a "perfect capital market", where there is no information asymmetry between insiders and outsiders, no transaction costs, no bankruptcy costs or distortionary taxation exist. That is, debt and equity choices are irrelevant and therefore, external and internal resources (funds) can be substituted perfectly. Their argument invited several criticisms that led to further investigations of factors affecting firms' financial decisions in an imperfect world.

The economic literature recognizes significant competitive theoretic models aimed at explaining capital structure choices: static trade-off framework, the pecking order hypotheses, and market timing theory. According to the *static trade-off theory*, a firm is viewed as setting a target debt-equity ratio and gradually moving towards it. Still

considering static trade-off theory, firm's debt-equity choices are regarded by managers as an optimum capital structure, which is the resultant trade-off between tax on interest advantage and financial distress. In particular, capital structure moves towards the target which reflects tax rate, assets type, business risk, profitability and bankruptcy cost, (Modigliani & Miller, 1958; Modigliani & Miller, 1963; Jansen & Meckling, 1976; Miller, 1977 and Chang, 1999). Generally, while holding firm's assets and investment plans constant, the firm is balancing the costs and benefits of borrowings.

Moreover, static trade-off framework predicts that firms which are safe, earning enough taxable income and have more tangible assets, are anticipated to obtain higher levels of debt ratio since debt servicing is less difficult. More so, firms with more tangible assets and are risky, whose value will disappear in case of liquidation need to rely more on equity financing, (Niu, 2008). On the other hand, the model expects that more profitable firms should mean more debt-serving capacity and more taxable income to shield. Therefore, a higher debt ratio will be anticipated while firms with high growth opportunities should borrow less because they are more likely to lose value in financial distress, (Niu, 2008).

On the other hand, *pecking order model* holds that such theoretical, well-defined target debt ratio does not exist due to information asymmetry between firms' manager and investors, (Myers & Majluf, 1984). Myers and Majluf, (1984) found that investors consider information asymmetry between themselves and managers before they make investment decisions. This is due to the assumption that they have less information about the firm and therefore, managers could misprice instruments when they are

issued. Due to the observed mispricing especially, financiers may not buy the instruments and this may result in underinvestment problems for the business.

According to pecking order theory by Myers and Majluf (1984) and Myers (1984) firms will prefer internal financing and then raise external funds only when internal funds are insufficient. When external funds have to be raised, firms prefer straight debt, then convertible debt, with external equity as a last resort. Also, the theory conveys that profitable businesses are anticipated to obtain lower debt ratios since they are probable to borrow lesser while less profitable firms are anticipated to obtain higher debt ratios since they do not have enough internal resources. The key assumption of this framework is that managers act in the interest of current stockholders in optimizing the worth of current stocks.

There is also a recent established concept which is *market timing framework*. Market timing is based on the premises of favorable market conditions such as issuing equity when the cost of issuance is valuable and conversely using debt when its cost is favorable, (Baker & Wurgler, 2002 and Huang & Ritter, 2009). The underlying assumption of this theory is that firms will assess current market conditions before making their financial decisions. That is, the choice of capital structure is based on favorable cost, either cost of equity or cost of debt. Market timing is commonly relevant in segmented and inefficient markets in which firm's capital structure follows funds and capital markets conditions, (Celik & Akarim, 2013).

2.12 Capital structure determinants

Capital structure determinants are classified as firm-specific and country-level factors. Firm-specific factors are those factors of which firms can control and they include size of the firm, liquidity, profitability, assets tangibility, growth opportunity and tax related factors. On the other hand, country-level which are factors that firms have less control on include gross domestic product, inflation, type of legal system and financial markets development.

2.121 Firm-specific factors

Tangibility of assets plays a very major part in determining firm's capital structure. According to Malinic at al. (2013) businesses with higher degrees of tangible assets have high insolvency value and will be in a situation to offer security for debt obligations. The asset structure is specifically significant as a gauge for long-term debts and thus there is a positive correlation between leverage and tangibility in pecking order hypotheses and trade-off model, (Scott, 1977; Titman & Wessels, 1988; Harris & Reviv, 1990 and Rajan & Zingales, 1995).

Capital structure is used as a signaling device of company's performance and therefore, there is a positive relationship expected between *profitability* and leverage, (Leland & Pyle, 1977; and Ross, 1977). According to trade-off theory, higher profitability lowers the expected costs of distress hence why firms can increase their leverage to take advantage of tax benefits, (Jansen, 1986 and Malinic at al., 2013). However, according to pecking order theory, there seems to be a negative relationship between profitability

and leverage and that is because firms prefer internal financing to external funding sources, (Booth at al., 2001; Rajan & Zingales, 1995; and Titman & Wessels 1988).

Furthermore, trade-off framework assumption is that larger s*ized firms* should have higher debt ratio. This assumption is based on the prediction that, larger businesses have lower default risk, they have less debt relating agency cost and they are more diversified, (Zou & Xiao, 2006; and Frank & Goyal, 2009). According to Frank and Goyal (2009) a negative relationship in the pecking order theory is because larger enterprises are commonly older and it takes years for them to build up profit to finance investments.

On the other hand, *growth opportunity* in view of trade-off theory has an inverse relationship with debt ratio since growth worsens financial distress and reduces free cash flows, (Rajan & Zingales, 1995; Bauer, 2004 and Frank & Goyal, 2009). More0ver, growth in total assets also represents investment opportunities the business has undertaken. Hence, the business with more investment opportunities undertaken has less need for using debt as a disciplining way of management to control free cash flows, (Jensen 1986). Whereas, according to the pecking order theory, companies with higher growth rates are more likely to use internally generated funds and then obtain external funding if the internal funds are not sufficient and thus suggesting a positive relationship between leverage and growth, (Sogorb-Mira, 2005 and Degryse et al. 2009).

Concerning the correlation between capital structure and *liquidity*, theories largely find a positive relationship between liquidity and long-term debt because firms with higher liquidity have easier access of debt, (Sibilkov, 2009; and Malinic at al., 2013). However, in view of pecking order framework, accumulated funds and other liquid assets can function as internal financing source and preferred than debt. That is, more liquid firms are less levered, (Suhaila at al., 2008 and Lipson & Mortal, 2009).

Both in static trade-off theory and pecking order framework, it is maintained that higher *earning's volatility* is linked to more conventional usage of debt funding. According to static trade-off framework, higher earning's volatility increases the likelihood of bankruptcy costs and financial distress and thus a decrease firm's leverage. Also, firms with higher risk exposure would hold extra debt capacity to escape the costly debt in future in view of pecking order framework, (Malinic at al., 2013).

There are also tax related factors: *corporate tax* is predicted to have a positive relationship to leverage because features as tax code permit interest payments to be subtracted from the tax bill but not dividends payments, which offers tax advantage for debt, (Bulent at al., 2013). The evidence is however mixed on the effect of taxes and leverage due to uncertainty around what represent a proper tax effect proxy and that transaction costs makes it tough to identify tax effects, (Antoniou at al., 2008; Frank & Goyal, 2008 and Hennessy & Whited, 2005).

Non-debt tax shields such as depreciation deductions, depletion allowance, and investment tax credits are considered as alternatives for corporate tax benefits of debt

financing, (DeAngelo & Masulis, 1980). The expectation is that businesses with greater values of non-debt tax shields will choose to have lower levels of debt. That is, static trade-off model expects an inverse correlation between no-debt tax shield and leverage, (Bulent at al., 2013)

2.122 Country-level factors

Features of tax code are said to increases the actual value of interest tax deductions on debt when *inflation* is expected to rise and thus according to Taggart, (1985). That is, according to static trade-off, there is a positive correlation between anticipated inflation and leverage. However, it is found harder to find why inflation matters for firms' leverage decisions in pecking order model, (Bartholdy & Mateus, 2008 and Frank & Goyal, 2009).

GDP growth (Gross Domestic Product growth) on the other hand is a measure of growth prospects accessible to businesses in the country. In an environment with higher growth opportunities, the scarcity of firms' tangible assets relative to available investment opportunities implies a higher loss of value when firms go into distress, (Smith & Watts, 1992 and Bulent at al., 2013). That is, there is expected inverse relationship between leverage and GDP growth in static trade-off model while pecking order framework predicts a positive correlation since higher growth ratio prospects to internal funds might mean a higher need for external funds, (Smith & Watts, 1992; Demirgüç-Kunt & Maksimovic, 1996; Bulent at al., 2013).

Furthermore, the *kind of legal system* functional in an economy is significant in determining capital structure decisions of firms. Studies show that legal protection given to investors tend to reduce asymmetric information and ease agency problems between various stockholders and therefore, influence the investors' decisions to provide funds for firm financing, (La Porta at al., 1998). Also, the legal structure which offers insufficient protection to investors worsens agency costs, information asymmetry and contracting overheads. Quality of enforcement likewise, defined through higher rule of law, government effectiveness and regulatory quality leads to efficiency in execution of legal laws including bankruptcy regulations, (Antoniou at al., 2008).

Moreover, *size and structure of capital markets* play a key role in determining the availability and allocation of funds to various firms within the economy, (Demirgüç-Kunt & Maksimovic, 1996 and Antoniou at al., 2008). Dahou at al., (2009) also confirmed the importance of developments in capital markets, that they channel available funds from surplus to deficit units for productive use. Dahou at al., (2009) provide that, capital market development comes with reduced information asymmetry, reduced transaction costs, and provision of much required liquidity and therefore, a positive impact on the use of external funds. According to Fan at al. (2011) capital markets effect the way firms are financed through providing equity or debt resulting in the positive investment opportunities that promote growth. That is, access of finance by firms is partially the role of capital markets through the function they play as financial intermediaries.

2.2 Capital markets and the markets developments

2.21 Capital markets

Capital market is defined as an institutional arrangement for the trading of medium and long-term securities or equity and debt, (Gurusamy, 2009 and Mahore, 2020). According to mahore (2020), securities traded comprise of all long-term borrowings, issuing shares, debentures and bonds from banks, financial institutions and foreign markets. However, according to Adries (2009), based on the conditions in which it was formed and developed, capital market brings together under one stream, different conceptions: *The continental-European conception* which attributes this market to a more comprising organization, containing the monetary market, the mortgage market and the financial market. While the *Anglo-Saxon conception* defines capital market as well monetary market and insurance market as the components of financial market.

Furthermore, capital market participants are said to include everyone from retail investor to strong financial entities such as banks and mutual funds with the main regulator as the Securities and Exchange Board of India (SEBI), (Mahore, 2020). There are four types of capital markets being: *debt market* which is where investors buy and sell debt securities, *equity market/stock market* where shares of entities are traded, *Foreign Exchange market* where currencies are traded and *derivative markets* where contracts (whose values are derived from the values of other assets) are exchanged, (Gurusamy, 2009 and Mahore, 2020).

Moreover, capital markets are classified into *primary markets* which consist of mechanisms for procurement of funds when securities are first issued. Then, these securities become the object of transactions in the *secondary markets* after they are set into circulation in the primary markets, (Adries, 2009; Jalloh, 2009 and Mahore, 2020). *Secondary market* facilitates the buying and selling of securities that are already in the hands of the general public, (Osinubi & Amaghionyeodiwe, 2003 and Mo, 2017)

2.22 Emerging markets and Frontier markets

While capital structure studies originate way back in "1950s" emerging markets were discovered later in "1980s", (Modigliani & Miller 1958 and Kuepper, 2020). The term emerging market was conceived to represent a country transitioning from developing to a developed status. When emerging economies began to mature, the term frontier market was discovered to represent an investable country with lower market capitalization and liquidity, (Kuepper, 2020). While these terms are commonly used by investors, there are no universally accepted definitions of emerging market and frontier market. Instead, investors find emerging and frontier markets in everything from indices and classifying bodies such as Morgan Stanley Capital International (MSCI).

Morgan Stanley Capital International (MSCI) defines a frontier market to be a market which has a lower level of accessibility than emerging markets, has notable limitations in the regulatory and operational environments and has a smaller investment landscape. On the other hand, an emerging market defines a market that is less accessible to foreign investors in comparison to a developed market but show some

level of openness. While a developed is market which is more accessible to foreign markets with high level of openness and GNI per capita above World Bank high income threshold.

These definitions are derived from Morgan Stanley Capital International (MSCI) classification criteria summarized in Table 2.

Criteria	**Frontier**	**Emerging**	**Developed**
A. Economic development A.1 Sustainability of economic development	No requirement	No requirement	Country GNI per capita 25% above the World Bank high income threshold* for 3 consecutive years
B. Size and liquidity requirement B.1 Number of companies meeting the following standard index criteria Company size (full market cap)** Security size (float market cap)** Security liquidity	2 USD 436 mm USD 28 mm 2.5% ATVR	3 USD 873 mm USD 436 mm 15% ATVR	5 USD 1745 mm USD 873 mm 20% ATVR
C. Market accessibility criteria C.1 openness to foreign ownership C.2 Ease of capital inflows/outflows C.3 Efficiency of operational framework C.4 Stability of institutional framework	At least some At least partial Modest Modest	Significant Significant Good and tested Modest	Very high Very high Very high Very high

Table 2: Country classification criteria by Morgan Stanley Capital International (2019)

The classification of markets is a key input in the process of index construction as it drives the composition of the investment opportunity sets to be represented. The approach used by MSCI aims to reflect the views and practices of international investment community by striking a balance between a country's economic

development and accessibility of its market while preserving index stability. The MSCI Market Classification Framework consists of following three criteria: economic development, size and liquidity as well as market accessibility.

Emerging market represents somewhat safer investments with high potential returns while frontier market denotes riskier investments that generally offer higher potential returns in return for taking on the added risk, (Girard & Sinha, 2008; Speidell & Krohne, 2008; Uludag & Ezzat, 2016 and Kuepper, 2020). Frontier markets are ideal for younger investors that plan to keep money in play over a long-time horizon, (Kuepper, 2020). According to Kuepper (2020), the long-term potential of frontier markets is higher due to their smaller size (it is easier to double $100 than $1 million) and demographic trends. However, there are also a lot of near-term risks ranging from geographical instability to liquidity risk.

On the other hand, emerging markets are relatively stable and are best for older investors with medium to long-term outlook since older investors may want to stick to all-world or more diverse funds, (Kuepper, 2020). Furthermore, frontier markets are found to be less correlated with world markets and have lower level of integration and interdependence with other market groups, (Berger at al., 2011; Girard & Sinha, 2008; Jayasuriya & Shambora, 2009; Speidell and Krohne, 2007 and Uludag and Ezzat, 2016). That is, frontier markets provide high diversification potential than emerging markets.

2.23 Capital markets development indicators

Developed and deep capital markets can play a key role in financing economic growth as well as influencing financial stability and transmission of monetary policy, (Adries, 2009 and Schellhase at al., 2014). As economies improve and investment projects become larger and more complex, efficient resource allocation and risk-sharing are facilitated by information aggregation activity and variety of financial claims provided by capital markets, (Adries, 2009; Bayraktar, 2014 and Gurusamy, 2009). Their performance presents a bridge through which excess savings maybe converted into medium and long-term investments, (Anighobu & Nduka, 2014 and Mo, 2017).

Traditionally, capital markets are considered the main predictors for economic growth and, in order to determine stock prices, investors estimate future earnings of the companies that are closely linked to economic environment, (Adries, 2009 and Mo, 2017). That is, there is now a consensus that financial sector improvements play a vital role in facilitating growth, (Zhuang at al., 2009; Schellhase at al., 2014).

Stock market (secondary market) is a highly used and important market development indicator since the high volumes of transactions on the stock exchange are derived from the primary market, (Agarwal & Mohtadi, 2004; Adries, 2009; Etudaiye-Muhtar & Ahmad, 2015 and Tai, 2017). That is, secondary market/stock market is the reflection of primary markets developments. Furthermore, stock market provides systematic information concerning the rate of quoted securities and, implicitly, information on the

listed companies even on the economy as a whole, (Grossman, 1976; Agarwal & Mohtadi, 2004; Adries, 2009 and Etudaiye-Muhtar & Ahmad, 2015).

Furthermore, Adries (2009) maintains that it is an important institution of the capital market which assembles the demand and offers of securities, openly, freely and permanently negotiated, based on known regulations. Moreover, another important role of the stock exchange is that it facilitates the circulation of capitals (securities being easily transformed into liquidities or exchanged into other securities) by selling or re-selling them on this market, (Agarwal & Mohtadi, 2004 and Adries, 2009). The stock exchange ensures the shortest and most efficient circuit between temporary surplus of funds of those who want to invest on medium or long-term and the needs for financing of commercial companies, (Agarwal & Mohtadi, 2004 and Adries, 2009).

In pecking order framework (Myers, 1984; and Myers & Majluf, 1984), firms will prefer internal financing and then external funds are raised only when internal funds are insufficient. When external funds have to be raised, firms prefer straight debt, then convertible debt, with external equity as a last resort. Now, in the absence of well-developed debt markets the first option only possible is a bank loan. This is supported by finding of Schellhase at al. (2014), that developing markets often emphasize on the establishment of sound banking sector. This therefore, creates a very strong competition between stock exchange and the banks, and thus making credit to private sector by commercial banks the second best capital market development indicator, (Agarwal & Mohtadi, 2004; Adries, 2009 and Etudaiye-Muhtar & Ahmad, 2015).

2.3 Capital market development and capital structure choices

Generating long-term funds for companies, the state and banking institution is the key role of capital markets. Additionally, capital markets aid in the provision of a platform for exchange of short-term and long-term instruments. The raising and channelizing of funds is matched by the presence of the banking and stock markets within the financial market, (Muneer at al., 2017). The capital market also provides a connection between savers and investors. Moreover, capital markets play a significant part in organizing the savings and channeling them into productive investment, (De Haas, 2004 and Muneer at al., 2017). That is, capital markets play a key role in the successful economy by promoting productivity and boosting up the economic growth.

The studies in finance suggest that capital market development is important in trying to reduce costs that come with taxes and other market imperfections. This then leads to changes in significance of different imperfections resulting in changes in capital structure, (Demirgüç-Kunt & Maksimovic, 1996). Specifically, theories accentuate the role of stock market and banks in improving information asymmetry and reducing transaction costs. De Jong at al. (2008) and Chekansiy (2009) also confirm that the level of debt market development has an influence on capital structure in that when debt market develops, firms easily have access to those and hence the use of more debt. Therefore, when those improvements happen, they prompt businesses to rebalance their capital structure in order gain benefits from the market developments.

2.31 Stock market development and capital structure

The fact that equity and debt financing are complements rather than substitutes make stock markets to play a key role in debt and equity choices even in those economies where debt markets are well-developed. Stock market development offers liquidity, more equity, diversification, and information acquisition through increased volume and value of issuance of shares, (Agarwal & Mohtadi, 2004 and Demirgüç-Kunt & Maksimovic, 1996).

Grossman (1976) found stock market to reveal essential information about listed firms which help creditors and investors in their lending and investment decisions. Also, it reduces monitoring costs to both potential investors and financial intermediaries. According to Demirgüç-Kunt and Maksimovic (1996) growth in size of market for publicly traded stocks builds a more appealing setting for forecasters and financiers to capitalize in obtaining data particularly of liquid stocks and thus facilitating external monitoring of firms.

Development of stock market (signified by the changes in the *capitalization value*) generates funding resources aimed at supporting firms better and thus firms could utilize more equity through issuing shares and increase liquidity of shares, (Agarwal & Mohtadi, 2004). Findings by Demirgüç-Kunt and Maksimovic (1996) reflected a negative relationship between stock market development and the rate of debt in capital structure of firms. Particularly, an increase in stock market capitalization makes firms to use more of equity than debt because it is easier to invest and raise equity by issuing shares.

On the other hand, Stock market liquidity defines the total value of transaction amounts and the volume of shares traded during the period, (Tai, 2017). Demirgüç-Kunt and Maksimovic (1996) found that the rise in value and volume of traded shares demonstrate the capability of raising equity. That is, more value and volume of stock attract many investors thereby increasing opportunities for diversifying the firms' portfolios as well as the rate of shareholder's equity in the capital structure.

2.32 Banking sector development and capital structure

There are a number of roles played by banking sector improvements which affect the firms' capital structure choices. Some of identified roles of the banking sector developments are that of reduced information asymmetry through delegated monitoring of borrowers on behalf of depositors, (Diamond, 1984). Also, banking sector improvements provide for liquidity through low price-risks liabilities, (Diamond & Dybvig, 1983) and reduced transaction costs, (Benston & Smith, 1976). Moreover, longer bank-customer relationships reduce interest rates; minimize collateral requirements of the loans and lower costs of financial distress, (Hoshi at al., 1990 and Udell & Berger, 1995).

The increase in *size of the banking system* creates more competition among banks and thus assists businesses to acquire more sources of debt at lower costs, (Tai, 2017). Agarwal and Mohtadi, (2004) proved that development of stock market is inversely related to debt ration while banking system development increases debt in the capital

structure. Clearly, development in banking sector makes the execution of business transactions between firms, investors-firms, and firms-state more efficient and easier.

Moreover, the rate of debt in capital structure is affected by *changes in credit growth*. Leary (2009) maintains that credit growth is an important feature which influences the capital structure of firms. Even Poon at al. (2014) found that the rate of debt relates positively with the ability of banks to provide credit. Therefore, when credit balance of the economy increases, provision of credit by commercial banks gets to be better and increase the value and use of debt resulting in an increase in debt ratio of businesses.

Leland at al. (2001) argued that the *fluctuation in interest rates* of commercial banks also affect optimum capital structure. Now, since optimal capital structure under static trade-off theory reflects the trade-off between tax shield benefits and bankruptcy, alteration in interest rates therefore leads to changes in financial costs, (Hyde, 2007). According to Tai (2017) generally the increase in interest rates makes the use of debt difficult in view of both pecking order framework and static trade-off theory. According to static trade-off theory, the overheads resulting from the use of debt will be much higher than the advantage from the tax shied. Also, following the pecking order framework, usage of debt becomes less suitable and appealing to businesses and it in turn leads to a reduction in debt rate in the capital structure.

2.33 Capital market development and capital structure choices of firms in developed and developing countries

Study by Booth at al. (2001) found financing patterns in developing countries to be affected by the common variables as developed countries but then the differences were attributable to country-specific factors. The findings highlighted that every country's debt ratios are affected differently by development levels in capital markets, GDP growth and inflation. As highlighted above financial market development is a country-specific factor, developing countries have less developed trading systems on their stock exchanges as well as tiny size of banking sector compared to more developed markets, (Demirgüç-Kunt & Maksimovic, 1996). That is, developed markets and developing markets (frontier and emerging economies) have varying attributes suggesting variances in capital structure choices.

In developed economies, limitations to external finance such as asymmetric information and transaction costs are low, (Beck & Levine, 2004). Transaction costs in developed markets are lower than in developing markets due to low information asymmetry in developed markets and leads to efficient allocation of resources. Conversely, in developing countries there are difficulties in obtaining financial information from borrowers resulting to higher moral hazard and adverse selection, (Chami at al., 2010; Murinde, 2012; and Etudaiye-Muhtar & Ahmad, 2014).

Peterson and Rajan (1995) argue that information asymmetry between borrowers and lenders in developing markets, reduces lending even though there is an increase in

credit market competition. This is because increased competition in markets with asymmetric information lowers the benefits a bank derives from having a tight credit relationship with the borrower, (Gonzalez & Gonzalez, 2014). That is, frictions that arise as a result of high transaction costs and asymmetry of information makes it difficult to access required credit in developing markets.

On the other hand, with relation to stock market developments, equity finance was found to have replaced long-term debt financing in developed markets while increased the level of debt in the developing countries, (Demirgüç-Kunt & Maksimovic, 1996). This is attributed to market's inability to avail enough information to lenders and investors. Subrahmanyam and Titman (1999) argue that when stock market consists of relatively smaller number of firms, the information conveyed by the public is less accurate, discouraging firms from taking advantage of public financing.

Wurglar (2000) found that stock market in developed countries have ability to reveal firm-specific information into stock prices hence a reduction in information asymmetry. In contrast, developing markets are characterized by high information asymmetry, transaction costs, illiquid markets as well as high issuance costs, (Agarwal & Mohtadi, 2004; Demirgüç-Kunt & Maksimovic, 1996; and Etudaiye-Muhtar & Ahmad, 2015). This was proven by Fan at al. (2011) that failure of the market to carry out the intermediation role in developing economies leads to businesses' poor access to external funding. All these prove the relevance of capital market development both in developed and developing countries (emerging markets and frontier markets) thereof.

2.4 Literature summary

The prior section debated the theoretical literature on theories and determinants that reinforce capital structure research and therefore, aid in this research. The literature provides that capital structure is influenced by both firm-specific and country-level factors. Those factors include assets tangibility, profitability, growth opportunity, firm size, liquidity, business risk and tax related factors, as well as macroeconomic variables, legal system and capital market development. It also provides in detail how capital structure is affected by the level of development in capital market. In view of capital market development and capital structure, it shows that debt market development favors debt ratio whereas, equity market development inversely relates to debt ratio event though differences exist in developed and developing (emerging and frontier) markets.

However, most studies controlled for all other firm-specific and country-level variables except for firms' corporate tax factor in their regression. Therefore, this study will account for this also as firm-level factor which has influence on firm's capital structure. Moreover, most studies focused their findings on differences across developed and developing markets ignoring the issue of differences across emerging and frontier markets which is now the basis for the current study. Therefore, this thesis hypothesizes that the funding choices of businesses are considerably described by the level of capital market development (banking system and stock market) in both emerging as well as frontier markets.

CHAPTER 3 RESEARCH METHODOLOGY

3.0 Introduction

Methodology is sectioned in four divisions which define data as well as strategy engaged in this study. First section provides description of data and how data was collected while the second section presents data sampling, variables (independent, dependent and control variables) that are used in this thesis are discussed in the third section. Finally, in forth section, identification strategy employed in answering the research questions is addressed.

3.1 Data collection

This study uses secondary data on firms' capital structures, firm-specific variables which include tangibility of assets, size of the firm, profitability, liquidity, growth opportunity and tax related factors. Also, country-level variables such as gross domestic product, inflation, and legal system are used as explanatory variables.

The main sources of data are: (1) audited published annual reports of selected listed companies in selected markets for provision of information relating to capital structure and firm specific variables; and (2) World Bank Development Indicators, world-wide governance indicators, stock markets and other relevant sources for obtaining information on listed firms on each stock market, for countries' financial market development level, and other country level factors.

3.2 Sampling

Publicly listed non-financial firms on domestic stock markets are used as units of analysis in each of the selected emerging and frontier economies. Morgan Stanley Capital International (MSCI) was used in classifying both frontier and emerging markets. Common with other previous capital structure studies, the sample excludes asset management firms, real estate enterprises, financial firms and other financial sector enterprises because they are heavily regulated and must meet strict regulation-imposed requirements of capital, (Fan et al., 2011; Ramjee & Gwatidzo, 2012; Ağca at al., 2013; and Arioglu & Tuan, 2014).

The study covers a period of 8 years starting from 2010 and ending 2017 of about 130 listed firms from emerging and frontier markets. The challenge was that some of these firms' reports did not have enough financial information. Some reports had only most recent data, no intermediate information while others did not have more recent data, particularly frontier markets firms. The choice on the years was based on the fact that there were major and latest changes and reclassification by some indexes made in 2018/2019 as per FTSE Equity country classification March 2019 Interim Update, MSCI Market Classification Framework May 2018, World Bank Blogs: New country classifications by income level 2018-2019 and MSCI index website. Also, the choice of years was limited by availability of data, since more of the published reports, especially in frontier markets, were reported from years 2010 to 2018.

3.3 Variable Declaration

Variables provided in this section were discussed in depth in the literature reviewed previously.

3.31 Dependent variables

Capital structure: refers to the amount of equity and/or debt employed by a firm to fund its operations and assets. Rajan and Zingales (1995) and, Bevan and Danbolt (2002) stated that actually, there are a number of ways of measuring capital structure with one being it measured or calculated in accordance to purpose of analysis. Since this study tries to find the differential effects on capital structure between emerging and frontier markets, short-term debt, long-term debt and total debt are considered. Also, the use of book values since it is said to be a stable measure, susceptible to market conditions and reflects management target debt ratio, (Thies & Klock, 1992 and Antoniou at al., 2008). Capital structure proxies will be these debt ratios: total debt ratio (which is the sum of firm's total liabilities divided by total assets), long-term (non-current liabilities divided by total assets) and short-term debt ratio (current liabilities divided by total assets), and they are measured by their respective debt at their book value, (Fan at al., 2011 and Ağca at al., 2013)

3.32 Independent variables

Capital market development proxies include stock market development measured by market capitalization to GDP, traded value and turnover ratio, and debt market development measured by credit to private sector by commercial banks to GDP, banks

liquid liabilities to GDP and banks deposits of domestic assets to GDP. This study uses turnover ratio (the value of total shares traded divided by value of shares listed), and credit to private sector by commercial banks. This is because stock market turnover ratio reflects liquidity, trading comparative to the size of the market and show the level of transaction cost reduction, (Booth at al., 2001; Agarwal & Mohtadi, 2004; Beck & Levine, 2004 and Beck at al., 2008). Also, the study uses credit to private sector by commercial banks to GDP ratio because Saci and Holden (2008) suggest that it assesses the level of financial intermediation and financial services.

3.33 Control variables

Other explanatory variables are *firm-specific factors* and *country-level factors*. From literature review, various variables which serve as proxies of transaction costs, agency costs, information asymmetry and tax advantage were highlighted. Those variables included tangibility of assets, profitability, size of firm; growth opportunity, liquidity as well as tax related factors. Also, country-level variables consist of country's macroeconomic issues as of gross domestic product and inflation, and the country's legal system. These variables identified are therefore used as control factors for investigations purpose throughout this study.

Table 3 below provides the summary of units of measurements for all identified variables inclusive of independent, dependent as well as the control variables.

Table 3: Variables and units of measurements				
	Abre.	**Variable**	**Measurement**	**References**
DEPENDENT VARIABLES	TDR	**Total Debt Ratio**	= Total Liabilities to Total Assets	Fan et al., 2012; Ağca et al., 2013; González & González, 2014 and Etudaiye-Muhtar, 2016
	STDR	**Short-Term Debt Ratio**	= Current Liabilities to Total Assets	Ramjee & Gwatidzo, 2012; Fan et al., 2012; González & González, 2014 and Etudaiye-Muhtar, 2016
	LTDR	**Long-Term Debt Ratio**	= Non-Current Liab. / Total Assets	Ramjee & Gwatidzo, 2012; Fan et al., 2012; González & González, 2014 and Etudaiye-Muhtar, 2016
CONTROL VARIABLES	TAN	**Tangibility**	= Tangible Fixed Assets / Total Assets	Bevan and Danbolt, 2002; Booth et al., 2001; Harris and Raviv, 1990; Rajan and Zingales, 1995
	PROF	**Profitability**	= Earnings before Tax / Total Assets	Booth et al., 2001; Nguyen and Ramachandran, 2006; Rajan & Zingales (1995); Titman and Wessels, 1988
	GRW	**Growth Opportunity**	= Change in Total Assets	Booth et al., 2001; Nguyen and Ramachandran, 2006; Rajan & Zingales, (1995); Titman and Wessels, 1988
	LQD	**Liquidity**	= Current Assets / Current Liabilities	De Jong et al., 2008; Rajan and Zingales, 1995
	CPT	**Corporate Tax**	= ratio of taxes paid to total taxable income	Homaifar, Zietz & Benkato, 1994
	SZ	**Firm Size**	= Natural logarithm of Sales	Booth et al., (2001); Rajan and Zingales, (1995)
	INF	**Inflation**	= change in consumer price index rate per annum	Demirgüç-Kunt & Maksimovic, 1999; Etudaiye-Muhtar, 2016; Fan et al., 2012; Frank & Goyal, 2009
	GDPG	**Gross Domestic Product Growth**	= Annual percentage growth rate of GDP	Demirgüç-Kunt & Maksimovic, 1999; Etudaiye-Muhtar, 2016; Fan et al., 2012;

				Frank & Goyal, 2009
	RL RQ GE	**Legal rule** **Regulatory quality** **Effectiveness of Government**	Takes a value between -2.5 and 2.5 Takes a value between -2.5 and 2.5 Takes a value between -2.5 and 2.5	Etudaiye-Muhtar, 2016; Kirch & Terra, 2012
INDEPENDENT VARIABLES	TR	**Equity (stock) Market Development**	= stock market turnover ratio	Demirgüç-Kunt & Maksimovic, 1996; Booth et al., 2001; Agarwal & Mohtadi, 2004; Beck & Levine, 2004; Beck et al., 2008; and Etudaiye-Muhtar, 2016
	CPS	**Debt (Banking Sector) market Development**	= Domestic credit to the private sector by commercial banks to GDP ratio	Demirgüç-Kunt & Maksimovic, 1996; Booth et al., 2001; Agarwal & Mohtadi, 2004; Beck & Levine, 2004; Beck et al., 2008; and Etudaiye-Muhtar, 2016

Source: related literature

3.331 Firm-specific variables

Tangibility of assets is calculated as tangible fixed assets divided by total assets, (Bevan & Danbolt, 2002; Booth et al., 2001; Harris & Raviv, 1990 and Rajan & Zingales, 1995). A company with a higher proportion of total assets composed of fixed tangible assets has a higher ability to raise debt because tangible fixed assets can be pledged as collateral for loans. Moreover, in case of bankruptcy, tangible fixed assets keep their value, (Myers 1977). These reasons suggest that debt ratio will be higher for firms with tangible assets. Thus, a positive relationship is expected between debt ratio and asset tangibility.

Profitability is measured as a ratio of earnings before taxes to total assets, (Booth et al., 2001; Nguyen & Ramachandran, 2006; Rajan & Zingales, 1995 and Titman & Wessels, 1988). In the trade-off theory, higher profitability increases the creditworthiness of a business because the likelihood of failing to pay interest payments is lower. In addition, more profitable firms have an incentive to use debt financing to benefit from interest tax shields, (Frank & Goyal 2009). Therefore, in view of trade-off theory, a positive relationship between debt and profitability is anticipated. In contrast, the pecking order theory predicts the opposite relationship because higher profitability reduces the need to raise debt due to greater availability of internally generated funds, (Myers 1984).

Size of the firm is defined as a natural logarithm of sales, (Booth et al. 2001 and Rajan & Zingales, 1995). Larger companies tend to be more diversified; hence why their probabilities of default is relatively lower and therefore, incur lower costs of financial distress, (Frank & Goyal, 2009 and Zou & Xiao, 2006). In addition, size of a firm is assumed to be negatively related to

information opacity. Information asymmetry is a less severe problem for larger firms; hence why it is easier for them to obtain debt financing, (Myers 1984). Therefore, a positive relationship between firm size and leverage is expected in both the trade-off theory and the pecking order framework.

Growth opportunity refers to a change in total assets (from 2010 to year 2011) divided by total assets (in year 2010), (Booth et al., 2001; Nguyen & Ramachandran, 2006; Rajan & Zingales 1995 and Titman & Wessels, 1988). Costs of financial distress are higher for companies with higher growth rates. Therefore, these businesses may be not willing to take on large amounts of debt to avoid the likelihood of bankruptcy, (Myers 1977). Growth in total assets also represents investment opportunities the business has undertaken. Hence, the business with more investment opportunities undertaken has less need for using debt as a disciplining way of management to control free cash flows, (Jensen, 1986). Therefore, in view of trade-off theory, growth is predicted to be negatively related to debt. Whereas, according to the pecking order theory, companies with higher growth rates are more likely to use internally generated funds and then obtain external funding if the internal funds are not sufficient and thus suggesting a positive relationship between leverage and growth, (Sogorb-Mira, 2005 & Degryse et al. 2009)

Liquidity is defined as the total of current Assets divided by total current liabilities, (De Jong et al., 2008 and Rajan & Zingales, 1995). Theories largely find a positive relationship between liquidity and long-term debt because firms with higher liquidity have easier access of debt, (Sibilkov, 2009 and Malinic at al., 2013). However, in view of pecking order framework, accumulated funds and other liquid assets can function as internal financing source and they

are preferred than debt. Suhaila at al. (2008), and Lipson and Mortal (2009) maintain that, more liquid firms are less levered and therefore, expect an inverse relationship.

There are also tax related factors of which one of them is corporate tax which is used in this study. Corporate tax is expressed as the ratio of taxes paid to total taxable income, (Homaifar et al., 1994). It is predicted to have a positive relationship to leverage because features such as tax code permit interest payments to be subtracted from the tax bill but not dividends payments and therefore, provide tax advantage for debt, (Bulent at al., 2013).

3.332 Country-level variables

Inflation is defined change in consumer price index rate per annum, (Demirgüç-Kunt & Maksimovic, 1999; Fan et al., 2012 and Frank & Goyal, 2009). Features of tax code increase the actual value of interest tax deductions on debt when *inflation* is expected to rise, (Taggart, 1985). That is, there is a positive correlation between anticipated inflation and leverage. However, in view of Cho et al. (2014) and Fan et al. (2012), it is expected that it will have an inverse effect on debt ratio because when inflation is low and stable, debt ratio increases. Also, an inverse relationship is expected since most debt contracts are in nominal rates and then uncertainty about future rates tends to push creditors away from debts especially long-term debts.

GDP (Gross Domestic Product) growth refers to the annual percentage growth rate of GDP, (Demirgüç-Kunt & Maksimovic, 1999; Etudaiye-Muhtar, 2016 and Fan et al., 2012). It is also seen as measuring growth prospects accessible to businesses in the country. Now, in an environment with higher growth opportunities, the scarcity of firms' tangible assets relative to

available investment opportunities implies a higher loss of value when firms go into distress. That is, there is expected inverse relationship between leverage and GDP growth in static trade-off model. Whereas, pecking order framework predicts a positive correlation because a higher growth ratio prospects to internal funds might mean a higher need for external funds, (Smith & Watts, 1992; Demirgüç-Kunt & Maksimovic, 1996 and Bulent at al., 2013).

Furthermore, the *kind of legal system* functional in an economy is significant in determining capital structure decisions of firms. La Porta at al. (1998) show that the legal protection given to investors reduces asymmetry information and ease agency problems between various stockholders thereby influences the investors' decisions to provide funds for firm financing. Also, the legal structure which offers insufficient protection to investors worsens agency costs, information asymmetry and contracting overheads. Quality of enforcement also defined through higher rule of law, government effectiveness and regulatory quality leads to efficiency in execution of legal laws including bankruptcy regulations, (Antoniou at al., 2008).

As per worldwide governance and World Bank, *Rule of law* measures the level of confidence financial agents have in societal rules as well as in abiding by the rules. *Regulatory quality* is a measure of the ability of government to formulate and implement sound policies in promoting private sector development such as the ease of access to capital market and regulatory enforcement. *Government effectiveness* entails government's commitment and credibility in implementing formulated capital market policies. These variables range between -2.5 and 2.5 with higher values indicating efficient regulation, better enforcement of rule of law and better government effectiveness.

3.4 Identification strategy

To determine the impact of development in capital market on firms' capital structure, this study employs the model by Demirguc-Kunt and Maksimovic (1999) which has been used in several subsequent and recent studies such as in Agarwal and Mohtadi (2004), Doku at al. (2005), Abor and Biekpe (2009), Etudaiye-Muhtar and Ahmad 2016 and Muneer at al. (2017). The model postulates that a firm's capital structure (CS), is a function of capital market development (CMD) and is specified as:

$$CS = f(CMD) \quad (1)$$

A modified model of equation (1) is then the introduction of controlled variables identified in the literature which are believed to have the impact of capital structure of firms. The modified model is given as:

$$CS = f(CMD,\ firm - specific\ factors,\ country - level\ factors) \quad (2)$$

Capital structure (CS) is measured by the debt ratios whereas, capital market development (CMD) is measured by financial system development proxies- bank and stock market development indicators. The stock market development is measured by turnover ratio (TR) while development in banking sector is measured by ratio of credit to the private sector by commercial banks to GDP (CPS). Following several studies in the literature (Agarwal & Mohtadi, 2004; Doku at al., 2011; Nyuyen at al., 2014; Etudaiye-Muhtar 2016; and Nwosa, 2018), equation (2) is written as:

$$CS = f(TR, CPS,\ firm - specific\ factors,\ country - level\ factors) \quad (3)$$

The information provided is expected to show short-term debt (ST), long-term debt (LT) and total debt (TD) ratios, and these three are introduced individually in order produce different debt ratios. This allows testing whether the firms differentiate between financing instruments to funding short-term as compared to long-term needs. Therefore, equation (3) is modified to (see e.g., Etudaiye-Muhtar, 2016):

$$TDR = f(TR, CPS,\ firm - specific\ factors,\ country - level\ factors) \quad (4)$$

$$LTDR = f(TR, CPS,\ firm - specific\ factors,\ country - level\ factors) \quad (5)$$

$$STDR = f(TR, CPS,\ firm - specific\ factors,\ country - level\ factors) \quad (6)$$

Based on the variables identified, which are firm and country-level variables for 8-year period, panel data regression technique is used. Panel data regression comprises of time series and cross-sectional data relating to information of certain elements over time, (Etudaiye-Muhtar 2016). According to Etudaiye-Muhtar (2016) panel data techniques are useful in addressing complex problems such as heterogeneity, consider the effect of omitted variables, ensure collinearity and allows for dynamism of units.

Prior to regression analysis, this study performs descriptive analysis and correlation analysis. Descriptive analysis is conducted to provide the picture of sampled data in relation to their standard deviation, mean, minimum and maximum values for different variables. On the other hand, the bivariate relationship between variables is established through correlation analysis, (Etudaiye-Muhtar & Ahmad 2016). This is used in trying to determine strength and direction of relationship between independent and dependent variables.

CHAPTER 4 RESULTS ANALYSIS

4.0 Introduction

Data analysis was conducted through the use of EViews application software separately for emerging and frontier markets. The results are presented in three subdivisions which are (1) descriptive analysis which is conducted to provide the picture of sampled data in relation to their standard deviation, mean, minimum and maximum values for different variables. (2) Depicts the bivariate relationship between variables established by the use of correlation analysis and then last subdivision (3) which displays the outcome from the regression estimation.

4.1 Descriptive data analysis

Descriptive statistics of three debt ratio measures and explanatory variables are reported in Table 4 for frontier markets and then in Table 5 for emerging markets. The summary descriptive statistics presented in Table 4 and Table 5 show that short-term debt (STDR) in both emerging and frontier markets constitute a large percentage of financing (mean values of 38.8% and 30.2% respectively) in comparison to long-term debt mean values of 25.5% and 23.8% respectively. Consistent with other capital markets studies, (Doku at al., 2011; Bulent at al., 2013; Giannetti, 2003 and Nguyen at al., 2014), the general results in both emerging and frontier markets reflect that financing choices are proven to be dominated by short-term debt which is indicative of relatively underdevelopment nature of capital markets. However, Table 4 and Table 5 also, show that maximum values of three debt ratios exceed one. Given debt ratio definition (debts to total assets), the results show that for some sampled

businesses, the value of debt is higher than the value of assets, which indicate the existence of a high level of financial risk.

In the case of turnover ratio (TR) the 3.2% mean and 1.6% indicates low liquidity of the markets with emerging markets twice as liquid as frontier markets while domestic credit to private sector by commercial banks (CPS) mean values are 4.5% in emerging markets compared to 6.9% in frontier markets.

Table 4: Frontier markets descriptive statistics

	Mean	Med	Max	Min	Std. Dev.	Skew	Kurtosis	Jarque-Bera	Probability	Obs
CPS	0.069	0.000	1.307	0.000	0.219	3.400	14.118	>99.99	0.000	424
CPT	0.194	0.158	5.506	0.000	0.339	10.237	148.60	>99.99	0.000	424
GDPG	0.408	0.000	9.145	-2.670	1.517	3.532	15.550	>99.99	0.000	424
GE	0.027	0.000	1.171	-1.186	0.265	1.053	14.489	>99.99	0.000	424
GRW	0.032	0.000	1.916	-0.986	0.196	4.145	36.583	>99.99	0.000	424
INF	0.545	0.000	18.676	-1.125	2.210	5.081	31.786	>99.99	0.000	424
LQD	2.283	1.368	66.477	0.000	4.246	9.644	130.81	>99.99	0.000	424
LTDR	0.238	0.184	1.438	0.000	0.224	1.705	7.518	>99.99	0.000	424
PROF	0.109	0.091	3.418	-12.274	0.790	-11.174	168.24	>99.99	0.000	424
RL	0.020	0.000	1.373	-1.182	0.275	1.324	15.928	>99.99	0.000	424
RQ	0.022	0.000	1.698	-0.919	0.274	2.937	21.515	>99.99	0.000	424
STDR	0.302	0.270	1.552	0.000	0.211	1.215	6.024	>99.99	0.000	424
SZ	13.081	13.770	23.439	0.000	4.690	-1.188	4.804	>99.99	0.000	424
TAN	0.478	0.501	0.975	0.000	0.288	-0.119	1.859	23.99	0.000	424
TDR	0.540	0.521	1.728	0.000	0.302	0.689	3.957	49.72	0.000	424
TR	0.016	0.000	0.837	0.000	0.069	7.305	68.477	>99.99	0.000	424

Note: This table presents descriptive statistics of listed non-financial firms in selected frontier markets from years 2010 to 2017. Obs: Observations Sew: Skewness, Med: median, Max: Maximum value, Mini: Minimum value, Std. Dev.: standard deviation, CPS: Developments in banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/ total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt = non-current liabilities to total assets, RL: rule of law taking the values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt = current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible assets to total assets, TDR: total debt ratio= total liabilities/total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets.

Table 5: Emerging markets descriptive statistics

	Mean	Med	Max	Mini	Std. Dev.	Skew	Kurtosis	Jarque-Bera	Probability	Obs
CPS	0.045	0.000	1.179	0.000	0.172	4.443	24.145	>99.99	0.0000	616
CPT	0.250	0.250	7.457	0.000	0.445	10.321	145.43	>99.99	0.0000	616
GDPG	0.265	0.000	9.997	-9.132	1.421	2.810	22.873	>99.99	0.0000	616
GE	0.006	0.000	0.556	-0.303	0.072	3.124	25.661	>99.99	0.0000	616
GRW	0.015	0.000	6.259	-0.980	0.306	15.198	294.10	>99.99	0.0000	616
INF	0.321	0.000	11.989	-1.736	1.365	4.741	28.289	>99.99	0.0000	616
LQD	1.967	1.436	32.716	0.000	2.739	7.221	67.293	>99.99	0.0000	616
LTDR	0.255	0.168	2.216	0.000	0.272	2.556	13.257	>99.99	0.0000	616
RL	-0.006	0.000	0.631	-0.640	0.098	-2.394	27.793	>99.99	0.0000	616
RQ	0.009	0.000	0.645	-0.473	0.100	2.104	20.912	>99.99	0.0000	616
STDR	0.388	0.353	1.800	0.000	0.255	1.366	6.416	>99.99	0.0000	616
SZ	15.687	15.218	24.891	0.000	3.788	0.239	3.565	14.07	0.0009	616
TAN	0.441	0.392	1.000	0.000	0.264	0.264	1.875	39.64	0.0000	616
TDR	0.643	0.599	2.446	0.000	0.337	1.528	7.054	>99.99	0.0000	616
TR	0.032	0.000	1.369	0.000	0.137	5.512	38.454	>99.99	0.0000	616
PROF	0.199	0.108	6.506	-10.170	0.853	-0.048	56.310	>99.99	0.0000	616

Note: This table presents descriptive statistics of listed non-financial firms in selected emerging markets from years 2010 to 2017. Obs: Observations Sew: Skewness, Med: median, Max: Maximum value, Mini: Minimum value, Std. Dev.: standard deviation, CPS: Developments in banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt = non-current liabilities to total assets, RL: rule of law taking the values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt = current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets.

The higher mean of turnover ratio in emerging markets suggest developments in stock markets higher than those in frontier markets whereas, frontier markets reflect more of banking sector development. However, in both markets, the banking sector development variable (CPS) shows mean ratio which is greater than the turnover ratio (stock market development indicator) (TR). These suggest that debt provided by commercial banks is

probably more preferable as sources of external funding than equity from stock markets by the sampled businesses.

This is consistent with findings by Demirgüç-Kunt and Maksimovic (1996) which show that the developments of equity markets in developing countries increase the level of debt whereas, they decrease long-term debt financing in developed markets. This was attributed to markets' inability to aggregate enough information to lenders and investors. In order to find whether the higher levels development will have effects on debt ratios in emerging markets compared to frontier markets, separate regression specifications are utilized.

Turning to the other explanatory variables, frontier markets show comparatively higher values on average except size of firms of 15.69 and corporate tax of 25% higher in emerging markets. The higher firm size is possibly because relatively large economies in the emerging markets have enabled firms to grow beyond the levels achievable than in the smaller frontier markets economies. The distributions of variables show that they are skewed and with majority kurtosis greater than 3 which represents the flatter tails of population. Data samples reflect that variables are not normally distributed assessed through Jarque-Bera test of $p<0.05$, and therefore, high likelihood of spurious results is expected.

Studies in literature (e.g. Nguyen at al., 2014), suggested that the generalized method-of-moments estimators would be appropriate for addressing econometric issues such as endogeniety, non-normality, heteroscedasticity, unobserved time-invariant fixed effects and serial correlation problems in panel data. The methods work well in circumstances of "small T and large N" panels, implying fewer periods with more elements; explanatory variables that

are not strictly exogenous, meaning they are correlated with the past and possibly current realizations of the errors; fixed effects; and heteroscedasticity and autocorrelation within individuals, (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Holtz at al., 1988; and Roodman, 2009). For these reasons this study uses the GMM for empirical estimation method.

4.2 Correlation Analysis

Table 6 and 7 provide the report of correlation matrices between debt ratios and independent variables in emerging and frontier markets. Concerning main variables of interest, in emerging markets, turnover ratio (TR) is positively correlated to both long-term (LTDR) and total debt (TDR) ratios but negatively correlated to short-term ratio (STDR). The opposite is reflected in frontier markets whereby turnover ratio (TR) has an inverse relation to long-term (LTDR) and total debt ratio (TDR) while positively related to short-term debt (STDR). On the other hand, domestic credit to private sector by commercial banks (CPS) is positively correlated to short-term debt (STDR) and total debt (TDR) ratios in emerging markets but inversely correlated to long-term debt ratio (LTDR).

However, in frontier markets, CPS is negatively related to total debt (TDR) and long-term debt (LTDR) ratios but positively correlated to short-term debt ratio (STDR). Consistent with Tai (2017), in nations with economies in transformation (developing economies), stock market developments help investors to diversify financial assets, reduce risk and asymmetric information, thus costs of financing will be low. This seems to attract more to businesses' owners in emerging markets hence the increase in the use of long-term and total debt ratios in their capital structures.

Table 6: Correlation matrices in Frontier Markets

	CPS	CPT	GDPG	GE	GRW	INF	LQD	LTDR	PROF	RL	RQ	STDR	SZ	TAN	TDR	TR
CPS	1.000															
CPT	-0.073	1.000														
GDPG	0.654	-0.080	1.000													
GE	0.463	-0.046	-0.036	1.000												
GRW	-0.022	-0.017	-0.002	-0.069	1.000											
INF	0.483	-0.050	0.654	-0.361	0.048	1.000										
LQD	0.021	-0.070	0.066	-0.011	-0.010	0.046	1.000									
LTDR	-0.156	-0.030	-0.070	-0.060	-0.079	-0.050	-0.165	1.000								
PROF	-0.002	0.036	0.012	-0.031	0.005	0.039	-0.152	0.133	1.000							
RL	0.358	-0.044	-0.060	0.966	-0.067	-0.394	-0.016	-0.003	-0.026	1.000						
RQ	0.317	-0.048	-0.043	0.904	-0.039	-0.326	-0.018	0.050	-0.026	0.939	1.000					
STDR	0.091	0.159	0.007	0.162	-0.038	-0.050	-0.243	-0.038	0.104	0.186	0.230	1.000				
SZ	0.063	0.172	0.014	-0.046	0.143	0.074	-0.127	0.046	0.241	-0.085	-0.086	0.324	1.000			
TAN	-0.112	-0.001	-0.096	-0.133	0.040	-0.024	-0.216	0.331	0.113	-0.142	-0.172	-0.259	0.226	1.000		
TDR	-0.053	0.089	-0.047	0.068	-0.085	-0.072	-0.292	0.716	0.172	0.127	0.198	0.670	0.260	0.065	1.000	
TR	0.760	-0.042	0.726	0.021	-0.062	0.569	0.039	-0.129	0.001	-0.068	-0.119	0.002	0.030	-0.079	-0.094	1.000

Note: This table presents correlation of listed non-financial firms in selected frontier markets from years 2010 to 2017, CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes paid/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio long-term debt= non-current liabilities to total assets, RL: rule of law taking the values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio short-term debt = current liabilities to total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets.

Table 7: Correlation matrices in Emerging Markets

	CPS	CPT	GDPG	GE	GRW	INF	LQD	LTDR	RL	RQ	STDR	SZ	TAN	TDR	TR	PROF
CPS	1.000															
CPT	0.029	1.000														
GDPG	0.299	-0.026	1.000													
GE	0.588	0.027	-0.344	1.000												
GRW	-0.015	-0.026	-0.015	-0.004	1.000											
INF	0.616	0.007	0.718	0.039	-0.010	1.000										
LQD	-0.081	-0.047	-0.082	-0.009	-0.017	-0.095	1.000									
LTDR	-0.005	-0.058	0.131	-0.088	0.017	0.075	-0.120	1.000								
RL	0.168	0.022	-0.598	0.740	0.006	-0.275	0.045	-0.099	1.000							
RQ	0.470	0.030	-0.237	0.481	-0.003	-0.052	-0.023	-0.064	0.165	1.000						
STDR	0.119	-0.004	-0.033	0.177	-0.056	0.086	-0.318	-0.184	0.142	0.048	1.000					
SZ	0.032	-0.024	0.256	-0.105	0.006	0.244	0.041	0.070	-0.170	-0.200	-0.088	1.000				
TAN	-0.016	-0.065	0.215	-0.198	0.049	0.113	-0.257	0.270	-0.262	-0.044	-0.310	0.191	1.000			
TDR	0.085	-0.050	0.081	0.063	-0.029	0.126	-0.338	0.669	0.028	-0.015	0.607	-0.010	-0.016	1.000		
TR	0.745	-0.018	0.499	0.372	-0.014	0.643	-0.079	0.089	0.188	0.077	0.061	0.123	0.064	0.118	1.000	
PROF	-0.036	0.009	-0.021	-0.024	0.016	-0.033	0.092	0.352	-0.013	-0.003	-0.085	0.030	-0.073	0.220	-0.040	1.000

Note: This table presents correlation of listed non-financial firms in selected emerging markets from years 2010 to 2017, CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/ total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio long-term debt= non-current liabilities to total assets, RL: rule of law taking the values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio short-term debt = current liabilities to total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets.

Generally, concerning both markets and firm specific variables, comparatively high correlation coefficients (greater than 0.05) are not detected. On the other hand, there are highly correlated coefficients between turnover ratio (TR) and domestic credit to private sector by bank (CPS) of 76% and 74.5% in frontier and emerging markets and therefore, raise the issue of potential multi-collinearity to the estimation results hence Etudaiye-Muhtar (2016) suggested separate regression specifications for these two variables.

4.3 Panel Generalized Method-Of-Moments Regression Results

The generalized method-of-moments estimators are techniques which are designed to address issues such as endogeniety, heteroscedasticity, unobserved time-invariant fixed effects and serial correlation problems in panel data. The methods work well in situations with "small T and large N" panels, meaning short time periods and many cross-sectional units; independent variables that are not strictly exogenous, meaning they are correlated with their past realizations and possibly with current realizations of the errors; fixed effects; and heteroscedasticity and autocorrelation within individuals, (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Holtz at al., 1988; and Roodman, 2009).

According to Roodman (2009), Arellano–Bond estimation starts by transforming all regressors, usually by differencing, and uses the generalized method of moments (GMM) and is called difference GMM. The Arellano–Bover/Blundell–Bond estimator augments Arellano–Bond by making an additional assumption that first differences of instrument variables are uncorrelated with the fixed effects. Thus, despite the advantage over the other methods by using all available data of the moment

conditions to achieve more efficient estimates of the model, it is prominent that with the difference GMM, the lagged levels of the causal variables could be weak instruments in the existence of serial correlation in the errors. This could consequently lead to biased estimates, (Baum, 2006). This allows the introduction of more instruments and can dramatically improve efficiency. It builds a system of two equations — the original equation and the transformed one — and is known as system GMM. With system GMM, in addition to first differencing of the causal variables, a lagged first difference is also used as instruments in levels equation.

Therefore, this method, famous as the system GMM, have two forms of simultaneous equations, one in lagged difference of the explained 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 removed in first difference but are estimated in levels. This procedure increases the efficiency of the estimation, (Etudaiye-Muhtar, 2016).

Therefore, this study adopts the system GMM for empirical estimation method in order to address panel data problems identified in previous section (descriptive analysis). The distributions of variables in Table 4 and Table 5 of descriptive analysis reflected that they are skewed and with majority kurtosis greater than 3 which represents the flatter tails of population. Data samples also revealed that variables are not normally distributed assessed through Jarque-Bera test of $p<0.05$, and thus there is a high likelihood of spurious results. Studies in literature (Nguyen et al, 2014 and Etudaiye-Muhtar, 2016), suggested that the system generalized method-of-moments estimators would be appropriate for addressing econometric issues such as

endogeniety, non-normality, heteroscedasticity, unobserved time-invariant fixed effects and serial correlation problems in panel data.

The method works well in situations with "small T and large N" panels, meaning few time periods and many individuals; independent variables that are not strictly exogenous, meaning they are correlated with the past and possibly current realizations of the errors; fixed effects; and heteroscedasticity and autocorrelation within individuals (Arellano & Bond, 1991; Arellano & Bover, 1995; Blundell & Bond, 1998; Holtz et al, 1988; and Roodman, 2009). Etudaiye-Muhtar (2016) and, Antoniou et al. (2008) further point that system GMM estimation method does not need ample understanding of the probability distribution of the sample. Several capital structure theories did use system GMM including Ağca et al. (2013) and González and González (2014).

According to Roodman (2009), pointers to implementation of the system GMM are to: (1) apply the estimators to "small T, large N" panels, (2) include time dummies (3) use orthogonal deviations in panels with gaps (4) put every regressor into instrument matrix (5) check instrument validity via Hansen test and also perform auto-correlation test.

In order to critically explore the relationship between debt measures and thirteen explanatory variables, the following basic regression model was used:

$$Y_{it} = \alpha Y_{it-1} + \beta X_{it} + \delta_i + \gamma_t + \varepsilon_{it} \quad (7)$$

Consistent with other studies, (Agarwal & Mohtadi, 2004 and Etudaiye-Muhtar, 2016), this study assumes that the debt ratio of the firm Y_{it} is a function of X_{it} of

independent variables where subscript i and t, represent the firm and time respectively. These variables include stock market indices, banking indices, country level variables and firm-specific factors. On the other hand, δ_i symbolizes time-invariant unobservable firm-specific effects such as management ability, motivation and attitude towards risks. Moreover, γ_t represents time-specific effects by which are common to all businesses but change through time and those are macroeconomic effects such as interest rates. Furthermore ε_{it} represents time-varying error term while α and β are coefficients to be estimated. Period lagged explained variable of firm i at period t *(t-1)* is used to detect the effect of previous performance of the explained variable on current performance (t).

Table 8 and Table 9 provide the outcomes of system generalized method-of-moments estimators in emerging markets and frontier markets respectively.

4.31 Emerging markets and capital structure

The results obtained for total debt (TDR) and short-term debt (STDR) presented in Table 8, show that turnover ratio even though showing a negative coefficient as predicted not significant while the coefficient for long-term debt ratio was positive. Findings from this thesis are in line with results by Demirguc and Maksimovic (1996) and Tai (2017) in that, increases in stocks trading volume attract investors and therefore, quickly rotated ongoing trading activities, creating strong liquidity in the market. Thus, new shares issuance can easily raise owner's equity and take advantage of surplus capital by issuing shares at market value instead of face value. Then the cost of using equity becomes lower than the lending costs.

Table 8: Emerging markets regression results

		Stock market			Banking sector	
Variable	STDR	LTDR	TDR	STDR	LTDR	TDR
Y_{it-1}	0.2672***	0.4060***	0.1200***	0.2805***	0.4028***	0.1234***
	(0.0315)	(0.0488)	(0.0300)	(0.0322)	(0.0490)	(0.0302)
TR / CPS	-0.0466	0.1054	-0.0201	-0.9539***	1.3965**	0.7108
	(0.0428)	(0.1067)	(0.0723)	(0.2871)	(0.5712)	(0.4877)
CPT	0.0065	-0.0048**	0.00002	0.0067	-0.0048**	0.0002
	(0.0042)	(0.0021)	(0.0070)	(0.0042)	(0.0020)	(0.0071)
GDPG	-0.0014	0.0019	-0.0035	-0.0047	0.0037	-0.0015
	(0.0044)	(0.0073)	(0.0074)	(0.0052)	(0.0068)	(0.0072)
GE	-0.0357	0.0896	-0.0174	-0.1340**	0.2483*	0.0072
	(0.0676)	(0.1169)	(0.1544)	(0.0528)	(0.1306)	(0.1675)
GRW	-0.1015***	-0.0961***	-0.1991***	-0.1043***	-0.0936***	-0.1991***
	(0.0158)	(0.0103)	(0.0122)	(0.0162)	(0.0104)	(0.0123)
INF	0.0022	0.0319***	0.0084	-0.0057	0.0360***	0.0149
	(0.0061)	(0.0103)	(0.0136)	(0.0049)	(0.0087)	(0.0142)
LQD	-0.0378***	0.0241***	-0.0272***	-0.0383***	0.0250***	-0.0266***
	(0.0062)	(0.0078)	(0.0058)	(0.0061)	(0.0075)	(0.0057)
PROF	-0.0347***	0.00004	-0.0236***	-0.0355***	0.0017	-0.0237***
	(0.0077)	(0.0093)	(0.0065)	(0.0076)	(0.0094)	(0.0066)
RL	0.1776	-0.3073	-0.0671	0.3549*	-0.4718*	-0.1667
	(0.2051)	(0.2022)	(0.2842)	(0.1839)	(0.2379)	(0.3994)
RQ	-0.0069	0.1263	0.1356	-0.0277	0.0291	0.1832
	(0.2182)	(0.1729)	(0.2966)	(0.2252)	(0.1572)	(0.3021)
SZ	0.0280***	0.0376***	0.0733***	0.0274***	0.0395***	0.0735***
	(0.0031)	(0.0032)	(0.0028)	(0.0030)	(0.0031)	(0.0028)
TAN	0.1949***	0.3175***	0.1940**	0.2083***	0.2843***	0.1929**
	(0.0660)	(0.0795)	(0.0865)	(0.0658)	(0.0794)	(0.0880)
J-statistic	26.4153	19.2194	25.4886	25.9174	17.4661	26.1938
Prob(J-stat)	0.1525	0.5076	0.1834	0.1686	0.6225	0.1595
AR(1)	0.0430	0.0247	0.0946	0.0422	0.0250	0.0906
AR(2)	0.6424	0.2123	0.8981	0.6287	0.2554	0.8922

Note: This table presents panel regression of listed non-financial firms in selected emerging markets from years 2010 to 2017 CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities/total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included

On the other hand, domestic credit to private sector by commercial banks reports a positive significant effect on long-term debt, a positive insignificant effect on total debt and a negative significant effect on short-term debt. That is, the impact of developments in capital market on firm debt depends on the type of debt used by the firms.

Secondly, the panel regression estimates show that the impact of capital market development on firms' capital structure depends on the measurement of capital market development. Thus, banking sector development (as a measure of capital market development) has a positive and significant effect on firms' leverage (debt capital financing) while stock market development appears to have an insignificant effect on capital structure choices.

In the literature, studies (e.g. Agarwal and Mohtadi 2004; Bokpin & Isshaq, 2008; Demirguc-Kunt & Maksimovic, 1996; and Nwosa, 2018) have observed a positive significant relationship between banking sector development and debt, which is in line with long-term debt (LTDR) results of an increase of 1.4 reported in Table 8 and total debt (TDR) increase though insignificant. This therefore, supports theoretical literature which shows that banking sector development have to reduce asymmetry of information, lower agency costs and transaction costs. This practice, in view of Demirgüç-Kunt & Maksimovic (1996) ought to result in an increase in debt availability. Nevertheless, the negative effect on short-term debt ratio (STDR) result can be defined according to Rayan (2008), that firms in developing markets choose the source of capital according to pecking order model rather than depending on static trade off theory. Thus, unlike static trade off theory which considers interest

rates and tax shield benefits more, businesses choose capital financing under the favorable access such as issuing equity when the firm's stock is highly valued and conversely using debt when its cost is favorable.

Even though the major focus of this study is on capital market development, other contributing explanatory variables results are of importance. The significant and positive sign of asset tangibility across all debt ratios is consistent with many capital structure studies (both through pecking order and static trade off theory) which commonly find that businesses with high levels of tangible assets have higher liquidation value and will be in a position to provide collateral for debts in addition to reducing financial distress cost, (Scott, 1977; Titman & Wessels, 1988; Harris & Reviv, 1990; and Rajan & Zingales, 1995).

Nonetheless, evidence of static trade-off framework is also displayed in the results in Table 8 through a positive significant effect of firm size and this is based on the notion that larger businesses are more diversified, have less debt related agency costs and have a lower default risk (Frank & Goyal, 2009; and Zou & Xiao, 2006).

Furthermore, significant and negative signs in profitability and liquidity for total debt and short-term debt follow the pecking order theory. According to pecking order framework, the negative relationship is because firms prefer internal financing to external funding sources, (Booth at al., 2001; Rajan & Zingales, 1995; and Titman & Wessels 1988) and that accumulated cash and other liquid assets could serve as internal financing source and would be preferably used to debt, and that more liquid firms are less levered, (Suhaila at al., 2008; and Lipson & Mortal, 2009). On the other hand, growth opportunity is in line with trade-off theory of an inverse

relationship with debt ratio and thus, firms with more investment opportunities have less leverage because they have stronger incentives to avoid under-investment and asset substitution that can arise from agency conflicts, (Bauer, 2004; Frank & Goyal, 2009; and Rajan & Zingales, 1995).

Moreover, there is a negative coefficient of corporate tax which expected to be positive: some studies (e.g. Frank & Goyal, 2008; and Hennessy & Whited, 2005) argued that the mixed effect (of corporate tax effect sometimes being negative) is due to uncertainty about what constitute a good proxy for corporate tax.

Turning on to country level variables, government effectiveness variable has a significant and positive coefficient while the regulatory quality is negative and significant for long-term debt. According to Etudaiye-Muhtar (2016) the positive coefficient of government effectiveness is consistent with the supply-side view that efficiency in law execution inspires financiers to offer funds to businesses because it increases the capacity of lenders to recover borrowed monies.

In contrast, the negative coefficient of legal rule follows the argument that businesses are reluctant to use debt when the regulations strengthen investors' safety because of the fear of losing control of the business, (Antoniou at al., 2008). Still on long-term debt, the results show a positive coefficient of rate of inflation and it is in favor of Taggart (1985) that features of tax code increases the actual value of interest tax deductions on debt when inflation is anticipated to be high. Thus, static trade-off expects a positive relationship between debt ratio and expected inflation.

4.32 Frontier markets and capital structure

Capital market development in frontier markets as per Table 9 below follow that, turnover ratio (TR), which measures liquidity and transaction cost, has significant and positive impact on short-term debt (STDR) and total debt ratio but negative insignificant to long-term debt. Consistent with Doku at al. (2011) this indicates that the financial market development enriches the ability and opportunity of listed firms to increase and diversify their holdings of and access to debt from the financial market. That is, an enhancement in the turnover ratio would not only improve firms' attractiveness to investors on the market (more access to equity funding), but also presents a signal of good prospects to financial intermediaries. Hence, high turnover implies greater access to both short and total debt funding to listed enterprises.

From Table 9, domestic credit to private sector by commercial banks reflect a positive significant influence on both short-term (STDR) and total debt (TDR), but negatively related to long-term debt even though this is not statistically significant. The positive relationship with regard to total debt and short-term debt indicates that as the banking sector improves, businesses obtain an increased access to debt, highlighting the significance of debt funding. In view of Doku at al. (2011) and Agarwal and Mohtadi, (2004) the positive relationship between banking sector development as well as stock market development indicators confirms that banks and stock markets complement each other in financing firm growth.

Table 9: Frontier markets regression results

	Stock market			Banking sector		
Variable	STDR	LTDR	TDR	STDR	LTDR	TDR
Y_{it-1}	0.1872***	0.2420***	0.4192***	0.1846***	0.2890***	0.3766***
	(0.0363)	(0.0346)	(0.0418)	(0.0321)	(0.0313)	(0.0429)
TR / CPS	0.3747***	-0.1326	0.6045***	1.5688***	-0.4501	0.7585**
	(0.0691)	(0.0884)	(0.0749)	(0.3962)	(0.4327)	(0.3303)
CPT	-0.0060	-0.0009	0.0042	-0.0078	0.0005	0.0031
	(0.0046)	(0.0039)	(0.0079)	(0.0051)	(0.0040)	(0.0080)
GDPG	0.0118**	0.0007	0.0274***	0.0314***	-0.0123***	0.0370***
	(0.0050)	(0.0028)	(0.0079)	(0.0056)	(0.0023)	(0.0077)
GE	-0.0827	-0.1943***	-0.1585***	0.1692**	-0.3062***	0.0217
	(0.0952)	(0.0741)	(0.0402)	(0.0742)	(0.0715)	(0.0660)
GRW	-0.0970***	-0.0258	-0.1315***	-0.1035***	-0.0210	-0.1411****
	(0.0204)	(0.0193)	(0.0182)	(0.0213)	(0.0187)	(0.0199)
INF	-0.0136***	-0.0031	0.0009	-0.0073	-0.0006	-0.0004
	(0.0045)	(0.0063)	(0.0039)	(0.0050)	(0.0076)	(0.0051)
LQD	-0.0040	0.0009	-0.0045*	-0.0046*	0.0011	-0.0040
	(0.0026)	(0.0007)	(0.0026)	(0.0025)	(0.0008)	(0.0024)
PROF	0.0016	-0.0024	-0.0038**	0.0025	-0.0040	-0.0046***
	(0.0056)	(0.0026)	(0.0019)	(0.0051)	(0.0028)	(0.0016)
RL	0.0950	0.0409	-0.1147	-0.3196**	0.4092*	-0.1889
	(0.1305)	(0.1477)	(0.1120)	(0.1526)	(0.2103)	(0.1177)
RQ	-1.2707***	0.6830***	0.0681	-1.5632***	0.8798***	-0.3633
	(0.2047)	(0.1558)	(0.2347)	(0.1973)	(0.1382)	(0.2550)
SZ	0.0185***	0.0048***	0.0255***	0.0180***	0.0051***	0.0236***
	(0.0027)	(0.0017)	(0.0027)	(0.0025)	(0.0018)	(0.0027)
TAN	0.0233	0.0934*	0.0748	0.0605	0.1010*	0.0897
	(0.0733)	(0.0563)	(0.0773)	(0.0659)	(0.0591)	(0.0727
J-statistic	22.0234	23.5042	18.1662	22.0320	24.4435	18.65761
Prob(J-stat)	0.2309	0.1720	0.4448	0.2306	0.1079	0.413186
AR(1)	0.0226	0.0596	0.0303	0.0190	0.0508	0.0277
AR(2)	0.3998	0.775	0.2770	0.3084	0.7957	0.2774

Note: This table presents panel regression of listed non-financial firms in selected frontier markets from years 2010 to 2017 CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/ GDP, CPT: corporate tax = ratio of paid taxes paid/ total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities/total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/ total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included

Turning to the control variables, frontier markets seem to follow both static trade-off and pecking order theories. The inverse relationship between growth opportunity and leverage follows the static trade-off theory that issues of financial distress and information asymmetry are more severe for the firms with higher growth opportunities, (Krasauskaite, 2011 and Degryse at al., 2009). GDP growth also follows static trade-off framework in that in a high growing environment, the scarcity of firms' tangible assets relative to available investment opportunities implies a higher loss of value when firms go into distress hence a negative relationship to long-term debt, (Bulent at al., 2013).

Furthermore, there is a positive significant relationship between firm size and lavage imply that (in view of both pecking order framework and trade-off theory) Larger firms tend to be more diversified; hence, for larger firms the probability of default is relatively lower, and they incur lower costs of financial distress. In addition, size of a firm is assumed to be negatively related to information opacity, (Krasauskaite, 2011). Booth et al. (2001) and Hatzinikolaou et al. (2002) highlighted that the benefit derived from larger monetary value of firms' asset is offset by the higher borrowing cost and monetary risk triggered by inflation hence the inverse relation on capital structure.

Moreover, pecking order framework and trade-off theory predict a positive relationship between asset tangibility and leverage. Therefore, the positive significant relationship portrayed by the results implies that a company with a higher proportion of total assets composed of tangible fixed assets has a higher capacity to raise long-term debt because the tangible fixed assets can be pledged as collateral

for loans. Additionally, in case of liquidation, tangible fixed assets keep their value (Myers 1977). Due to asymmetric information, lenders can determine the value of tangible assets than the value of intangible assets easier (Myers & Majluf 1984). In pecking order, the results show negative relations between both total debt and short-term debt, and GDP growth since a high ratio of growth opportunities to internal funds would mean a greater need for external funds, (Bulent at al., 2013; and Smith & Watts, 1992).

On the other hand, effectiveness of government (GE) (capturing extend of commitment of administration towards rules that develop the market) in banking sector is significant and negative on long-term debt while there is a significant positive impact of rule of law (RL) in banking sector and regulatory quality (RQ) in both markets. Contrarily, short-term debt is favored by positive changes in government effectiveness in banking sector while legal rule in banking sector and regulation quality in both markets portray a significant negative effect on short-term debt.

Policies are aimed at strengthening investors' protection when they are introduced, therefore, negative signs reflect that businesses might be discouraged from sourcing debt funding because of the fear of giving up their stake in the business in case of financial distress, (Antoniou et al. 2008). However, the positive signs are consistent with studies that, legal protection offered to investors decrease agency problems and information asymmetry between various stakeholders and influences the financiers' choices to provide funds for business funding, (La Porta at al., 1998) hence an increase in long-term debt. Christensen at al. (2016) also suggested

changes in securities regulations and institutional changes in countries with low-quality prior regulations.

4.33 The differential effects of the impact of capital market development on capital structure choices of firms in emerging and frontier markets

The results in Table 8 & and Table 9 reflect some identifiable differences in the relationship between capital market development, and capital structure choices of firms in emerging and frontier markets. Concerning stock market development (measured by stock turnover ratio), the impact in frontier markets to short-term debt and total debt are a positive and significant whereas, it is negative and insignificant in emerging markets.

As from descriptive statistics in Table 4 and Table 5, on average, emerging stock markets were seen to be twice (3.2%) as liquid as frontier stock markets (1.6%) and thus, issues such as asymmetric information, moral hazards and adverse selection are likely less common in emerging markets (Grossman & Stiglitz, 1980). This indicates that stock market development in emerging markets is a substitute of debt while it compliments debt in frontier markets.

On the other hand, financial inter-mediation seems higher in frontier markets (6.9%) compared to emerging markets (4.5%), where financial inter-mediation is measured by the ratio of domestic credit to private sector by commercial banks to GDP. Now, the impact of banking sector development (measured by domestic credit to private sector by commercial banks) on short-term and total debts is significant and positive in frontier markets while significant and negative to short-term debt, and positive to long-term debt in emerging markets. This therefore indicates that, in emerging

markets, improvements in banking sector favor long-term debt and a reduction in short-term debt while in frontier markets, the lower development levels appear to favor both short-term debt and long-term usage. According to Tai (2017) the credit growth of commercial banks (e.g. frontier markets) may not only spend for the listed firms, it also spends for other business objects or consumer loans hence a negative insignificant coefficient to long-term debt.

Concerning the legal environment (measured by legal rule, quality of the regulations and effectiveness of government) government effectiveness favors banking development (long-term debt) in emerging markets whereas, in frontiers markets it has a positive effect on short-term debt. Government effectiveness speaks to the ability and willingness of government, for instance, to enforce laws and regulations: from the point of view of debt holders, such an "assurance" lowers contracting costs and agency costs of debt (e.g., enforcement of loan covenants is enhanced). Thus, debt holders are better protected in a regime with greater government effectiveness than in one with relatively lower government effectiveness.

However, consistent with Christensen at al. (2016), changes in securities regulations and institutional changes in countries with low-quality prior regulations is a prerequisite in frontier markets reflected by a high positive coefficient of regulatory quality and rule of law to long-term debt. Thus, legal structures in frontier markets do not provide enough investors' protection and thereby increasing information asymmetry, rising contracting costs and agency costs, hence short-term debt tends to be preferred to long-term debt and therefore, positive changes regulation quality as well as legal rule will increase long-term debt.

4.34 Robustness Test 1: Firm sizes

Firm size, usually defined as either number of employees per company, sales per firm, value added per firm, market capitalization, or value of assets has influence on capital structure choices. According to Salawu and Agboola (2008) large firms have the capacity to employ more debt because they hold a greater bargaining power. For the purpose of this study, firm size was measured by sales per firm and large firms were taken to be those whose sales values were above the average in the sample.

To examine the behavior of capital market development indicators in response to modifications to regressor, the continuous variable firm size (SZ) was dropped, and then separate regression specifications were estimated using a dummy variable (DSZ) with value of 1 representing large sized firms and zero denoting smaller firm size. Results are presented in Table 10 and Table 11. Looking at the results, the dummy variable (DSZ) in both tables are showing insignificant coefficients across both stock market and banking sector.

The insignificance of the DSZ variable shows that, there is no systematic significant difference in the effect of developments in capital market on debt ratios across firm sizes (classified as large firm size and small sized firms). Besides size dummy (DSZ), turnover ratio and domestic credit to private sector by commercial banks has similar impact regarding sings and significance of coefficients in comparison to results obtained in Table 10 and Table 11.

4.35 Robustness Test 2: Profitability

Profitability is defined as the ability of a business to earn profits (revenues less all related expenses related to generation of revenue) and it is determined by gross profit margin, operating margin, return on assets, return on equity, return on sales, and return on investment. According to trade-off theory, higher profitability lowers the expected costs of distress and thus, firms increase their leverage to take advantage of tax benefits, (Jansen, 1986 and Malinic at al., 2013). Whereas, according to pecking order theory, there seems to be a negative relationship since firms prefer internal financing to external funding sources, (Booth at al., 2001; Rajan & Zingales, 1995 and Titman & Wessels 1988).

To check the behavior (with profitability measured as return on assets) of the capital structure choices in response to regression modification, dummy variable of profitability (DPROF) was introduced with zero dummy representing profitability above average and 1 representing less profitable firms. Results are presented in Table 12 (emerging markets) and Table 13 (frontier markets). The results show that the profitability dummy is insignificant across banking sector improvements and developments in stock market. Further, the turnover ratio and ratio of domestic credit to private sector by commercial banks show similar signs and significance with minor differences in coefficient magnitudes compared to the baseline results.

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

This study investigated on the impact of capital market development on capital structure choices of selected non-financial firms in emerging as well as in frontier markets from period 2010 to 2017. To measure capital market development, stock market turnover ratio and ratio of domestic credit to private sector by commercial banks to GDP were used. The study finds that beside firm specific factors and other country-level factors which are used to explain financing choices of firms, capital market development as well affects the financing decisions of listed firms. This study generally, discovers that the development of equity and debt markets are both significant in increasing access to funding by the firms and therefore, inform the choice of debt ratios employed by firms both in emerging and frontier markets.

The findings of this thesis suggest that emerging markets enterprises use equity markets as a substitute for debt funding, but the preferable source of finance for firms is long-term debt with the highest positive coefficient. Conversely, in frontier markets, firms are using stock market as a complementary to debt financing, but the most preferred source of financing is short-term debt having the highest coefficient. The higher coefficients in banking sector therefore implies that banking sector development as a measure of the capital market development strongly affects firms' capital structure choices compared stock market development in both markets even though preferences are different.

The descriptive results highlighted the capital markets in emerging and frontier markets are young with frontier markets' smaller stock markets development levels but more domestic credit to private sector by commercial banks than emerging

markets. As a result of those conditions in frontier markets, institutions providing credit demand higher risk spread which leads to higher borrowing costs and thus led firms to prefer internal financing whereas, in emerging markets, the reliance more of long-term debt together with negative coefficients in stock market reflect more transparency in capital markets.

Findings in this thesis have implications of several policy issues. Both emerging and frontier markets seem to be relying mostly on loans by banks. Therefore, regulating bodies are recommended in taking critical steps in promoting all sections in capital markets in order that firms gain more access to funding from local capital markets more especially in frontier markets. This supported by significant positive coefficients of regulatory quality and legal rule in frontier markets, call for stronger securities regulation for significant liquidity benefits. While significant positive government effectiveness shows that proper regulations are place but require government enforcement of these regulations. Thus, government effectiveness and regulating guidelines that will safeguard the capital market integrity and investor confidence should be pursued and also promoting actively other alternative sources of funding like the venture capital and microfinance.

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Appendix A **Table 10: Emerging markets robustness regression results 1**

	Stock market			Banking sector		
Variable	STDR	LTDR	TDR	STDR	LTDR	TDR
Y_{it-1}	0.2594***	0.4463***	0.2711***	0.2739***	0.4474***	0.2712***
	(0.0339)	(0.0419)	(0.0352)	(0.0343)	(0.0426)	(0.0357)
TR / CPS	-0.0420	0.0325	-0.0140	-1.1191***	1.0740**	0.5880
	(0.0467)	(0.1214)	(0.0693)	(0.3574)	(0.5044)	(0.3438)
CPT	0.0063	-0.0045	0.0015	0.0067	-0.0042	0.0013
	(0.0037)	(0.0032)	(0.0056)	(0.0037)	(0.0031)	(0.0056)
DSZ	0.0386	0.0660	0.1370	0.0412	0.0618	0.1338
	(0.0267)	(0.0311)	(0.0475)	(0.0271)	(0.0319)	(0.0465)
GDPG	-0.0034	-0.0026	-0.0059	-0.0070	0.0005	-0.0066
	(0.0049)	(0.0079)	(0.0093)	(0.0057)	(0.0071)	(0.0088)
GE	-0.0529	0.2068	-0.0714	-0.1555***	0.2659*	-0.0761
	(0.0684)	(0.1417)	(0.1946)	(0.0527)	(0.1452)	(0.1943)
GRW	-0.1053***	-0.1018***	-0.2144***	-0.1081***	-0.1000***	-0.2137***
	(0.0157)	(0.0082)	(0.0162)	(0.0160)	(0.0086)	(0.0165)
INF	0.0033	0.0367***	0.0070	-0.0054	0.0402***	0.0030
	(0.0066)	(0.0099)	(0.0158)	(0.0054)	(0.0099)	(0.0161)
LQD	-0.0384***	0.0279***	-0.0133***	-0.0390***	0.0292***	-0.0131***
	(0.0056)	(0.0105)	(0.0043)	(0.0055)	(0.0102)	(0.0042)
PROF	-0.0437***	-0.0026	-0.0590***	-0.0446***	-0.0009	-0.0581***
	(0.0073)	(0.0044)	(0.0127)	(0.0072)	(0.0044)	(0.0128)
RL	0.2216	-0.2212	0.0757	0.4240**	-0.3310	0.1124
	(0.2195)	(0.2370)	(0.3684)	(0.1942)	(0.2491)	(0.4339)
RQ	-0.0276	0.0874	0.0739	-0.0589	0.0323	0.0453
	(0.2175)	(0.1592)	(0.2750)	(0.2252)	(0.1373)	(0.2968)
TAN	0.2826***	0.5521***	0.5856***	0.2957***	0.5308***	0.5873***
	(0.0675)	(0.0756)	(0.1068)	(0.0678)	(0.0762)	(0.1093)
J-statistic	24.6108	20.4374	25.1456	23.8948	20.1265	24.8159
Prob(J-stat)	0.2167	0.3687	0.1959	0.2470	0.3870	0.2086
AR(1)	0.0347	0.0071	0.0245	0.0353	0.0052	0.0243
AR(2)	0.542	0.1492	0.8508	0.5348	0.2007	0.8455

Note: This table presents panel regression of listed non-financial firms in selected emerging markets from years 2010 to 2017 with size as dummy variable (DSZ). CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes paid/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities/total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included

Appendix B Table 11: Frontier markets robustness regression results 1

	Stock market			Banking sector		
Variable	**STDR**	**LTDR**	**TDR**	**STDR**	**LTDR**	**TDR**
Y_{it-1}	0.1481***	0.2532***	0.4749***	0.1049***	0.3100***	0.4406***
	(0.0327)	(0.0617)	(0.0452)	(0.0306)	(0.0315)	(0.0438)
TR / CPS	0.4067**	-0.1524	0.5979***	2.1007***	-0.2822	0.8710**
	(0.2081)	(0.1813)	(0.1515)	(0.3239)	(0.4510)	(0.3427)
CPT	0.0002	-0.0009	0.0029	0.0028	0.0008	0.0008
	(0.0074)	(0.0041)	(0.0105)	(0.0058)	(0.0040)	(0.0086)
DSZ	0.0754	-0.0109	-0.0556	0.0674	-0.0376	0.0221
	(0.0456)	(0.0336)	(0.0362)	(0.0410)	(0.0247)	(0.0394)
GDPG	0.0145	0.0011	0.0213*	0.0534***	-0.0119***	0.0341***
	(0.0112)	(0.0044)	(0.0088)	(0.0076)	(0.0021)	(0.0087)
GE	0.2434	-0.1639	-0.0892	0.6741***	-0.2768***	-0.0168
	(0.2083)	(0.1129)	(0.1690)	(0.1291)	(0.0684)	(0.0631)
GRW	-0.0732***	-0.0241	-0.1273***	-0.0831***	-0.0151	-0.1374***
	(0.0161)	(0.0189)	(0.0184)	(0.0164)	(0.0193)	(0.0176)
INF	-0.0204**	-0.0004	-0.0037	-0.0043	0.0027	0.0059
	(0.0084)	(0.0074)	(0.0094)	(0.0097)	(0.0072)	(0.0066)
LQD	-0.0087*	0.0008	-0.0067**	-0.0083**	0.0010	-0.0037*
	(0.0044)	(0.0007)	(0.0030)	(0.0041)	(0.0007)	(0.0021)
PROF	0.0016	-0.0019	-0.0062***	0.0013	-0.0033	-0.0068***
	(0.0029)	(0.0029)	(0.0018)	(0.0026)	(0.0028)	(0.0015)
RL	0.5429***	0.0348	-0.0107	-0.2753	0.3629	-0.3220**
	(0.1920)	(0.1687)	(0.1605)	(0.1681)	(0.2231)	(0.1252)
RQ	-1.7190***	0.7070***	-0.2479	-2.3753***	0.8536***	-0.3047
	(0.3439)	(0.2647)	(0.5597)	(0.3283)	(0.1355)	(0.2727)
TAN	0.1192*	0.1384***	0.0998	0.1442***	0.1362***	0.3065***
	(0.0620)	(0.0481)	(0.0797)	(0.0645)	(0.0521)	(0.0897)
J-statistic	22.63136	24.4364	19.84873	20.7526	25.6461	17.86984
Prob(J-stat)	0.205156	0.141244	0.282039	0.2921	0.0812	0.397096
AR(1)	0.0826	0.0497	0.0061	0.0311	0.0445	0.0043
AR(2)	0.3821	0.7525	0.3609	0.1852	0.7231	0.328

Note: This table presents panel regression of listed non-financial firms in selected frontier markets from years 2010 to 2017 with size as dummy variable (DSZ). CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities/ total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included

Appendix C Table 12: Emerging markets robustness regression results 2

	Stock market			Banking sector		
Variable	**STDR**	**LTDR**	**TDR**	**STDR**	**LTDR**	**TDR**
Y_{it-1}	0.2666***	0.3866***	0.3892***	0.1966***	0.3810***	0.2662***
	(0.0722)	(0.0441)	(0.0919)	(0.0409)	(0.0431)	(0.0507)
TR / CPS	-0.0753	0.1128	-0.0153	-0.8237***	1.4307***	0.2948
	(0.0710)	(0.0885)	(0.0399)	(0.2978)	(0.3596)	(0.3645)
CPT	0.0086*	-0.0064***	-0.0039	0.0058*	-0.0062***	0.0029
	(0.0048)	(0.0020)	(0.0062)	(0.0032)	(0.0020)	(0.0065)
DPROF	-0.0086	-0.1622	-0.4092	-0.1322	-0.1829	-0.2282
	(0.0419)	(0.0998)	(0.2188)	(0.0416)	(0.0985)	(0.0435)
GDPG	-0.0059	0.0017	-0.0035	-0.0060	0.0033	-0.0005
	(0.0124)	(0.0063)	(0.0045)	(0.0049)	(0.0050)	(0.0107)
GE	0.0438	0.0784	-0.1332	-0.1343**	0.2444*	-0.1518
	(0.0634)	(0.1179)	(0.0869)	(0.0617)	(0.0968)	(0.1984)
GRW	-0.0689***	-0.1034***	-0.1551***	-0.0735***	-0.1032***	-0.2289***
	(0.0267)	(0.0100)	(0.0420)	(0.0177)	(0.0104)	(0.0157)
INF	-0.0043	0.0326***	0.0028	-0.0055	0.0368***	-0.0041
	(0.0035)	(0.0096)	(0.0059)	(0.0044)	(0.0094)	(0.0186)
LQD	-0.0324***	0.0213**	-0.0207**	-0.0565***	0.0227**	-0.0246**
	(0.0201)	(0.0093)	(0.0081)	(0.0099)	(0.0089)	(0.0118)
RL	0.1114	-0.3212*	0.4282*	0.4183**	-0.5021**	0.2075
	(0.1333)	(0.1809)	(0.2398)	(0.1913)	(0.2045)	(0.4082)
RQ	-0.0284	0.1026	-0.0244	-0.1274	0.0025	0.0283
	(0.1380)	(0.1484)	(0.1527)	(0.2392)	(0.1661)	(0.2482)
SZ	0.0320***	0.0390***	0.0636***	0.0362***	0.0403***	0.0805***
	(0.0037)	(0.0033)	(0.0114)	(0.0030)	(0.0033)	(0.0044)
TAN	0.2983***	0.2879***	0.0565	0.1680**	0.2565***	0.3075***
	(0.0838)	(0.0706)	(0.2640)	(0.0663)	(0.0705)	(0.1112)
J-statistic	21.21921	21.92811	19.1285	24.1779	17.15827	18.7510
Prob(J-stat)	0.268498	0.344424	0.3212	0.189415	0.443694	0.3430
AR(1)	0.1024	0.0134	0.0902	0.097	0.0167	0.0903
AR(2)	0.6034	0.4523	0.6838	0.72	0.4588	0.6635

Note: This table presents panel regression of listed non-financial firms in selected frontier markets from years 2010 to 2017 with Profitability as dummy variable (DPROF). CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities/total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included

Appendix D **Table 13. Frontier markets robustness regression results**

	Stock market			Banking sector		
Variable	**STDR**	**LTDR**	**TDR**	**STDR**	**LTDR**	**TDR**
Y_{it-1}	0.1605***	0.2448***	0.4273***	0.1604***	0.2925***	0.4000***
	(0.0343)	(0.0355)	(0.0412)	(0.0318)	(0.0327)	(0.0403)
TR / CPS	0.3604***	-0.1304	0.5796***	1.7001***	-0.5074	0.9015***
	(0.0708)	(0.0884)	(0.0768)	(0.3617)	(0.4383)	(0.3221)
CPT	-0.0052	-0.0007	0.0031	-0.0072	0.0012	0.0011
	(0.0044)	(0.0038)	(0.0073)	(0.0049)	(0.0038)	(0.0074)
DPROF	-0.1726	-0.1768	-0.4640	-0.0731	-0.1654	-0.4478
	(0.1514)	(0.1020)	(0.1209)	(0.1434)	(0.0945)	(0.1229)
GDPG	0.0141***	0.0012	0.0301***	0.0332***	-0.0123***	0.0425***
	(0.0050)	(0.0029)	(0.0083)	(0.0056)	(0.0024)	(0.0078)
GE	-0.1038	-0.1809**	-0.1751***	0.1979**	-0.3006***	0.0013
	(0.0943)	(0.0762)	(0.0441)	(0.0817)	(0.0738)	(0.0720)
GRW	-0.0885***	-0.0238	-0.1211***	-0.1017***	-0.0172	-0.1283***
	(0.0211)	(0.0182)	(0.0185)	(0.0213)	(0.0175)	(0.0204)
INF	-0.0134***	-0.0027	0.0034	-0.0063	0.0011	0.0034
	(0.0048)	(0.0062)	(0.0037)	(0.0054)	(0.0074)	(0.0046)
LQD	-0.0042**	0.0008	-0.0038*	-0.0047**	0.0010	-0.0040*
	(0.0019)	(0.0007)	(0.0022)	(0.0019)	(0.0008)	(0.0022)
RL	0.0612	0.0424	-0.1804*	-0.3348**	0.4318**	-0.2956***
	(0.1302)	(0.1525)	(0.1075)	(0.1424)	(0.2142)	(0.1118)
RQ	-1.3008***	0.7020***	0.1114	-1.6189***	0.9010***	-0.2023
	(0.2115)	(0.1468)	(0.2236)	(0.1967)	(0.1302)	(0.2251)
SZ	0.0100*	-0.0044	-0.0008	0.0136**	-0.0036	0.0001
	(0.0059)	(0.0049)	(0.0053)	(0.0058)	(0.0045)	(0.0059)
TAN	-0.0233	0.0715	0.0550	0.0223	0.0891	0.0530
	(0.0796)	(0.0644)	(0.0776)	(0.0729)	(0.0687)	(0.0763)
J-statistic	23.2650	23.6178	18.5586	23.4998	28.8954	19.3974
Prob(J-stat)	0.1806	0.1680	0.3544	0.1721	0.0997	0.3677
AR(1)	0.0283	0.0613	0.0298	0.0214	0.051	0.0199
AR(2)	0.4045	0.7999	0.2592	0.2308	0.8373	0.2852

Note: This table presents panel regression of listed non-financial firms in selected frontier markets from years 2010 to 2017 with Profitability as dummy variable (DPROF). CPS: Developments in Banking sector= ratio of domestic credit to private sector by commercial banks/GDP, CPT: corporate tax = ratio of paid taxes/total taxable income, GDPG: gross domestic product growth= annual % growth rate of GDP, GE: effectiveness of government taking values between -2.5 and 2.5, GRW: growth opportunity= change in total assets, INF: inflation rate= annual rate of change in consumer price index, LQD: liquidity= current assets to current liabilities, LTDR: ratio of long-term debt= non-current liabilities to total assets, RL: rule of law taking values between -2.5 and 2.5, RQ: regulation quality taking values between -2.5 and 2.5, STDR: ratio of short-term debt= current liabilities/total assets, SZ: firm size= natural log of sales, TAN: asset tangibility= tangible fixed assets to total assets, TDR: total debt ratio= total liabilities to total assets , TR: stock market development= ratio of stock market turnover ratio, PROF: profitability= earnings before tax to total assets. *** is significance level at 1%, ** significance level at 5% and * significance level at 10%, Hansen and Arellano-Bond tests statistics are also included