Middlesex University Business School London

The Effect of Corporate Bonds Spread Variability on Non-Financial Firms' Financing Structure: Further Evidence from Emerging Markets

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EXECUTIVE SUMMARY

Understanding the main factors affecting emerging markets economic and financial resilience is of great importance for the global economy stability, financial integration, social development and poverty reduction. In addition, it contributes to a cross-country examination of developmental levels and investment opportunities among markets. A better grip of these factors also permits to highlighting the developmental gap between advanced markets and emerging or developing countries.

We begin the research by assessing two economic models the market-based and bank-based models and their contribution to financial stability and economic development. Two different schools of thoughts emerge from the extended literature providing evidences on the key attributes of the two subscripts. In this respect, the literature still has no clear stand on which of the model contribute the most to economic and financial growth. Nevertheless, the neoclassical economy contends that the bank-based model provides better results for economic development and financial growth (Bong-Soo 2012). The defenders of the market-based model evidenced that, the model provide better economic growth through innovation and better risk assessments.

Secondly, we investigate economic growth and financial markets in emerging economies. In this respect, there is insightful evidence on this relationship since the groundwork of (Goldsmith 1969; McKinnon 1973; Shaw 1973). The recent increase of interest on the link between economic development and financial stability derived from the perceptions and techniques of endogenous growth models, which demonstrate that there can be a self-sustaining growth without exogenous technical progress; this growth is related to preferences, technology, income distribution and institutional arrangements (Pagano 1993).

In this respect, the relationship between financial systems and a country economic growth is not characterized on the contraction of different economic models, particularly on the existence of the two most popular models. Rather, the debate should be extended in examining factors enhancing these two subscripts and their contributions to financial, economic growth and social benefits. Based on the above arguments, the fundamental idea of capital markets development in supports to economic and financial growth initially seen as a perfect means for political and social stability for underdeveloped economies particularly for those with weaker institutional settings, low growth and feebler investors' protection was well thought. Thus, this is yet to deliver the expected outcome for most emerging economies.

Emerging economies have become an integrated part of global markets. Considering the progress operated over the last decades, the size of emerging economies debts has grown faster than developed economies over the last couple of decades due to profitable investments. However, the size of the domestic bonds market and the growth for emerging economies remains very insignificant. Thus, the essential of most financial transactions remain undertaken in many cases by the banking sector, while markets for capital remain unsatisfactorily underdeveloped. In addition to the great presence of banks, there is a large contribution of the state on financial decisions, which undermine the development of free markets and growth opportunities of these economies. Nevertheless, economics and financial studies have promoted in various occasions the benefits linking bond markets efficiency and a country economic growth. In their seminal paper, Smaoui et al. (2017) provide an extended list of bond market development determinants in emerging economies. Ayala, Nedeljkovic and Saborowski (2017) investigate corporate bond boom in emerging economies and

demonstrates that capital markets development contributes to economic development and financial stability. The fundamental issues with capital markets in emerging economies relates to the interest rate paid by emerging economies non-financial firms. This generally comes under the risk premium. The differential between the risk-free rate of government bonds and the price paid by firms is the so-called credit spread.

The high credit spread on emerging economies asset classes has been subject to important debate over the last decades. Emerging economies business cycles are highly correlated with borrowing costs faced by firms in international financial markets (Uribe and Yue 2006). Nevertheless, the economic theory proposes that in an efficient market, similar forms of financing are formulated to reflect the law of a single price accustomed to risk, transaction costs and embedded options (Angbazo, Mei and Saunders 1998). In accordance to this, current interest rate should reflect the risk undertaken by lenders of risky projects, regardless of the loans seeker country of origin and their economic model. Based on the importance of this topic, it is curious to observe that not many studies have investigated this issue using data from emerging markets. Thus, most of the literature developed on credits risk studies focus on the impact of credit spread on economic performance and the firm's growth using data from developed markets. These studies demonstrate a negative correlation between high credits spreads, firms' profitability, economic and financial growth. The contribution of the literature for emerging and developing economies on this specific issue remains worryingly very insignificant.

The findings suggest that emerging and developing markets should involve more on financial policy, institutional, regulatory change as well as better resources allocation favouring the construction of sounds financial markets for economic growth. In addition, emerging economies must also establish a strong and reliable banking sector to supports financial markets development to guaranty steady economic growth provision to the overall economy. Particularly, these mechanisms should be developing to support the private sector non-financial firms since these are the central nerf of every market.

Based on the above, we suggest investigating the role of financial and economic development on financing decisions for non-financial firms in emerging economies in the context of market and bank-based financial models.

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BLEV	Book Leverage
CDS	Credit Default Swap
CRP	Country Risk Premium
CSF	Country Specific Factors
CPI	Consumer Price Index
DD	Distance to Default
EBIT	Earnings Before Interests and Tax
EMs	Emerging Markets
EMBI	Emerging Market Bond Index
EMC	Emerging Market Companies
EMEA	Europe Middle-East Africa
FE	Fixed Effect
FSF	Firms Specific Factors
GDP	Gross Domestic Product
GMM	Generalized Methods of Moments
HIC	High Income Country
IFS	International Institute of Finance
KMV	Kealhofer, McQuown and Vasicek
LATAM	Latin American
LEV	Leverage
LIC	Lower Income Country
LHDI	Low Human Development Index
MIC	Middle Income Country
MLEV	Market Leverage
MM	Modigliani and Miller
MSF	Macroeconomic specific factors
MNCs	Multi-National Companies
NFCs	Non-Financial Companies
PD	Probability of Default
PPP	Purchasing Power Parity
POT	Pecking Order Theory
PROF	Profitability
OLS	Ordinary Least Square
RE	Random Effect
RBDSPRD	Rating Based Default Spread
SPRD	Spread
TANG	Tangibility
TTD	Total Debt

1.1 Introduction

This introductory chapter provides an overall framework of the thesis and discusses several interrelated key issues affecting emerging markets economic and financial performances. Examining these areas should contribute to a greater assessment of various factors constraining economic growth and financial stability in less developed markets. In addition, the process should enhance the overall understanding of the economic landscape for healthier decisions making and the formulation of necessary proposals remediating the chronic under-developmental question faced by many emerging and developing economies in the course of the 21st century.

The global economy has changed beyond expectations over the last couples of decades, particularly for emerging economies financial and technological structure. These changes have brought about a new whole structure of trade engagement between the developed and the developing world. These important transformations have occurred with major swifts towards the economic and financial structure of several countries impacting all areas of economies. At the same time, financing opportunities have been re-evaluated with new sources of financing developed to facilitate funds accessibility to private and non-financial companies, particularly to small and medium firms. Thus, a series of broad-based negative shocks due to economic crises have adverted the global markets positive economic trend, forcing firms to search for new sources of funds locally and internationally.

The recent global financial crisis of 2008-2009, the 2010-2012 European sovereign debt crises and the global commodity price realignments of 2014-2016 and the lasting

economic and financial instability encountered by a significant number of emerging economies contributed to the downsizing of the global economic and financial climate trends with severe consequences on the overall economic structure. As these economic downturns strengthened, the global economy has shown some power, proposing greater scope to direct new economic policies to tackle long-terms and short-terms issues constraining emerging markets hereafter (EMs) development. Thus, important debates have been engaged on the real importance of the economic structure for financial growth and economic development; with emphasis on the market-based and bank-based financial models. Inferences from discussions have taken diverse directions, with both models being supported to produce better economic growth. The only certainty at this stage of the market and bank-based model debate is, the two models have failed to deliver the expected results during the critical economic periods for most emerging economies. We evaluate this crucial issue of financial systems and economic growth for emerging economies in chapter 2.

The second aspect to be investigated relates to emerging economies financing mechanisms. Particularly, the focus for this topic is on the current state of the bond markets development and the spreads between the risk-free[1] rate and the price of a corporate bond regardless of the country's economic model. In this regard, many studies have targeted this area of research for decades aiming to clarify the link between bonds price and financing patterns in emerging markets. Most research in this area have been confronted with important barriers, ranging from the absence of solid data, and deep level of capital markets underdevelopment. Nevertheless, studies of this nature remain clearly inconclusive and this should lead to further researches to better emerging economies bond pricing and financing decisions. This aspect is developed in chapter three.

[1] Risk-free rate denotes to the yield on high-quality sovereign stocks. It is usually called the risk-free interest rate since the risk is almost equal to zero. The risk-free benchmark, for most investors, is the US Treasury yield – other assets are measured in contrast to it. When an investment is risk-free, it means that the actual return that an investor obtains equals the expected return.

In chapter four, we investigate the corporate credit spread puzzle. Specifically, we intend to investigate different factors affecting non-financial firms credit spreads level and the impact on future financing decisions in the spirit of past empirical studies. In addition, we are also interested in the transmission mechanisms of the spreads from one sector to the others. The literature on credit risk management over the years has attempted to demonstrate that, there is a correlation between the cost of financing and non-financial firm's economic performances. In this respect, the credit spreads factors highly influence financial management attitude when undertaking financing decisions. In periods of financial distress, a company manager will rather avoid taking costly external loans and use internal capital to limits extra financial burden from high interest rates. In periods of financial boom, managers will benefit from external financing due to fewer costs in borrowing from capital markets. The data for the research originated from various sources and formed a unique database with a maximum number of countries from developed and developing economies.

Chapter five relates to the cost of borrowing and financing options for non-financial firms operating in developing economies. We are particularly interested in examining the relationship between financing decisions for non-financial firms and the level of credit spreads. This allows the researchers and decisions makers to evaluate potential solutions in order to tackle deep economic issues, particularly for non-financial firms in emerging and developing economies with limited financing possibilities.

There is a general argument that emerging economies assets are of high risk for domestic and international investors. Consequently, investors tend to apply high interest rate on credits in order to compensate the risk taken. There has been an increase of interest in emerging economies assets and investments opportunities since the 2007-2008 economic and financial disaster. Studies have been proposed investigating the risk levels and financing decisions in emerging markets over the last decade. Relatively, a small number of these studies have examined the effect of credit spread variability on companies

financing decisions using data collected from developed economies, and generally these studies used sovereign debt data in order to derive inferences on emerging economies. Thus, limited evidence is given theoretically and empirically inspecting the cost of borrowing in the context of non-financial firms in emerging economies. Nevertheless, progresses have been completed over the last decades to attempt to lessen the gap in literature with researchers demonstrating considerable interest on emerging economies asset classes.

In this regard, a large section of early studies assessed the factors affecting firm's financing decisions in countries with limited development based on proxies and not the data collected purposely on the determinants of the credit spreads. The issue with this approach is that proxies do not entirely capture several emerging economies characteristics. The other matter of disagreement in the literature relate the importance of the topic and the quantity of studies developed over the last couple of decades. A large section of studies relating emerging economies and financing decisions for non-financial firms provided evidence based on data from a single economy or a specific industry. In this respect, several theories have subsequently derived from the ground-work of (Modigliani and Miller, 1958; 1963) hereafter (MM) hypotheses on the irrelevance of capital structure under some specific conditions which we examine in chapter five.
In chapter six, we provide a summary of different chapters of the thesis and proposes direction for further research on emerging markets economic growth and financial stability.

1.1.1 Theoretical aspect of financing decisions

The importance of firms financing decisions has been discussed intensively over decades. The modern days of the capital structure in proper terms begin with the seminal works of Modigliani and Miller (1958; 1963) on the irrelevance theory of companies financing options. Their hypotheses suggest that under perfect market conditions including absence

of taxes, no transaction costs and asymmetry information[2], the firms' value remains unchanged. This implies that a firm's debt level cannot define its ability to access further funds since the real value of the firm remains unaffected. Thus, although various inferences have been drawn from the fundamental, the consensus around this demonstrates that these assumptions have contributed to better the understanding of non-financial firm's capital structure. In this regards, the important aspect of financing not included on the MM relate to the differences observed in the modern global financing patterns between markets and specifically between developed and developing economies. This is characterised by these markets specifities, for instance some countries have easy access to development and others do not. To illustrate this argument, one could compare the GDP growth of China the last ten years with the GDP of countries syuch as Kenya, Chad, Mali and Venezuela for instance although these countries were at a similar economic development in the early sixties and seventies. Nevertheless, most of the observed differences operate between emerging markets economic growth and financing accessibility. For example, it is claimed that some firms have a target debt ratio and some other companies instead issue debt or equity with a specific target in mind (Graham and Harvey 2001).

Financial decisions and growth opportunities play a crucial role for emerging economies in the area of economic development and firms' growth (Christopoulos and Tsionas 2004). Nonetheless, studies in this area have been confronted with important problems on a cross-countries examination for decades due to the absence of consistent data. In addition, the lack of interests in emerging economies asset classes performance has also

[2] Asymmetric information generally refers just as the term suggests, unequal, disproportionate, or lopsided information. It is classically used in situation to some category of business arrangements or financial planning where one party is possessing far more reliable and more detailed, information than the other party in the first instance. The fundamental issue with the notion of asymmetric information starts before any transaction begins with the intention to secure a much better deal than due.

been an important factor. Primary studies examining this relationship focuses on the main determinants affecting companies' financing options based on data gathered from developed markets such as USA, UK, Germany and France. Relatively less work has been proposed examining the factors constraining emerging economies non-financial firms, although important progress have been observed over the last couple of years but these remains very insignificant (Oztekin and Flannery 2012).

The literature, in this regard, suggests that firms' financing options change over time based on a country macroeconomics determinants variability and, the other factors relate to the surrounding economic environment within which the company operate. Bernanke and Gertler (1989) argument on this specific point state that the cumulative equity issue changes procyclically while the aggregate debt changes countercyclically for the users of financial markets. These changes fluctuate based on the degree of capital markets accessibility, the macroeconomic factors variations, the country financial structure and the firm financial health. Meanwhile, financially constraint companies avoid displaying their advanced counter-cyclical burden patterns. Furthermore, the abnormal variations of the equity price force companies to issue new equity or fill for bankruptcy (Korajczyk et al. 1990). These types of argument indicate that firms' specific factors and country macroeconomic conditions are the primary drivers of firms financing options.

Consistent with this argument, one can assume that firms operating in developed economies face fewer difficulties to access financing options because these markets are more advanced and there are a variety of financial instruments used by firms. In addition, the ratio of firms failing to their debt obligations is relatively negligible in structure and stable markets than in less-developed economies. While, emerging economies (EEs) firms' face important inequal treatments from local and international financial intermediaries in their attempt to secure further cash. Nevertheless, the most significant progress achieved in emerging markets macroeconomic since the beginning of the twenty-first century is the ability for non-financial firms to access foreign debt following

their integration to the global financial market. It is expected that emerging markets firms regardless of their industry with the economic potential will face less pressure in securing funds from foreign institutions in a similar disposition to developed economies companies. Theoretically this is certainly the truth, but in practice, emerging economies situation is far worst as a large number are generally unable to access loans from conventional financial institutions. However, the scale of the macroeconomic deterioration and the market's overall volatility conditions particularly in less advanced countries became deep during and in the aftermath of the recent recession, weakening the favorable global financing climate trends of the early. Because of these changes, emerging economies multi-national companies (MNCs), medium and small size firms became heavily affected to the extent that regardless of the size or the economic structure these firms could barely service debt obligations based on the contractual terms. This type of downfall on liquidity access due to economic activity reduction certainly contributed to policy change and the restructuration of several markets observed in most emerging and developing economies during the late 1990s and 2000s.

The most positive aspect deriving from the recent financial distress has been its contribution to a better understanding of financial risk factors and the effects on businesses in a short- and long-term timeline. In addition, the crisis also demonstrated the limits of the current credit risk forecasting techniques, for instance despite the signs given, the models failed to predict with a high degree of accuracy the 2008-2009 economic slump and the potential devastating effects on the global markets. Thus, the most crucial aspect of the financial and economic crisis is the impact developed on different emerging economies assets classes, which there is a belief that the value has dropped; among these are the behaviour for the bond market and the reduction of liquidity access for non-financial companies.

The bonds market has served developed economies in maintaining financial stability and economic growth for decades according to the extent of the literature. Thus, the

implementation and the assimilation of this type of financial mechanisms to finance firms' activities is in its infancy stage for many emerging and developing economies. Furthermore, it is claimed that countries with technological deficiencies still have not incorporated these financing mechanisms in their systems. Nevertheless, there is a modest consensus on the key role of bond markets development in sustaining both financial and economic growth in emerging economies. The question of whether the bond market is of a benefit for private non-financial firms remains particularly difficult at this stage due to various obstacles encountered by emerging economies non-financial firms in accessing capitals through financial markets. Factors including high-interest rate, unfavourable macroeconomic conditions, lack of infrastructures, unstable political regimes and the legal system underdevelopment lead the list of factors restricting financial markets growth in unindustrialized world. This suggests that several attributes must be met by several emerging markets to develop an environment favorable to growth, build sound, stable financial markets in support to local and regional businesses.

Theoretical and empirical papers on economic and financial growth have stressed over the years the benefits emerging economies could capitalize on if sounds and stable financial markets were developed domestically. Thus, for instance, domestic stable capital markets reduce transactions and intermediaries' costs and ease banks excessive monopoly which lasted for decades. Research has been intensive on the key element inhibiting the bond market development in emerging economies. Early bond market growth studies include the seminal work of (Edwards 1984; Sachs et al. 1996; Eichengreen and Mody 2000); Collin-Dufresne, P., Goldstein, Robert and Spencer (2001). A large section of empirical and theoretical studies derived from the seminal work of Grandes (2005); Garcia and Ortiz (2007); Andritzky, Banister and Tamirisa (2005). In their respective seminal studies on corporate bonds, Siklos (2011) and Houcem et al. (2017) provide extensive inferences on the role of the financial structure on the economy. For instance, Siklos (2011) investigated markets yields using domestic, external

determinants and volatility spillovers. Houcem, Grandes and Akindele (2017) use data from emerging and developing economies to determine the factors affecting bond markets growth. Their conclusions are consistent with other empirical studies.

In theory, emerging economies private and public firms were given the approval from international finance bodies to contribute to the global market considering their strategic position to the domestic and international markets. Thus, in practice, these countries firms regardless of the size and the industry remain limited on the ability to issue paper bonds at domestic and international levels giving them access to funds to finance structural projects. The main aspect one should considered when examining EMs economic trend and financial stability is the relationship between capital markets and the banking industry and their action or their co-action to the national income growth. In theory, these two specific fields are supposed to provide financial services to firms seeking funds for investment purpose. Thus, the distinguishing role between capital markets and the banking sector is, the former's ability to develop and sustain sound bond markets supporting economic and financial growth through various mechanisms. Whereas, the latter uses different approach to provide economic growth. However, the emerging markets bond expansion has been restricted with a very narrow growth over the last decade forcing firms to enter unprofitable contracts and restraining their financial expansion.

This aspect finds its roots from the level of underdevelopment of domestic capital markets and the risk embedded on emerging economies debts. Nevertheless, the overall bond market growth remains an area of concern for emerging markets policies makers and investors and, this issue must be addressed to analyzed and better understanding of the emerging economies integration to the global market and the related benefits. In this respect, the most worrying aspect concerns the dissimilarities between the sovereign and the corporate bond to the real risk observed in markets (Collin-Dufresne, Goldstein and Martin 2001). Several papers address the economic prospect and the credit risk puzzle

seem to have disregarded this relationship and the effect of a large credit spreads on non-financial companies in emerging markets. Chapter five attempts to address this important issue.

Financial decisions are central to all firms regardless of their size, industry and whether they are public or private. In this respect, emerging economies firms seeking additional sources of liquidity have been forced to borrow funds at high interest rates from capital markets and banks. The main justifications for high interest rate is on the basis that emerging and developing economies represent a high risk of default due to the high volatility of their economies. The spread generally represents the difference between the corporate bond interest rate and the benchmark of the sovereign bond price with similar maturity but different grades. The spread has several functions in an economy, and is used at different levels by several players, from investors to policies and decisions makers. In the investor's perspective, the spread helps to identify the firm's liquidity situation, financial and economic performances, default patterns and evaluate a firm's financial soundness. Policies makers are concerned with the spread data since this provides an overview of a country economic performance relevant to determine investments degrees and variances between the public and the private sectors growth. Governments and private agencies make use of spreads data to derive fiscal policies readjustment and research purposes.

While the credit spreads on bond papers has been identified as an important indicator for firm's financial performance and the evolution of financing decisions and economic growth, the credit risk denotes the probability of default of a company. Theoretical studies on credit risk developed over decades derived from seminal works of Black and Scholes (1973); Merton (1974), these models, subsequently developed to forecast default probabilities have failed to deliver the expected results, at least before the two recent global economic slums. These models generally fall into two specific categories, the

structural and the reduced forms models[3]. The fundamental of structural models is to illustrate clearly the connection between the asset value and the default frontier. The default point becomes active when the company's asset rate falls under a certain threshold relating its accountability. The reduced form models developed by Jarrow and Turnbull (1995) and Unal, Madan and Güntay (2003) considers default as an exogenous proceeding and models their occurrence using the Poisson distribution process. Thus, the models have contributed to enhancing a better understanding of firms' behaviour towards risk despite the failure to accurately forecast defaults. Several models such as the Credit Metrics and credit metrics plus and the KMV[4] (Kealhofer, McQuown and Vasicek) risk models are typical examples of proposed to forecasting techniques to assess the default frontier.

1.2 Background and rationale of the study

The world of finance has undergone important changes over the last decades and perhaps further changes are expected in a near future. These changes have contributed to the economic, financial and social variations observed in most emerging markets over several

[3]At a broad level a structural economic model is characterized by the approach decisions made are fully incorporated in the specification of the model. By identifying the 'deep' factors that define the preferences and limitations of the decision-making procedure, structural models convey counterfactual estimates. The models are single-period models which descend from the probability of default from the random variation in the unobservable worth of the firm's assets. The reduced models lie on the notion that the credit affair occurs by "unexpectedly", i.e., at a completely distant time and entails in the modeling of the restricted law of this arbitrary period. The elementary notion of the model is to consider defaults as exogenous events and to model their occurrences by using Poisson processes and their options.

[4] The KMV approach follows the same logic as the structural way to a point, i.e., the firm defaults when the value of assets falls below a certain level. But as a product, it comes up with the expected default frequency (EDF) (i.e. the expected probability of default).
Much of the workings of the KMV approach are proprietary and available only to KMV customers, and we need to focus on a conceptual understanding of the approach. A key idea underlying the KMV approach is the identification that a firm does not have to default the moment its asset value goes under the face value of debt. In fact, the default occurs when the value of the firm's assets falls somewhere between the short-term debt value and the total debt value. In other words, it is possible for a firm not to default to their debt obligation even when the assets value has dropped to less than the total debt. This is natural because it is generally the current cash needs (driven by short term debt) that cause default – the firm may have enough cash to keep paying all liabilities as they come due even though the total liabilities may be greater than the total assets. KMV sets the default point as somewhere between short term debt (STD) and the total debt as the total of the short-term debt and half the value of the long-term debt.

decades. For a better understanding of emerging economies current financial and economic growth trend, one should revisit these markets key economic dates at least the most recent ones and analyzed their evolution over the last two decades.

The eruption of the global oil crisis in the late 1970s, the Mexican peso crisis, the Russian and the East Asian financial crises in the early 1980s and 1990s, and the global financial crisis 2007-2008 have been the central motive behind the economic and financial models swift for several emerging markets. A point in history relates that, in the late 1980s and the early 1990s, a considerable number of emerging and developing countries stepped onto the global market with great expectations of economic, financial growth and debts resolution. Several decades following the adoption of the globalization philosophy, many emerging and developing economies remain economically and financially stranded, with very little growth. In addition, emerging economies in their majority still have not benefited from the financial markets either at the domestic or international level.

The predominance of studies on economic and financial development mainly focuses on the analysis of some general characteristics including among others, but not limited to, the macroeconomic, political and social context of the countries. The debate has primarily concentrated on which of the proposed financial systems provide better performance for economic and financial development. This important puzzle has been subject to intensive investigations as demonstrated by the extent of the existing literature. The key question on the debate is to understand the individual contributions for each of the model to support access to finance for non-financial firms in developing economies. The essential of the debate this far has revolved around two main objectives, first, improving economic growth. Second, developing and establishing sound domestic capital markets to support the underdeveloped markets growth.

Several theoretical and empirical studies emphasize that one way to limit disastrous effects of a global financial calamity is through the implementation and the sustainability

of domestic financial market to support the current financing mechanism in place. In other words, firms should be able to diversify their sources of financing using different channels. However, such advancement should be embedded directly to the current country financial and economic system growth. The literature on financial systems and economic growth is been advanced based on two different economic concepts the market-based and the bank-based financial model.

The first group advocate that bank-based financial models performs better economic and financial through savings mobilization, high profitable investments and effective corporate control at the early stage of development in a weak institutional context. The second group backing the market-based models emphasize the benefits of sounds financial markets for capital provision which include, risk management tools establishment, reduction of issues related to powerful banks (Moradi, Mirzaeenejad and Geraeenejad 2016). Despite the vast theoretical insight provided over last two decades to reflect this schism, policymakers and many market participants are still struggling with the relative importance of financial structure as vectors of wealth creation, social and economic growth in emerging economies (Bong-Soo 2012).

Several key aspects as suggested in the literature point out important dissimilarities in economic and financial development stemming from the two most popular financial models. Considering these dissimilarities, there is still an ongoing issue on the real economic qualities of bank-based versus market-based financial structure. Furthermore, a stable and well-functioning financial system should contributes to economic and financial growth which is achievable through the expansion of stable domestic capital markets, the implementation and the enforcement of statutory laws. These aspects should be developed as benchmarks to enhance the economic and financial prospect across emerging economies to reduce the gap between developing and developed markets and for these economies to move beyond their current transitional phase to achieve high growth.

However, Levine (2002) contends that examining financial models and economic growth through the lens of market-based and bank-based alone is not a good approach since this does not provide the full picture of the overall situation. The study demonstrates that countries financial structure cannot account as a good predictor for economic growth in a cross-country framework with a high level of accuracy. Following the same line of argument, Bong-Soo (2012) argues that an attempt to distinguish countries economic development through the financial structure is not helpful in explaining cross-countries differences. Furthermore, the most recent literature published before 2007 shows no preference for the two main proposed financial models. These studies conclude that both financial markets and banks play a vital intermediary function in economic and financial development and therefore must be supported to improve markets access conditions (see Levine and Zervos 1998; Demirgüç-Kunt and Levine 2002; Beck and Levine 2002; Demirgüç-Kunt and Maksimovic 2002) contribution concludes that markets and banks are equally important on the provision of better services for economic and financial growth.

Boyd and Smith (1998); Beck, Demirguc-Kunt and Levine (2004) demonstrate the financial structure inefficiency to boost growth and they provide evidence on the key aspects and the respective impact of each of the model. Studies developed after the 2007-2009 financial and economic downturns have generally been supportive of the market-based financial models' type. These studies demonstrate that financial downturns contributed to the downfall of many financial institutions and non-financial firms globally. The collapse of these large firms was due to the reckless mainstream bank's sector attitude towards borrowers (Gambacorta et al. 2014).

Langfield and Pagano (2016) show using the housing market that the economic and financial crisis had fewer effects on market-based economies than in bank-based ones. Nevertheless, key aspects of the market-based models are the development and the enforcement of statutory policies to set guidelines on the approach financial institutions

should deal with borrowing and lending transactions, this will be treated throughout the thesis.

Based on these facts, one could conclude that countries with strong institutional settings, sound legal system, fair governance and stable economies should present steady and stable financial markets serving the prospect of the overall economy. Thus, admittedly, most emerging economies have underdeveloped characteristics to foster economic growth which include, underdeveloped legal systems, lack of sound financial structure and shallow financial statutory in addition to weak economic growths to boost local capital markets.

The importance of bond market development to support economic growth and financial sustainability has extensively been studied in the context of developed economies. The emerging economies bond market development on the other hand remains a crucial issue for policymakers, financial authorities and industry professionals locally and internationally due to economic and financial variability. Furthermore, cross sectional bond markets growth studies examining emerging economies have faced a lasting lack of consistent data. In addition, many have point out emerging economies threats to the global financial stability due to emerging economies assets class volatility. This last argument has been rebuked in a considerable number of recent studies with the assertion that although emerging economies asset classes possess important degree of uncertainty; these are largely profitable investments for investors who are not risk averse. However, recent studies demonstrate that over the last couple of years, the use of bond as a financing option for emerging and developing economies has more than tripled despite the unfavourable macroeconomic conditions and the risk on these asset classes.

Although the above assertions seem to demonstrate an interest on financial markets by several emerging economies firms, it remains that these statistics are insignificant and mislead on emerging economies capital markets financing. According to the International

Institute of Finance, the global debt has grown by over 12% (or $27 trillion) since 2016, reaching $244 trillion (318% of GDP) in Q3 2018. The corporate sector accounted for over a third of the rise, putting debt/GDP at a record high of 92% of GDP. Household debt in emerging markets topped $12 trillion in Q3, up from $9.3 trillion in 2016 (International Institute of Finance 2019).

According to the Moody reports, the rate of firms failing to their financial obligations has significantly jumped from 3.7 per a record high of 31 per cent of all issuers between 2001 and 2002. This represents a differential increase of at least 27.3 per cent within one year. Nevertheless, access to finance through capital markets have changed dramatically over the years, with a few financial intermediaries particularly banks and financial markets tightening loans access conditions.

The most recent financial and economic crisis has positively contributed to a better understanding of credit spreads behaviour and the effect on markets for loans. The crisis has also increased the necessity to develop mechanisms for better risk assessment. In addition, the financial and economic crisis has demonstrated the limits of our understanding of financial risk assessment in developing and emerging economies as mentioned earlier. Two important observations deriving from the recent financial crisis are, first, investors risk appetite has increased exponentially with more and more investors willing to invest into risky project provided these generate enough returns. In addition to the risk appetite, there has been a long-standing high interest rate converted to high credit spread observed on financial transactions between emerging economies non-financial firms and the sovereign debt.

Sundaresan (2000) provides an extensive literature survey on the determinants of credit spread. Tsuji (2003) argued that the spreads factors resulted by theoretical credit risk models bound only to the dissimilarity in credit quality across firms. Likewise, the credit

risk models developed do not clearly indicate the relationship between the dynamic of the economy and the spreads.

Capital structure studies attempt to clarify the mix of securities financing sources used by firms to funds their short-term and long-term operations, and the choice of a specific financing model is generally made based on the company's general financial health. Early financing decisions studies contribution primarily focused on firm's profitability, tangibility, size and growth opportunity, but also on the role of the GDP, inflation, tax, and other countries determinants. These early studies of the capital structure determinants attempt to identify the degree to which the explanatory variables affect leverage decisions for developed markets firms. The first empirical study examining capital structure decisions appeared in the early 1980s (DeAngelo and Masilus 1980; Marsh 1982; Breadly, Jarrell and Han-Kim (1984). Friend and Lang (1988) in their seminal work provide some proofs on the relationship between firm's ownership and capital structure.

The excellent functioning of an economy depends on the financial structure of a market. The financial system includes banks as a central entity along with other financial services providers. The system is deeply entrenched in the society and provides employment to a large population. Financial markets generally defined as the place where medium- and long-term finance is raised for investments purpose. Considering the role in the market economy, financial market occupies an important place, through their explicit mechanisms, succeeding to provide its impact to the economic expansion to the people. In consequence, the public authorities must take note to their significance and ensure the required structure for the standard functioning of its detailed instruments.

The growth of financial institutions in emerging economies therefore primarily objective is to serve economic and financial development. These played an important role on the perception of both financial intermediaries and borrowers' behavior toward financial contracts. Commonly, financial institutions attribute investment grade to firms;

theoretically, highly risky companies will have a low credit rating score which reduces the confidence investors place on organizations seeking for funds. The risk mitigation for investor is certainly one of the important factors of financing decision, investors will require high interest (premium) rate been paid by the borrower in case of financial depression and the firms present is risky. The rate of interest on funds generally comes under the premium which should be paid annually or monthly based on the contractual terms. From the borrower's perspective, particularly for companies with a less powerful economic incidence, high interest rate is a major issue because it reduces the firm ability to expand in the future throuh the re-injection of profits to the new projects.

In contrast to developed economies, studies for emerging markets finance remain scarce due to emerging and developing economies low assets value at their early stage, in addition to lack of interest from academics. Thus, underdeveloped economies literature has had some good momentum since the early 1990s. In this respect (Booth et al. 2001) in their groundwork using data from a set of ten developing economies evidenced that similar components affect firms in both developed and developing markets. Their findings demonstrate that although some of the clarifications from modern theories can be implemented across markets, further investigation is required to understand the role plays by institutional and macroeconomic features. Huang and Song (2006) use a new database collected from 1994-2003 with 1200 Chinese listed firms to evidence their capital structure components. They conclude that firms in China have an upward demand for leverage when examining the firm size and fixed assets, debt becomes smaller with the profitability, non-debt tax shields, growth opportunity, managerial shareholdings and associates with the industries.

Gungoraydinoglu and Oztekin (2011) use data from 37 countries analyze the determinants of capital structure. Their findings suggest that institutional arrangements are important for the determination of leverage, but firms' level covariance drive more than two third of capital structure across countries, while the country level covariance

clarify the residual of one third of the observed variations. In addition, they inferred that country level determinants are used as substitute tools for firms-level, industry-level and macroeconomic data by moderating their marginal effect on leverage.

Theoretically, three main aspects appear relevant to emerging economies economic and financial growth. First, emerging and developing economies should primarily dedicate on building and benchmarking of a strong and stable legal institution to enforce economic decisions in emerging and developing markets. Secondly, a strict and clear determination of the economic model under which the market operates, whether the market-based or the bank-based model. Thirdly, emerging economies should specifically focuses on developing mechanisms to predicts and solve potential financial issues embedded on loans to avoid default. These three pillars are the fundamental reasons for undertaking this research. In this study, we aim to provide some fresh evidence on the relationship between capital markets development, firms' financing decisions and economic growth in the context of emerging and developing economies. We do this by collecting a large dataset for emerging and developing economies over a longer period of more than twenty years.

1.3 Structure of the thesis

There are six chapters in the thesis, these are built as follows; four of the chapters cover three important issues around of economic development and financial development with specific attention to emerging and developing economies. Although these are standalone chapters, the issues covered in those chapters relate to each other in various ways.

Chap 2 emerging economies financial and economic growth: bank-based and market-based financial models.

This chapter sets the discussion on different financial systems (market-based and the bank-based financial models) and economic development for emerging economies. This section provides evidence between two models serving economic and financial growth, the role played by the financial system for an emerging economy. We assess the milestone

of the market-based and bank-based financial models to economic and financial development in the context of emerging and developing economies since the official adoption of these models by many emerging and developing economies over at least the last forty years.

Chapter 3 the determinants of bond market development: The Emerging markets bank-based and market-based perspective.

Chapter 3 provides an extended discussion of the determinants of bond market development in the bank and market-based economies. The aim of this study is to examine the mains factors constraining the growth of the bond market development in the bank based and market based economic system. Particularly, the study evaluates which of the two models has more influence on both economic and financial growth for emerging and developing economies.

Chapter 4 the Determinants of corporate credit spread in emerging economies: evidence from non-financial firms.

Chapter 4 investigates the determinants of credit spread in the bank-based and market-based emerging economies. This chapter specifically investigates the characteristics of factors affecting the credit spreads in emerging economies, with attention to non-financial firms in emerging economies context. The importance of the spreads on underdeveloped economies has been debated extensively. Thus, there is still no clear evidence on the real impact of credit spreads on lending and borrowing for emerging economies.

Chapter 5 is on the effect of credit spreads variability on non-financial firm financing decisions: the case of emerging economies.

This chapter investigates the relationship between credit spread and capital structure for non-financial firms in emerging economies. The chapter attempt to demonstrate the main difficulties faced by emerging economies non-financial firms in accessing funds from capital markets locally and internationally. In this chapter, we aim to demonstrate that high credit spread is unhealthy and highly affect the financing pattern of non-financial firms in emerging economies.

Chapter 6 Conclusions and further directions

This chapter focuses on the main conclusions and further directions. There are numbers of objectives pursued in this thesis; however, we have limited these objectives to a very narrow list allowing us to examine the problem in hand and come if necessary, with sounds inferences.

1.4 Contributions

This thesis contributes to the literature on economic and financial development, financial integration and financing decisions for non-financial companies operating in emerging economies using a much recent and larger dataset in various ways.

The first major contribution focuses on the provision of fresh evidence on financing pattern and economic development for emerging economies. In this regards, previous empirical studies delving on emerging markets financial, economic development and financial decisions for emerging economies are usually limited to a portion of the country. In addition, most of the early literature provides evidence based on a single market or a single industry. This in practice provides a very generic appreciation of the credit spread effects on financing and choices. In addition, fewer numbers of studies are developed in cross-country examination of the financial development and how these benefits economic growth in emerging and developing markets in general and firms operating in the non-financial sector.

The second major contribution of this study to the current literature focused on the development of econometric models for measuring the effect of the independent variables on the dependent variables. Based on our hypotheses, we use data collected from local currency data and uses different econometric techniques to approach data analysis in a specific way.

The third important contribution of this thesis is the provision of fresh evidence on the relationship between financial growth and economic development using a unique dataset from domestic markets. Different to previous attempts where due to data scarcity from emerging economies, several researchers used proxies to provide stringent evidence on less developed economies economic and financial growth.

Emerging economies financial and economic growth: Bank-based and Market-based financial models' contributions

2.1 Introduction

This study investigates the link between financial models, economic growth and their impact on financial development in the context of underdeveloped markets.

The financial structure represents the most important components for economic growth stimulation and financial stability. From the policy point of view, financial systems contribute to the expansion of economic growth through different divers' channels. These channels have been the focal point for policy makers and other social scientists for several decades as economies experience dissimilarities in the growth of their productive capacities and in the change of their living standards. Whilst some markets achieve steady and consistent income growth that offers greater living standards to their citizens, others on the other hand struggle to provide the minimum living standards to their citizens and better their living standards. These outputs growth inequalities have been assessed subsequently in various studies, stirring the research on productivity expansion, and leading to different theoretical and empirical results (Caselli 2005; Hall and Jones 1999). From these discussions, two different schools of thoughts emerged with dissimilar perceptions of how a country can achieve a maximum growth. Theoretically, financial development and economic growth are highly correlated with a country economic and financial outputs, political and social progresses. In the attempt to examine the

components influencing economic growth, several hypotheses have derived; among these is the financial structure (market-based and bank-based) of an economy.

Thus, since the 2007-2009 financial and economic depression with the unprecedented damages on countries' economies, the financial structure topic has been revived to become again a relevant matter to academics, financial practitioners and governments in the attempt to explain why some countries were little affected and others deeply affected, and providing evidences of systematic risk and potential routes for recovery. In this chapter, we aim to provide further fresh evidence on the role of financial models (market-based and bank-based) and the effect on economic development in the context of emerging and developing economies with in mind the following question:

Which of the market-based or bank-based model provide better growth performance for emerging economies?

Should specific economic models be designed to suits emerging economies, considering large differences between developed and developing markets in addition to countries economic and financial specific conditions?

How do in practical terms different financial models have supported economic growth opportunities in emerging and developing markets over the last decade?

The importance of finance and economic growth for an economy is well understood and has been subject to intense investigation in several instances with dissimilar inferences (Levine 1997). Many researches undertaken over the years consider these two aspects to form the backbone of a country economic and financial independence. Furthermore, the two subscripts depending on how these are translated can lead to the developmental path or to a total economic disaster. Therefore, how well it performs is a key component of the standard to which the rest of the economy is driven, as the recent financial crisis clearly shows differences effects between financial structures. Thus, early studies examined the

relationship between economic models and financial performance on the prism of developed economies. The focus has been on limited economies, with an interest on countries such as the US and UK for the market-based system and Germany and Japan for the bank-based model. Thus, although important progress has been observed over the last two decades, our understanding of the correlation between financial markets and economic development in emerging markets remains perhaps very limited due to a serious lack of evidence and consistent data. Nevertheless, financial and economic growth in emerging markets is a fundamental issue to the global financial stability due to greater correlation with income distribution and access to financing mechanisms.

Two strands of thoughts have been developed attempting to clarify the schism between the market-based and bank-based contribution to economic and financial growth. In this respect, the literature builds over decades stresses the importance of financial models and helps to identify differences between economic growths among markets particularly between developed and underdeveloped markets. In this basis, the literature claims that markets-based economies have an edge on bank-based economies, but, several countries operating under the bank-based scheme such as Germany and Japan achieved high economic growth although those countries are rather bank-based economies. This fundamentally demonstrates that attempting to contrast different financial models to evaluate economic growth should consider common markets characteristics. Yet, it is fair to recognize that the causality relation remains an important puzzle that needs to be addressed. Clearly, up to this point, there is still not a definite stance on different levels of relationship between financial and economic development. Despite the extended literature, researchers are still not clear on whether financial development is a vector for economic expansion or the reverse. Thus, as suggested in most subsequent studies, these two concepts are significantly important for emerging and developing economies financial, economic, political and social growth through economic stability.

However, a significant number of studies initially based on the crossectional analyses contributed to a large extent in enhancing the understanding the role of financial models in economic development using data from developed economies. Specifically, past studies in this field primary concern have been to partially examine the dynamic causal connection due to the absence of a rigorous time series analysis. The inferences from both empirical and theoretical studies remain quite sparse. The first studies to claim the existence of a causal relationship between financial development and economic growth is the seminal work by (Schumpeter 1911; 1934). These conclusions were backed by (Gurley and Shaw 1967; McKinnon and Shaw 1973; Beck et al. 2005) among others. Nevertheless, a large examination of the literature demonstrates that several financial models are proposed (for example, some economies are agricultural, or technological[5] based economies) to justify markets economic performances. Though, most of the attention on financial models has concentrated the market-based and bank-based financial models. However, studies of this nature for emerging economies have mostly been limited to two main regions Latin America and East Asia regions.

Studies on financial development and economic growth such as Enisan and Olufisayo (2009), in contrast to early studies examine this relationship using data collected from developing economies. Perhaps, one should be cautious on various conclusions derived from studies on the relationship between financial, economic growth and financial models particularly due to markets size and developmental differences. In addition, legal and social system differences between markets should be relevant when examining cross-countries economic and financial growth.

Thus, one will agree that emerging and developing markets economic and financial structure significantly differs from one country to the next based on the country macroeconomic structure and the income level. Additional factors such as the market

[5] Rwanda for instance is a perfect example of a technological-based developing economy.

financial system should also account in a cross-country difference of the relationship since most emerging and developing economies possesses small securities market size and are at different economic growth levels. The large presence of the banking sector and a high level of local government involvement in economic and financial decisions are important factors for economic and financial growth. In their seminal paper, Demirguc-Kunt and Levine (1999) for instance demonstrate that comparing financial systems and economic growth across various economies can only make sense if there is enough data for both the economic importance and the determinants of financial structure extended to the national experiences for each market under study.

Using a set of macroeconomic data collected from the World Development Indicators group (WDI) for the period 1980-2017 for many economies, we explore various aspects of each of the models by highlighting their attributes and their ability to foster economic growth. Secondly, we provide keys statistics using a new dataset grouped in four main income characteristics including High-income countries, upper-middle income countries, middle-lower income countries and low-income countries collected from the World Bank group. The WDI is a free access database containing several economic indicators readily available for almost any country over longer periods and across regions. We use common indicators across markets, this necessarily implies the omission of several factors available only to a reduced number of countries or are available only for one or a few points in time. In contrast to the empirical work described in Beck, Demirguc-Kunt and Levine (2009), we abstain using some indicators infrequently considered in the literature because of data limitations. Furthermore, some countries do not operate on either the market or the bank-based structure, these are removed from the sample due to the insignificant or missing data points for the period of the study. Finally, we drop some of the indicators which data was not available, or the data is purely for commercial purposes.

The rest of the chapter is organized as follow; section 2 provides an extensive literature review of the market and bank-based studies and the effect on the financial and economic

development. Section 3 provides the description of key statistics and section 4 the conclusion.

2.2 Literature Review

2.2.1 Theoretical considerations

The great recession has revived the debate on an old issue on economic and financial stability for developing economies. The ground-breaking contributions of Goldsmith (1969), McKinnon (1973) and Shaw (1973) provide the basis on the relationship between financial development and economic growth. Subsequently, other researchers have delved into the causality relation between financial structure and economic growth. Particularly, most of the debate on this area has been on whether one cause the others, clearly, researchers have attempt to identify whether, financial structure impact on economic development or the reverse. The focal point of the studies on this causality relation have primarily focused on four majors developed countries with attention to their model of economy (market-based and bank-based).

The relative merits of bank-based versus market-based financial systems debate began over a century ago. In the early 19th century, the argument from German economists that their banks centered financial system supported the growth of the German economy to edge the market-focus economy United Kingdom as an industrialized economy (Goldsmith 1969). In the early 20th century, the inclusion of Japan as an important player bank-based market, and the United States as the quintessential market-based system, this took the debate into a totally different dimension. Indeed, it was claimed that the Japanese bank-based economic model would be greater than the United States and lead the global economy landscape (see; Vogel 1979 and Porter 1992). Similar case of this nature has contrasted two emerging economies China and India with some of the bank-based economies. China and India have over the last couple of years presented economic growth greater than most leading industrialized markets such as the United Kingdom and US.

Although the Japanese economy have slumped following various economic and non-economic catastrophes changing the initial perceptions on the industrialization order with China taking over, policy makers, economists and researchers globally have not restricted their continuous efforts in identifying financial systems effects and the contribution to markets economic and financial expansion (Allen and Gale 1999). Implicit in the bank and market-based debate is the notion of trade-off.

Two different obedience's, corporate finance and development economics, can be used for analytics, providing the foundation for this trade-off view. Many developmental economists contend that investment is the backbone to growth and readily point that a great deal of corporate fund is acquired from banks than from the sales of equity including in the developed economies. A pessimistic evaluation of the role played by both banks and markets in the sustainability of growth is given through this form of arguments. Moreover, it can be noted that markets provide a degree of economic stability with unexpected ramifications on development. Thus, established developmental economics prioritize the banking system and views stock markets as relatively less important - and perhaps dangerous - sideshows. On the other ground, traditional corporate finance theory perceives debt and equity – and through this prism, banks and equity markets – as alternative way of accessing funds (Modigliani and Miller 1958). Development economics and corporate finance, thus, could provide a narrow little optimistic function to markets or consider markets and banks as rival mechanisms of the financial structure.

Based on King and Levine (1993a, 1993b) influential work, a number of empirical studies evidenced that meaningful supports to the belief that financial development has a positive effect on diverse aspects of the true economic action, including venture (Ndikumana 2000; Rajan and Zingales 1998; Demirgüç-Kunt and Maksimovic 1996), employment, productivity, and long-term economic development (Levine, Loayza and Beck 2000; Beck, Levine, Loayza 2000; Levine and Zervos 1998; Levine 1997).

The expansion and deepening of the financial system lead to faster economic growth as the evidence suggests. Without completely reconciling on the causality path, these empirical studies have significantly advanced the understanding of the exogenous constituents of financial development and the implication on economic growth. The tendency of these studies illustrates a greater contribution of financial development on economic growth. Previously, past literature demonstrated that most of the discussion has targeted two economic dimensions, which include the financial system and economic performance through the schism of banks versus stock markets through case studies. The essential of traditional research in this sense has predominantly focus on the comparison between Germany and Japan (bank-based economies) United Kingdom and United States (market-based economies).

The literature on the United Kingdom and the United States have emphasized such unique purpose of stock markets for information gathering and easing takeovers activities, in addition to the impact on a country economic performance. Despite this insightful view, drawing conclusions from these case studies on this specific matter is not trivial; given that most of the countries studied tend to have similar characteristics in a long-term economic performance. On the other hand, studies on Germany and Japan have given an insightful examination on the banking system role in the corporate ownership management and detailed banks firms association in the provision of credit, productivity, resource allocation efficiency and the entire economic performance.

This relationship between financial systems and economic development can be observed in different angles, such as in mobilizing savings, allocating these savings and competing investment projects. In this point, several countries put an accent on expanding the banking sector establishment while others concentrated in implanting and improving their capital markets. The concerning issue is on the approach developing and emerging economies companies decide between debt (provided by banks) and equity (provided by capital markets). A large section of theoretical and empirical evaluations shows important

gaps in both financial structures. Most economies operate under both economic intermediaries (e.g., banks) and markets (e.g., stocks) but how these clearly impact on the economy diverge. Additionally, significant disparities seem to contribute to a greater degree between emerging and industrialized economies (Atkin and Glen 1992; Agarwal and Mohtadi, 2004). Atkin and Glen (1992) stated that, the observed disparities between industrialized and developing economies can be found in the companies of G7 economies whose finances are gathered from domestic financial suppliers; while developing countries companies, raised funds from non-local intermediaries (bank loans and equity). Their study demonstrate that domestic finance has roused between 12 to 58 percent of the overall fund in less advanced markets and between 52 and 100 percent throughout the G7 economies.

This can be interpreted as; both the debt (bank design) and equity (capital market) are equally significant sources of investment funds for developing and emerging economies companies. Furthermore, for illustration purpose, at one extreme, the United Kingdom (UK) operates under the market-based economic models' scheme, where stock markets are highly prized, while on the other side, Japan has bank-based systems where credit allocations are dominated by the banking system. As in the Japanese economic models, Germans' companies used to be subject to the great influence of important banks playing crucial roles in business supervision and governance. These banks have commonly consensual keiretsu[6] to decision-makers. A horizontal keiretsu demonstrates the connection between industries and banks, generally focused on the banking system and operating business. The perception has been that banks were the main decisions makers (Allen and John 1991). Stock markets in the US have been to the forefront of technologies industries growth, granting better grounded information than the banking division.

[6] A keiretsu (Japanese), literally system, series, grouping of enterprises, order of succession) is a set of companies with interlocking business relationships and shareholdings. It is a type of informal business group. The keiretsu maintained dominance over the Japanese economy for the second half of the 20th century, and to a lesser extent, the early 21st century.

Securities market growth relate greatly to long-run financing, while the growth of the banking sector in Japan and Germany connect more with short-terms funds.

In addition, firm investment should be merged with the financial systems theory. From the financial system design point of view, there is a greater implication for corporate governance tools in the U.S, Japan and Germany. This clearly demonstrates that through a better contracts implementation and cost of lending reduction provide positive impact on companies' investments through a well-organized legal system. Empirical studies on the relationship between finance and growth have been dominated by cross-country studies. Even though the findings of these researches give a practical conduct on the finance-growth connection, it seems complicated to observe these results in a more constructive lens for average individuals. The comprehensive outcome entails a causal link that is mainly given by the financial institutions and policies determined by the character and operation pursued in every market (Arestis and Demetriades 1997; Demetriades and Andrianova 2004; Ang 2008). Ever since Goldsmith (1958, 1969), and Patrick (1966) pointed out the direction of causality issue linking economic growth and finance, point of views have been supportive to both the schumpeterian view of finance as an instrument of development (Schumpeter 1934) and the Robinsonian perception of finance as a reflexive disciple of economic development (Robinson 1952). Levine (2001), and Stulz (2001) provide an extensive literature review of the debate, a discussion on the significance for empirical analysis and policy and further contribution on this issue.

The Financial structure theory contends that there is a long run association between economic development and the economic model. These theories are market-based and bank-based financial systems, the law of finance and the financial service. Over the last couples of years, particularly since the global financial crisis 2007-2009, several studies have attempted to emphasize the importance of a country economic structure in supporting financial growth. In theory, there are potentially several models of financial systems across different economies justifying countries economic growth as illustrated

on the literature. Thus, two important concepts of financial models have captivated the essential of the empirical and theoretical literature, on one hand the bank-based and on the other hand the market-based models. In addition, past studies on the financial structure focus on a very narrow set of countries with similar levels of GDP per capita so that these countries present similar long-run growth rates. In our study, we use many emerging economies from various locations with different levels of economic growth, financial structure, cultural and institutional settings difference and contrast the level of economic and financial development between developed and emerging economies.

Theoretically, the financial structure of an economy is a composite of its financial institutions, various instruments, markets and regulations governing the system agreements (Luintel et al. 2016). Nevertheless, the most important contribution of a financial system in a country, in theory, should focus on the provision of decent financial resources for investments identification, choice of valuable projects to finance and the provision of incentives for performances monitoring. In this respect, the most commonly accepted theory the timing of industrialization content that, fundamental dissimilarity in national financial systems hold their path from their original industrialization phases (Gerschenkron 1962; Lazonick and O'Sullivan 1997). The current literature indicates that most emerging and developing economies operate under the two financial systems schemes, the market and bank-based financial and economic systems. However, the relative significance of this variate from one market to the next based on the country own specificities (Allen 1999).

A larger segment of recent studies primarily focus on the nature of the two financial systems, the market and bank-based models and their ability to foster financial and economic growth. Thus, the important gap in this discussion relates to the extent to which the models contribute to economic development of non-financial firms in emerging economies. The discussion on the two competing views of financial systems namely market-based and bank-based demonstrates that on one hand, the bank-based financial

models promote sound economic attributes including savings mobilization, investment identification, and promotion of sound corporate control necessary for high economic growth and financial development. The second group of studies relate to the market-based economic model. The defenders of this system propose that the model reduces the intrinsic inefficiencies linked with banks and foster economic growth.

Boyd and Smith (1998) developed a model explaining the fundamentals of why countries are turning into a market-based model with optimistic implications for economic development as they become mature. Rajan and Zingales (1998) propose that the bank-based model is healthier in promoting growth in the case of markets with underdeveloped legal systems, while market-based economic models find positive sides when legal systems become more stable. Laporta et al. (1997; 1998) argued that the main determinants of a financial models derived from the countries legal systems. This implies that the primary importance of policy implication is not on the difference between the market-based or bank-based financial system but rather on the ability of an economy to develop through establish and reliable legal mechanisms benchmarking the approach financial institutions operate.

Demirguc-Kunt and Maksimovic (2001) investigate whether a firm's access to external finance to fund projects is different in the market-based and bank-based financial model. Their findings suggest that a country legal system forecast access to foreign funds. This conclusion backed inferences from Laporta et al. In addition, the stock market and banking sector have a different effect on the access to external financing. They conclude that there is no clear evidence on the role of proxies in predicting stock markets effects on financial and to the banking system. Hence, Levine (2002) evidenced that the financial structure of an economy does not accurately predict economic growth in a cross-country framework. He concludes that neither the market-based nor the bank-based financial model has a strong connection with a country economic expansion.

Bong-Soo (2012) uses time series evidence to re-examines the relative merits of bank-based and market-based financial systems in promoting long-run economic growth by exploring data from developed and developing economies. He argues that distinguishing economic development through the financial structure lens is not helpful in explaining cross-countries differences. This method contributes to the discussion unless these comparisons consider several aspects such as legal systems, market structure and economic growth of each of the studied country. Theoretically and empirically, a variety of papers demonstrated that the banking sector unarguably plays a fundamental role in promoting sound financial markets especially at the early stage of their development. This, therefore, rejects the idea of markets replacing banks on the provision of financial resources to support economic development and a fair repartition of revenues in an economy. Nevertheless, studying the financial structure of emerging economies appear more complex than it might looks, specifically, determining whether these economies operate under a specific model either the bank-based or the market-based is not a simplified task.

Thus, successive financial crises affected most emerging markets and hampered their economic progress dynamic over the last two decades. A point back in the history on financial models suggest that emerging and developing markets have undergone important changes a couple of decades ago due to real economic development, globalization, advances in technologies, regulatory paradigms, and the recurring financial distress. The scale with which these changes have taken place, specifically the way data is processed brought new approaches to the whole business processes. For instance, a different interaction between markets and banks has been proposed, and the level of variations on markets breakdown nature contributed to the observed changes in many markets overall economic structure. However, in a practical term, most emerging economies remain in a similar economic and financial development state whether these operate under market or bank-based financial model.

Degryse and Kneer (2014) used data collected from 1980-2007 based on a data sample of 77 economies. The study focuses on an attempt to examine factors based on their specific category and attempt to separate the financial system effects by accounting the effects of size (i.e., the value added a ratios of GDP) and the scale of intermediation (i.e., the proportion of the private credit-to GDP) on the GDP per capita increase and development volatility). Their conclusions suggest that in the long run, the level of financial intermediation promote growth and reduces volatility. In the medium run, a greater financial intermediation encourages financial growth at the expenses of instability in advanced economies, whereas in the low-income markets, the intermediation roles positively alleviate the economy.

In their seminal work on the economic and financial structure, Arize, Kalu and Nkwor (2017) examine banks versus markets in the Nigerian financial system using an ARDL (Autoregressive Distributed Lag)[7] approach. Their findings suggest that a long-run relation between bank models and market models are complementary rather than competing association, this suggests a co-action on the growth of the economy and financial development on the Nigerian's economic system. Senga, Cassimon and Essers (2018), examine local currency bond markets development in Sub-Saharan Africa based on the data collected from the local markets. Their study relates to the role of stock-taking exercise and analysis of the key drivers. They argue that a well-developed local government currency bond market reduces countries exposure to external shocks, help to overcome the 'original sin' by facilitating the mobilization of domestic savings, developing sounds macroeconomic, financial and institutional spill over. Furthermore, although substantial progress have been made recently to remediate their economic

[7]The auto regressive distributed lag model in statistics and econometrics is a model for time series facts where the regression equation is used to forecast the existing principles of a dependent variable based on both the current values of the explanatory variable and the lagged (past period) values of this explanatory variable.

conditions, emerging markets are generally characterised by low level of liquidity, a small level of corporate securities and very narrow investors' base dominated by commercial banks. Finally, they suggest a negative correlation between market capitalization and fiscal balance and inflation, but the relation is positive with legal origins, institutional quality and a sounds democratic political system.

2.2.2 Financial structure: cross-country differences

The link between economic growth and finance is old of more than a century, two early seminal contributions include Bagehot (1873) who contends that finance played a vital role by easing capital mobilization during the industrial revolution in England for "immense works". Schumpeter (1912) argues that resourceful economic intermediaries stimulate technological evolution through fund reallocation to specific investments with the greatest chance to contribute to products modernism, a process identified as "creative destruction". The paths for economic growth improvement have been the focal point for economists and other social scientists for years as markets experience dissimilarities in the development of their industrious capacities and in the enhancement of their living benchmark. While some economies accomplish hasty income growth and greater levels of living, others remain economically stranded and fail to offer the minimum living standards to their citizens. The important cross-country discrepancy in productivity growth has been at the center of interesting economic discussions in explaining economic growth over the last five decades, leading to different theoretical and empirical results (Caselli 2005; Hall and Jones 1999).

There is an important shortcoming with the existing literature comparing different financial structure. Early studies on economic and financial structure, such as Goldsmith (1969); McKinnon (1973) and Shaw (1973) respectively emphasized the positive contribution to economic growth. A quantity of cross-country examinations on the role of financial structure and economic growth is stimulated by the king and Levine (1993).

Their analysis tried to improve in at least one aspect, namely, expanding the examination of the finance and growth nexus beyond banks loans. Levine and Zervos (1998) in their attempt to understand the non-bank part of a market's financial industry used a battery of measures of stock market growth – including stock market capitalization and market turnover to investigate the relationship between economic growth and equity markets characteristics using a large sample of 42 markets over a period 1976-1993. Most of the early literature focused on the advanced economies. In addition, as proposed in the literature, there is no straight measure to compute the intermediation services delivered by banks and markets permitting uncomplicated assessment for cross-countries financial systems. As a result, the empirical analysis relies on key indicators that approximate different aspects of the two-intermediation channels, Beck et al. (2000) and Levine (2004).

Even then, data availability and comparability over time and across countries remain a fundamental issue. Notably, important differences exist between countries financial systems, market financial systems are often classified in two dimensions developed or under-developed. Demirguc-Kunt and Levine (1999) define these two concepts in the following terms: an underdeveloped financial system is a model of finance in which both the market and bank are below the median values, whereas, a developed financial system is identified as stable markets where both banks and financial markets are well developed.

The classification between the bank-based and market-based economic systems translated in terms of financial and economic developments remain very insignificant for less-developed markets. Examining the financial structure in a cross-country level, Beck and Demirguc-Kunt (2009) concluded that a deepening of financial markets and institutions over time presents advanced features in high-income economies for markets than for banks. In addition, they observed substantial progress made by the others income groups, but these failed to match developed economies.

Theoretical studies in economic and finance has in various occasions attempt to demonstrate the negative or the irrelevant impact of capital markets on economic development, mainly in developing countries, (e.g., Narayan and Narayan (2013); Kar, Nazlıoglu and Agır (2011); Naceur and Ghazouani (2007); Nili and Rastad (2007) and Singh (1997)). For instance, Nili and Rastad (2007) point out that the greater level of investment of oil exporting economies can be explained through derived revenues, and that financial development in fact has a dampening effect on investment. Similarly, Narayan and Narayan (2013) find no evidence on this relationship and conclude that neither the financial sector nor the banking sector contributes to growth for the Middle Eastern countries. The heterogenous of presented evidences in the finance-growth nexus led to the grouping of economies by income level in some researchers analysis (see for example Andini and Andini (2014); Henderson, Papageorgiou and Parmeter (2013); Odedokun (1996), and Rioja and Valev (2014)). Rioja and Valev (2014) find no evidence of the stock markets contribution to economic prospect in lower income economies, while banks on the other hand possesses a sizable positive effect on capital accumulation.

Several other researchers point out that the link between financial structure and growth may vary based on the stage of financial development (e.g., Federici and Caprioli (2009), and Rioja and Valev (2004)). To illustrate this specific point, Rioja and Valev (2004) study shows that for markets with greater transitional economic growth, the effect is positive but in the intermediate region the effect is greater. Likewise, the non-linearity facts between growth and finance has been investigated (see, Beck, Georgiadis and Straub (2014); Chen, Wu and Wen (2013); Samargandi, Fıdrmuc and Ghosh (2015); and Shen and Lee (2006)). For example, Beck et al. (2014) attempt to demonstrate in their study that finance continues to exhibit an optimistic outcome on growth only up to a significant threshold beyond which the positive outcome of finance on growth fade away.

2.2.3 Market and Bank-based financial model and corporate finance

There is enough evidence on the interaction between market-based and bank-based financial models for both developed and developing economies. The fundamental question to answer in this section is on the role of the financial structure on economic and financial development for developing and emerging economies, particularly for markets with a lesser economic growth.

The financial theory contends that developed economies operate under specific financial systems, whereas much less definite models are found for developing markets. A cross-country examination of these models shows a significant structural diversity (Zysman 1983). Several studies have highlight in various instances the importance of economic models. These studies have mostly focus on two most popular economic models[8], and their effect on financing decisions with a specific attention on the firms' value. These studies contrast the important differences between the market and the bank based financial models. For instance, studies such as Ayala, Nedeljkovic and Saborowski (2017) investigate the determinants of the bond market and financial boom in emerging economies using data for non-financial firms. Their study demonstrates that access to bond markets varies with global cyclical economic conditions and across local and foreign currency markets particularly depending on the financial structure.

Becker and Ivashina (2014) find evidence of a cyclical substitution between bank credit and bond financing at the firm level in the US, backing prior findings by Kashyap et al. (1993) which the focus was on the macroeconomic constituents. Arteta and Hale (2008) suggest that bank credit and bond financing to non-financial companies (NFCs) decrease after sovereign economic crises. In their findings, they stressed that throughout periods of financial crisis, market-based systems seem to suffer less whereas banks-based models

[8] Market-based and bank-based financial models.

economies encounter more difficulties. Indeed, these studies validate the importance of financial systems in supporting financing decisions.

The distinction between market and bank based has been examined in various instances theoretically and empirically. Thus, there is still no clear stand of which of the two models better contribute to financial and economic growth particularly for emerging economies. Furthermost emerging markets operate under a mix models rather than a single specific model, for example, several emerging economies such as China, India and Brazil are perfect examples of countries where both markets and banks a major role. The fundamental reasons for using this type of mix economic models relate to the size of these markets which are generally small in relative to developed economies ones. In addition, most of these countries lack basic attributes such as, investors protection, no stable institutional framework governing how financial operations should be regulated.

Financial markets and banks operate under different schemes although they have similar economic objectives; therefore, their approach for contributing to economic growth also differs. Financial markets are platforms for equity and debt securities pricing in addition to their traded distribution channels. In theory, in the market based financial systems; savings are provided to borrowers directly through markets, whereas, in the bank-based, most financing operations derived from the firm's balance sheet. Thus, capital structure empirical studies assert that the main advantages for a country adopting the banking financial system stem from the expansion of existing firms, the promotion of new firms in their industry competence and a better capital allocation efficiency. Others, however, highlight the benefits of the market-based financial system by underlining different market characteristics such as capital assignment, dispensing risk management tools and mitigating various problems associated with excessively powerful banks.

Reflecting these schisms, policymakers continue to struggle with the relative merits of bank-based versus market-based financial systems in making policy decisions. Despite

the extended literature, most of the research so far focused on the relevance of these two mains financing models, yet, the real benefits from the swift of financial models by underdeveloped markets remain purely theoretical particularly for small and medium size non-financial firms. Many emerging economies non-financial firms in practical terms still experiencing credits access hardships due to, high-interest rate, high collateral assets. Furthermore, extreme tightened access conditions and hardline regulations due partly to the low credit score generally credited to emerging economies firms in general and to non-financial firms. Through the 1980s and 1990s, developing countries (DCs) entered in a far-reaching transformation of their financial systems, opening and making them more market oriented. This liberalisation, involving inter alia `financial de-repression' has been stimulated partially by the effort of the McKinnon (1973) and Shaw (1973) M-S school (Singh 1997).

Overall, emerging economies financial system swift have had a fewer positive effect on firms' financial conditions accessibility, particularly for non-financial and medium-size businesses, who tend to rely more on alternative financing options. Several studies examine the relationship between financial models and financing decisions, for example using data covering the period 1991-2005, Bopkin and Isshaq (2008) examine the impact of stock market development on the financing choices of listed firms in Ghana. Their findings propose that market liquidity factors demonstrate a mixed impact on the debt-equity ratios. This suggests that the capital stock market of the studied country is underdeveloped and cannot affect financing decisions.

Various other studies in this respect include among others e.g., Stieglitz and Weiss (1981) and Thorsten and Levine (2004) investigate the impact of stock markets and banks on economic growth using a panel data for an extended period 1976-1998 and apply recent generalized method-of-moments techniques developed for dynamic panels.
They conclude that stock markets and bank institutions positively influence economic growth. Nyasha and Odhiambo (2014) proposed a survey on the existing literature on the

causal relationship between market-based and financial development and economic growth in both developed and developing economies and highlight the theoretical evidence. Their findings advocated that the direction of causality between market and bank-based financial systems and economic growth are different from one country to another. These differences derived from country-specific features, the methodological and the data set used for the research. This suggests that there is predominant support for the supply-leading response where the development of the market-based financial sector is expected to precede the development of the real sector.

Stulz (2000) argue that in a system where banks have an edge on financial markets, it is essential to sustain these capital markets growth to serve as an alternative to the power of the banking sector to support easy access to finance by companies seeking investments funds in addition to reducing the power of banks through an increase of financial markets accessibility. The practicality of financial markets for banks and other financial intermediaries allow the banking sector to reduce risk hereby lending funds to large companies. Finally, the study developed an argument that financial markets give a way out for banks by providing large firms with their expertise in going public which implies that firms will issue the equity or paper bond to access capitals.

Beck and Demirguc-Kunt (1999) use crossectional data for up to 150 countries to demonstrate how financial systems differ around the world. In their analysis of different financial systems, they found that the banking system, various financial intermediaries and stock markets are getting much bigger, more active and more efficient as countries become financially sound. Furthermore, they observed when analyzing the differences in financial structure across different income groups that there is no existing specific pattern. However, patterns exist when they investigate the activities and efficiency of several indicators. They contended that higher income countries tend to be more market-based financial systems. Several of these economies tend to have a banking system that does not play a major role on the overall financial structure of the economy. Several exceptions

are should be mentioned, some developed markets such as France, Germany, Japan to name only these operate under the bank-based financial model, but the market size of these economies is sufficiently large enough as to compare to some transitional economies.

Furthering their analysis, they identified that lower-income economies are more bank-based financial system rather than market-based as their markets size are relatively small. These markets usually possessed underdeveloped or have poor financial markets by international standards. Thus, a large presence of banks in developing economies is simply because banks are a simpler form of financial intermediary to build, whereas financial markets, on the other hand, require more financial resources and better institutional settings. In addition, their findings suggest that most market-based economies have Common Law tradition, with a higher level of protection for shareholder rights, high-quality accounting standards, and the corruption level is generally lower, no unambiguous deposit insurance, even after controlling for income. On the other hand, states with a French Civil Law institutions, present poor shareholders and creditor rights protection, reduced contracts enforcement, elevated levels of corruption, poor accounting standards, profoundly limited to the banking systems, and soaring inflation tend to have an immature financial structure in general, even after controlling for income.

Using a large set of factors, Ergungor (2003) investigates whether rights and regulations really matter in the context of the market versus bank-based financial systems. The focus of the study is on the importance of countries operating under the common or the civil law. The conclusions demonstrate that countries with clear shareholder protection rules are likely market-oriented financial systems. The proposed findings are consistent with the current literature. Song and Thakor (2013) examine the impact of the political intervention on financial systems that consist of banks and financial markets. They demonstrate that securitization propagates banking advances to financial markets, allowing markets evolution to be determined through bank growth and the capital size.

Their conclusion suggests that political intervention in banking shows a U-shaped pattern at the beginning of the system development through bank capital subsidy in exchange for state ownership of banks in the advanced stage through direct lending regulation.

2.2.4 Markets classification per income level

We provide in table 2.1 a list of economies based on their income classification. This World Bank classification of economies derived from the gross national income (GNI) per capita forecast. There are four major groups of income distribution on the table below including high-income countries who are mostly developed economies, whereas lower and upper lower markets are mostly present in a specific continent. The following table provides a classification of the existing economies based on their income level.

Table 2.2.1: Countries classification per income group

High income	Upper Middle income	Middle Lower income	Lower income
Andorra	Albania	Armenia	Benin
Antigua & Barbuda	Algeria	Banglades h	Burkina Faso
Australia	Angola	Bhutan	Burundi
Austria	Argentina	Bolivia	Central AR
Bahamas	Azerbaijan	Cabo Verde	Chad
Barbados	Belarus	Cambodia	Comoros
Belgium	Belize	Cameroon	Congo, Dem Rep
Canada	Bosnia & Herzego	Congo, Rep	Eritrea
Chile	Botswana	Cote d'Ivoire	Ethiopia
Croatia	Brazil	Djibouti	The Gambia, The
Cyprus	Bulgaria	Egypt, Arab Rep	Guinea
Czech Republic	China	El Salvador	Guinea-Bissau
Denmark	Colombia	Ghana	Haiti
Estonia	Costa Rica	Guatemala	Korea, DR
Finland	Cuba	Honduras	Liberia
France	Dominica	India	Madagascar
Germany	Dominican Republic	Indonesia	Malawi

Greece	Ecuador	Kenya	Mali
Hong Kong SAR	Equatorial Guinea	Kiribati	Mozambique
Hungary	Fiji	Kyrgyz Republic	Nepal
Ireland	Gabon	Lao PDR	Niger
Israel	Georgia	Lesotho	Rwanda
Italy	Grenada	Mauritania	Senegal
Japan	Guyana	Moldova	Sierra Leone
Korea, Rep	Iran, Islamic Rep	Mongolia	Somalia
Kuwait	Iraq	Morocco	Tanzania
Latvia	Jamaica	Nicaragua	Togo
Liechtenstein	Jordan	Nigeria	Uganda
Lithuania	Kazakhstan	Pakistan	Zimbabwe
Luxembourg	Lebanon	Papua New Guinea	
Malta	Libya	Philippines	
Netherlands	Macedonia,	Sao Tome and Principe	
New Zealand	Malaysia	Sri Lanka	
Norway	Maldives	Sudan	
Oman	Mauritius	Swaziland	
Poland	Mexico	Syrian Arab Republic	
Portugal	Montenegro	Tajikistan	
Qatar	Namibia	Tonga	
Saudi Arabia	Panama	Tunisia	
Seychelles	Paraguay	Ukraine	
Singapore	Peru	Uzbekistan	
Slovak Republic	Romania	Vanuatu	
Slovenia	Russian Federation	Vietnam	
Spain	Serbia	Yemen, Rep	
Sweden	South Africa	Zambia	
Switzerland	Suriname		
Trinidad & Tobago	Thailand		
UEA	Turkey		
United Kingdom	Turkmenistan		
United States	Venezuela, RB		
Uruguay			

Notes: Table 2.2.1 is the classification of a list of countries per income group. We classified countries into four distinctive groups following the World Bank classification including High income, Upper Middle income, Lower middle income, and low-income countries. The above table clearly demonstrates the difference between continents; most of developed economies tend to be concentrated in the western world. While it is observable that Africa and Latin America have the highest concentration of poor economies.

Thus, based on the most recent financial crisis, several economies before classified as developed economies such as Cyprus and Greece are no longer considered to be developed economies since their income level has dropped.

Table 2.2.1 provides a list of countries based on the income group. Based on data collected from the World Bank Group database, we classify markets countries in four majors' income groups that include, High-Income Countries (HIC), Upper-Middle-Income Countries (UMIC), Lower Income Countries (LMIC) and Lower Income Countries (LIC). This table shows the variance and the gaps between income distributions, high income countries are defined as countries where the annual income per habitant is greater or equal to 12,056 dollars per year, while, middle-income economies are defined as countries with the annual income per habitant varies between 3,956 -12,056 per year. A lower income country is defined as a country with annual income equal to $995 or less. The above table indicates that there is a concentration of low or poor economies in Africa. While on the other hand, there is a high concentration of developed economies in the Europe.

2.3 Key descriptive statistics analysis

Market-based financial intermediation tends to increase as per capita gross domestic product (GDP) rises. Several economic factors may provide an explanation to this. Table 1 provides a list of countries based on their income distribution level. Like the WDI (World Development Indicators), there are four main groups of income classification including High-income countries, Upper Middle Income (UMI), Lower Middle Income (LMI) and Lower Income (LI). An important observation derived from the above table, firstly, there are several emerging economies with a high level of income. For instance, the above table illustrates that the lower and middle low-income markets are located particularly in sub-Saharan regions. This is significant because these markets present underdeveloped characteristics across many economic indicators. However, this is surprising since these countries are blessed with important natural resources and a huge

human capital that are generally explored by others and do not benefit local communities. In addition, other factors including, lack of infrastructure, variables economic conditions and weak governance at different corporate and country levels are the vector of everlasting economic struggle. For a better and steady economic growth, developing economies have important obstacles that should be dealt before stabilizing their respective markets. These include, a better corporate governance, better share of resources including financial and income from natural resources. In addition, these countries could also develop and implement measures for corruption reduction, better shareholders protection and grounded institutional, which are the mains issues stopping the development of local financial markets.

Table 2.2.2: Key Summary Statistics

Table 2.2.2 is a summary statistics value of the independent variables used in this chapter. The table gives the following measures, the number of observations, the mean, the standard deviation and the confidence interval rated at 99.9 per cent.

Variable	Obs	Mean	Std. Err.	[99.9% Conf.	Interval]
Gdp_growth	4716	3.27155	.0904299	2.973802	3.5693
GDP_PC	4716	19835.06	335.9995	18728.75	20941
Inflation	4716	18.59063	.9194934	15.56311	21.618
Taxes_IT	4716	5.510288	.1558356	4.997185	6.0234
Stocks_TTV	4716	3.47858	.2252728	2.736848	4.2203
Stocks_Trd	4716	10706.14	317.4745	9660.824	11751
Stocks_TTR	4716	6.465053	.3833018	5.202996	7.7272
Stock_turn	4716	82852.11	2867.145	73411.77	92292
Real_IR	4716	4.00532	.3810135	2.750799	5.2598
Lending_IR	4716	38.97118	25.87437	-46.22256	124.16
Bank_Conc	4716	2185.571	51.50196	2015.996	2355.2
S&P	4716	4421.006	226.0946	3676.569	5165.5
Exchge_Rate	4716	19459.99	485.7302	17860.68	21059
Vol_Exchge	4716	.3063606	.0201295	.2400824	.37263
Market_Cap	4716	8428	288.7483	7477.27	9378.7
List_Cmps	4716	89.26739	6.026287	69.42529	109.11
Firm_UB	4716	12.19211	.9398187	9.097673	15.287
Fiscal	4716	76.62638	.2616245	75.76496	77.488

Notes: Table 2.2.2 is a summary statistic of the data set and provides the following measurements including the number of observations, the mean, the standard deviation, the minimum and the maximum of each of the

variable. We include many factors found in the literature including bank concentration provide the number of banks in a specific area for 10000 habitants. The indicators include the GDP, GDP growth, Inflation, Bankconc (Bank concentration), Stocks_TTV (stock total value), S&P (Standard and Poor) global equity, exchange rate (Exchgerate) exchange rate volatility (Exchge Vol) the market capitalization (Market cap), listed companies, the interest rate, GDP growth, the number of firms using banks (Firm UB), fiscal.
Stocks TV = Stock trade value
Deposit IR = Deposit interest rate
Total C EX Debt = Total change in external debt
Bank Con = Bank concentration per 100000 habitants
Total EX Debt = total external debt
Vol_Exchge = Exchange rate volatility
Firm_UB = firm using banks
Corruption index = range from 0 – 100 with 0 = highly corrupted and 100 less corrupted

A number of theoretical studies have been produced over the last decades on the importance of financial models for economic growth (see for example Boot and Thakor 1997; Rajan and Zingales 1998b; Levine and Zervos 1998; Stulz 2000; Beck and Levine 2002; Beck 2010; Demirgüç-Kunt et al. 2011; Gambacorta et al. 2014) find that banks and markets are significantly important in economic growth conclude that the relationship between the financial structure and growth is dependent on the level of economic and financial development of examined economy. The third strand of debaters holds that what matters is the type of model (banks or markets) and not necessarily services they provide. We re-examine this relationship using a new and large dataset from emerging and developing economies.

Table 2.2.2 provides basic statistics for financial models and economic development in the context of emerging economies. The table delivers four metrics including the number of observations, the mean, and the confidence interval at 99.9 per cent. The number of observations is equal to 4316 observations across all factors. The highest mean is given by the inflation level which is equal to and the highest mean is attributed to the exchange rate. In the second column for standard deviation, the lower standard deviation is attributed to the level of GDP interval between 18728 and 20941. The GDP growth given in percentage point is given on the interval between 2.97 and 3.56 with a mean of 3.27 per cent. The mean of the variable inflation consumer price is greater than any other mean; the same variable has the highest standard deviation and the highest maximum in percentage. This highest inflation can occur when a country is in a deep financial

recession. A recent of high inflation case is Zimbabwe which has seen their economy declining for several years leading the country to a high of inflation, and the inability to service their international debt. In addition, the inflation has caused important damages to the national economy, leaving citizens unemployed with an important number of firms and banks going bankrupt.

Table 2.2.3 Summary statistics for different income groups.

Income and debt level Per income group / percentage of GDP	High Income ($)	Upper Middle Income ($)	Lower Mid Income ($)	Total Millions ($)	High Income GDP (%)	Upper Middle income (%) GDP	Lower Middle Income (%) GDP
Variables							
Bank CONC	479315	863189	164949	1507453	31.80	57.26	10.94
Market CAP	42046	672974	213706	928726	32.16	51.49	16.35
List Companies	28248	108009	115633	251890	11.21	42.88	45.90
Firms using banks	5391	7627	693	13711	39.32	55.63	5.05
Debt Private	55846	736538	186158	1481155	37.71	49.73	12.57
Private bond	493381226	895685	210278	5153047	30.86	55.99	13.14
Public bond	460202569	9183581	186325	4904139	29.41	58.68	11.91
International debt	429475444	9477326	123575	4513103	28.62	63.14	8.23

Source: World Development Indicators from the World Bank Group

Notes: represents three income group characteristics of countries with their income level. The table displays the value of each of the variable based on their income group high income, upper middle income and lower-middle-income class. The results are expressed in billion dollars and in percentage. The data originate from the WDI (world development indicators) the open database from the World Bank Group.
The variables used for this table are Bank CONC which represents the number of bank concentration per income group.
The market capitalization represented by the Market CAP as the total income for each individual income group.
Listed companies: The number of listed firms in each income group
Debt to private: Debt to private companies per income group (given in billions $)
Private Bond: Private firms bond issuance level (given in billions $)
Public Bond: Public bond issuance per income group (given in billions $)
The international debt per income group (given in billions $)
Own calculations based on the original data.

Table 2.2.3 provides a statistical summary of a group of emerging countries according to their income level group based on the selected factors. The classification is originated from the WDI. We provide a summary statistic of the chosen variables deriving from the literature. It is worth mentioning there are more factors include in subsequent studies, in our case, we make use of indicators that are frequently use for consistency of our analysis and to the theoretical framework. There are four main groups of income levels which account for economic development. We make use of three different levels of income groups due to inconsistent data. The data set is divided into several categories representing different income levels including high income countries, upper middle income, and lower middle-income markets. A large dispersion in the data in all the columns can be observed. The first four columns are given in dollars and the last 3 are given in percentage. It can also be seen that high-income countries fall behind for the number of banks concentrated on each market compares to upper-middle-income markets. This result demonstrate that middle-income countries are more inclined bank-based as to compare to high-income markets, where financial stability is already in place, banks play a minimal role for the development of the financial sector and their intermediary role is not the primary source of funds for most firms.

2.4 Correlation Matrix

Table 2.2.4 is the correlation matrix between the factors included in the data sample. This process indicates the degree of relationship between factors examined in the thesis. The Correlation Matrix is based on the correlation coefficient of several factors already included on several empirical and theoretical papers. In all case, a correlation is estimated between 1 and -1. If there is perfect positive linear relationship between two variables, the correlation will be 1. If there is a perfect negative linear relationship between the two variables, the correlation coefficient is -1. A correlation coefficient of zero means that there is no linear relationship between the variables. In the

following table, we use several variables including bank concentration, stock value, market capitalization, listed companies, GDP PPP, GDP growth, the number of firms using banks, openness, private bond, public bond and the effective government data. A large section of these variables mentioned in table 2.2.2 have been used in most previous empirical studies investigating the economic structure.

Table 2.2.4: Correlation matrix table

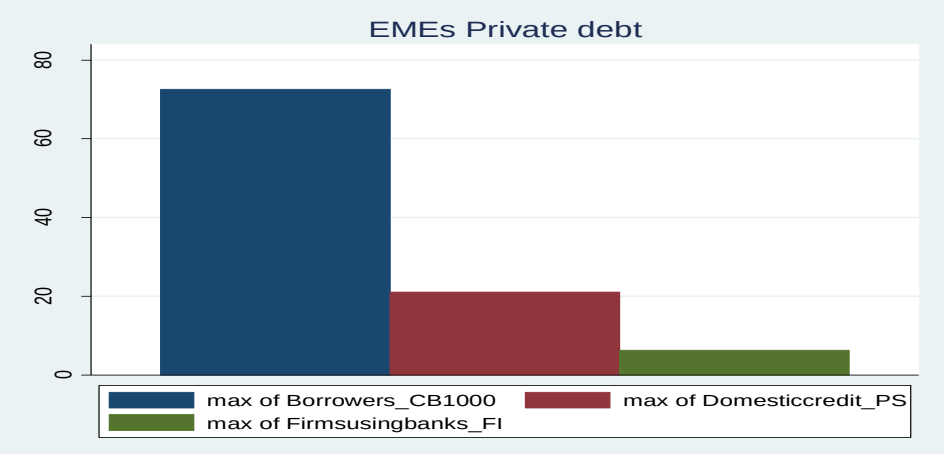
	GDP	GDPGwth	Inflation	Taxes_IT	Stock	Intrate	LendR	Bank CC	S&P	Exch	Market	List Firms	Firm_UB	Fiscal
GDP	1.0000													
GDP_growth	0.0445	1.0000												
Inflation	-0.0261	-0.1216	1.0000											
Taxes_IT	0.0383	0.0380	0.0420	1.0000										
Stocks_TTV	0.1496	0.0765	-0.0151	-0.0263	1.0000									
Interest_IS	-0.0039	-0.0045	-0.0012	-0.0072	-0.0029	1.0000								
Lending_IR	-0.0075	-0.0068	-0.0011	-0.0078	-0.0035	0.9871	1.0000							
Bank_Conc	0.0555	0.0544	-0.0358	0.0445	0.0526	0.0237	0.0254	1.0000						
S&P	0.1155	0.0526	-0.0214	0.0142	0.2109	-0.0036	-0.0045	0.1193	1.0000					
Exchge_Rate	0.1449	0.0496	0.0047	0.0741	0.1196	-0.0056	-0.0082	0.1477	0.1089	1.0000				
Market_Cap	0.1895	0.0616	-0.0261	0.0226	0.2741	-0.0054	-0.0065	0.1262	0.2725	0.1449	1.0000			
List_Cmps	-0.0029	0.0672	-0.0089	-0.0434	0.3223	-0.0032	-0.0030	0.0648	0.1611	0.0314	0.2384	1.0000		
Firm_UB	0.0234	0.0470	-0.0145	0.0108	0.0399	-0.0026	-0.0030	0.0827	0.1760	0.0494	0.0633	0.0396	1.0000	
Fiscal	0.1361	0.0185	0.0153	-0.0392	0.0503	0.0087	0.0084	0.0526	0.0471	-0.0216	0.0790	0.0106	0.0174	1.0000

Source: World Development Indicators from the World Bank Group

Notes: The above table represents the correlation between the factors in the form of a correlation matrix table in which the degree of relationship between the independent and dependent factors are provided. here are a large number of indicators which include the GDP, Inflation, Bankconc (Bank concentration) , stock value, S&P global equity, exchange rate (Exchgerate) exchange rate volatility (Exchge Vol) the market capitalization (Market cap), listed companies, the interest rate, GDP growth, the number of firms using banks (Firm UB), corruption index, openness, fiscal, business freedom, investment freedom, rule of law, effective government, quality regulation, market-based and bank-based.

Table 2.2.4 from the matrix examines the degree of relationship between the factors from the original dataset. The analysis gives the following observations among others; the factor bank concentration is negatively correlated to most variables scaled with, except for GDP growth and openness. The result suggests a negative correlation between stock value and bank concentration. In addition, the correlation matrix indicates that stock value and government effectiveness is a non-negatively relation. Examining the relationship between bank concentration and the other factors, one can observe a positive relationship between bank concentration and openness. The remaining factors on the other hand provides a negatively correlation with bank concentration in various cases. In other words, the more banks are concentrated, the more it is unlikely that some of the factors will support financial growth. We found a negative correlation between the effective government and GDP PPP (gross domestic product purchasing power parity), and between firms using banks and effective government. In summary, the regression of the factors shows a greater variation on the correlation between the variables.

Figure 2.1: Listed firms using banks versus banks concentration per income group



Sources: World Development Indicators (WDI)
Notes: we scale three important variables of development including the number of borrowers representing bank concentration per 100000 habitants. The amount of credit allocated to

private firms in each market given in percentage point, and the percentage of number of firms using banks to finance their investments.

Figure 2.1 above shows the variation patterns between the number of listed firms using banks to finance their operations and the level of bank concentration for each individual country. Several markets with no data are disregarded from the sample. The graphical representation of bank concentration, the number of listed companies and firms using banks to finance their operations demonstrates the differences in patterns. Number of firms using banks is far less than listed firms. In addition, the figure also shows a greater presence of banks in emerging economies with fewer numbers of listed firms. The interpretation of the results can take different directions. First, it can be observed that banks loans are costlier compared to firms' earnings, in addition to the intermediaries' costs incurred by borrowers. Therefore, their profit margin reduction and their ability to pay back debts based on the contractual terms might be difficult for companies not achieving their return on investment targets, covering their expenses.

The graph also indicates that the reason why fewer companies use banks in developed markets is simply because most developed economies possess sound and stable financial markets, therefore, firms find much easier to engage in deals with financial intermediaries' others than banks, which potentially will reduce the cost of intermediations between lenders and borrowers since most borrowers will directly strike deals with markets makers. In addition, paying back period are generally much longer with markets and less with banks.

The raw data structure without running any regression allows us to draw important inferences on different relationships. Based on the sample, we report that there is a high concentration of both domestic and foreign banks across emerging economies. Despite a limited number of listed firms in domestic capital markets, one can observe that the percentage of firms using both banks and capital markets to finance operations

remains insignificant. Thus, the proportion of the number of firms using banks remains very insignificant, particularly in developed markets. In the emerging economies case, the situation is more mitigated because most firms are medium size companies. In addition, others non-negligible factors determining debt provisions in these markets are political, and the degree of relationships between the members of markets and those seeking loans. This is significant as one might think that in a country where many banks operate, there should be more firms accessing banks services. In other words, the plurality of banks does not necessary serves the domestic markets at first glance.

2.5 Countries classification per financial system

Previous empirical work has demonstrated a large cross-country dissimilarity in the importance of banks vs markets (Demirguc-Kunt and Levine 2001). These financial systems play a fundamental role for economic development and financial stability for countries globally, therefore these must be thought carefully before their implementation. The following market-based and bank-based countries classification from table 2.2.5 emanates from subsequent studies in the literature. We use different sources of information (e.g. EMBI classification) to update the list of countries and their category whether the country operates under the bank or market-based financial structure denomination. Thus, in the emerging markets context, particularly for more underdeveloped economies, current research finds difficult to clearly determine whether these countries operate under a specific economic model. The fundamental reason is because emerging economies have rather high developed banking systems as banks seems relatively easy to establish and requires probably fewer resources in terms of human and financial capital comparatively to financial markets. Financial markets provide an alternative to the monopoly banks have had on the provision of financial services for decades.

Table 2.2.5: The market-based and bank-based economies

Countries	MARKET-BASED		BANK-BASED
High-income North America	Canada	**Europe**	Belgium
Latin America	Chile	**Europe**	Cyprus
Europe	Denmark	**Europe**	Czech Rep
Central Asia	Estonia	**Europe**	Finland
East Asia	Hong Kong	**Europe**	France
Europe	Hungary	**Europe**	Germany
East Asia	Korea, Rep	**Europe**	Greece
Central Asia	Lithuania	**Europe**	Ireland
Europe	Luxembourg	**Middle East**	Israel
Europe	Netherlands	**Europe**	Italy
Europe	Poland	**Pacific**	Japan
Pacific	Singapore	**Central Asia**	Latvia
Europe	Slovak Republic	**Europe**	Liechtenstein
Europe	Sweden	**Pacific**	New Zealand
Europe	Switzerland	**Europe**	Norway
Europe	United Kingdom	**Europe**	Portugal
North America	United States	**Middle East**	Qatar
Sub-Saharan Africa	Tanzania	**Europe**	Spain
East Asia	Cambodia	**Latin America**	Uruguay
	Lower middle income		**Low income**
Sub-Saharan Africa	Ghana	**Sub-Saharan Africa**	Ethiopia
Latin America & Caribbean	Nicaragua	**South Asia**	Nepal
Sub-Saharan Africa	Nigeria	**Sub-Saharan Africa**	Togo
East Asia & Pacific	Philippines	**Sub-Saharan Africa**	Zimbabwe
	Upper middle income		**Lower middle income**
East Asia & Pacific	China	**South Asia**	Bangladesh
Latin America & Caribbean	Jamaica	**South Asia**	Bhutan
East Asia & Pacific	Malaysia	**Latin America & Caribbean**	Bolivia
Latin America	Mexico	**Sub-Saharan Africa**	Cote d'Ivoire
Latin America	Paraguay	**North Africa**	Egypt, Arab Rep
Latin America	Peru	**South Asia**	India
Central Asia	Russian Federation	**East Asia & Pacific**	Indonesia
Sub-Saharan Africa	South Africa	**Sub-Saharan Africa**	Kenya
East Asia	Thailand	**Europe**	Moldova
Central Asia	Turkey	**North Africa**	Morocco
		South Asia	Pakistan
		North Africa	Tunisia
		Sub-Saharan Africa	Zambia
		North Africa	Algeria
		Latin America	Argentina
		Latin America	Colombia
		Latin America	Costa Rica

	Latin America	Ecuador
	Pacific	Fiji
	Sub-Saharan Africa	Mauritius
	Latin America	Panama
	Latin America	Venezuela, RB

Countries per income group and per financial system: Market-based and Bank-based

Notes: Table 2.2.5 is the classification of all World Bank member countries (189) and all other economies with populations of more than 30,000. For operational and analytical purposes, economies are divided among income groups according to 2015 gross national income (GNI) per capita, calculated using the World Bank Atlas method. The groups are: low income, $1,025 or less; lower middle income, $1,026–4,035; upper middle income, $4,036–12,475; and high income, $12,476 or more. The effective IDA (International Development Association) eligibility threshold is $1,185 or less.
IDA countries are those that lack the financial ability to borrow from IBRD (International Bank for Reconstruction and Development). IDA credits are deeply concessional—interest-free loans and grants for programs aimed at boosting economic growth and improving living conditions. IBRD loans are non-sectional. Blend countries are eligible for IDA credits because of their low per capita incomes but are also eligible for IBRD because they are financially creditworthy.
The term *country*, used interchangeably with economy, does not imply political independence but refers to any territory for which authorities report separate social or economic statistics. Income classifications set on 1 July 2016 remain in effect until 1 July 2017. Argentina, which was classified as high income in FY16, is temporarily unclassified pending the expected release of revised national accounts statistics.

Table 2.2.5 is a list of economies based on their adopted financial systems either bank-based or market-based. The table demonstrated that most high-income countries are from Europe, Asia and North America. Only two economies are not from these regions, one from Latin America (Uruguay) and the other from the Sub-Saharan Africa region (Tanzania).

2.6 Concluding remarks

In a summary of this chapter, this study attempts to provide a rationale on the economic and financial development debate using the data from emerging and developing economies. The study particularly assesses the distinction between two models of economies focusing on the relevance of the bank-based and market based financial structure. In addition, it provides an assessment of the degree to which each of the components market and bank based financial impact emerging and developing economies economic development. The importance of banks versus markets varies considerably across economies. The literature examining the potential correlation

between financial systems, economic growth emerging economies is infrequent due to data scarcity and important level of underdevelopment of these economies. However, this is an important issue for emerging and developing economies for several reasons. The fundamentally, we evaluate whether the proposed financial and economic models have been successful in sustaining economic growth in emerging economies since their implementation and what have been their effects on the others economic ramifications.

Thus, as pointed out in several previous studies, reducing countries economic growth and financial development debate at the level of financial systems alone does not provide an overall overview of the issue at hand. Demirguc-Kunt and Levine (2001), and others, have a different stand on the issue and widened the debate by considering countries fundamentals specifically each country individual attributes should give a good array on the issue and to formulate propositions for poverty reduction through the development of stable legal systems and institutions. Furthermore, comparisons made across markets should consider countries income level, the development of the legal system and the entire financial structure of compared markets. Nevertheless, the two school of thoughts proposes that neither the bank nor market based financial systems do really influence a country economic growth in emerging markets configurations due to their level of development.

Although there is a great presence of banks in some markets and others are more markets dominated. Therefore, in the context of emerging economies financial stability and economic growth measure, both financial markets and banks should be developed to allow financial and economic stability, consequently, the implication of both sectors been developed would support the ability to access financing using various channels for emerging markets firms. In other words, based on the current data on emerging economies, both banks and markets are equally important to support

economic and financial growth in emerging and developing economies to tackle the lack of financing for firms.

The Determinants of bond development: Emerging economies bank-based and market-based perspective

3.1 Introduction

This chapter discusses the underlying framework of the determinants of bond markets growth in emerging economies using a new data sample from many countries stemming from 1980-2016. This study is developed in the spirit of the theoretical and empirical literature on the main determinants of capital markets growth.

In the late 1990s early 2000s, many economies have incorporated the development of local bond markets in their agenda as an important step to financial freedom (Min, 1998). Despite this important move and the resources allocated, emerging and developing economies capital bonds markets remain unsatisfactorily underdeveloped. In this respect, important and more specific questions should be addressed to better understand why a few decades after their integration to the global markets, emerging economies domestic securities remains in a similar position compare to capital markets in developed countries.

Theoretically, the market-based financial model approach was proposed to underdeveloped economies as a guarantee for steady economic growth and financial stability, with important benefits such as reaching high level of economic and financial development and better financing opportunities that should lead to better social progress for citizens of each country. Meanwhile, reports have pointed out the

importance of the banking sector in sustaining emerging markets financial and economic expansion for decades; as well as supporting the growth of capital markets. Their widespread presence in emerging economies is generally justified by a lack of stable financial markets and unstable macroeconomics drivers. These structural changes in developing economies are yet to generated expected results. We re-examine the extent to which capital markets have progressed over the last couple of decades under the market-based and bank-based models in the emerging market context in the spirit of past literature.

The growth of the domestic bonds market gravitates around a group of macroeconomic and a country characteristic leading to a satisfactory strong economic expansion. The bond market development in general and emerging economies bond market represents a major issue for policymakers, financial authorities and scholars alike due to its strategic contribution to a country financial and economic growth. The literature developed over the last couple of years that assess the progress of economic growth and the role of financing development in emerging economies has demonstrated two majors' shortcomings. Primarily, the growth of emerging and developing economies bonds markets remains undersized compared to the bond market in developed economies.

Secondly, studies on the determinants of bonds market in developed and less advanced economies used different methods reaching different outcomes. Hence, studies of this nature have always compared the bond development using proxies for instance, Mu, Phelps and Stotsky (2013) use GMM methods to examine the bond market in Africa focusing on the sub-Saharan markets. Kennedy and Palerm (2014) provide evidence on emerging markets bond spread based on data collected from 2002 to 2011 using the Pooled mean group model. Ayala, Nedeljkovic and Saborowski (2017) study the determinants of shifts in debts composition among emerging economies markets for non-financial firms using the panel quantile regression. Smaoui, Grandes and

Akindele (2017) assess the determinants of bond market development and provide further evidence from emerging and developing countries using the GMM method.

The recent global financial disruption 2007-2009 has been a misfortune to several economies particularly emerging markets in their integration to the global financial markets. Until the early 1990s, emerging economies corporate bond was almost inexistent, the essentials of lending's and borrowings transactions were limited to some subset industries in a smaller group of economies at the sovereign level (Ayala and Nedeljkovic 2017). Private firms operating in emerging economies were constrained to borrow from local banks. These financial intermediaries charged high-interest rates on securities and had the power in determining the length of debt irrespective of local authorities' financial regulations, on the ground of weak financial controls from legal enforcement teams. These drifts from financial institutions derived from several macroeconomic and statutory framework deficiencies observed in various economies including limited markets control. However, the financial liberalization in which many emerging economies embarked in the late 1980s and early 1990s with the primary objective to enhance financial markets accessibility at a local and international level has remained unproductive despite the promises.

The literature for emerging and developing markets economic and financial development has had some attention over the last couple of years regardless of whether the country operates on a market or bank-based economic model. In this respect, despite the efforts and the willingness from emerging economies governments and the major's financial players, emerging markets economic and financial development remains successful in theory. However, in practical terms, there is an important gap to fill for building sounds and stable financial markets in emerging and developing economies. For instance, Martinez, Terceno and Teruel (2013) use the panel data and the Hausman test to evaluate the main determinants of bond market development in seven Latin American markets and verify the existence of contagion effects during the

last financial crisis. The conclusions originating from the above study sufficiently demonstrate that there is an important gap to fill for emerging economies bond market development.

While the bonds market has served developed economies firms and governments for decades, similar conclusions cannot be drawn for financing option in a direction to developing and emerging economies governments and private firms as denoted in Ayala, and Nedeljkovic (2017). Nevertheless, the issue remains the assessment of various factors affecting bond markets development in emerging economies. The neoclassical economist's belief in the subordinate role of financial markets to the real economic sector growth is outdated (Watchel 2002). The fundamental issues relating capital bond markets development and economic performance in emerging and developing economies can be associated to the financial or economic model. Recent studies on bond markets determinants indicate that the emerging economies debt level has increased since the recent financial meltdown. However, there is much variations in the growth of the local markets by revenue stage, particularly on domestic private bond markets development. According to the International Institute of Finance report, the overall outstanding debt for developed and developing economies rose to 325 per cent of the world's domestic product in 2016, totalling around $215 trillion. For emerging economies alone, the outstanding debt has risen to $ 55 trillion in 2016. These figures demonstrate a quick rise of the emerging economies debt and the threats to the global financial stability.

This chapter focuses on emerging and developing economies capital bonds market growth and the implication of economic and financial growth over the last twenty years. The central questions for bond market development are the followings:

What are the main determinants of the bond markets in emerging and developing economies?

What justifies the fact that some economies have advanced bonds markets and others very limited access to this financial instrument?

How do bond market developments affect financing decisions for non- financial firms in emerging economies?

These questions have preoccupied the academic world for decades and yet those questions remain important puzzles for academics, financial professional and decisions makers. The aim of the chapter is therefore to attempt to reduce the existing gap.

Using a set of macroeconomic data from developed, emerging and developing economies from 1998–2015, we examine the determinants of bond markets development for many economies. This research is close to Smaoui et al. (2017) and other studies investigating the bond market development and financial growth in emerging economies. In their study, Smaoui et al. (2017) raised the methodological approach for the analysis of the data. They use the Prais-Winston and the system GMM to deal with the endogeneity and to control for heteroskedasticity. The difference with our study is that our sample size is much larger compared to their sample in addition to the number of variables. We use several economic and country dummies factors as instrumental variables not included in Smaoui et al. (2017). The data originated from various sources including the International Monetary Fund (IMF), World Development Indicators (WDI), and the Federal Reserve Economic Data (FRED). The methodology adopted in this paper is like several bond market development studies such as (Smaoui et al. 2017) among others, the methodology focused on the system GMM of Arellano (1991), and the Prais-Winston technique to control for the endogeneity and potential heteroskedasticity between the dependent, the independent variables and the error term.

The findings suggest that there are number of factors affecting bond market development in emerging economies. These come in different forms, the

macroeconomic factors and country factors. At the firm level, the factors affecting the size of the spreads are generally the overall firm financial health, the level of economic output of the market and the asset tangibility. For instance, we found that openness, the quality of government and interest rates are among the most important determinants of bond market development. Several of these factors and many more are examined in this chapter in the spirit of the theoretical and empirical literature.

The structure of the paper is as follows: the next section, namely, section 2 focuses on the literature review of existing papers in bond development. Section 3 focuses on the methodology, which includes the analytical framework. Section 4 is the empirical results from our hypotheses. Section 5 is a conclusion and concluding remarks.

3.2 Literature Review

There is a vast literature on the relationship between financial development and economic growth for developed economies.

There is a norm established in the finance literature that the debt issued by developing and emerging economies governments, government agencies and corporations form a group of emerging markets bonds. According to the literature, emerging economies bonds markets are generally from the following regions: Asia, East Europe, Africa, Latin America, and the Middle East. In theory, the debt market permits the lenders to supply credit in a moderately small risk asset and for the borrowers to access finances in a realistically liquid market. While a long list of studies on the bond market and economic growth for developed economies is provided in the literature, the scale of research on emerging economies bond market is relatively underdeveloped. In addition, a large portion of studies on bonds market development in emerging economies has been restricted at the regional level, or individual countries bond market development, particularly, most studies have been targeting the Asia region following the 1997-1998 financial and economic downturn (Dung and Quang 2015).

Empirical evidence on economic activity in emerging economies demonstrates that a large section of the lending activities in emerging economies is still bank dominated due to capital markets level of underdevelopment (Jarungkitkul and Sukcharoensin 2016). An example of studies in this nature includes Eichengreen and Luengnaruemitchai (2004) who validated several bond market development determinants using a panel data from 1990 to 2001 for a sample of 41 countries, both developed and developing markets, with closer attention paid to the Asia region. Thus, evidence presented demonstrated that bond activities in less-developed economies are growing, but still relatively undermined by several exogenous factors which were mentioned in the previous sections.

3.2.1 Debt market development in emerging economies

During the early 1980s and 1990s, there was a great deal of confidence and expectations from policymakers' and economists in establishing sound financial markets in emerging economies. The economic slowdowns faced by most emerging economies have considerably been damaging and potentially the main cause of economic growth delay for most emerging markets. For instance, in the period that follows the recent financial crisis 2007-2008, most emerging economies were unable to borrow funds from overseas markets due to a change in market conditions such as interest rate increases, high transactions costs, and change in rating conditions. In addition, local banks charged high-interest rates on credit, with high-value collateral not accordingly to the expected loss in case of default. However, the theory of financial growth indicates that, the financial sector development allows a buildup of economic growth through an efficient allocation of resource and productivity growth rather than through investments or savings mobilization scale (Beck, Levine and Loayza 2000).

The capital bonds market is an important mechanism to foster economic and financial development in developing economies. Various reasons play in favour of domestic bond markets growth in which local governments and firms could benefit from. However, three fundamentals reasons for developing debt markets have been put forward recently, firstly, markets connect to a high level of support in borrowing requirements and partially relate to financial markets operation efficiency. A sound bond market promotes fiscal deficits reduction, which previously forced local banks to hold a government paper and serves as a capital reserve and liquidity requirements. Frankel (1993) posit that the absence of the bond market does not benefit large projects with hefty capital inflow to serve infrastructural expansions. Thirdly, bond markets generate a yield curve that could serve as a benchmark for investors and borrowers in the financial markets. This enables market participants to derive a market interest rate that reflects the opportunity cost of fund for each maturity.

Sachs (1995) addresses the importance of a range of macroeconomic policies fundamentals for debt during a period of a financial crisis and empirically provides the rationale for the use of economic aggregate in determining the risk premium in global financial markets. Specifically, the study stresses the usefulness of trade and the policy of exchange rate for an emerging economy's performance assessment. Furthermore, it demonstrates that in a period of financial fragility, emerging markets firms using foreign markets are constrained to borrow funds at high interest rates, this, as a result, reduces firms' profits which should be used to increase the market size or invested in research and development for innovative projects.

Sokoler (2002) examines bond market determinants and conclude that financial markets bring competition and raises the financial system's efficiency and affects banks domination. However, the efficiency of the bond market as an unconventional source of financing depends essentially on lower co-movement between banks'

lending, bond and equity financing in domestic settings, and the absence of contagion in the international capital markets for countries with open accounts.

Min et al. (2003) in a cross-country study, investigate the determinants of bond spreads in emerging economies using a large sample of countries in emerging economies during the period between 1990 and 1999. Their panel estimation provides important findings, for example, they conclude that emerging economies liquidity-related variables have an active role in the bond spread determination based on the test of zero restrictions. In addition, they identify a systematic role of several other explanatory factors including macroeconomic and country variables and their attributions when examining bond spreads cross-country differences.

In their seminal work using the private and the public sector data, Burger and Warnock (2006) use a sample of 49 countries with 27 emerging 22 developed economies to study the determinants of sovereign and corporate bond markets growth. Their methodological approach develops a cross-section regression using a much-reduced sample. A major issue lined with their sample size which poses enough worry to the methodological approach used to reach conclusions. Their paper raises the issue of reliability and representativeness for a wider range of emerging and developing economies. The main findings suggest that institutions and policies are as important to bond market development for the bond market growth. Their conclusions recommend that country size, rule of law and less inflation have a positive relationship with local sovereign bond market development. On the other hand, GDP growth and fiscal imbalance have a negative impact with bond sovereign bond market expansion, while the above authors use cross-sectional data.

Classens and Perotti (2007) on the other hand use panel data to examine the determinants of sovereign bond market development for local currency. Their sample large of 36 countries composed of 26 developed economies and 12 emerging economies conducted for 7 years period, from 1993 to 2000. Their findings also

demonstrate that the banking system size, country of origin, economic size, low inflation, sounds financial institutions, flexible rate of exchange and heavy fiscality influence the bond markets size.

Mu, Phelps and Stotsky (2013) use GMM methods to examine the bond market in Africa focusing on the sub-Saharan markets. Their findings suggest that in the process of bond markets development the most important aspect is to distinguish between sovereign securities and corporate bond markets for the sub-Sahara region and this inference can be translated to other regions. They conclude that the GMM specification is a mixture of structure, policy, and institutions provide statistically significant results in sovereign securities markets. Meanwhile, the interest rate variations, the fiscal imbalance, the exchange rate volatility, trade, capital openness factors and the geographical location provide a negative correlation with the development of the market.

Other factors of their sample including English legal origin, lesser composite risk (better institutions), law and order, and domestic rate of interest correlated positively with bond market development. Their results differ from those obtained by Eichengreen and Luengnaruemitchai (2004); Adelegan and Radzewicz (2009). In their study concluded that GDP, the purchasing power parity, exports and an open capital account have a positive correlation, while the above researchers identified that this relationship is not significant, and the two latter factors are negatively correlated.

Bhattacharyay (2013) investigates the determinants of bond development in Asia using a compiled data collected from 10 Asian countries for 1998-2008. The study uses two econometric models, the OLS (ordinary least square) and the GLS (Generalized Least Square)[9] which is used in a similar study by Eichengreen and

[9]Generalized least squares (GLS) are methods for fitting coefficients of descriptive variables that assist to predict the outcomes of a dependent random variable. As its name suggests, GLS includes ordinary least squares (OLS) as a special case. GLS also called "Aitkin's estimator," after A. C. Aitkin (1935). The main incentive for generalizing OLS is the existence of covariance between the observations of the dependent factor or of different variances crosswise these observations, conditional on the descriptive variables. Both

Luengnaruemitchai (2004) study. The GLS resembles the random effect model, since this model takes into consideration the heteroskedasticity and autocorrelation problems that always occur in a similar situation of data from many sources. Their research demonstrates that the major determinants of bond financing are the economic size for sovereign and corporate bond, economic openness, corporate bonds, the variability of the interest rate, sovereign and corporate bonds. In addition, the study concludes that one-way to furthering bond market growth in Asia, there is through promotional campaigns of the domestic bond markets through bond issuers and investors within and outside the region.

Smaoui, Grandes and Akindele (2017) examine the determinants of bond markets using data from both developed and emerging economies for the period between 1990 and 2013. Their study investigates the structural, financial development, institutional and the macroeconomic determinants of bond market development for a sample of 22 emerging and developing economies. We use Prais-Winston and the system GMM to overcome the endogeneity among the explanatory variables and the measures of bond markets development, group-wise heteroscedasticity as well as the contemporaneous cross-sectional and serial correlation in the residual for their dataset. The results suggest that bond markets are highly influenced by structural, institutional and financial factors. Additionally, they observed that most of the observed variables on their dataset are to some extent related to bond market development.

There are generally three main stages in developing the bond market. At the initial stage, there is substantially no existing saving and investment opportunity accessible; there is lack of necessary skills and experience and banks are most often weaker or

phenomena lead to nuisance with statistical inference procedures frequently used with OLS. Most critically, the benchmark methods for assessing sampling variances and testing hypotheses turn into biased. Additionally, the OLS-fitted coefficients are imprecise comparatively to the GLS-fitted coefficients.

have a monopoly of the market limiting access to the market for other potential competitors. In addition, a common stage represented by a recurring absence of macroeconomic stability, financial fragility and an absence of a well-structured regulatory system to govern the overall mechanism. As such, governments and policies makers require to craft and put in place basic norms for the bond market to operate efficiently. Deregulation should be combined with the idea of financial liberalization; applicable prices are determined by markets, stable macroeconomic, reforming central banks policies. Market participants incentives mechanisms should be adapted and reforming the banking sector. Equally, money creation and capital markets development growth should be the main objectives for decisions makers and the country.

The second stage for developing a stable and sound bond market relate to the creation of an information-based platform a large potential to attract the number of investors is strictly limited, not fully developed markets and finally sounds macroeconomic and political settings. At this level, more compelling measures with a strong focus on the development of the most important market of private and public securities. Additionally, there is a need for public firms, disclosure principles, rating agencies, and over the counter (OTC) agreements to support trading activities; and there should be a benchmark set for pricing long-term debt with longer maturities. Stage three; there are enough investors and issuers, skilled middle persons, favourable macroeconomic conditions to foster local economies.

Thirdly, generate a yield curve serving as a benchmark for investors and borrowers in the financial markets. This enables the market participants to derive the market interest rate that reflects the opportunity cost of the fund at each maturity. Sokoler (2002) emphasize that bond market growth increases the competitiveness and efficiency of the financial system dominated by banks before introducing the bond market. However, the bond market effectiveness as an alternative source of financing depends

essentially on high co-movement reduction between bank lending, bond and equity financing in a domestic setting, and the absence of contagion in the international capital markets, this is more important for countries with open capital accounts.

3.2.2 Basic emerging market bond characteristics

Since the steep macroeconomic factors deterioration that resulted to the global financial crisis of 2007-2008, significant attention has been given to emerging economies asset classes due to their high growth prospect, favorable demographics, manageable fiscal position and low debt levels in contrast to advanced markets. In addition, it is projected emerging economies growth will ease the development of deeper emerging local bond markets, thus enhancing their market size in relative to advanced economies debt (OICV-IOSCO 2001).

A bond represents a financial debt mechanism, establishing a consensual deal agreement between two parties including the lender and the borrower. In this agreement, the lender consent to provide funds to the borrower for a specific investment purpose. On the other hand, the borrower agrees to pay back the debt based on the contractual terms. The amount to pay back to the lender is generally equal to the principal received by the borrower and the interest accrued based on the terms specified during the transaction. Thus, depending on these terms, the debt contracted can be perpetual or limited to the debt maturity.

The consensual opinion on the overall emerging markets bonds outlook has enhanced tremendously over the last couples of years due to improvements observed in their borrowing pattern and their overall ratings. A few years back, most emerging economies financial systems centred on banks due to the level of underdevelopment of derivatives markets. However, following the period of economic restructuration in which many have moved into more market-based states, there has been a major impact on the banking systems, where many have lost their hands-on position on the provision of financing. There are significant microeconomic and macroeconomic benefits in

developing capital bond markets in general and in emerging and developing economies. Thus, the link between the bond market and the financial system is not totally obvious in the first instance.

3.2.3 The EMEs bond market capitalization

Most of the literature has so far focus on the growth of stock and to the banking sector. On the other hand, a limited number of studies have targeted the bond market capitalization (Azimova and Mollaahmetoglu 2017). The table below displays a recent market size per country and per region. This table demonstrates differences between the market capitalization in developed markets and the market capitalization of an emerging market for Asia, Latin America and Africa at sovereign and corporate levels. The table illustrates the market capitalization as a percentage of GDP of several countries and their contribution to the domestic debt.

Table 3.2.1: Bond market capitalization comparison 2010

Region	Country	Market Capitalization (%) of GDP		Contribution to total Domestic debt (%)	
Developing and Emerging Markets		**Government**	**Corporate**	**Government**	**Corporate**
Africa	**All**	14.8	1.8	89.2	10.8
	South Africa	31.2	20	60.9	39.1
	All Exclude SA	14.2	1.3	91.8	8.2
	CEMAC	10.2	0.7	93.8	6.3
	WAMEMU	14.1	2.3	86	14
	Oil exporters	7.7	1.1	87.5	12.5
	Fragile market	18.4	1.2	93.9	6.1
	Low income	15.3	1.1	93.3	6.7
	Middle income	15.1	3.5	81.2	18.8
Asia	**China**	27.3	22.8	54.5	45.5
	Malaysia	57.3	57	50.2	49.8
	Sth Korea	43.8	59.5	42.4	57.6
	Thailand	50.5	12.8	79.7	20.3
	Argentina	13.3	2.6	83.7	16.3
Latin America	**Brazil**	39.4	22.7	63.4	36.6

	Chile	13.1	17	43.5	56.5
	Mexico	22.6	17.1	56.9	43.1
Eastern EU	**Czech Rep**	23.3	11.2	67.5	32.5
	Hungary	57.3	7	89.1	10.9
	Poland	42.6	1.8	95.9	4.1
Developed Markets Global					
	Australia	27.4	51	35	65
	Canada	63.2	26.5	70.5	29.5
	Japan	205.4	37.8	84.5	15.5
	U S	75.7	98.6	43.4	56.6
	Europe	55.8	46.4	54.6	45.4

Source: Mu et al (2013)

Notes: Table 3.2.1 above represents the evolution of market capitalization for emerging and developing economies for the year 2010. The data is collected for three main continents Asia, Africa and Latin-America. Developed economies include Australia, Canada, Japan, US and Europe. The African markets include all African economies include South Africa. The data originated from Mu et al. (2013) no recent data has been provided on a free basis allowing to update the table. The table displays the market capitalization given in percentage of the GDP and the contribution of emerging and developing markets for private and sovereign are based on their geographical area. We also summarize the value of countries based on their income group; this allows observing difference between income groups and countries. Income levels are distinguished by the level of development of countries (low income, middle income). Markets are categorized whether they are developed or emerging economies.
The unit of measurement for the figures is in a percentage.

Table 3.2.1 illustrates the level of market capitalization for emerging economies and developed economies for the period 2010. The table shows large variations between market capitalization of governments and the market capitalizations for firms for different regions.

The role of financial system in an economy is important for economic and financial growth. Comparing different financial systems and specifically looking at the bank and market-based financial models, Allen and Gale (2000) emphasize the importance of the banking system in encouraging growth at the very early stage of the economic expansion. Table 3.2.1 demonstrates different levels of contribution between the private and the public sector in the economy. The table evidenced a higher contribution of local governments to the market capitalization of emerging economies and this impact a country total domestic debt. On the other hand, for developed economies, the share of private firms 'contribution to the domestic debt is greater compared to the share of private firms in emerging economies. Nevertheless, the table

demonstrates differences between the private sector and government contribution in the economy between developed and developing economies. In developed markets, the private sector plays important role, whereas in developing markets, the government plays the leading role in providing the most of these countries investment.

3.2.4. Towards strong and stable capital markets in emerging economies

The global economic expansion continues but it has become less even. The most recent financial crisis 2007-2008 has brought back painful memories of the late 1970s oil crisis which affected several developed and developing economies worldwide. Following this turbulent period, several markets have stabilized their economies in the late 1980s and early 1990s where most of the key economic indicators were showing a positive trend. Thus, the recent global financial crises constrained investments in most developing economies, affecting their economic and financial growth. The post financial crisis has witnessed notable structural transformations in the liquidity market. Currently, there is not clear evidence of meaningful weakening of the liquidity market in major financial market, albeit surprisingly accommodative monetary conditions of the last decade could be covering fundamental frictions.

The future of the role of capital market in emerging economies seems bright if emerging economies are successful in developing sounds financial markets. There are various benefits linked to efficient capital markets development in emerging economies and these are well known. In addition to supporting a better distribution of resources by sustaining the banking sector in their long-term intermediary role, they allow agents to develop aptitude to handle risk and opposed to unpredicted chaotic financial changes. Moreover, sounds capital markets substitute companies' financial reliability through strict rules and the necessity to conform to the universally accepted benchmark transparency, accounting practices and governance among others. Thus, the fundamental issue in emerging economies remains the size of their markets that

remain relatively underdeveloped. One must admit that the procedure for developing emerging economies markets to a good standard that support emerging economies financial and economic development will be quite a tedious and long process.

Currently, emerging economies capital markets development is constrained in a hostile economic environment. Some important macroeconomic variables including interest and exchanges rates have a strong correlation with financial and economic growth, and their variability directly affects their contribution to the development of capital markets (Laeven 2014). In addition, market unpredictability and the interest rate volatility are of a high importance for institutional shareholders[10]. Thus, stable macroeconomic conditions increase the prospect of local demand for capital markets instruments. Burger and Warnock (2006) emphasize that markets with stable inflation rates are inclined to have developed sound local bond markets and tend to give importance to foreign currency-dominated bonds. Therefore, the absence of stable and reliable macroeconomic policies does not only impede domestic capital market development, but it also weakened the overall economy structure.

The second pillar for efficient financial markets development is down to a solid and stable banking system or growth of financial infrastructure. This aspect is central to capital markets development. The financial structure refers to materials supporting financial market exchange (Laeven 2014). However, the creation of a well operating financial infrastructure is not without hurdles since models must be tested and adjusted to suit the economy. The domestic capital markets growth classically evolves different stages. This is perhaps the most incomprehensible aspect of the four pillars for capital markets development in developing economies. There are fallacies regarding the

[10]Although the discussion on the connection between savings and growth is still going on, large number of high caliber researchers favor the relationship from economic growth to savings. An important paper discussing this relationship is the seminal paper of Caroll and Weil (1994), "Savings and growth: a reinterpretation",

ability of local corporate bond markets to foster the banking sector financing capability to supports firms' financial needs in the aftermath of financial distress. Certainly, both the bond market and the banking sector do play a vital role in the developmental phase of securities markets, therefore they are not substitutable. In a period of financial distresses, it is likely to observe that when the banking sector is facing difficulties, capital markets also affected at a different level.

The third pillar consists of institutional framework solidification; evidence from literature demonstrates that sounds and robust institutions supplement the part of principles promoting capital markets growth. Certainly, an efficient regulatory system is not strong without the support of a robust institutional structure that protects investor's and creditors rights. For example, Burger, Warnock and Warnock (2012), concludes that markets with creditor-friendly laws and stable macroeconomic policies prove to have developed local markets. Similarly, Eichengreen and Luengnaruemitchai (2006) conclude that Asian capital markets tend to grow efficiently compare to Latin America markets due to a better legal system and less costly contract enforcement. In the market for equity perspective, this means owners voting rights to influence boards' attitudes and decisions. In bond markets, holders of certificates are entitled to seek their collateral in a case of bankruptcy. The fourth and last pillar is the market regulatory efficiency. This last point is particularly an important aspect for developing and emerging economies because, many emerging, developing and transitional economies operate under weak regulatory framework, fragile institutional settings and the government invisible hand.

3.2.5 Emerging economies market capitalization

The following table provides emerging economies estimates based on four main indicators including several listed firms; the value traded a percentage of GDP, the market capitalization and the turnover volume of shares.

Table 3.2.2: Emerging economies market capitalization year 2015

Country	Listed Companies	value Traded (% of GDP)	Market Cap (% GDP)	Turnover/volume of shares ($)
(1) Bahrain	44	0.94%	19%	4.809.544.483
(2) Malta	23	0.86%	4%	632.336.623
(3) Peru	212	0.76%	56%	3.302.784.635
(4) Cyprus	84	0.66%	3%	152.739.562
(5) Morocco	74	2.88%	49%	827.567.568
(6) Mauritius	71	3.94%	7%	8.561.642.533
(7) Nigeria	183	0.85%	50%	6.880.066.848
(8) Sri Lanka	294	2.22%	21%	3.731.638.543
(9) Oman	116	5.1%	41%	6.287.135.789
(10) Iran	318	2.18%	89%	1.033.588.825
(11) Chile	223	8.11%	190%	4.177.129.167
(12) Philippine	262	13.1%	238%	4.031.768.139
(13) Qatar	43	14.6%	142%	2.219.832.073
(14) Indonesia	521	8.71%	353%	7.975.254.072
(15) Mexico	136	8.99%	402%	267.4325.041
(16) Malaysia	892	37.6%	382%	124.289.3817
(17) Russia	251	8.58%	393%	426.402.5449
(18) Sth Africa	316	73.6%	736%	6.495.297.576
(19) Vietnam	307	9.65%	52%	4.20.6790.883
(20) Poland	872	11%	137%	271.330.419
(21) Hungary	45	6.05%	17%	5.091.606.661
(22) India	5835	36.9%	1516%	1.497.507.667
(23) Thailand	639	67.9%	348%	20.3579.865
(24) Brazil	345	23.2	490%	2.576.835.669
(25) Sdi-Arabia	171	67%	421%	2.781.192.395
(26) Japan	3504	127.1%	4894%	20.157.446
(27) Turkey	392	40.67%	188%	1.218.442.378
(28) China	2827	355.4%	8188%	9.594.513.656

Source: World Development Indicators 2016

Notes: Worldwide Indicators of stock market development 2015. This table presents stock market development for several emerging economies for the period 2015. The table provides indicators such as a few listed firms; the value traded a percentage of GDP, market capitalization and turnover volume of shares. The countries within the table are not distributed, for instance there are only 4 emerging countries taken in account for Africa out of the 28 countries in the table. In addition, these countries combined listed firms are less than the number of firms for Indonesia. We provide the market capitalization, the value traded of number of shares in percentage and the turnover volume of shares provided in millions of US dollars.

Table 3.2.2 demonstrates the variations market size based on the 25 emerging and developing economies. The most important aspect of the above table is important variations in the number of listed firms in emerging economies. For instance, we observed that Malta has the smallest number of listed companies on the list above

whereas India, Japan and China have the highest number of listed firms in their respective markets. Thus, it can also be noticed that the total volume of the number of shares in these countries also differs with China having the highest total volume of shares turnover, China is followed by a country such as Mauritius and South Africa. Finally, China also has the highest percentage of market capitalization compared to many others listed economies on the table. More importantly, the market capitalization of countries such as China, Japan, India, and Mexico are very high compare to other countries. This is not a surprise since China has one of the largest markets in the global economy closer to many developed economies.

3.2.6 Emerging markets debt overview

The emerging economies debt has grown exponentially over the last decades. Issuers of emerging economies debt are concentrated in Latin America, Eastern Europe, Africa, Russia, countries in the Middle East and Asia (ex-Japan). The large portion of the emerging economies debt growth expressed in local currency sovereign debt and US dollar-dominated corporate liability. Table 3.2.3 provides a description of dominated local currency bonds market development for the period 2010 -2015.

Table 3.2.3: Emerging market debt overview 2010-2015

Variables /Years	2010	2011	2012	2013	2014	2015
Total Debt	11.8	12.7	14	14.6	14.9	17.2
Local Currency	10.5	11.2	12.2	12.6	12.8	15
International Market	1.3	1.5	1.8	2	2.1	2.2
Local as a Share of Total GDP (%)	89	88.2	87.1	86.3	85.9	87.2
Local as Share of GDP (%)	46	42	44	42	42	50
General Government	6.2	6.5	7.1	7.4	7.5	7.8
Non-government	5.6	6.1	6.8	7.1	7.4	9.4
Government as Share of Total (%)	52.5	51.6	51.1	51	50.3	45.3

Government as Share of GDP (%)	27.2	24.4	25.6	24.7	24.6	26
Non-government as Share of GDP (%)	24.5	22.9	24.5	23.7	24.3	31.3
Local Currency Debt by Type of Issuer	10.5	11.2	12.2	12.5	12.8	15
General Government	5.6	5.9	6.4	6.6	6.7	7
Non-government	4.9	5.3	5.8	5.9	6.1	8
Government as Share of Total (%)	53.3	52.7	52.5	52.8	52.3	46.7
International Debt by Type of Issuer	1.3	1.4	1.7	2	2.1	2.2
General Government	0.6	0.6	0.7	0.8	0.8	0.8
Non-government	0.7	0.8	1	1.2	1.3	1.4
Government as Share of Total (%)	46.2	42.9	41.2	40	38.1	36.4
Local Non-government Debt by Region (%)	100	100	100	100	100	100
Asia Pacific	73	73	73	74	76	83
Latin America and the Caribbean	20	20	19	19	18	12
Emerging Europe	4	4	4	4	3	3
Africa and the Middle East	3	3	4	3	3	2
Local General Government Debt by Region (%)	100	100	100	100	100	100
Asia Pacific	49	50	51	53	57	61
Latin America and the Caribbean	33	33	31	30	28	25
Emerging Europe	11	11	11	10	9	8
Africa and the Middle East	7	7	7	7	6	6

Source: JP Morgan, IMF 2016 calculations

***Development of Local Currency Bond Market figure given in (USD Trillion) **

Notes: Table 3.2.3 provides the market capitalization of several economies for the period 2010-2015. We measure these factors for Asia pacific, Europe, Latin America, and the Middle East. We also include some others area with similar characteristics. Most of the indictors are given in percentage. The

comparison is made between government and the private sector. Most figures on table 3.2.3 are given as a percentage of GDP.

The table 3.3 above is the local currency bond markets development for five consecutive years 2010-2015 for emerging economies grouped in different regions including the Asia Pacific, Latin-America and the Caribbean, emerging Europe, Africa and the Middle East. The table shows that there has been a progression on the debt level of sovereign and the private sector. Looking at the first three of the table rows, it can be observed that there has been a progression on the three indicators; total debt in 2010 was 11.8 per cent to reach a 17.2. There has been a progression margin of more than 3 percentage point in five years. It is also noticeable that, local governments debt is critically high compare to the private sector debt.

3.2.7 State of capital market development in the emerging market

We provide a general overview of emerging economies state of capital market growth for a better understanding of these economies' strength and weaknesses.

Emerging economies financial markets are generally considered underdeveloped comparing to the developed economies markets. In this respect, emerging economies companies in their majority and specifically non-financial firms tend to rely less on capital markets due to their level of underdevelopment, and high interest rate due to the lack of diversified sources of funds. In this respect, capital markets are rarely the first or the primary source of capital, especially for small and medium-sized firms in emerging economies. This is down to the several factors including, lack of appropriate sources of funds, unstable or volatile capital markets, high collateral and interest rate request from local finance providers. In practical terms, emerging markets most firms tend to be of a small or medium size like the size of their market. Therefore, their contribution to foreign financial markets to borrow might be reduced due the lack of exposure to foreign markets.

The markets for capital have grown considerably in many countries in recent decades, especially in emerging economies (Mihaljek, Scantigna and Villar, 2002). For example, the global growth of the debts outstanding securities grown for about 50 per cent, from the initial 47 per cent observed in early 1994, the size of the debt has grown to reach 72 percentage points in 2010. The above statistics present an increase from 13 per cent of GDP in the early 1990s to 54 per cent of GDP around 2010 in most upper middle-income markets. Identically, the capitalization of the stock market (compared to GDP) also grown for at least 50 per cent worldwide, but the greater increase was observed mostly in upper-middle-income markets. Thus, the greater upward growth of this period comes from the domestic private bond market; the increase represents at least 6 times from the original 2.4 per cent of GDP in 1994 to 13.3 per cent of GDP in 2010. Local bond accounted for 79 per cent and the public sector bonds for 56 per cent of the total bond remain to be paid. Sovereign bonds remain the most important bond issued in local markets (in both high income and middle-income markets), private companies' issuance of bonds come in the second position and the international bond issued by public and private (see table 3.3).

The total debt for emerging economies based on table 4.3 shows that there is a growth of more than 5 % between 2010 and 2015, whereas the international markets remain lower growth. This confirms the findings that local markets are not only growing but they are growing on an important scale. Overall, all the indicators for bond markets growth in the table have moved upward except for the local government debt ratio per region that has decreased to about 1 per cent. Despite these upward moves, it is important to notice a difference when examining the growth region by region. In doing so, it can be observed that the size of non-government and government debt in Latin America, Europe and Africa is relatively low and has decreased years after years. On the other hand, there has been relatively low recovery for many emerging economies

over the last ten years, Asian economies have been much more active compare to other regions.

3.2.8 Developing bond market issues and challenges

The development of stable domestic capital markets offers several advantages to borrowers and investors, including governments. They supply for a greater risk sharing and a more efficient capital distribution. In addition, they improve the implementation of fiscal, monetary and exchange rate policy. The above advantages occur using various complementary channels (Laeven 2014). According to the literature, research on less-developed economies has for many years focused on the technicalities of the bond markets (Sharma 2000). Thus, understanding different factors affecting the development of the bond market is of high importance for number of emerging economies. In this respect, emerging market around the world faces greater challenges for the future of their economic growth and financial stability. Given the increasing magnitude of securities markets as the main source of funding for public and corporate sectors, fundamental questions develop around the effectiveness of policies in markets stimulation. Remarkably, there have been progress observed over the last couple of years on the way emerging economies assets classes are graded stem from policies change. Several issues addressed that prevent bond market development in emerging economies. Most or a large part of the issues identified is general, in nature, but these related to macroeconomic circumstances and economic policies generally in place. Emerging economies commonly have weak institutional policies, and these policies in place are often not applied sufficiently to dissuade financial institutions in their approach to debt. The second set of recognized issues related to micro-market characteristics maturity strongly investigates the existing economic surroundings and market circumstances. In theory, markets should be able to provide necessary financial means to local governments and business without seeking external help (Khalid 2007).

3.2.9 Macroeconomic issues on bond market development

There is a consistent correlation between the macroeconomic determinants and bond market growth as illustrated in the literature. The central part of the tripartite roles of any-well-framed financial markets toward economic and financial expansion is the practicability of markets for the bond in organizing both domestic and foreign financial resources for investment. However unexpectedly, most emerging bond markets, still yet to live up to the prospect of this consent; since markets are characterized by fragile firms' instrument, deprived corporate governance, frail regulatory structure and both financial and political volatility (Kemboi and Tarus 2012).

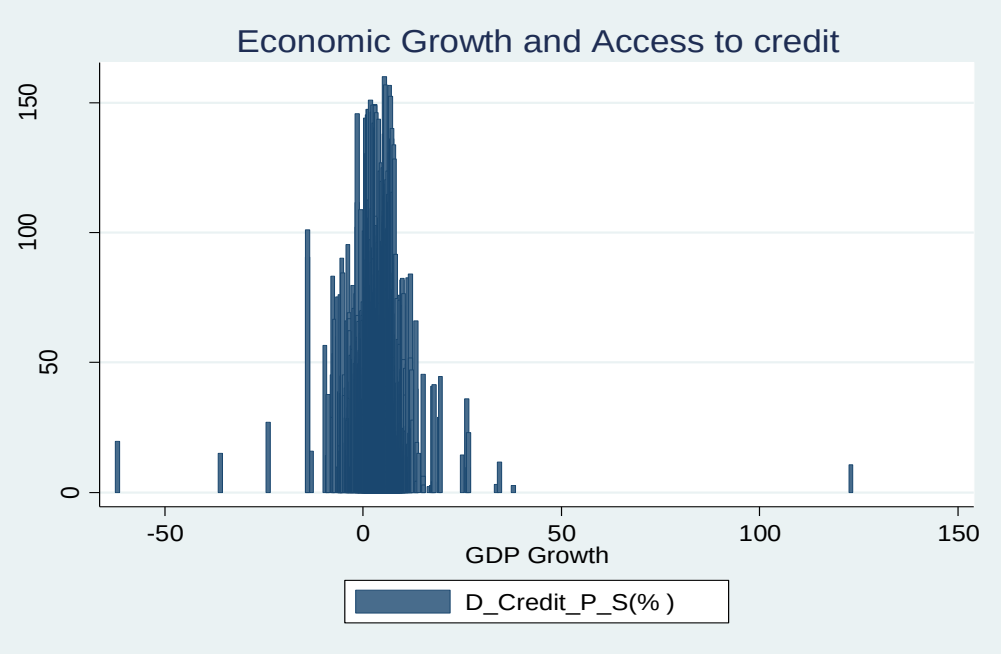
Though the financial market plays an intermediary role between borrowers and lenders in which a surplus of income will be lend to those in need. In addition, they provide a bridge between economic and financial growth through stock and bond markets stabilization which are circular on the promotion of economic stability. Thus, the literature stressed that the fundamental role of macroeconomic conditions affect the development of the bond market and therefore the country growth. However, most empirical studies have relied on proxies of bond market determinants that capture the expansion of financial intermediaries comparatively to the dimension of the market. The issue with this way to analyze growth is that, proxies' only measures how good financial intermediaries operate in terms of funding projects or spending for businesses (Tharavanij 2007). In addition, the literature demonstrates that markets development indicators used in the studies only capture the development of "indirect channels of financing" and fails to capture the capital markets growth.

In markets where the macroeconomic constituents are relatively volatile, there is a tendency of the bond markets to rely on sovereign support in one way or the other (Fabella and Madhur 2003). The experience from more advanced economies proposed

that a healthy government bond emulate advantageous settings for the growth of a strong corporate bond market IMF (2002). Thus, a proficient and healthy banking sector also encourages bond market growth. This scheme may appear rather incongruous given that studies have portrayed the banking sector in many instances as an important opponent to the bond market. However, it is imperative to mention that a free banking sector that operates without political intervention that follows market principles is an important vector for bond market demand. Additionally, a robust banking sector that works by following markets principles will provide strong support to the bond market (Yoshitomi and Shirai 2001).

Pardy (1992) pointed out that there are two most important variables supporting the faster market for capital expansion: the market infrastructure and the macroeconomic and fiscal surroundings. For instance, the corporate bond markets have developed exponentially in Australia, Hong Kong, China; and Taipei after financial deregulation in the 1980s. Today, banks in these countries are major buyers of corporate bonds. The factors usually include in macroeconomic are inflation, interest rate, foreign exchange rates and government expenditure. Furthermore, a comprehensive macro-level determinant, the industry level and the firm level variables control the degree to which the markets for the bond grow (Sprcic and Wilson 2007).

Figure 3.1: Macroeconomic and debt in emerging markets perspective



Notes: The above figure shows the relationship between a country debt level and the current gross domestic product of countries in the dataset.
The data originated from World Development Indicator (World Bank Group)
D_Credit_P _P_S = debt credit to privates.

Figure 3.1 provides the relationship between bond market development for emerging economies. We use two of the bond markets indicators, including debt credit to private firms and the GDP growth of the countries. The figure shows a large concentration of private firms' credits for a GDP growth. In addition, when macroeconomics factors are changing positively, there is a growth on quality and quantity of funds supplied to private companies.

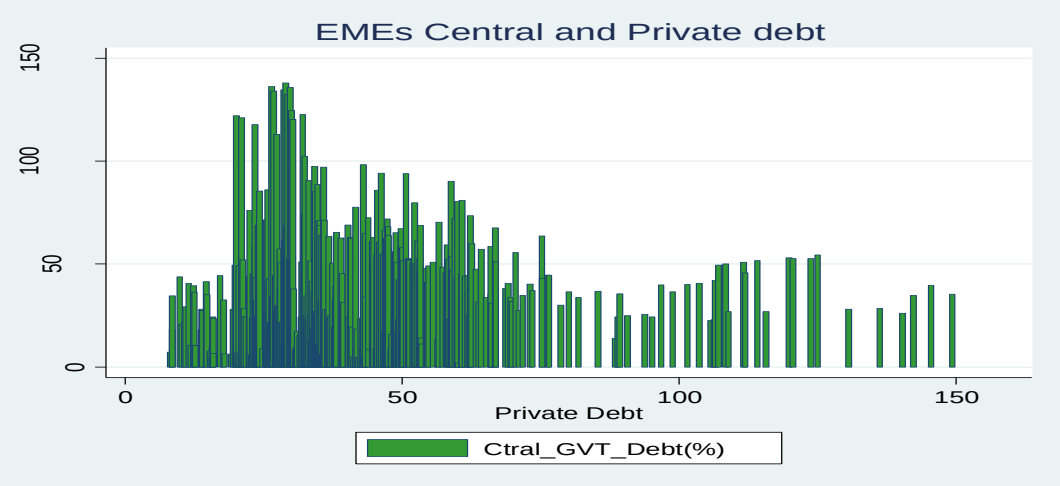
3.2.10 Bond market growth in emerging economies

The development and growth of sovereign and corporate bond market in emerging economies is of great importance if we would like to understand the main factor driving economic and financial development in emerging economies. The debt markets size in developing economies has been expanding considerably since the early

1990s. The trend of the emerging economies has grown to reach a total of $ 1.9 trillion in the local and international bonds outstanding, this represents a twice the overall emerging market debt in early 1994. Several reasons support the development of the bond market in emerging and developing economies, regardless of their financial system. Firstly, the awareness of cross countries differences in terms of growth. Second, improve bond market efficiency by applying markets rates of interest that are equivalent to the opportunity cost of funds at each maturity (Turner 2002). In this respect, a fundamental point in development economics derives from the relation between a country economic growth and its financial system. There are various economic model systems proposed in the literature, however, only two main models have been subject to intense academic discussions, market-based and bank-based financial models. This issue of distinguishing between bank and market based economic models has been raised in the literature over the last couple of years. Several studies on different occasions attempted to relate these economic models with some country's success and the failure of others. Demirguc-Kunt and Maksimovic (2001) carried out an influential work in that direction. Their study investigated the role of bank and market based on developed and developing economies.

Thus, the argument is that both equity and stock markets covariate (Campbell and Ammer 1993), in addition there ishigh volatility between the two markets that affect both markets, (Fleming, Kirby and Ostdiek 1998). The following figure 3.2 shows the relationship between the emerging and developing central government debt and private debt in emerging economies. We use a large set of emerging economies to evaluate the performance of the two markets tools. The identification of different patterns demonstrates the level of confidence investors allocate to each security.

Figure 3.2: Emerging markets central government and private debt



Data source: World Bank Group (WDI)

Ctral_GVT_Debt = central government debt. The figure is a scale between private debt and central government debt for countries in the dataset.

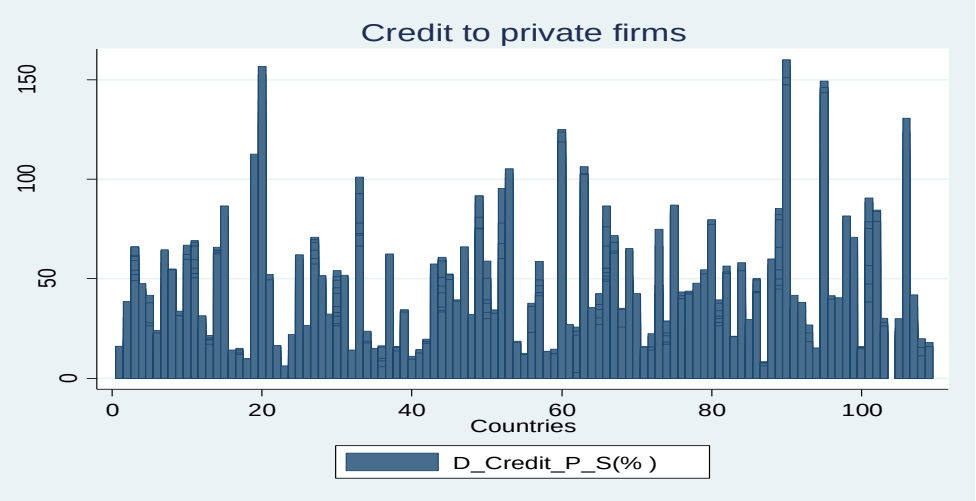
Figure 3.2 above shows the relationship between the debt levels for the private sector and the central government debt. The patterns illustrated in the graphs demonstrate that there are differences between the borrowing patterns. The international debt in emerging economies seems to relatively low, whereas the central government debt and the private firm's debt in emerging economies seem to have an almost identical pattern for some countries. However, debt to private firms seem lesser compared to sovereign debt. Theoretically, this observation back the literature which stated that, emerging economies firm's debt cannot exceed the sovereign debt of the country.

A financial system's most important contribution in a country economic structure theoretically is to provide resources for investment, picking valuable projects to finance, and the provision of incentives for funded investments performance monitoring. There is enough theoretical evidence is provided in a market based financial system, and how these are performed in a market where banks and other financial intermediaries play a key function. Various studies in the field of finance attempt to provide the rationale for the difference between banks based financial

system and market-based financial model and build models explaining the advantages of each of the systems. For instance, Boyd and Smith (1998) developed a model explaining the fundamentals of why countries are turning into a more market-based model, with optimistic implications for economic development as they become mature. Rajan and Zingales (1998) in the same line of arguments contended that bank-based economic model is healthier in promoting development in markets with underdeveloped legal systems, while market-based economic models find positive sides when legal systems become more stable. Thus, well-structured financial systems have a positive impact on economic growth (Ross 2002).

Lee (2012) investigates the bank-based and market-based financial systems using time series evidence of developed economies data. He concludes that the stock market plays a fundamental role in financing economic growth in the U.S, the U.K, and Japan. On the other hand, the banking sector plays an important role in Germany, France, and Korea. Thus, there is a substantial active contribution of the banking sector in the early stage of the economic growth. Nevertheless, both markets and banks are rather complementary for several economies on the economic expansion process except for the U.S where the two components seem to conflict. We include the bank and market based financial system in this study to evaluate whether banks based financial model as some of the researchers have identified do not favour markets development.

Figure 3.3: Debt credit to private companies in emerging economies



Notes: Figure 3.3 shows the debt credit to private firms' evolution per country. The figure demonstrates that there are differences terms of borrowing between countries. D_Credit_P = debt credit to private firms

Emerging economies firms like developed economies use different sources of financing. Graph 3.3 above provides the pattern on emerging economies private firms' debt for many economies. Graph 3.3 shows that contrary to sovereign debt examined in section 3.2.9, private firms in most emerging economies tend to borrow less from capital markets. The pattern of the graph indicates that funds allocated to emerging economies for investment purpose are generally capped.

3.2.11 Arguments for consolidating emerging economies bond markets

Emerging economies domestic bond markets have grown significantly in recent years. Thus, the advantages related to bond markets development and economic stability through liquid market remain a major obstacle for many countries (BIS 2002). As from the late 1990s, the local bond market became an important source of finance for firms' seeking access to long-term debts. Thus, the conservative knowledge proposes that the equity markets are more varied and provide better results than the bond markets, predominantly from an active investors' perspective. The financial conditions in the emerging economies have become more dependent on the globe

long-term term structure driven down by developed economies quantitative easing and by several non-financial aspects.

Monetary policy in less advanced economies is continuously guided by local goals; it has however lost some grips. Bank loans are no longer profitable to companies since the costs incurred are generally high, however, firms can reduce the cost of finance through bonds financing options. The growth of a domestic corporate bond market assists firms with financing cost reductions in mainly two dimensions. Firstly, there are no financial intermediaries involved as firms can borrow straight from investors. Although companies still must go through brokers, underwriters and dealers to request financing, there is more intense competition among these intermediate mediators, which in some ways plays an important role on the reduction of costs of financing which is not the case for the banking sector. As a result, companies find themselves paying less for their debts compared to the cost that they could have incurred if borrowing through banks. The growth of the high active corporate bond market provides a more different perception of the market. Across periods, credit markets have matured to become an increasingly significant assets class, currently offering a far greater range of investment opportunities than it has an offer in the past. Thus, the development of a capital market, particularly the bond market would provide local companies within the alternative way of accessing capital funds through others routes rather the traditional banks, this, as a result, will revolutionize any potential unpleasant result that banks financial constraint may have on the economy.

3.2.12 The relationship between the bond market and banks

The debate on the relationship between bond development and banks has been an important topic over the last couples of years. Very few theoretical papers have investigated this relationship. Interest group theory contends that banks are generally hostile to equity market development since this raise's rivalry between markets and

banks. In the emerging economies perspective, there is a need to develop both financial markets and banks to support economic growth.

Rajan and Zingales (2003) provide some evidence on this relationship. According to this study, banks have enjoyed for many years a high degree of the monopoly of financing governments and firms in countries where financial systems present deficiencies, therefore, the development of bond markets reduce banks' profits by introducing competition between banks and markets. While at the same time their financing method is perceived outdated since the introduction of new financing mechanisms are old and fail to assess borrowers' credit rating efficiently. Thus, financial systems have many virtues in shaping financial decisions locally and at the global level. For instance, financial markets bring competition, end the current banks institutions' monopoly and contribute to building new relationships between financial intermediaries and borrowers that render banks controlling position obsoletes. Although very few empirical studies directly investigate this relationship, a reduced number of studies provide some important facts on the relationship between banks and bond markets development.

Hawkins (2002) for instance, observed that lower-rated companies tend to issue fewer bonds than will do highly rated firms. Diamond (1994) emphasized the existence of high intermediaries' costs related to banks funds provisions. With the relative's charges benefit to debt securities associated with low-interest rates, firms with a good credit rating seeking to reduce costs and improve their profits will prefer to borrow from markets if these are accessible. Furthermore, Bolton and Freixas (2000) conclude that companies with lower credit rating will tend to borrow funds from banks due to debt rescheduling advantages, while larger companies with high credit ratings will seek fund from bond markets.

Denis and Mihov (2003) in their seminal paper analyzed a sample of 1560 newly issued debt by publics traded firms conclude that, debt instruments selection of public traded companies related to their credit history and present credit value. While companies with average credit scores will rather benefit from banks, thus lower credit rating agencies will tend to choose non-financial private funds providers due to their reliability and fewer intermediaries costs.

Overall, these papers suggest the existence of competition between the banking sector and capital markets therefore, banks might fail to retain good debtors due to the development of financial markets.

Demirguc-Kunt and Huizinga (2001) demonstrate using a large set of corporate data from developed and developing economies that, the underdeveloped financial systems moving towards a more efficient model tend to reduce banks profitability and margins. Thus, regulating banks and markets, the financial structure per se does not affect banks performance. The empirical assessment of the bond market growth by Jiang and Law (2001) stressed that bond issuance and banks are both associated with the OECD and emerging economies.

Eichengreen and Luengnariemitchai (2004) investigated the rapport between bond market development and the banking sector along with other features based on data from 41 markets from BIS reports. Their conclusions suggest that countries with the well-capitalized and competitive financial environment will promote the development of bonds markets. The above studies demonstrate the complementarities between the banking sector and capital markets development.

The graph below depicts the relationship between bank concentration and public and private bond on individual markets.

Figure 3.4: Emerging economies bank concentration

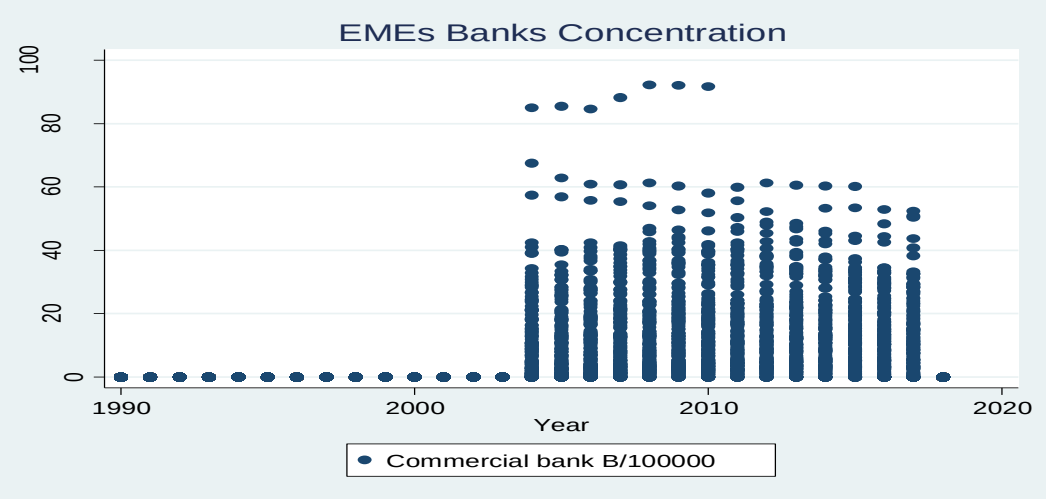
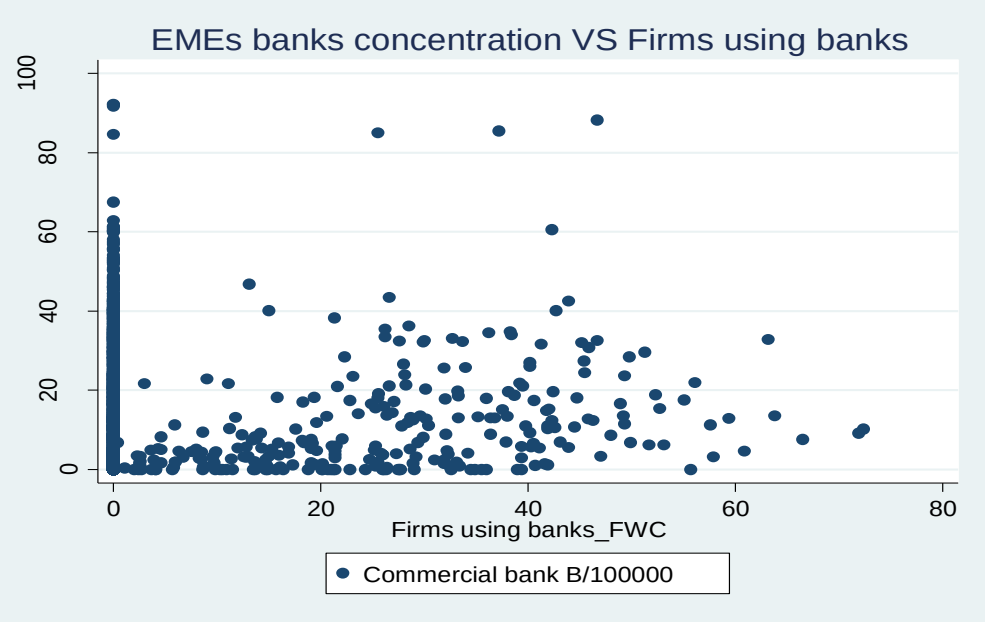


Figure 3.4: Emerging economies banks concentration per 100.000 habitants
Notes: Figure 3.4 diagram shows the level of bank concentration per 100000 habitants for each country. The countries in the sample include but not limited to the followings: Argentina, Brazil, China, Colombia, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Russia, South Africa, Thailand, and Turkey.

The above graph shows banks concentration per 100000 habitants. The graph illustrates the bank concentration for the period between 1990 to 2018. It can be observed that between the year 1990s and the 2005, the number of banks per 100000 habitants was relatively insignificant. Then, between 2006 to 2017 there has been an explosion of the development of the banking sector in most emerging economies. This in other words, this confirms the theory that most emerging economies operate under a more banking system rather than market-based model of economy. In addition, it demonstrates the resilience of the banking sector not to give too much ground to the capital markets growth in emerging economies. The figure also demonstrates that, there is a high concentration of banks for a given population and these serves the population to their best. But for some economies, particularly for the period between 2004 to 2017, the more the population of an economy is growing, the less the number of banks can provide good services, therefor there is a need to other financial institutions such as capital markets to complement services already provided by banks.

The following figure 3.5 provide a relationship between banks concentration and the number of listed firms using banks to finance projects.

Figure 3.5: Bank concentration and firm using banks



Notes: Commercial bank per 100000 habitants represents banks concentration per country of incorporation.

Fig 3.5 shows the difference between bank concentration and the number of firms using banks to finance their investment projects. Most empirical studies have focus on the traditional factors with an attention on the macroeconomic and country factors when examining the factors affecting bond market development. A key indicator of bond market is characterized by the size of the banking sector in a country. Although, the banking sector size in a market-based economy is not a concise indicator for capital markets growth in an economy. The above graph demonstrates the proportion between bank concentration and the number of firms using banks to finance their working capital. Few interesting observations derived from figure 3.5; first, the graph shows a disproportion between the number of banks and the level of firms using banks to finance their working capital. Secondly, it is observable that as the number of bank increases, there are fewer numbers of firms are interested to acquire funds from banks to finance their working capital over a period. This is not surprising because the more

banks are concentrated around a specific area; the more firms have the choice between these financial institutions. Since the aim of firms is to maximize their profit, firms will choose to secure debt from institutions that offer better deal, for example longer debt repayment period, fewer interest rate.

3.2.13 Factors affecting emerging economies bond development

There is an exhaustive list of factors that influence the development of bond markets in emerging and developing economies as illustrated by the extent of the literature. Theoretically and empirically, both private and sovereign governments have a high interest in developing the bond markets particularly in emerging economies. previous studies indicate that for several decades, commercial, public and private banks have enjoyed a high degree of the monopoly of financing governments and private firms in countries where financial systems are shamble. One of the advantages in having strong capital markets is that it will help to reduce intermediaries' costs, in addition it also eases pressure on the banking system as well as reducing their monopoly.

The introduction of financial markets brings competition, ends the current financial institutions' monopoly and contributes to building a new relationship between financial intermediaries and borrowers that renders banks controlling position obsoletes. Although a few empirical studies directly investigate the relationship between corporate debt market development and banks, a reduced number of studies provide with some important facts on the relationship between banks and bond markets development.

Hawkins (2002) study for instance, demonstrates that lower rated companies tend to issue fewer bonds than will do highly rated firms. Diamond (1994) emphasized that there are high intermediaries 'costs related to banks funds provisions. With the relative's charges benefit from debt securities associated with low-interest rates, firms with a good credit rating seeking to reduce fewer costs and improve their profits will

prefer to borrow from markets if these are accessible. In addition, Bolton and Freixas (2000) outlined that companies with lower credit rating will tend to borrow funds from banks due to debt rescheduling advantages, while larger companies with high credit ratings will seek fund from bond markets. Denis and Mihov (2003) seminal paper analyzed a sample of 1560 newly issued debt by publicly traded firms conclude that debt instruments selection of public traded companies related to their credit history and present credit value. While companies with average credit scores will rather benefit from banks, thus lower credit rating firms will tend to choose non-financial private funds providers. Overall, these papers suggest that there is an existing and obvious competition between banks and bond markets and therefore, banks might fail to retain good debtors due to the development of financial markets.

Demirguc-Kunt and Huizinga (2001) demonstrate using a large set of corporate data from developed and developing economies that underdeveloped financial systems moving towards a more efficient financial system tend to reduce banks profitability and margins. Thus, regulating both banks and markets has a sole objective to serve economic growth; the financial structure per se does not affect banks performance. The empirical assessment on the relationship between capital markets and banks by Jiang and Law (2001) stressed that bond issuance and banks are both associated with OECD and emerging economies.

3.2.14: Emerging markets foreign government bonds

The roles of sovereign bonds in emerging economies are important for emerging economies non-government bond market growth. In addition, the sovereign bond market plays a vital role in pricing private bond transactions. There is an increasing body of literature supporting that the development of a country's financial sector greatly facilitates its expansion (e.g. King and Levine 1993; Demirguc-Kunt & Maksimovic 1998; and Rajan and Zingales 1998a). What could then explain the fact

that some of the markets have less developed bond markets? The most plausible answer to this puzzle is that there are dissimilarities in demand across markets. Thus, one way of curbing this is through the implementation of exchange rate flexibility policies present in some countries can alleviate but cannot totally determine their own long-term rate.

During the early 2000s, several emerging economies was able to issue long-term debts in their local currency rather than in different currency due to greater macroeconomic policies that marked the most important changes in their approach to bond issuance (BIS 2009). Additionally, emerging economies proceeded to relax capital controls that allow non-residents to invest in this bond and improve their debt markets. Hence, long-term interest rates in emerging countries local currencies developed even more, with longer maturity and became strongly integrated with worldwide bond markets.
Based on the World Bank estimation, 30 per cent of the emerging economies, bonds benefited non-residents; these figures more have almost a double of the previous estimate in 2008. In many countries, non-residents hold long-term maturity bonds, their stake in countries such as Hungary, Malaysia, Mexico, Peru, Poland, South, and Turkey represent about 20 per cent of the overall market (Miyajima et al. 2015).

3.3 Empirical analysis and sample

In the following section, we provide a general descriptive of different variables and the method used for the empirical analysis for a better understanding of different relationships, and how these relationships correlate with different other variables of the database.

3.3.1 Sample and Variables

This section is to set out the analytical framework based on the empirical studies. We extend the baseline econometric model of Smaoui, Grandes and Akindele (2017) to

two-phase estimation under fixed effects to account for both time-variant and time-invariant variables. In addition, we include the generalized methods of moment's framework to account for possible endogeneity between the appropriate variables accounting for the bond market growth. The regression model follows the Prais-Winston model although not too popular has been used in several theoretical and empirical studies. The advantage of using such a technique in this specific study is to deal with the issue of the type AR 1 serial correlation as generally found in many linear models.

3.3.2 Data collection and method

This section focuses on the data collection used and the methods used to analyze the factors. The data collection involved variables choice and variables collection. For this chapter, we use two different methods. In terms of data collection, we use data from the World Development Indicators (WDI) and part of the data derived from past studies (e.g., Laporta 1997) for institutional factors. The data source for this paper is mainly data collected from WDI (World Development Indicators). WDI provides mostly with macroeconomic indicators for a large set of countries. We collect the private and public bond from the Bloomberg. The market and bank-based indicators originate from Demirguc-Kunt and Levine (1999) empirical papers. The legal origin data partly originated from Levine (2001).

3.3.3 Variables description

3.3.3.1 Dependent and independent variables

In line with the current literature, we use several independent variables in this paper for measuring bond market development. The primarily dependent factor is the measure of market capitalization (Market Cap), and corporate bond capitalization (Corporate capital). In addition, we create a new variable bond sovereign debt,

measured as the value of the government domestically issued and marketable securities as a percentage of GDP. In addition, we use others independent variables are the value of corporate bonds outstanding as a percentage of GDP. We point out that sovereign debt is central government debt while corporate debt includes issued bonds by firms, perhaps may contain a relatively large share if state-sponsored or public enterprises, which in nature are corporate. We inter-change factors, some of the dependent factors becoming independent and some becoming dependent.

Macroeconomic variables include; GDP per capita growth, export goods and services, national income per capita, stocks turnover, stock value, stocks traded, PPG bonds, S&P Global equity, and exchange rate. Market capitalization, listed domicile companies, interest rate spread, inflation, GDP PPP, GDP capital growth, GDP growth, several firms using banks to finance, exports good and services, export volatility index, income group, public bond, private bond, country international debt. In addition to these factors, we include a few dummies for the factors we have not been able to control. We particularly focus on two main countries that have dominated the colonial time which include Britain and France. Furthermore, we include the financial model under which the country currently operates in this respect, there are two main categories has wee illustrated in the previous chapter, the first group of countries operate under the market-based umbrella and the second group under the bank-based umbrella. Finally, we divided countries per group in their region where they are located, we obtained three main groups; Latin America (LA), Europe, the Middle East, Africa (EMEA) and Asia. We report in table 2.2.1 the list of emerging and developing economies based on their income group.

3.3.3.2 Baseline model for bond markets development

There is a need to construct an econometric model mathematically to observe the relationship between the independent and the dependent variables. It is worth

mentioning that the methodology is like the one implemented in Mu et al. (2013). Eichengreen and Luengnaruemitchai (2004), classical paper in which they investigate the role of several factors, consider more relevant to bond market development. In this study, we categorized explanatory variables classified into specific groups including, macroeconomic (exchange rate variability, fiscal balance, financial (banking sector size and the interest rate spreads, level of capital control mechanisms). Developmental factors include all institutions and income per capita, structural (size of the economy and trade openness).

We use two independent variables, the level of sovereign debt and the market capitalization for private companies.

Our panel econometric model of bond development is described as follows:

$$\boldsymbol{Y_{i,t}} = \boldsymbol{\alpha} + \boldsymbol{\delta(\mu_i + \mu_t)} + \boldsymbol{\sum_{k=1}^{K} \beta_k X_{i,k,t}} + \boldsymbol{\sum_{l}^{L} \gamma_l Z_{i,lt}} + \boldsymbol{\varepsilon_{i,t}} \quad \textbf{(3.1)}$$

where, i = 1,..,N; t = 1,..,T

where $Y_{i,t}$, is our dependent variable, bond market capitalization (sovereign and private bond market capitalization);

$X_{i,k,t}$, k = 1…K; $X_{i,k,t}$ this represent the time variant explanatory factors including (Private sector credit, GDP per capita, institutional factors, fiscal balance, interest rate variability

$Z_{i,l,t,}$, represents time invariant (legal origin and the geographical location),

$\mu_i + \mu_t$, represents country and time fixed effect correspondingly

The Country effects specifically control for methodical dissimilarity across markets, including that data come from various databases and specificities for bond classification. On the other hand, time-specific effects control for widespread shocks across markets.

Several panel data models developed along the lines of the above specification: pooled ordinary least squares (POLS), random effects (RE) and the fixed effects models, with

$\delta = 0$ in the Eq (3.1) in pooled mode, whereas if $\delta = 1$ the model collapses to a two-way specific effect model.

3.4 Empirical findings

We provide empirical findings and draw inferences on the relationship between bond market development and economic growth based on theoretical empirical literature. We perform a simple regression model by fitting the dependent variable against the independent variables to measure the tenure of the independent factors and the dependent factors in the spirit of the previous literature Smaoui, Grandes, and Akindele (2017). The theoretical literature on the relationship between financial development and economic growth is extensive, number of studies have attempted to demonstrate this relationship using various factors.

3.4.1 The correlation matrix

We provide a correlation matrix of the list of independent variables in the following section. This exercise allows us to establish different relationships among the variables. The correlation matrix allows us to explain the level of interaction between the two variables. The summary statistics for the correlation matrix indicate that there is a very little correlation between the variables studied. However, a close look of the matrix shows that some of the relationships between the independent variables obtained during the regression process demonstrated that there is a strong connection between several factors and credit spreads. The following table 3.2.4 is an illustration of different relationships given by the correlation matrix estimate of each of the independent variables used to develop this empirical chapter.

Table 3.2.4: Correlation matrix of the bond market growth

	GDP	Inflat~n	GDP_Gr~h	Taxes IT	St~s_TTV	St~d_TTV	Stocks~R	TTChge~S	Deposi~R	Intere S	Real_R	Lending R	Bank_C	Exchge	Vol_Exe	Market~p	List_C~s	Firm_UB	Openess	Fiscal
GDP	1.0000																			
Inflation	-0.0621	1.0000																		
Gdp growth	0.1012	[-0.1523]	1.0000																	
Taxes IT	0.0351	0.0212	0.0381	1.0000																
Stocks_TTV	-0.0295]	[-0.0220]	0.0766	[-0.0263]	1.0000															
Stocks_Trd V	[-0.0015]	[-0.0148]	0.0572	[-0.0048]	0.3041	1.0000														
Stocks TTR	[-0.0191]	[-0.0178]	0.0541	[-0.0124]	0.5530	0.3429	1.0000													
TTC EXDBTS	0.0948	0.0507	0.0576	0.0488	0.0214	0.0220	0.0320	1.0000												
Deposit_IR	[-0.0129]	0.0521	[-0.0125]	[-0.0100]	[-0.0032]	0.0047	[-0.0031]	[-0.0009]	1.0000											
Interest_IS	[-0.0092]	[-0.0010]	[-0.0045]	[-0.0072]	[-0.0029]	[-0.0044]	[-0.0012]	[-0.0080]	0.9641	1.0000										
Real_IR	0.0464	[-0.0399]	0.0480	[-0.0149]	0.0107	0.0227	0.0299	0.0278	0.4261	0.4348	1.0000									
Lending_IR	[-0.0088]	[-0.0015]	[-0.0069]	[-0.0078]	[-0.0035]	[-0.0069]	[-0.0033]	[-0.0088]	0.9801	0.9871	0.4459	1.0000								
Bank_Conc	0.0563	[-0.0482]	0.0543	0.0445	0.0526	0.0833	0.1320	0.0604	0.0204	0.0237	0.0737	0.0254	1.0000							
Exch_Rate	0.0710	0.0032	0.0496	0.0741	0.1196	0.2020	0.1076	[-0.0096]	[-0.0058]	[-0.0056]	0.0236	[-0.0082]	0.1477	1.0000						
Vol_Exchge	0.0577	[-0.0099]	[-0.0440]	0.0435	0.0697	0.0725	0.0700	0.0338	[-0.0035]	[-0.0028]	0.0134	[-0.0034]	0.0999	0.0921	1.0000					
Market_Cap	0.0323	[-0.0363]	0.0614	0.0226	0.2741	0.5018	0.3818	0.0390	[-0.0034]	[-0.0054]	0.0191	[-0.0065]	0.1262	0.1449	0.1080	1.0000				
List_Cmps	[-0.0328]	[-0.0089]	0.0674	[-0.0434]	0.3223	0.2256	0.2970	0.0786	0.0024	[-0.0032]	0.0109	[-0.0030]	0.0648	0.0314	0.0181	0.2384	1.0000			
Firm_UB	0.0543	[-0.0226]	0.0471	0.0108	0.0399	0.0798	0.0430	0.0422	[-0.0042]	[-0.0026]	0.0069	[-0.0030]	0.0827	0.0494	0.1279	0.0633	0.0396	1.0000		
Openess	0.0902	0.0019	0.0721	0.0742	0.0206	0.0853	0.0246	0.1014	[-0.0177]	[-0.0124]	0.0150	[-0.0167]	0.0612	0.0790	0.0295	0.0769	0.0309	0.0211	1.0000	
Fiscal	0.0429	0.0255	0.0187	[-0.0392]	0.0503	0.0549	0.0210	0.0173	0.0044	0.0087	0.0181	0.0084	0.0526	[-0.0216]	[-0.0111]	0.0790	0.0106	0.0174	[-0.0184]	1.0000

Source: World Development Indicators (WDI)

Notes: Correlation matrix of the factors affecting the bond market growth in emerging economies.

We use the factors that have been used in the literature, GDP, Inflation, GDP growth = GDP G in the text,
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Stocks TTR = stocks trade total return
TTC EXDBTS = total change external debt
Deposit_IR = deposit interest rate
Real_IR = real interest rate
Lending IR = lending interest rate
Market Cap = market capitalization
List_Cmps = listed companies
Vol_Exchge = exchange rate volatility
Firm_UB = firms using banks to finance their operations
Exch_Rate = exchange rate
Bank_Conc = bank concentration

Table 3.2.4 presents the correlation matrix of the factors affecting the bond market development in emerging and developing economies for the period 1980 – 2015. The first observation from this table is that there is a perfect correlation between the individual variables, which is equal to 1. The second important observation is the negative relationship between a few the factors. In column 1 for instance, it was found that there is a negative relationship between inflation and GDP. The GDP is also negatively related to other factors such as all level of stocks, the deposit interest, the interest rate, the real interest rate, the lending interest rate and the total number of listed companies. We found that in column 1 there are several factors correlated to GDP which include the stock total value, stock total trade and the stock total revenue are all negatively correlated to GDP.

3.4.2 Empirical Results

In the spirit of past empirical and theoretical literature on the determinants of bond market development, we estimate the importance of the following dependent factors including, public, private firms' bond; sovereign debt, international debt of the country and the total debt of the country.

3.4.2 Ordinary Least square multiple regression

To test various questions raised throughout this chapter, we run various econometric tests. Initially, the OLS (Ordinary Least Square) multiple regressions provide evidence on the degree of relation between the explanatory and the dependent factors. The outcomes of our model estimation demonstrate that several important aspects. The signs obtained and the significance levels of most of the explanatory variables are in line with the expectation except for some factors such as the GDP, inflation, exchange rate, openness and investment freedom.

To better understand the concept of the main determinants of the bond market growth in emerging economies, we select many factors used in previous empirical and theoretical

studies. The factors have largely been defined in previous studies and include macroeconomic factors such as GDP, GDP growth, taxes, inflation, stock trade total external debt, deposit interest rate, lending rate, bank concentration, national income stock turnover, stack value, exchange rate, market capitalization, listed firms, number of firms using banks for investment purposes, export volatility. Few dummies variables including country economic structure (market-based and bank-based), business freedom, investment freedom, rule of law and different location.

Table 3.2.5: Factors affecting private bond growth in emerging markets

Models	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Variables					
GDP PPP %	-189.9	-1,736	-2,368	-5,017	-4,962
	(0.990)	(0.905)	(0.871)	(0.731)	(0.733)
GDP Growth	0.339	0.336	0.341	0.313	0.320
	(0.639)	(0.643)	(0.637)	(0.665)	(0.656)
Taxes	-1,104	-1,303	-1,027	1,089	-1,288
	(0.636)	(0.571)	(0.653)	(0.634)	(0.573)
Inflation	-7.969	-7.773	-7.955	-7.497	-7.257
	(0.690)	(0.698)	(0.692)	(0.709)	(0.718)
Stocks Trade	[3.628]***	[3.286]***	[3.170]***	[3.134]***	[3.083]***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
TTC EXDBT	[0.117]**	[0.113]**	[0.112]**	[0.113]**	[0.113]**
	(0.016)	(0.020)	(0.022)	(0.020)	(0.021)
Deposit IR	[63.581]*	61.328	-[62.432]*	-[64.108]*	[64.399]*
	(0.090)	(0.103)	(0.097)	(0.089)	(0.087)
Lending Rate	62.096	58.516	59.227	61.987	62.727
	(0.288)	(0.317)	(0.312)	(0.290)	(0.284)
Bank Conc		0.557	-0.709	-0.553	-0.713
		(0.921)	(0.899)	(0.921)	(0.899)
Nat Income		[2.158]**	[2.100]**	[2.139]**	[2.095]**
		(0.017)	(0.020)	(0.018)	(0.021)
Stock Turnover		[0.262]***	[0.240]***	0.201**	0.197**
		(0.003)	(0.008)	(0.032)	(0.036)
Stock Value		[3.445]***	[3.410]***	[3.362]***	[3.302]***
		(0.000)	(0.000)	(0.000)	(0.000)
Exch Rate		0.791	0.820	0.791	0.752
		(0.196)	(0.179)	(0.195)	(0.218)
Market CAP				1.558	1.508
				(0.108)	(0.120)
Listed Firms			[357.7]***	[341.8]***	[353.6]***
			(0.000)	(0.000)	(0.000)
Firm U Banks			-33.859	-34.350	-35.889
			(0.829)	(0.827)	(0.820)
Openess			-254.9	-288.7	-281.3
			(0.694)	(0.656)	(0.664)
Export Vol				-0.047	-0.048
				(0.414)	(0.405)
Rule Law				-19.604	-19.330
				(0.457)	(0.464)
Busn Freed					4,064

					(0.234)
Invest Freed					1,130
					(0.569)
Market Based	[584,4]	[496,4]***	[482,9]***	[490]***	[449,7]***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bank Based	[238,9]**	[163,3]*	128,2	134	108,2
	(0.017)	(0.090)	(0.176)	(0.156)	(0.261)
R1	57,877	66,064	69,656	70,090	85,057
	(0.667)	(0.607)	(0.580)	(0.584)	(0.513)
R2	[255,2]*	[262,9]**	[263,4]**	[273,9]**	229*
	(0.064)	(0.046)	(0.041)	(0.034)	(0.086)
R3	-144,6	-107,7	-99,9	-86,7	-60,7
	(0.182)	(0.298)	(0.325)	(0.410)	(0.581)
R4	[639,03]***	[611,71]***	[469,17]***	[500,85]***	[510,35]***
	(0.000)	(0.000)	(0.003)	(0.002)	(0.001)
Constant	19,692	-75,392	-70,468	214,042	122,915
	(0.822)	(0.384)	(0.417)	(0.238)	(0.535)
Observations	4,716	4,716	4,716	4,716	4,716
R-squared	0.025	0.037	0.042	0.044	0.045

Robust P-Value in parentheses
Statistically significant at *10, **5, *** 1 percent
R different regions: R1 Americas, R2 Europe, R3, Africa, R4 Asia
Notes: The table examines different factors affecting private bond (PVBOND) market growth in emerging and developing economies. Five different models are developed to simulate this effect using similar variables. The followings factors are considered because we found a great connection between these and the bond market growth. Most of the factors have been used in previous empirical and theoretical studies. The factors used in most of the models includes, GDP (Gross Domestic Product), taxes rate, inflation, stocks the quantity of traded stock, the total change of external debt, the deposit interest rate, the lending rate the number of banks in a market per 100.000 inhabitants. We include in the equation several factors such as national income, stock value, exchange rate, market capitalization of the country, number of listed firms and the number of firms using banks to fund investment project. Dummies variable included in the models are country's openness, exportation, the rule of law, level of fiscality, business freedom, investment freedom, market-based and bank-based. Location is also considered dummy variables; these are the three mains continents (Africa, Asia, Europe and Latin America). The data used is for the period 1980 to 2015. The estimations are made using the Prais-Winsten model. The significance level variate from 1 percent to 10 percent represented by the number of stars of the P-Value given in parentheses.
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Market Cap = market capitalization
Stocks TTR = stocks trade total return
List_Cmps = listed companies
TTC EXDBTS = total change external debt
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate

In the introductory section of this chapter, one of the fundamental questions was to identify the factors affecting the growth of bond markets in emerging economies. The assumption is, there is unlimited number of factors constraining the development of the bond market in emerging economies. Table 3.2.5 provides a summary of the results of the estimates of some of the factors affecting the private bond market growth. Smaoui, Grande and Akindele (2017) provide a comprehensive analysis of these factors and estimates that there

is a consistent relationship between macroeconomic determinants such as GDP and bond market growth. Most empirical literature on the bond markets growth has not estimate the factors affecting the private bond growth. The findings demonstrate that although not all these factors are statistically significant, their sign represent an important indicator for the nature of their effect on private bond. The regression analysis provides the following results: the following factors are significant at the 1 per cent significance, stock trade, stock value, stock turnover, listed firms in the Asian market-based.

In other words, there is a strong and significant relationship between the above factors and private bond in emerging economies. Additionally, the relationship between these factors and private bond is positive. It was also found that total change on the external debt and the national income of a country are important factors for the growth of emerging economies private bond development, these factors degree of relationship with private bond is high at 5 per cent significance. Other factors such as deposit interest rate, the level of fiscality relationship with private bond is a 10 percent which demonstrate that these factors are less important for private bond growth in emerging economies based on our estimation methods.

Thus, the results obtained demonstrate in this instance that the macroeconomic factors do have a little influence on private bond growth in emerging economies.

3.4.3 Measure of bond development growth using public bond issues

In this section, we provide an analysis of the various factors affecting public bond market growth in emerging, developing and transitional economies using similar factors utilized to examine bond market growth for private in table 3. The empirical and theoretical literature on bond market development has focused in measuring the state of the development using mostly developed economies data. Investigating bond development in emerging economies using public bond market as a dependent factor allow to compare with the private bond market. This is important particularly because the state plays an important

role in those markets. The following table provides details of the way each independent component affects the dependent factor here represented by the private bond issuance.

Table 3.2.6: Factors affecting public bond growth in emerging market

Models	Model 1	Model 2	Model 3	Model 4	Model 5
Variables					
GDP PPP	-338.8**	-349**	-352**	-348**	-348**
	(0.021)	(0.017)	(0.016)	(0.017)	(0.018)
Taxes	7.089	4.807	5.267	3.292	2.393
	(0.765)	(0.838)	(0.823)	(0.889)	(0.919)
Inflation	0.028	0.022	0.022	0.028	0.028
	(0.880)	(0.906)	(0.906)	(0.882)	(0.878)
GDP Growth	334.5**	342.9**	345.5**	341.4**	341.4**
	(0.020)	(0.017)	(0.016)	(0.017)	(0.017)
Stocks Trade	0.012	0.012*	0.012	0.011	0.011
	(0.101)	(0.098)	(0.114)	(0.133)	(0.140)
Deposit IR	-0.755**	-0.724**	-0.724**	-0.751**	-0.752**
	(0.030)	(0.038)	(0.038)	(0.031)	(0.031)
Lending IR	0.578	0.534	0.532	0.556	0.559
	(0.287)	(0.326)	(0.328)	(0.307)	(0.305)
Bank Conc		-0.014	-0.015	-0.013	-0.013
		(0.795)	(0.783)	(0.820)	(0.809)
National Income		0.035***	0.035***	0.035***	0.034***
		(0.000)	(0.000)	(0.000)	(0.000)
Stock Turn		0.001	0.001	-0.000	-0.000
		(0.445)	(0.519)	(0.957)	(0.940)
Stock Val		0.025***	0.025***	0.025***	0.025***
		(0.000)	(0.000)	(0.000)	(0.000)
Exchgerate		0.010*	0.011*	0.011*	0.011*
		(0.090)	(0.075)	(0.074)	(0.080)
Market Cap				0.027***	0.027***
				(0.003)	(0.004)
List Firms			1.797	1.585	1.663
			(0.125)	(0.175)	(0.155)
Firm UB			2.320	2.455*	2.448*
			(0.109)	(0.090)	(0.091)
Openness			0.153	0.128	0.185
			(0.980)	(0.984)	(0.976)
Export Vol				0.000	0.000
				(0.429)	(0.432)
Rule Law				0.335	0.337
				(0.185)	(0.183)
Bus Freed					31.84
					(0.480)
Invest Freedom					9.138
					(0.730)
Market Based	7,834***	7,220***	7,133***	7,039***	6,731***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Bank Based	2,523*	1,796	1,613	1,522	1,312
	(0.065)	(0.171)	(0.215)	(0.241)	(0.321)
R1	-1,697	-1,726	-1,713	-1,823	-1,732
	(0.355)	(0.325)	(0.322)	(0.300)	(0.332)
R2	1,990	2,101	2,103	2,236	1,884
	(0.287)	(0.239)	(0.232)	(0.204)	(0.299)
R3	-3,572**	-3,350**	-3,307**	-3,270**	-3,092**
	(0.016)	(0.018)	(0.018)	(0.024)	(0.039)
R4	5,549**	5,221*	4,488**	4,649**	4,707**

	(0.012)	(0.014)	(0.036)	(0.032)	(0.030)
Constant	1,800	775.8	727.3	1,752	1,143
	(0.121)	(0.495)	(0.522)	(0.450)	(0.648)
Observations	4,716	4,716	4,716	4,716	4,716
R-squared	0.014	0.022	0.024	0.027	0.027

Robust P-value in parentheses
Statistically significant at *10, ** 5, *** 1 percent
R represents different regions: R1 Americas, R2 Europe, R3, Africa, and R4 Asia
All variables are given in percentage point except Rs as these are dummy variables
Notes: The following table examines different factors affecting public bond (PUBOND) market growth in emerging and developing economies. Five different models are developed to illustrate the effect of each of the factors on the private bond market. The followings factors are considered because we found that there is a great connection between these and the bond market growth. These includes, GDP, taxes rate, inflation, stocks the quantity of traded stock, the total change of external debt, the deposit interest rate, the lending rate the number of banks in a market per 100.000 inhabitants. In this table, we also include the national income, stock value, exchange rate, market capitalization of the country, number of listed firms and the number of firms using banks to fund investment project. Dummies variable included in the models are country's openness, exportation, the rule of law, level of fiscality, business freedom, investment freedom, market based, and bank based. Location is also considered dummy variables; these are the three mains continents (Africa, Asia, Europe and Latin America). The data used is for the period 1980 to 2015. The significance level variate from 1 percent to 10 percent represented by the number of stars of the P-value given in parentheses.
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Market Cap = market capitalization
Stocks TTR = stocks trade total return
List_Cmps = listed companies
TTC EXDBTS = total change external debt
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate

The findings of the above two tables 3.2.5 and 3.2.6 on the determinants of bond markets in emerging economies demonstrates that public bond and private bond are affected by different factors. For instance, it was found that there are number of similar factors affecting both private and public bond. For instance, we found that public and private bond markets are affected by factors such as GDP, the national income market capitalization. Investigating bond market growth in emerging economies, Burger, Warnock and Warnock (2015) conclude that macroeconomic such as GDP and inflation are the main factors affecting bond market growth for Asia.

3.4.4 Bond market development using total domestic debt

The relationship between the bond market and total domestic debt for emerging economies with low growth has not been of high importance to the literature. Thus, several authors

have stressed the importance of a sovereign debt on the overall economy. Christensen (2004) in his work used a cross-country survey to investigate the importance of domestic debt market size in the sub-Saharan markets from a large data set extended from (1980-2000). The conclusions demonstrate that domestic debt markets of the countries in that region are generally of a small size, most are of a short term with a relatively insignificant investor based. In addition, domestic interest rate payment is an important load to sovereign budgets, despite having a very undersized domestic debt compared to the external debt level. The study also revealed that the utilization of domestic debt has important consequence on private investments. Asogwa (2005), utilize a more inclusive method to explore the effect of domestic debt on the economy development using data from the Nigerian market, his conclusions show that the country still have fresh economic wounds of the confidence crisis as markets contributors systematically declined to uphold longer maturities. In this respect, the state has been able to issue short-term debt instruments.

We include a country domestic debt to illustrate the extent to which this aspect impacts the development of the bond market in emerging economies. The following table gives an overview of this relationship. Table 3.7 describes the effect of total domestic debt on capital market development. We approach this section with many factors. We developed in total six different models where some of the independent factors become dependent and vice versa. These variations of factors in both the left and the right-hand side of the equation allow us to determine subsequently what the different levels of relationships between the factors. The method also permits to determine with some degree of error their impact on bond market development in emerging and developing economies.

Table 3.2.7: Bond market growth using total domestic debts

Models	Model 1	Model 2	Model 3	Model 4	Model 5
variables					
GDP PPP	218.86	193.04	187.29	201.24	220.78
	(0.530)	(0.578)	(0.589)	(0.562)	(0.523)
Taxes	425.2***	429.5***	429.9***	428.4***	422.4***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Inflation	-0.294	-0.302	0.292	-0.285	-0.280
	(0.506)	(0.496)	(0.509)	(0.521)	(0.529)
GDP Growth	-212.15	-188.65	182.81	-197.89	-215.90
	(0.533)	(0.578)	(0.589)	(0.560)	(0.523)
Stocks Trade	-0.004	-0.004	-0.005	-0.005	-0.006
	(0.825)	(0.803)	(0.774)	(0.754)	(0.717)
TT EXDTS	0.001	0.001	0.001	0.001	0.001
	(0.550)	(0.556)	(0.622)	(0.609)	(0.603)
Deposit IR	0.418	0.490	0.489	0.457	0.452
	(0.614)	(0.556)	(0.557)	(0.583)	(0.588)
Lending IR	0.068	-0.059	-0.068	-0.036	-0.033
	(0.958)	(0.963)	(0.958)	(0.978)	(0.980)
Bank Conc		0.198	0.194	0.196	0.193
		(0.130)	(0.138)	(0.134)	(0.138)
National Inc		0.049**	0.046**	0.045**	0.044**
		(0.025)	(0.034)	(0.043)	(0.043)
Stock Turn		0.003	0.002	0.001	0.001
		(0.208)	(0.318)	(0.567)	(0.599)
Stock Val		0.069***	0.068***	0.067***	0.066***
		(0.000)	(0.000)	(0.000)	(0.000)
Exchgerate		0.024*	0.023	0.023	0.022
		(0.087)	(0.111)	(0.108)	(0.124)
Market Cap				0.036*	0.035
				(0.095)	(0.108)
List Firms			5.808**	5.522**	6.167**
			(0.031)	(0.040)	(0.020)
Firm UB			-5.059	-5.013	-5.020
			(0.143)	(0.147)	(0.147)
Openess			24.178	23.975	24.826*
			(0.101)	(0.105)	(0.093)
Export Vol				0.001	0.001
				(0.632)	(0.628)
Rule Law				-0.282	-0.285
				(0.640)	(0.635)
BusFreed					325.696***
					(0.001)
Invest Freed					56.769
					(0.336)
Market Based	13,550***	11,905***	11,674***	11,082***	8,259**
	(0.000)	(0.001)	(0.001)	(0.002)	(0.020)
Bank Based	14,949***	13,298***	12,713***	12,372***	10,276***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
R1	-4,465	-4,510	-4,611	-4,128	-2,936
	(0.280)	(0.252)	(0.241)	(0.301)	(0.457)
R2	-846.93	-838.93	-709.05	-387.22	-3,374.53
	(0.841)	(0.834)	(0.859)	(0.923)	(0.401)
R3	-14,233***	-13,555***	-13,484***	-12,890***	-10,787***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.001)
R4	7,169	6,497	4,139	4,458	4,915
	(0.151)	(0.172)	(0.396)	(0.366)	(0.307)
Constant	**19,45*** **	**17,10*** **	**16,46*** **	**12,33** **	**5,663**
	(0.000)	**(0.000)**	**(0.000)**	**(0.020)**	**(0.316)**
Observations	**4,716**	**4,716**	**4,716**	**4,716**	**4,716**
R-squared	**0.022**	**0.030**	**0.033**	**0.034**	**0.039**

Robust P-value in parentheses
Statistically significant at *10, ** 5, *** 1 percent
R represents different regions: R1 Americas, R2 Europe, R3, Africa and R4 Asia
All variables are given in percentage point except Rs as these are dummy variables

Notes: The following table examines different factors affecting total debt (TT Debt) market growth in emerging and developing economies. Five different models are developed to illustrate the effect of each of the factors on the private bond market. The followings factors are considered because we found that there is a great connection between these and the bond market growth. These include GDP, taxes rate, inflation, stocks the quantity of traded stock, the total change of external debt, the deposit interest rate, the lending rate the number of banks in a market per 100.000 inhabitants. We also include the national income, stock value, exchange rate, market capitalization of the country, number of listed firms and the number of firms using banks to fund investment project. Dummies variable included in the models are country's openness, exportation, the rule of law, level of fiscality, business freedom, investment freedom, market-based, and bank based. Location is also considered dummy variables; these are the three mains continents (Africa, Asia, Europe and Latin America). The data used is for the period 1980 to 2015. The estimations are made using the Prais-Winsten model. The significance level variate from 1 percent to 10 percent represented by the number of stars of the P-value given in parentheses.
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Stocks TTR = stocks trade total return
TTC EXDBTS = total change external debt
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate
Market_Cap = market capitalization
List_Cmps = listed companies
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks

In this section, we evaluate the bond market development progress over the last thirty years using total domestic debt as a dependent factor. Table 3.2.7 above provides the analysis of the key factors affecting bond market growth in emerging economies. The findings are as follow; the GDP PPP found in previous tables is positive and statistically significant when measuring bond development using a domestic debt as the dependent variable. We found that this relationship is very strong at 1 per cent. Stock value S&P global equity, market capitalization, listed companies, interest rate spreads, level fiscality are all highly correlated with the bond development at 1 per cent. Thus, S&P global equity and fiscal level are both negative to sovereign and corporate bond development. There are different levels of significance observed for variables from one model to the next. For instance, the dummy variable market- based in which we found two different levels of significance ranging from 1 per cent to 5 per cent. However, interestingly, the results demonstrate the there is a high correlation here between bond development and the economic choice of a country (bank or market based).

In addition, the location is also a good factor for bond market development when we use domestic debt to measure the evolution of bond market evolution. Interestingly, Europe

seems not to be highly correlated when measuring bond development using domestic debt to measure bond development. The most insignificant observation of these results demonstrates that developing and emerging economies from Africa provide a negative correlation with bond development using total domestic debt. This indicates that one of the reasons why Africans countries lack or have limited bond market is certainly due to their external debts; which is quite high for most Africans developing economies.

The bond market development literature is of large interest to a larger number of economies. Previous developed studies focus examining this relationship at the cross-country level are limited to the emerging market context the literature is more developed e.g., Mu, Phelps and Stotsky (2013) examined the bond market's performance in Africa, (Beck et al. 2011). This section examines the bond market development for developed economies. We contrasted the results with those obtained when examining emerging economies. The results differ to Smaoui, Grandes and Akindele (2017), who found the statistical significance between GDP and the level of bond market development in developed economies. However, in our last model, we found the relationship highly significant at 5 per cent. In addition, it was found that market capitalization is a good indicator of bond market development we found that the relationship is statistically significant. Our results on this relationship are not in line with previous studies. Like Smaoui, Grandes and Akindele (2017), we found that openness legal origin, are statistically significant. Additionally, we also find a statistical significance between bond development and legal origin, and these relationships are positive and significant. The results demonstrate the positive link between a country legal origin and bond markets growth. French legal origin is an important factor; and that America provides a statistical significance to some extent. In the regression, we did not find any evidence that a market financial structure affects bond market development in emerging economies; at least for the data in our disposition. This is probably because these economies have already had developed bond markets.

3.4.5 Bond market development for emerging economies

In this section, we provide an overview of bond market development in emerging economies. The summary of bond growth in the emerging market is provided on the following table. The following table 3.2.8 provides an analysis of the bond market development in emerging economies using a large set of variables identified in the literature. In the spirit of the previous section, several regressions are simulated to analyze the relationship between the instrumental variables and the dependent factors.

Table 3.2.8: Bond market developments for emerging and developing economies

Models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables						
GDP PPP	0.079***					(0.000)
	(1.57)					
GDP Growth	0.005					-0
	(0.412)					(0.602)
Inflation			0.014*			6.10
			(0.086)			(0.454)
Bank Conc	0.032*			0.022	0.0217	1.72
	(0.081)			(0.245)	(0.252)	(0.353)
Stock Value		0.030*		0.031*	0.030*	8.57***
		(0.065)		(0.056)	(0.060)	(5.74)
S & P Equity		-0.001			0.000	-1.48
		(0.906)			(0.991)	(0.299)
Exchange Rate			0.0125		0.014	1.43
			(0.316)		(0.271)	(0.240)
Market Cap		0.0701***	0.0705***			3.49*
		(0.000)	(0.000)			(0.066)
Listed Cmps				5.069***	5.240***	835.9***
				(0.000)	(0.000)	(2.15)
Int Sprd			0.0146			5.06***
			(0.357)			(0.001)
Interest Vol					0.0847***	1.78
					(0.006)	(0.562)
Firm UB					-1.121	-80.06
					(0.786)	(0.840)
Openness				0.053***	0.0543***	-0
				(8.64)	(6.21)	(0.776)
Export Vol				2,971**		-3.72
				(0.019)		(0.765)
Debt Private						-0
						(0.844)
Corrupt Ind	2.971***	2.695***	3.023***			37,856***
	(0.001)	(0.005)	(0.001)			(0.000)
Rule Law	3.373					925.8
	(0.964)					(0.220)
Effective Gvt	6.898	-2.739	-2.225			143.8
	(0.334)	(0.725)	(0.775)			(0.863)
Qual Regul		9.833	1.074			452.9
		(0.187)	(0.150)			(0.548)
Fiscal		1.959	-1.057		1.935	-15,294***
		(0.424)	(0.966)		(0.440)	(5.99)
Leg British	3.354***	3.601***	3.307***	4.704**	2.325*	-295,78**

	(0.006)	(0.004)	(0.007)	(0.045)	(0.061)	(0.037)
Leg French	-2.464**	-2.902**	-2.396*	-1.372	-1.489	313,310**
	(0.045)	(0.021)	(0.055)	(0.278)	(0.233)	(0.028)
M_Based	3.655	-5.766	2.585	3.572	3.605	1.879***
	(0.222)	(0.846)	(0.397)	(0.231)	(0.227)	(7.31)
B_Based	6.803***	4.380*	6.104**	6.463***	6.717***	1.197***
	(0.005)	(0.080)	(0.015)	(0.009)	(0.007)	(2.85)
R1	2.223	8.037***	2.385	-3.294	6.438	-438,022
	(0.506)	(0.009)	(0.486)	(0.923)	(0.850)	(0.258)
R2	-1.027***		-1.058***	-9.402***	-8.896***	717,87**
	(0.000)		(0.000)	(0.001)	(0.004)	(0.042)
R3	-3.765	1.549	-3.218	-5.152*	-3.798	-1.353***
	(0.161)	(0.527)	(0.251)	(0.057)	(0.172)	(1.94)
R4	2.486	7.964**	2.913	-8.610	-2.781	1.243***
	(0.518)	(0.027)	(0.456)	(0.826)	(0.994)	(0.005)
Constant	**2.125*** (3.73)**	**1.823*** (5.28)**	**2.163*** (2.07)**	**3.202*** (0)**	**2.955*** (0)**	**735,542 (0.111)**
Observations	**6,408**	**6,408**	**6,408**	**6,408**	**6,408**	**6,408**
R-squared	**0.005**	**0.002**	**0.004**	**0.005**	**0.005**	**0.059**

Robust P-value in parentheses
Statistically significant at *10, ** 5, *** 1 percent
R represents different regions R1 Americas, R2 Europe, R3, Africa and R4 Asia
All variables are given in percentage point except Rs as these are dummy variables
Notes: Emerging and developing countries bond market development shows the regressions estimates results using the Prais-Winsten model on the evaluation of total bond and on several identified factors affecting the development of the bond market. There are 6 models, with the dependent variables for each of the model. The independent variables include the macroeconomic and country-specific factors. The independent factors include the GDPPPP (gross domestic product purchasing power parity), GDP growth, inflation; bank Conc (bank concentration, stock value, S&P equity (Standard and Poor for equity)
Taxes IT = taxes on international trade
Stocks TTV = stock total value
List_Cmps = listed companies
TTC EXDBTS = total change external debt
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate
Market_Cap = market capitalization

Table 3.2.8 investigates the determinants of bond market for all emerging and developing economies in our data set using similar variables used in previous studies. The aim is to investigate whether we reach similar conclusion to previous studies on the factors affecting bond market growth for underdeveloped markets. Several empirical studies inferred that a large number of factors including the level of economic output, banking sector growth, inflation level, the rate of exchange, private capital flows and the trade openness are the main factors influencing stock markets (see; Dornbusch and Fisher 1980; Jorion 1991; Boyd et al. 1996, 2001; Greenwood and Smith 1997, Levine 1997, 2005; Jeffus, 2004;

Niroomand et al. 2014) among others. Similarly, institutional factors such as the legal origin, legal protection on investors, corporate governance, financial market liberalization, stock market integration, have been identified by the literature as the crucial factors influencing stock market development (see Pagano 1993ab; La Porta et al. 1997, 1998, 2000; Shleifer and Vishny 1997; Levine and Zervos 1998a; Bekaert and Harvey 2000; Henry 2000a, b; Mishkin 2001; Svaleryd and Vlachos 2002). Based on the current literature and data availability, we investigate the overall effect of the factors affecting bond market development using a large set of emerging economies and the developed market. Most empirical research on bond market development demonstrates the overall market is improving over the years to become one of the most important borrowings and lending mechanism.

The analysis demonstrated a positive and statistical significance of the macroeconomic factors including GDP PPP, stock return. The results show that there is a special relationship between bank-based economies and bond market development. This relationship is positive and statistically significant. In contrast to this, the results seem to demonstrate that there is a negative correlation between markets based financial system and bond market. This result differs to the expected outcome, however, the fact that market-based economies do not favour bond market development in emerging economies is due to extended domination of the banking system in most emerging economies. The results also show that there is a positive encounter between English legal origin and bond market development. Similar results found in previous empirical studies. Thus, having a negative correlation between legal French and bond development is not surprising. Most countries influenced by the French colonial system have also inherited not only their legal systems but also adopted the same financing system indeed; France, Germany and Japan operate on a bank systems model economy.

Our results confirm some of the results provided in previous studies; for instance, we found that GDP PPP is statistically significant when measuring bond development; the same

results were also found in various similar studies of bond development Smaoui, Grandes and Akindele. (2017) and Bhattacharya et al. (2013) also came to the similar conclusion when respectively examining bond development of Asia. The findings of our analysis suggest that in addition to the macroeconomic factors that encourage bond market development as we specified earlier, they also found that corruption, freedom, export volatility, legal origin is also a vector of bond market development. However, these subscripts are significant for bond development in Europe and partly in the Asian regions. Interestingly, we found that there is a negative correlation between bond market development and European countries and the results obtained are statistically significant. These results suggest that emerging economies in the European area with shallow bond markets find it difficult to improve financial market due to excessive implantation of banks in these countries. Exploring the role of market and bank based, we found that bank-based economies are more favours developing sounds bond markets, whereas, the market-based countries do not provide the facilities allowing the development of the bond market. This is surprising as one could expect that market-based economies with stable macroeconomic will favour the development of bond markets.

3.4.6 Control for endogeneity using the system GMM

One of the major issues in research in general and in specifically in the case of this work is the presence of potential endogeneity between the dependent and the independent variables. In fact, the endogeneity related to the causal relationship between the factors. For instance, we aim to find out whether bond growth causes financial development or financial development causes bond growth in emerging economies. The causal relationship remains an important puzzle in economic and financial development. To deal with the causal relationship, we use the GMM of Arellano and Bond that provide specific tools in dealing with the endogeneity issue in econometric analysis.

Table 3.2.9: Control for endogeneity using system GMM

Models Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GDP PPP	-0.006					-0.022
	(0.935)					(0.763)
Market Cap		0.086	-0.044			-0.337*
		(0.639)	(0.816)			(0.070)
Qual Regul		-9.691***	-9.181***			-6.364**
		(0.000)	(0.001)			(0.025)
Fiscal		3.866**	3.494**		2.396	4.502**
		(0.028)	(0.047)		(0.200)	(0.039)
Inflation			-0.005			0.051
			(0.955)			(0.562)
Exchgerate			-0.177**		-0.167*	0.123
			(0.045)		(0.0719)	(0.243)
Int sprd			0.316*			0.163
			(0.077)			(0.400)
Bank Con				1.303		3.898
				(0.117)		(0.592)
Stock Turn				-0.009	-0.084	-0.282
				(0.965)	(0.689)	(0.169)
List Cmps				1.285	2.645*	2.978
				(0.588)	(0.082)	(0.168)
Stock Val				-0.060	0.191	0.355**
				(0.769)	(0.259)	(0.038)
S&P					-0.017	-0.029
					(0.892)	(0.785)
Int Vol					-0.356	-0.457*
					(0.174)	(0.059)
Firm UB					3.096	2.172
					(0.147)	(0.240)
GDP Growth						0.045
						(0.524)
Exchge Vol						1.055
						(0.102)
Rule Law	3.960*					9.278
	(0.065)					(0.696)
Eff Govern	4.331*	9.721***	8.566***			5.708**
	(0.053)	(9.69)	(0.000)			(0.025)
Openness	0.133			0.013	0.049	-0.014
	(0.325)			(0.922)	(0.705)	(0.890)
Export vol	-36,895**			-31,172*		-9,571
	(0.026)			(0.086)		(0.541)
Corruption	-4.722	-8.020	-5.396			1.950*
	(0.623)	(0.281)	(0.473)			(0.056)
Leg British	8.348	5.429	1.678	-1.432	1.635	1.657
	(0.508)	(0.583)	(0.147)	(0.692)	(0.115)	(0.245)
Leg French	-1.189	-1.534	-3.041**	-4.480**	-2.288*	-2.107
	(0.441)	(0.224)	(0.040)	(0.022)	(0.066)	(0.224)
M_Based	1.345	3.2314	8.069	9.357	5.244	8.382
	(0.847)	(0.558)	(0.177)	(0.204)	(0.230)	(0.913)
B_Based	3.798***	2.266	2.108	1.974	7.234	-1.511

	(0.005)	(0.105)	(0.132)	(0.420)	(0.561)	(0.556)
R1	1.351	-4.488*	-7.615***	-4.834**	-1.589	-7.271
	(0.679)	(0.0655)	(0.006)	(0.047)	(0.297)	(0.850)
R2	-2.059	-8.059*	-1.307***	-7.628	-4.927	-2.609
	(0.681)	(0.051)	(0.005)	(0.159)	(0.123)	(0.652)
R3	-1.011	-4.373	-9.471	-7.022	-6.224	-3.551
	(0.885)	(0.418)	(0.104)	(0.287)	(0.161)	(0.650)
R4	4.118	-1.017	-2.643	1.250	5.519	5.902
	(0.211)	(0.964)	(0.303)	(0.959)	(0.746)	(0.872)
Constant	**-2.699**	**5.239**	**7.392****	**6.358*****	**2.186**	**-5.822**
	(0.564)	**(0.135)**	**(0.046)**	**(0.002)**	**(0.181)**	**(0.259)**
Observations	**1,071**	**1,071**	**1,071**	**1,071**	**1,071**	**1,071**
R-squared	**153**	**153**	**153**	**153**	**153**	**153**

Robust R-value in parentheses
Statistically significant at *10, ** 5, *** 1 percent
R different regions: R1 Americas, R2 Europe, R3, Africa, R4 Asia
Notes: We use GMM to control for potential endogeneity between the variables. Six models are developed in this table to examine the factors affecting bond markets in developing and emerging economies.
The following table examines different factors affecting bond market growth in emerging and developing economies. Six different models are developed to illustrate the effect of each of the factors on the private bond market using specific criteria. The followings factors are considered because we found that there is a great connection between these and the bond market growth. These includes, GDP, taxes rate, inflation, stocks the quantity of traded stock, the total change of external debt, the deposit interest rate, the lending rate the number of banks in a market per 100.000 inhabitants. We also include the national income, stock value, exchange rate, market capitalization of the country, number of listed firms and the number of firms using banks to fund investment project. Dummies variable included in the models are country's openness, exportation, the rule of law, level of fiscality, business freedom, investment freedom, market-based and bank based. Location is also considered dummy variables; these are the three mains continents (Africa, Asia, Europe and Latin America). The data used is for the period 1980 to 2015. The estimations are made using the Prais-Winsten model. The significance level variate from 1 percent to 10 percent represented by the number of stars of the P-value given in parentheses.
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Market_Cap = market capitalization
Stocks TTR = stocks trade total return
List_Cmps = listed companies
TTC EXDBTS = total change external debt
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate

Table 3.2.9 provides regressions estimates for bond market development in emerging and developed economies. We performed the regression test using the system GMM model method to control for potential endogeneity. Many papers use the OLS as a model of estimation to regress the dependent and the independent variable Greene (2000), Stock and Watson (2003). In this chapter, we focus on the potential endogeneity issues of the method we use to control for potential endogeneity. We test the bond market development in emerging economies by using the system GMM. The results are the following; although

not statistically significant, we found that GDP PPP is negative for the development of the bond market. This is unexpected, one could be that GDP PPP and GDP cap will not encourage the stability of the bond market but in addition, this will be a good indicator for a healthy and develop bond market. In the previous comparison on the relation between the variables, we found that there was no correlation between the effective government and bond market development, using the GMM we found that effective government encourage for bond market development and solidified these markets through efficient controls mechanisms. The results also demonstrate that there is a negative correlation between the four locations including Africa, the Americas, Asia and Europe. Moreover, these relationships were positive and statistically significant in most of our previous regressions. We also found that there is a positive but the relationship between listed companies, stock value, and the S&P global equity; these relationships are positive. Fiscal and quality regulations that previously were not statistically significant are now significant.

3.4.7 Bond market development before the financial crisis

Theoretically, a financial crisis causes disruption on economies determinants, for instance in a period of financial constraints, it is likely that a country gross domestic product is reduced due to a slowdown of economic activity; there will be a high inflation during this period. Nevertheless, during the recent financial and economic crisis, several emerging economies became more indebted as they must borrow more from international financial markets.

Table 3.2.10: EMs bond market development 1980-2007

Models Variables	Model 1	Model 2	Model 3	Model 4	Model5	Model 6
GDP PPP	6.83***					6.60***
	(1.68)					(1.69)
Bank Conc				-0.362		-0.138
				(1.319)		(1.324)
Stock Turn	5.36**			5.30**	5.48**	4.49*
	(2.41)			(2.42)	(2.42)	(2.48)
Stock Value		7.54***		7.70***	7.66***	6.88***
		(1.88)		(1.88)	(1.88)	(1.90)
S & P		-2.77			-3.19	-3.39
		(3.02)			(3.03)	(3.04)
ExRate			1.35		1.85	1.30
			(1.63)		(1.62)	(1.66)
Market Cap		6.41***	6.28**			4.85*
		(2.45)	(2.45)			(2.53)
List Cmps				1,103***	1,075***	1,022***
				(311.1)	(306.4)	(299.3)
Interest Sprd			6.16***			5.83***
			(1.63)			(1.64)
Inflation			0			5.25
			(8.19)			(8.27)
Firm UB					-283.5	-225.9
					(563.5)	(566.9)
Openness				1.96	2.00	1.95
				(1.33)	(1.33)	(1.34)
Export Vol				-9.44		-1.23
				(1.18)		(1.21)
Debt Private						0
						(1.52)
Corrupt Ind	22,465*	30,639**	28,925**			24,863**
	(13,127)	(13,102)	(13,18)			(12,502)
Rule Law	18.74					-47.77
	(161.9)					(172.6)
Effective Gvt	30.27	-60.83	-76.19			-32.42
	(165.3)	(184.4)	(184.2)			(207.0)
Quality Regul		107.6	118.9			171.6
		(182.5)	(182.5)			(194.0)
Fiscal		-10,622***	-9,326***		-7,317**	-8,536***
		(3,260)	(3,329)		(3,177)	(3,155)
Leg British	-271,33*	-295,94**	-318,88**	-92,179	-374,22**	-380,22***
	(153,653)	(150,30)	(151,03)	(270,15)	(145,54)	(141,774)
Leg French	237,256	271,617*	276,976*	320,471**	337,77**	330,793**
	(153,498)	(150,40)	(151,333)	(150,296)	(145,638)	(142,010)
Market Based	2.588***	2.358***	2.263***	2.225***	2.250***	2.222***
	(369,99)	(372,8)	(386,6)	(376,2)	(368,3)	(367,2)
Bank Based	1.682***	1.544***	1.530***	1.520***	1.425***	1.350***
	(304,022)	(302,76)	(305,828)	(302,219)	(295,578)	(288,384)
R1		-262,3	13,6	165,2	11,5	-7,77
		(369,3)	(407,3)	(395)	(393)	(380,595)
R2			700,174*	832,623**	729,067*	766,455**
			(392,778)	(383,084)	(378,362)	(370,835)
R3	-1.361***	-1.534***	-1.261***	-1.061***	-1.261***	-1.243***
	(275,913)	(292,701)	(329,660)	(311,162)	(318,427)	(309,253)
R4	1.392***	1.445***	1.800***	1.262***	1.323***	1.380***
	(448,567)	(452,302)	(482,292)	(486,835)	(473,640)	(460,473)

Constant	**298,341**	**1.006****	**673,266**	**800,874*****	**1.267*****	**440,722**
	(371,381)	**(421,087)**	**(445,476)**	**(223,193)**	**(339,415)**	**(428,434)**
Observations	**4,274**	**4,284**	**4,284**	**4,284**	**4,284**	**4,274**
R-squared	**0.033**	**0.037**	**0.038**	**0.039**	**0.043**	**0.057**

Robust P-value in parentheses
Statistically significant at *10, ** 5, *** 1 percent
R different regions: R1 Americas, R2 Europe, R3, Africa, R4 Asia
Notes: The table below provides a regression analysis of six different models which evaluate different levels of relationship between the factors affecting the bond market growth in developing and emerging economies. The factors used to examine the relationship includes GDP PPP, bank concentration, stock return, stock value, S&P equity, exchange rate, interest rate, interest rate volatility, market capitalization, listed firms, interest rate spread, inflation, firms using bank (Firm UB), openness, export volatility. We also include debt to private firms, corruption index, Rule of law, effective government, and quality regulation, fiscal.
Dummies variables include, corruption index, the index is scaled from 0-9 where is least corrupted and 9 the more corrupted. Legal origin refers to the model of legal system used by the country under investigation (leg French = legal French& leg English = legal English), here, the we give three identity, where 0 represents the French 1 is British Financial structure include two different models of economies which include, the market-based economy and the bank-based economy) the distinction between the two models of economies is given in the introduction of this chapter.
The geolocation (geographic allocation of the different countries used in this study includes the three main locations, ASIA, EMEA, Latin-America).
Taxes IT = taxes on international trade
Stocks TTV = stock total value
Market_Cap = market capitalization
Stocks TTR = stocks trade total return
List_Cmps = listed companies
TTC EXDBTS = total change external debt
Vol_Exchge = exchange rate volatility
Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate

The examination of the bond market development in the context of emerging economies is a relevant debate in the literature now for various reasons. Haven split the data sample into two different periods; period 1 is the data before the financial crisis ranging from 1980 – 2007. The second set of data is from 2008–2015 representing the virtual aftermath of the financial crisis.

A risk survey on investors' sentiment contends that emerging economies integration to the global financial market investment portfolio will positively affect their risk return trade-off. In this respect, the extended literature demonstrates investors intuition accuracy about enlarging investments opportunities by including emerging economies possessing fewer correlation with advanced economies provide the option for a greater diversification (Hallinan 2011). Though, considering the recent global financial crisis, there has been reverse opinions. In fact, during the recent financial crisis, numbers of emerging markets

were hit by the intensity of the crisis, leaving a number of these markets to default to their international debts. This section seeks to answer questions imposed by the modern portfolio theory, based on the work of Markowitz (1952) on the Capital Asset Pricing Model (CAPM). That is, whether investors can improve their positions by diversifying the portfolio and investing into diverse curriculums of financial securities and whether developing countries really serve as diversification opportunities to investors on the aftermath of a financial crisis.

The results back our expectation that many countries in the early 1980s up to early 2007 have undergone some serious financial issues but these were contained at a lower level. In addition, we observed that the quantity of our factors is significant which means in some ways that these factors were favouring bond markets development in emerging economies. However, market-based and bank-based models do both support bond market development. Nevertheless, Africa has a negative but statiscally significant relationship with bond market growth. Asia on the other hand provides a positive and statistically significant correlation. This result obtained portrays the level of development of these three regions examined. Asian's countries a few years ago, were at the same level or even less development compares to most Africans' economies, however, these countries moved to more market based economic systems, and many are well advanced economically compare to several African countries and their market share.

We found that two important factors were statistically significant with the current economic conditions; corruption index to be statistically significant to bond market development, the less corrupt a country is the most it is likely to be able to establish a sound local bond market, therefore, corruption does not promote bond market development. We also find that one of our indicators, legal origin is a good indicator of bond market development. Here we report that French legal origin is negative to bond market development, which is an unexpected outcome. While there is a positive relationship between French-legal origin and bond market development. In the next section, we compute the data for the second

period characterized by the second phase during which most economies at the global level faced economic distress.

3.4.8 Bond market development indicators period 2008-2015

Table 3.13 below is an illustration of the bond market development post-financial crisis from 2008-2015. The fundamental reason for illustrating this relationship is to observe the behaviour of the bond market after the financial crisis. As stated in the literature, most macroeconomics factors generally show degradations in the period following the financial downturn. Studies in bond market development have previously provided some interesting results specifically on different crisis factors affecting bond market development in emerging economies (see Smaoui, Grandes and Akindele 2017).

Table 3.2.11: Bond market developments 2008-2015

Models Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
GDP PPP	0.024					-0.007
	(0.499)					(0.682)
GDP Growth	0.020					0.008
	(0.210)					(0.328)
Inflation			-0.002			0.000
			(0.889)			(0.928)
Bank Conc				4.060		-7.484
				(0.770)		(0.921)
Stock Turn	0.068*			0.0610	-0.080**	0.0289
	(0.087)			(0.139)	(0.016)	(0.197)
Stock Val		-0.013		-0.0140	0.013	0.0127
		(0.707)		(0.686)	(0.653)	(0.486)
S & P Equity		0.023				0.0110
		(0.356)				(0.402)
Exchange Rate			0.000		-0.039**	0.049***
			(0.976)		(0.033)	(0.000)
Exchange Vol						2.961**
						(0.0471)
Market Cap		0.084**	0.082*			-0.006
		(0.049)	(0.054)			(0.792)
List Comps				3.347	1.726	1.356
				(0.418)	(0.901)	(0.604)
Interest Sprd			0.0389			-0.0139
			(0.216)			(0.407)
Interest Vol					0.0112	0.004
					(0.786)	(0.902)
Firm UB					1.846***	-4.117
					(0.002)	(0.129)
Openness				0.062**	-0.021	0.007
				(0.039)	(0.329)	(0.642)
Export Vol				-4,535		-2,862

				(0.187)		(0.117)
Debt Private						1.014***
						(0)
Corrupt Ind	1.968	2.186	2.155			1.422
	(0.157)	(0.118)	(0.120)			(0.152)
GDP Cap	-5.017*	-5.322*	-5.216*			1.464
	(0.095)	(0.077)	(0.083)			(0.375)
Effective Gvt	3.124	5.288	5.578			2.309
	(0.419)	(0.216)	(0.193)			(0.343)
Quality Reg		-7.825	-7.904			-2.712
		(0.120)	(0.116)			(0.355)
Fiscal		2.702	2.787		-1.387	6.002
		(0.628)	(0.616)		(0.439)	(0.868)
Leg British	2.062	2.252	2.082	2.046	1.248*	2.824*
	(0.362)	(0.319)	(0.355)	(0.624)	(0.084)	(0.054)
Leg French	-2.019	-2.398	-2.263	-2.366	-1.218*	-2.458*
	(0.373)	(0.292)	(0.317)	(0.305)	(0.092)	(0.096)
Market Based	-5.247	-5.659	-5.863	-4.137	6.640***	6.399
	(0.384)	(0.350)	(0.329)	(0.489)	(0.000)	(0.871)
Bank Based	2.946	3.439	3.236	3.588	1.410	-2.008
	(0.533)	(0.469)	(0.492)	(0.451)	(0.355)	(0.948)
R1	-1.454	-5.629	-6.017	-3.099	-3.701	-1.200
	(0.818)	(0.931)	(0.925)	(0.618)	(0.985)	(0.977)
R2	3.392	5.851	6.052	4.813	-5.072	-2.551
	(0.583)	(0.354)	(0.334)	(0.431)	(0.796)	(0.949)
R3	-1.116	-1.073	-8.169	-4.790	7.191	2.528
	(0.883)	(0.888)	(0.914)	(0.544)	(0.774)	(0.622)
R4	-1.549***	-1.523***	-1.479***	-1.838***	1.034	-6.463*
	(0.002)	(0.005)	(0.006)	(0.000)	(0.533)	(0.067)
Constant	**4.093*** (0)**	**4.301** (4.50)**	**4.188*** (1.22)**	**4.668*** (0)**	**7.386 (0.710)**	**9.880* (0.071)**
Observations	**1,224**	**1,224**	**1,224**	**1,224**	**1,224**	**1,224**
R-squared	**0.096**	**0.098**	**0.099**	**0.095**	**0.030**	**0.742**

Robust P-value in parentheses

Statistically significant at * 10, ** 5, *** 1 percent

R different regions: R1 Americas, R2 Europe, R3, Africa, R4 Asia

Notes: The following table provides the regression estimates for analysis of the dependent variable against the independent variables for the period 2008-2015. The sample is composed of countries in emerging and developing economies only and the total number of countries is equal to 154. We use the Prais-Winsten model for panel corrected the standard error (PCE) estimates for linear panel models. The P-value appears in parentheses below the given coefficients estimates.

The table below provides a regression analysis of six different models which evaluate different levels of relationship between the factors affecting the bond market growth in developing and emerging economies. The factors used to examine the relationship includes GDP PPP, bank concentration, stock return, stock value, S&P equity, exchange rate, interest rate, interest rate volatility, market capitalization, listed firms, interest rate spread, inflation, firms using bank (Firm UB), openness, export volatility. We also include debt to private firms, corruption index, Rule of law, effective government, and quality regulation, fiscal.

Taxes IT = taxes on international trade
Stocks TTV = stock total value
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Deposit_IR = deposit interest rate
Firm_UB = firms using banks
Real_IR = real interest rate
Lending IR = lending interest rate
Bank_Conc = bank concentration
Exch_Rate = exchange rate

We investigate the effect of the financial crisis 2001-2008 on the development of bond market growth before the most recent financial crisis given in table 3.2.10. On the above table, we report the results of statistical analysis of bond market development based on data from 2007-2015 of the total number of countries in our dataset. This period is important because there it follows the financial crisis. We found that the stock return is statistically significant at 5 per cent in 1 case and at 10 per cent in the other case. On the other hand, the analysis of S&P provides a statistical significance at 5 per cent in three different cases. In addition, openness is significant, but the relationship is negative corruption is statistically significant at 5 per cent in all 3 cases where it has been measured. Finally, market and bank based economic model's hereafter-called economic models demonstrate a strong positive statistical significance with bond market development. The market-based dummy variable is positive and statistically significant at 1 per cent whereas the bank based is not constant although also positive and statistically significant. This translates that, both economic models provide incentives for the bond market development. However, market-based economies have the necessary ingredients to provide a much greater support for a rapid growth of the bond market than the bank-based economic model. Furthering the analysis, the modeling of the factors demonstrates that there is a strong negative relationship between emerging and developing economies bond market development and Africa, the statistical significance reported here is highly significant at 1 per cent but the relationship is negative. This can be demonstrated in terms of economic development as many economies in Africa still very underdeveloped.

There may be a trade-off amid banks and markets based on the financial services analysis of the finance nexus. Levine (1997) and others stress that financial arrangements-contracts, markets, and intermediaries arise to provide key financial services. Specifically, financial systems weigh up likely deal opportunities; apply corporate rule following funding projects, facility risk management including liquidity risk, and ease savings mobilization. The provision of these financial services in a less efficient manner, various financial

systems promote economic expansion to some extent. Based on these financial beliefs, the matter of economic growth is not on the market or bank-based economic model; rather, it is about developing an environment in which both market and banks promote sounds financial facilities. About bond market development, there is no inconsistency between the bank- based or market-based financial models being particularly effective to provide sound lending facilities to bond users at a specific stage of economic expansion.

To examine the accuracy and the consistency of the tests, we reduce the sample size by narrowing down the number of countries based on the number of data point. Based on this specific criterion, we removed few countries with limited data points from the sample. The findings from the new dataset show that there is consistency between our findings and the literature on the key factors affecting the bond market development in emerging economies.

4. Conclusion

The recent financial and economic distress 2007-2009 with its dramatic effects on emerging economies revived the old issue of local market bond development. Many past studies have pointed out extensively the benefits for promoting emerging economies in local bond markets. Despite these advantages, based on our sample, we observed that the total sum of bond issued in emerging and developing economies remains very limited compared to advanced markets such as the U.S or UK. This study has investigated the determinants of bond market development in emerging and developing economies with an emphasis on the financial structure and the legal origin of these economies.

The bond market development discussion is often linked with economic development and institutional advancement of a country. The regression of parameters demonstrates that counties with developed bond markets are generally those with legal and economic stability. In this paper, we have attempted to investigate the determinants of bond market development using a cross-country examination. There are two main models characterizing

financial models, the market and bank based. Based on the nature of the data used to examine bond market development in this study, we observed that the nature of the distinction is more complex. The findings of this chapter show that there are several important explanatory variables affecting bond development in emerging economies. Firstly, we found a great dispersion among the variables affecting bond development. Secondly, a closer examination of these variables before and after the financial crisis indicates instability of some of the factor's behavior with bond market growth. For example, the GDP before the financial crisis was positive to the total bond, thus this relationship is not has been impacted during the financial crisis and the estimation provides a non-statistically significant relationship after the economic and financial downturn. We also find that before the financial crisis, market capitalization, the stock market, number of listed companies, market-based is also important factors favouring the development of the bond market. In addition, the findings also suggest that English legal origin is positive and statistically significant, and French legal origin is negative and not statistically significant for but this relationship is negative. This observation on the legal origin effect on bond market growth demonstrate the difficulties researchers have in clearly identify whether there is a direct relationship between a country legal origin, financial model and economic and financial growth.

CHAPTER FOUR

The Determinants of corporate credit spreads in emerging economies: evidence from non-financial firms

4.1 Introduction

This study investigates the determinants of corporate credit spread for emerging economies non-financial firms over a period of eighteen years based on data availability.

Ever since the global financial downturn of 2007-2008 that affected many economies, more attention has been given to the components of credit risk for emerging markets (EMs). This increase of attention on the factors affecting credit spreads is due to developmental prospects, investment opportunities, continuous demographic rise, manageable fiscal arrangements and high level of debt (OICV-IOSCO, 2011). In this respect, based on emerging markets economic conditions, bond markets have expanded to become an important alternative source of funds for emerging economies private and governments seeking funds over the last couples of decades. Nevertheless, it is important to point out that the use of bonds as a mean to access finance for private firms' particularly for non-financial firms remains very limited in emerging and developing economies for several reasons. Among the factors influencing financial and economic growth and financial development in emerging economies, the literature pointed the followings; capital markets underdevelopment, high-interest rates, high inflation, and recurring financial instability are important characteristics for underdeveloped economies.

Using secondary data from listed firms from several sources, we aim to investigate the main determinants of credit spreads for emerging economies non-financial firms for the period 1990-2016.

The literature on credit risk is generally segmented into two specific categories. The first category of credit risks literature falls under the structural models and the second category fall under the reduced form models. These two approaches to modelling credit risks developed in the early 1970s have been used in both bank-based and market-based economic systems to forecast potential credits default. The latter initially developed by Black and Scholes (1973) became very popular following the Merton (1974) seminal paper. These models, generally on the form of corporate credit spreads determinants have been examined in various instances using sovereign data for emerging and developing economies. However, studies of this nature for developing economies non-financial firms remain relatively scarce due to the slow level of markets speed of development.

On the other hand, non-financial firms credit spreads early literature has predominantly focused on firm-specific factors including among others and not limited to firm liquidity, the asset tangibility, the firm's credit history and the effect on financing decisions for developed economies companies' financing allocations. Thus, several studies on credit risk concluded that investigating the determinants of companies' factors alone only explain a reduced portion of the observable spreads. Therefore, based on the conclusions, there should be other factors affecting the level of the spreads. Early studies developed of credit spread include among others (Campbell and Taksler 2003; Collin-Dufresne et al. 2001; Cremers et al. 2008; Landschoot 2008; and Duffee 1998).

Following large economic and financial restructuration adopted by several emerging and developing economies in the early 1990s, several emerging economies moved to the global market's arena in the quest of new funding opportunities. The literature shows that at the early stage of the bond market development in emerging economies, the essential of financial markets transactions were undertaken at the sovereign level. It is only some few decades later that emerging economies private firms were able to access external funds through corporate bond issuance resulting to many firms exchanging huge amounts of fixed income securities at the local or international market level. Thus, emerging economies bond

markets growth and particularly the market for corporate bond remains relatively small compared to the bond markets in developed economies. Hence, despite the importance of the effect on economic and financial growth, the fundamentals of credit spread determinants for non-financial firms in emerging economies remains a mystery to academics, policymakers and practitioners. Based on the above arguments, we propose an attempt to contribute to the current literature by answering the following questions:

What are the main determinants affecting credit spreads in emerging economies?

What is the effect of macroeconomic factors on credit spreads for non-financial companies operating in less advanced economies?

Do firms' debt levels characteristics affect the level of interest rate required by investors?

What is the nature of the relationship between credit spread and sovereign spreads in emerging market?

The aim of this chapter is to contribute to the body of literature focusing on the determinants of credit risk spreads using a large set of equity data from emerging economies. The main argument is that credit spreads on corporate bond depend on several factors; including a country macroeconomic conditions through for example taxes, inflation, and the term structure of interest rate and the debt of a specific firm. In addition to these conditions, it is believed that other factors including firm's specific factors such as the firm's debt level, profitability, assets tangibility, and firm liquidity will be important factors for the determination credit spreads sources. Furthermore, market conditions together with the business cycle are also important factors for determining credit spreads.

The methodological approach adopted on this chapter is close to the methodology adopted by Nakashima and Saito (2009), who investigate the determinants of credit spread of a corporate bond rate over swap rates. Our study differs from their research in the sense that they study is limited to evaluating the relationship between corporate credit spreads and macroeconomic using data from a single economy. Firstly, our study includesother factors

such as the firm's specific variables (firm size, profitability, tangibility and liquidity). We include other factors such as geographical location and the legal origin of the market. In addition, we complement the list of variables by including a few dummy variables.

Our empirical results demonstrate a high correlation between credit spread of non-financial firms and a number of explanatory variables. We found for example that inflation, geolocation, size, country's risk premium and liquidity have a major influence on credit spread determination. Meanwhile, we found some factors provide are not significant in determining the credit spread effects. Based on the empirical results, we concluded that macroeconomic factors seem not to play an important role in determining credit spreads for some emerging economies at a regional level, while country-specific variables play an important role on the level of credit spreads. In addition, our findings also suggest that some regions are more affected than others are, and this is dependent on economic conditions and to whether the country's financial structure is a bank-based or market-based model. For instance, we find that Latin America and countries in the EMEA regions have high credit spreads, whereas the factors affecting Asia are not similar.

The remaining of the chapter is as follows: section two discusses the review of the literature on corporate credit spreads for both emerging and developed economies, section three the methodology, section four empirical analysis and results. Section five, robustness check and section six conclusions.

4.2 Literature Review

There are fundamental reasons why there should be an examination of the factors affecting the corporate credit spread in emerging economies. Structural or contingent-claim models, which relate the credit event to the firm's asset value and the firm's capital structure, offer a sensitive framework to evaluate the main determinants of credit spreads. Since the Merton model is one of the first structural credit risk models, the literature often refers to it as the representative of the structural models. Over the last two decades, the model has been extended in several ways by relaxing some of its restrictive assumptions (see, for example, Geske (1977); Black and Cox (1976), Cox et al. (1980); Turnbull (1979); Leland (1994, 1998), Longstaff and Schwartz (1995), and Leland and Toft (1996)). However, the main factors such as the risk-free rate, the asset value, and the asset volatility and their effect on credit spreads are general to all these models. In what follows, we will briefly describe the relationship between credit spreads and factors several factors used in previous empirical papers. In agreement with the empirical evidence on the determinants of credit spreads, we also discuss liquidity risk as a possible determinant of the spread.

The key question is therefore to what extent markets for these claims related to each other and to additional economic connections. This puzzle has been subject to investigations in many instances on the literature since the empirical work of Fama and French (1993) in which it was concluded that there is a positive relationship between the Treasury Yield curve and the corporate bond issuance (Stivers 2018).

The familiarity of emerging economies with frequent currency, debt, economic and financial crises particularly in the 1980s and 1990s put in light the menace driven by poor macroeconomic fundamentals and balance sheets for underdeveloped markets in the global markets. Capital markets tough are infrequently the primary or the only source of financing used by firms to fund growth operations in developing and emerging economies. Particularly, large or small firms in emerging and developing economies tend not to rely

on bond markets for capital financing due to local markets underdevelopment, financial instability, and lack of tight regulations governing financial transactions (Dittmar and Yuan 2007). Two important concepts derived from the bond markets; the credit risk related to the potential risk embedded in loans and the spreads levels, these two aspects are crucial for capital markets in general and for the corporate bonds market.

Credit risk in general terms refers to the probability that the contractual debt will not be fully serviced based on the terms of the initial agreement. Thus, the notion of credit risk is of crucial importance for the determination of future debts. The credit risk literature is divided into two main segments, the structural and the reduced forms models. The models simply provide methods used to forecast potential default periods (Schaefer and Strebulaev 2008). On the other hand, credit spreads defined in the literature as the difference between the Treasury bond and the corporate bond of the same maturity but different price. There is extensive literature examines the main factors affecting the corporate bond spreads that related to credit risk, liquidity, and taxation (see, for example, Elton et al. (2001); Delianedis and Geske (2001); Friewald et al. (2012); Huang and Huang (2012), Helwege, Huang and Wang (2014). The yields spread also called corporate credits spreads are used as an economic activity leading indicator of economic expansion are generally defined as the difference between the corporate bond yields to the yield of a government bond, Hallerbach and Houweling (2013); Asvanunt and Richardson (2017).

4.2.1 Credit risk determinants

The process of borrowing and lending funds refers to the credit. One of the fundamental stages in this process of borrowing and lending refers to the probability of an economic loss deriving from the inability of the counterparty to fulfil their contractual debts obligations also called credit risk. The Basel committee (2001) identified credit risk to be the dominant factor for financial risk in the banking sector (Manab, Theng and Md-Rus 2015).

The Emerging economies (EMs) bond market and particularly the corporate bond market has improved beyond the expected level. Thus, the credit risk accumulation is by far the most important aspect for preserving financial stability in most economies, particularly in the early stages of country industrialization. The excessive growth of distress assets as suggested in the literature is a sign of a pending financial downturn. It is important for regulators aiming at ensuring financial stability to develop mechanisms to foresee potential bad debts effects and take appropriate steps to identify the determinants and approaches to reduce potential loss due to default. The literature on the determinants of credit risk can be divided into two separate majors' groups; one group of studies essentially focuses at the banking system macroeconomic view (see e.g., Hoggarth, Sorensen and Zicchino 2005; Babihuga 2007 and Pesola 2007). In addition, this group includes the literature on the individual bank microeconomic way (see e.g., Jimenez and Saurina 2005; Quagliariello 2007 and Espinoza and Prasad 2010). The macroeconomic studies or aggregate data focuses on investigating the connection between cumulative quantification of credit risk (proportion of adversely classified credits in the consolidated banking sector loan portfolio or cumulative default velocity within the corporate sector) and the macroeconomic conditions using data Hoggarth, Sorensen and Zicchino (2005) or several countries Nkusu (2011).

The second category of empirical studies focuses on the determinants of credit risk using firm’s financial level data. This direction of studies is important for determining corporate credit risk since this provide a rationale on the loan portfolio quality of the individual bank using microeconomic and macroeconomic data level. The primary indicator of credit risk identified in most empirical papers is the debt loss provision ratio to total loan portfolio (see Głogowski 2008). This specific ratio presents a high proportion of noise in contrast to the real dimension of the credit risk. An additional indicator of the credit risk is the proportion of actual non-performing loans at the financial intermediary level (see Jimenez and Saurina 2006; Boudriga et al. 2009; Dash and Kabra 2010; Louzis, Vouldis and

Metaxas (2011); Espinoza and Prasad (2010). This approach of measuring default risk has been popular in studying the determinants of credit risk empirical research.

4.2.2 Macroeconomic conditions on credit spread

The global financial crisis between 2007 and 2008 affected the number of economies both developed and developing economies. Previous studies on the relationship between bonds and macroeconomic variables have merely focused on emerging market sovereign debts, overlooking at the relationship between emerging economies corporate bonds and macroeconomic factors are an as the important relation with the sovereign spread. Studies on the relationship between sovereign spreads and macroeconomic variables include among others, Csonto and Ivaschenko (2013) investigate the determinants of sovereign bond spreads in emerging markets focusing on local fundamentals global factors versus ever-changing misalignments. Similarly, Bellas, Papaioannou and Petrova (2010) analyses the determinants of emerging market sovereign bond spreads using short and long-run affect fundamental (macroeconomic) and temporary (financial market) variables on these spreads. Thus, investigating and understanding the role of macroeconomic variables on the corporate bond is of high importance since it allows better grabbing of the complex equilibrium dynamics that exist among subsequent markets, but also allow for a greater consideration of important credit spreads mechanisms for risk assessment performance.

Theoretically, there is a general agreement from past studies on the literature who propose that financial development and macroeconomic factors have a high correlation. Thus, most previous studies of this type focused on the relationship between the economic determinants and sovereign spread while very little attention is given to the relationship between financing decisions and the credit spreads, particularly in the emerging market context. The lack of empirical evidence on the direct effect of macroeconomic on corporate credit spreads is more of a surprise as one will rather believe that in the context of financial crisis and the extreme growth of emerging economies debts, there will be more studies in

that direction. In addition, credit spreads should be studied since it is one of the main issues in debt financing particularly for emerging and developing economies involving both the public and the private sectors.

Tang and Yan (2006) investigate the effects of macroeconomic conditions and firm-specific characteristics. They conclude that credit spread is negative to interest rate; while credit spread, the yield curve tends to generate an upward slope for lower grade bonds. In addition, they claimed that firms' characteristic demonstrates a significant influence on credit spreads and the macroeconomic factors change characterized this effect. Using a comprehensive dataset with more than 100 years of corporate bond default rates from 1866 to 2008 Giesecke et al. (2011) demonstrate that macroeconomic factors predict corporate bonds aggregate default. Furthermore, as illustrated in many studies, (see Bloom 2009; Jurado, Ludvingston and Ng (2015) empirically demonstrate that conditional time variation volatility of macroeconomic shocks related to stock return and real macroeconomic activity (Allen, Bali and Tang 2016).

Kaviani et al. (2017) provide comprehensive literature on the relationship between policy uncertainty and corporate credit spreads (Figlewski, Frydman and Liang 2012), explore the effect of macroeconomic factors on corporate default, firm-specific ratings-related factors for the period 1981-2002 using the Cox hazard model. Their findings show that both types of factors highly influence the risk of a credit event. In addition, they conclude that the intensity of credit event occurrence was different for companies that started their investment grade and were systematically downgraded into a speculative rating class; for companies that stated as speculative and have been upgraded ("rising stars") comparatively to companies that remain in the identical broad investment or exploratory class group that were their initial investment.

4.2.3 Emerging market corporate credit spreads determinants

Examining and controlling corporate bonds markets are of primary interest for monetary policy because the link between the cost of fund to corporate and central banks rates policies is affected by the market. Moreover, corporate debt at maturity provides timely and advance looking actions to the entire business atmosphere. Credit spread defined in the literature as the difference between the corporate bond rate and the government yield rate at the same maturity. There are several studies developed over the last couple of years that specifically examines the relationship between credit spreads and the other factors. Most of the papers have had their focus on sovereign debt, while very little of this literature provides evidence using the private industry data.

The building block of corporate bond understanding can be traced back from several studies including Fridson and Garman (1998); Collin-Dufresne et al. (2001); Longstaff et al. (2005) and Ericsson and Renault (2006). The central proposal of a corporate credit spread is that the interest rate on corporate debt is much higher than the interest paid on sovereign debts. The argument here is that since it is believed that sovereign debts are less risky, and the probability of default is very small, therefore, the interest rate on sovereign debt should be lower. On the other hand, corporate debts are described to be of greater risk, therefore, the price on these debts should be higher to compensate investors. In other words, private firms must pay higher returns to creditors. Generally, the emerging economies interest rates on loans are not based on the current risk of the market, instead, it is based on the investor's wealth accumulation desire through virtual risk, and this in fact cannot be a fundamental reason justifying the observed disparity between the current interest rate and the potential credit risk. The government rate of interest (or the yield at maturity) provides the benchmark for pricing private firm's bond price. The Black and Scholes-Merton (1973) hereafter (BS) is considered the cornerstone of most existing structural models. Early studies developed used the BS-M have investigated diverse relationship between the default probability, including among others the Merton (1974) models, the default

probability and the recovery rates e.g., Bruche and Gonzales-Aguado (2010); default risk and expected returns, e.g., Chava and Purnanandam (2010); Da and Gao, (2010); Li and Miu (2009); Garlappi et al. (2008); Vassalou and Xing (2004). Default risk and executive compensation Kadan and Swinkels (2008) and default correlations and determinants.

According to the literature, various extensions have been proposed to improve the structural model including among others the subordination arrangements, indenture provisions and default maturity (Black and Cox 1976), coupon bonds (Geske 1997); stochastic interest rates (Longstaff and Schwartz1995) and the optimal capital structure as proposed by (Leland 1994) among others. The models provide relevance into risk management (e.g., the KMV EDF methodology explained by Crosbie and Bohn, 2002), in pricing e.g. the Credit Grades model described by Finger et al. (2002).

The spread computed using structural models is defined as the difference between the government bond free rate and the yield on a corporate bond of such a risk. The general understanding of the credit spread is the proportional compensation given to bondholders for taking the risk. The justification of the rationality on the relationship between the credits spreads and risk remains that it is difficult to provide. While there have been several studies focusing on the theoretical models for the firm's bond pricing and credit risk, there is less evidence from the empirical testing of these models for non-financial firms in emerging economies. Thus, currently, there are myriads of reasons for investigating the credit spread determinants behavior. Credit spreads assessment is a crucial characteristic in marking to market a financial firm's fixed income asset group. There are various ways to estimate credit spreads, the first approach can be the use of bond prices as in Campbell and Taskler (2003), Collin-Dufresne, Goldstein and Martin (2001) and Elton et al. (2001).

The exponential growth of credits and credit derivatives markets over the last couples of years, it is crucial to understand the determinants of corporate credit spreads. Commonly, the perception of credit risk is significant to many research areas, with important

interrogations ranging from the dimension of the spread to the dynamic of their determinants and the source of systematic risk in the noon-financial sector. The risk on credit refers to the risk of an economic or financial loss due to a counterparty failure to meet the contractual agreements terms, which in the context of the financial and economic distress is very pervasive. In their annual meeting, the Basel committee 2001 identified credit risk as the major risk for the financial sector. Theoretically, the (Black and Scholes 1973, and Merton 1974) including the seminal work of Collin-Dufresne, Goldstein and Martin (2001) have enlightened research on the influence of some of the factors affecting the level of corporate credit spread.

Davies (2008) is the first empirical papers that investigate the corporate bonds spreads using large historical data of more than 85 years based on two rating; AAA and BAA corporate bond yield data for the US to estimates the set of credit spreads forecasting models. Landschoot (2004) investigates the determinants of Euro term structure for credit spreads. The study more specifically analyzes whether the sensitivity of credit spreads variations on the financial and macroeconomic variables essentially depends on bond characteristics including maturity and rating. Based on the structural models and empirical evidence on credit spreads, these research papers find that variations in the default-free term structure level, the implied volatility, the return on market and the liquidity risk significantly influence the changes in credit spreads. In addition, they concluded that these effects on the factors are dependent on the characteristics of the bond, particularly the grade and to a smaller extent to the maturity of the bond. Furthermore, liquidity risks considerably amplify credit spreads, especially on lower-rated bonds.

Tang and Yan (2010) investigate the intersect interaction between market and default risk on corporate credit spreads using (CDS) spreads based on the structural model that directly explore the effect of market risk on credit spreads. In their analysis, they find that the average credit spreads decrease in GDP growth rate but increases in GDP growth volatility and jump risk in the equity market. At the firm level, generally, credit spreads increase with

the volatility of the cash flow and beta, with the variation of the cash flow beta based on market conditions. The study identifies implied volatility as the most significant determinant of default risk among company-level characteristics. In emerging economies context, there are few studies identifying corporate bond spreads. The empirical study from Cavallo and Valenzuela (2010) explores the main determinants of corporate bond spreads in emerging economies using a large unexplored panel data containing a quarterly data from 139 publicly traded bonds listed in Bloomberg issued in 65 countries over 10 EMEs between 1999-2006. The data collected covers six countries in Latin-America (LA); it also covers four Asian countries. The other factor is that this study considers it covers seven industrials.

A variance component analysis indicates that companies level characteristics account for the largest share of variance. The outcome obtained emphasizes the importance of a firm's level performance indicators. In addition, they find two asymmetries; the first one consistent with a sort of sovereign ceiling in emerging bond spreads (Borensztein et al. 2006). The corporate credit spreads on firms' bond is seen as the surplus on yield that is given to compensate bondholders for bearing the risk. There is different sort of risk generally taken by investors. The first type of risk is the aggregate market risk due to macroeconomic conditions instability. The second type of credit risk relate to the probability that a specific situation could occur at some point that will cause market perturbations, therefore obliging the borrowers not to honour their debt covenants. As result, there could be a delay on debt payment or eventually, the firs will not be in the position to service debt based on the contractual terms. The characteristic of risk is the risk related to the corporate bond market liquidity. In this chapter, we attempt to decompose the determinant of yield spreads into three main classes, the market factors, default factors, and liquidity factors.

4.2.4 Relationship between sovereign and corporate bond spreads

The recent economic shock that affected the global economy brought up apprehensions on the speed to which sovereign credit risk has been developing since the 2007-2009 economic downturns. Emerging markets sovereign debt is increasing in foreign currency and it is becoming a worry for the private sector. There are various studies developed over the years on the effects of sovereign debt particularly on non-financial firms' financing. However, the same attention has been on emerging markets very recently due to their integration into the global financial market and to the importance given to their assets class since the last financial downturn.

There is a substantial and solid reduction of sovereign spreads in emerging and developing economies observed over the last couple of years. These yields are the differentials between bonds maturity in emerging economies debt and those on what is risk-free sovereign bonds on a similar period. The average spread on the EMBI+ index, a widely watched index of emerging market liability values, for instance, dropped from about 1,020 basis points in October 2002 to 170 basis points in December 2006, (Remolona, Scatigna and Wu 2007). The literature proposes that the probability of credit risk spillover from sovereign to private firms' credit risk occurs in a situation where governments seek to raise funds due certainly to inability to access funds from financial institutions. The mechanisms to achieve these aims are generally complex, however, the results of governments' actions will undermine firms' abilities to access financial markets through corporate taxation increases, foreign exchange controls impositions, or in some cases, the government will expropriate private investments.

Studies on the determinants of corporate credit spread including Collin-Dufresne, Goldstein and Martin (2000); Gruber, Agrawal and Mann (2000) conclude that the major section of the corporate bond and the credit spread dynamics does not provide on the only expected default risk of the firms (Westphalen 2001).

According to Borensztein et al. (2007) public debt highly affects private sector because corporate borrowings rating aligns their criteria based on the sovereign rating level; sovereign debt is one of the most important determinants of corporate debts. Duffie et al. (2003) investigate the relationship between sovereign and corporate spreads; their finding suggests that the sovereign spreads have a high influence on the corporate bond spreads. (Mauro et al. 2002; Geyer et al. 2004; Pan and Singleton 2008; and Longstaff et al. 2011) propose in their findings that there is a correlation between common global factors to credit spreads and financial markets factors.

Caceres et al. (2010) provide new evidence that there is swift of sources of risk, from a more global risk aversion to country-specific factors; this contradicts the evidence provided by Whestphalen (2001). Agca and Celasun (2009) documented that an increase in the sovereign debt affect private sector by increasing the country's default risk level, concluding that this increase of government debt makes the public firms less attractive to foreign investors. Celasun and Harms (2011) assesses the effect of private sector debt on sovereign default in developing countries. They explore how the share of the private sector in total external debt affects perceived creditworthiness and the likelihood of sovereign default. Their inference demonstrates that there is a hierarchical relationship between a country ability to borrow and the private sector debt, which backs up the evidence that sovereign credit rating, is the ceiling for the corporate debt. On the other hand, firms are unlikely to be successful in acquiring funds from financial markets if their country of origin has a low rating.

Different methodological approach is used to examine the implication of sovereign spreads on corporate credit spread and how this affects financing decisions. For example, Peter and Grandes (2005) and Grandes et al. (2010) argue that the corporate spreads determinants inferiority over the sovereign risk spreads is since, firms are unable to have greater debt compare to their country's debt level. The above-listed studies show the superiority of sovereign spreads over the corporate spreads.

The relation between corporate and sovereign debt extendable to their respective spreads has always been a matter of discussion at the global level in the financial industry. Although this relationship is established, the question remains to understand how a larger sovereign debt would influence private firm's access to international markets. As previously mentioned in the past subsection, there has been high interest over the last two decades on the determinants of corporate bond in general, most early credit risk spreads studies been on the US markets due to the development of this market. It is only recently that the emerging markets bond has been of growing interest.

Nevertheless, one of the fundamental questions raised in corporate finance research focused on the relationship between sovereign spreads and corporate spreads in emerging economies; this relationship referred on the literature as a sovereign ceiling in Durbin and Ng (2005) study. The idea of sovereign ceiling means that although numbers of companies are becoming very powerful and even larger than their country of origin, it remains that theoretically, a firms' credit rating cannot be better than the country credit rating. Thus, private companies pay high interest on loans; whereas, the sovereign spreads always pay interest to the bondholders.

Dittmar and Yuan (2008) stipulate that government bonds in emerging economies could probably increase the corporate bond efficiency in the secondary market by reducing their maturity and bid-ask spreads. Similarly, Agca and Celasun (2012) investigate the relationship between sovereign debt and corporate borrowing in emerging markets from 1990 to 2006 and attempt to establish the causality from country debt and the private sector borrowing, the key findings demonstrate that there is a high correlation between sovereign debt and corporate future borrowing. Secondly, their conclusions suggest a high degree of correlation between sovereign debt and the cost of corporate syndicated borrowing in markets where there is a weak creditor's protection. This potentially demonstrates that the combination of high level of sovereign debt and fewer creditors' rights, creditors will be

able to recover a small part of their initial investment in the situation whereby the borrower is unable to service its debt obligations.

Okimoto and Takaoka (2016) investigate the usefulness of the term structure of credit spreads and the business cycle in Japan. Their analysis provides clear evidence that the term structure of credit spreads has more predictive power than the government bond yield. Sable (2015) investigates the importance of bank based and market-based credit in India during the pre and post liberalization. Using a sample of data collected on the financial years between 1981 and 2014 correspond to the post-reform period. The findings suggest that for emerging markets like India, there is not much more difference in bank credit due to financial liberalization and stock market are too volatile in nature. He found a positive impact of financial liberalization on market-based credit from the absolute growth rate computation.

4.2.5 The importance of corporate default prediction

Market contributors' aptitude to precisely assess the probability of default for a company using publicly available data is significant for resource allocation efficiency, market stability and the economy. Lower volatility and assets diversification reduce risk, therefore, the probability of credit default; whereas non-diversified firms are exposed to high risk and greater probability of default, (Campbell et al. 2008). Financial institutions and banks need conditions for decisions making purposes in fast-growing financial markets. Among the identified conditions to consider, one of the most important conditions is a risk. Over the last four decades or so, several researchers have been involved in studying corporate default. Understanding the methods of evaluation and the factors that drive credit risk could help bondholders to improve their steak. Comprehension of these mechanisms could also help companies' managers to reduce losses in the portfolios since any negative investment will reduce their overall performance (Opler and Titman 1994). Accurate prediction of corporate default rates is an important issue for financial stability assessment. Therefore,

policymakers and regulators could benefit from accurate prediction models. For a financial institution, an accurate default risk prediction model to avoid missing due to suboptimal resources provision. Shareholders return is guided by the firm ability to perform well (share price), capital structure and dividend strategy.

Defaults from multinational companies including Enron, WorldCom, Kmart World, Lehman Brothers and many others before the most recent economic distress negatively impacted the employee interests, clients, and suppliers. In much advance's situations, corporate default event is to some extent responsible for global financial crises fueling economic recession speculation on sovereign default.

4.2.6 Modelling the credit spreads determinants

Estimating credit spreads is a fundamental element in marking-to-market a financial organization permanent earnings venture portfolio. Credit spreads or the yield spreads can be evaluated using either credit default swap (CDS) spread, as in Longstaff, Mithal and Neis (2005) and Ericsson, Jacobs and Oviedo (2007) or corporate bonds prices as estimated in Campbell and Taksler (2003); Collin-Dufresne, Goldstein and Martin (2001) and Elton et al. (2001).

Credit spreads determinants modelling have been the focus on credit risk derivatives studies over several years. This increase in interest is due to the concern from investors and regulatory agencies on financial institutions exposure to high risk over the counter derivatives. The standard for credit risk management promoted by the new Basel Accord obligates financial organization to guarantee a degree of capital requirement regulations promoting the credit derivatives market consistency. The Basel II has therefore contributed to the greater success of these measures. Giacometti and Teocchi (2005) used a structural model to evaluate various pricing models of credit spreads options such as Longstaff and Schwartz (2001), Das and Sundaram (1998), and Duan (1999) GARCH based models. The primary two models LS (2001), Black suppose simultaneously a mean-reverting dynamic

and a lognormal distribution for the yield and demonstrate the spreads models. These models regard the spreads as a single variable and supply close form answer for option pricing. In opposition to the above-mentioned models, Das and Sundaram (1998) provides a recursive backward initiation technique to price credit spreads alternatives using the bivariate tree, which describe the term structure dynamic of forwarding risk neutral- risk-free rate.

Chiarella, Fanelli and Musti (2011) using the CDS option pricing model developed a study on modelling the evolution of the credit spread using the Cox process within the HJM framework where stochastic intensity symbolizes the yield spreads. The study provides a defaultable bond and credit change function applied to the Euler-Maruyama stochastic integral estimate and the Monte Carlo model used to develop arithmetical models for valuing. Their conclusion proposes that the overall credit spread term structure affect the presuming spread utility.

Ma and Xu (2016) investigate credit risk modelling with Hawkes jump-diffusion process on the framework of Merton structural default approach and proposes novel jump diffusion to model firm's value. In this framework, the jump is resembling the systematic risk universal to all firms and a distinctive risk. Some traditional models are the special situations of the identified model. Their analysis demonstrates that Hawkes jump-diffusion models provide a better explanation for the defaulting clustering than Poisson jump-diffusion model.

Driessen (2005) used the intensity-based model to measure the default premium from returns on the US corporate bonds. Intensity-based method model the default premium applying the jump processes. Evidence from this study demonstrates that the premium offers a significant economic contribution to explain the returns on a corporate bond, even if it does not provide powerful statistical significance.

4.3 Econometric model specification and data

Based on the framework of the structural model, the firms' value, the volatility and the risk-free interest rate determined the credit spreads. Because credit spreads are provided essentially based on these state factors, it is convenient to say that these values are responsible for the variability observed for the change of spreads. There is ample literature on the variables affecting corporate credit spreads. More often, there are two main groups of credit risk literature, the structural and the reduced form models. There is a large literature on the both structural and reduced form models for credit risk analysis. The structural models originated from the seminal work of Black and Scholes (1973) and Merton (1974). The reduced form model on the other hand developed by (Jarrow & Turnbull, 1995) and (Madan and Unal 1998). The reduced form model considered default as exogenous events and use the Poisson distribution process and their variants to model potential risk.

4.3.1 Methodology

In this section, we proposed the research method; we provide the method for variables and data collection, list the dependent and the independent variable and provide empirical results. This study defines the yield spreads as the differential between corporate bonds and a similar maturity, risk-free rate instrument such as the sovereign bond.

Consistent with the literature for credit risk, we identify several factors that potentially affect the credit risk of the individual company. While it is true that the determination of credit risk for corporate debt is individual for each company. The factors affecting the corporate bonds including but not limited to the following: The independent variable here will be the credit spread defines as the difference between the corporate yield spread and the risk-free interest rate of a sovereign bond with the same maturity. We split the independent factors into different groups; the first group is the macroeconomic factors (real

inflation, GDP, economic growth, and sovereign spreads). Firms' specific factors include company size log of total assets, profits (return on assets, debts total debt outstanding divided by total assets).

4.3.2 Data source

We collect data from divers' sources; our primary data source is DataStream, where all equity and firm-level data are collected. The data span from the period 1998-2016. The choice of this index period is due to the corporate bonds market data availability of most emerging economies. The actual sample currently represents a good approximation of the date that most emerging markets provide their corporate bond data. This index is limited compared to sovereign spreads data index that is more comprehensive. The important step in building the data set includes gathering informationon a yearly basis, eliminating bonds with specific characteristics. We consider countries in the sample that have at least five years of historical bond issuance data available. The balance sheet and income statement data for companies operating in developing markets originated from Bloomberg; while microeconomic variables are from WDI and the FRED. We also collected data from other sources, we obtained a firm country and macroeconomic level data from various sources (e.g., World Development Indicators, International Monetary Fund). A segment of the data was gathered from previous studies, particularly we collected countries' data from empirical papers, and part of the data is collected from FRED (Federal Reserve of economic data). Initially, the sample of countries was large and had 30 emerging economies with listed companies, but most firms had severe data issues, and we removed firms that had incomplete data from the sample. Finally, we kept countries that had at least two firms with full data; in total, we had only 16 countries in this category including Argentina, China, Chile, Brazil, Indonesia, Philippines, Poland, Mexico, Russia, South-Africa, Turkey, Thailand, and Peru.

4.3.3 Variables selection

We select the dependent and the independent variables for this study based on the empirical literature on the topic of credit risk. One of the hardest tasks in the process of research is the choice of different variables to study a specific phenomenon in a specific field of research. The choice of variables should be undertaken based on the empirical studies that within the field of research and keep insight at the primary objectives of the research since there it is impossible to use all variables in a single study. Thus, the choice of both dependent and independent variables of this study derived from the extensive literature review.

4.3.4 Dependent and independent factors

The first step of this process is to define our dependent and independent variables to include in our econometric model. Corporate bond data derived from Bloomberg terminal. For corporate bond, we gathered data for 16 emerging economies meeting the criteria set, for example, in our sample, we keep countries with more than 5 years of continuous data. The second criteria for corporate bond collection are characterized by whether the other variables also have data available for at least for 5 consecutive years. In addition, we use a change of the credit spread from one year to the other as our second independent variable by taking the difference between the actual less the previous period for an individual firm.

The dependent variables, several independent variables were chosen based on the empirical literature on credit risk. Numbers of empirical studies that have previously investigated credit risk determinants have to pay more attention to the role of firms' specific factors on credit spreads development. These studies on the nature of structural models conclude that a small part of the observed spreads originates from firms' specific factors. Since we use many independent variables, we grouped them by category. The macroeconomic factors

used in this study are the GDP, inflation, interest rate. The firm-specific factors include the profitability of the firm.

4.3.5 Method

In this chapter, we define the yield spreads as being the difference between the yield of corporate credit bond and the sovereign bond with the same maturity. Given the sample period 1980–2016 we aim to investigate. The model used in this study follows the model used by Liu et al. (2009). The non-linear regression technique constrains the use of a constant parameter over a period. The method provides with a regression outcome assessment that specifically represents the average parameter values of a certain sample period. A drawback of the non-linear regression is that the probability of default is restricted to be constant over time. Liu et al. (2009), we resolved this issue by using the Kalman filter approach to contain time-varying probabilities. This method has successfully used in previous term structure studies; see Wu and Yu (1996); Duffee (1999) and, Chen and Scott (2003).

4.3.6 Econometric model specification

Based on the framework of the structural model, the firms' value, the volatility and the risk-free interest rate determined the credit spreads. Our model differs to the above models in some ways as we use a different set of variables that are not included in the Eichengreen and Luengnaruemitchai (2004) model of estimate. In the structural model standard framework, the spreads are given based on the firms' value, the volatility, and the risk-free rate.

Since firms' credit spreads are computed given the actual significance of these factors, it can be deducted that variation in credit spreads are given by changes of the variables. The methodology approach derived from past empirical studies (Longstaff and Schwartz 1995) by implementing a linear progression of the structural model. Since previous studies on the

US and Europe markets have identified some weakness of the structural models, we extend the standard model and include variables that are important in the context of corporate bond markets, additionally to those already included on the structural models. In this occasion, we do not compute the actual spread since our data is a secondary data collected from the Bloomberg terminal.

4.3.6.1 Credit spread as a function of factors

In this section, we report the credit spreads as a function of factors using an econometric model in the following terms:

Model 1

$CS_{i,t} = \beta_0 + \beta_1 \sum_{J=2}^{1} MecF_{i,t} + \beta_2 \sum_{K=3}^{1} FSF_{i,t} + \beta_4 \sum_{M=4}^{1} CF_t + \gamma_{i,t} + \rho_{i,t} + U_{i,t} + \varepsilon_{i,t}$(4.1)

j = 1 – J; *K* = 1 – K; *m = 1-M*

$CS_{i,t}$, represent the corporate credit spread of a firm i at time t, is the dependent variable

$\beta_1 FV_{i,t}$ firm volatility

$\beta_1 MECF_{i,t}$ macroeconomic factors such as GDP, inflation rate, corporate tax

$\beta_2 FSF_{i,t}$ is the sum of the firm's specific factors

CF_t, represents the sum of a specific country factors

$\gamma_{i,t}$ slope of the yield curve

$U_{i,t}$ is the unobserved factors for all three factors'

$\varepsilon_{i,t}$, the disturbance error term

i,t, the subscriptis the industry and the time

Here, we consider that the change of credit spreads of a company is a function of a few factors, for instance, let assume that there are operating in at a country level, this can be a change of macroeconomic policies or change of political orientation.

4.3.6.2 Change in credit spread as a function of factors change

The econometric model equation illustrates the relation between the independent and the dependent variables in the case some of the parameters change. The aim is to verify whether change for instance of government tax policy impact on financing decisions.

Model 2

$$\Delta \boldsymbol{CS_{i,t}} = \boldsymbol{\beta_0} + \boldsymbol{\beta_1}\Delta \boldsymbol{FV_{i,tT-t-1}} + \Delta\boldsymbol{\beta_2}\sum_{J=2}^{J} \boldsymbol{MecF_{i,t}} + \Delta\boldsymbol{\beta_3}\sum_{K=3}^{K} \boldsymbol{FSF_{i,t}} + \Delta\boldsymbol{\beta_4}\sum_{M=4}^{M} \boldsymbol{CF_t}$$

$$+ \Delta\boldsymbol{\gamma_{i,t}} + \Delta\boldsymbol{\rho_{i,t}} + \Delta\boldsymbol{U_{i,t}} + \boldsymbol{\varepsilon_{i,t}} \qquad \textbf{(4.2)}$$

Where,

$\Delta CS_{i,t}$, represent the corporate credit spread of a firm i at time t, is the dependent variable

$\beta_1 \Delta FV_{i,t}$, firm volatility

$\Delta\beta_1 MECF_{i,t}$, macroeconomic factors such as GDP, inflation rate, corporate tax

$\Delta\beta_2 FSF_{i,t}$, is the sum of the firms' specific factors,

CF, represents the sum of specific-country factors,

$\gamma_{i,t}$, the slope of the yield curve

$U_{i,t}$, is the unobserved factors for all three sum factors and

$\varepsilon_{i,t}$, disturbance error term

The subscript *i,t* represents the industry and the time indicators

In this section, we assume that changes observed on spread are due to change in all the independent variables situated on the right-hand side of the equation. For instance, consider a change of government fiscality program for companies' taxation or change in macroeconomic such as raised of interest rate or change of the GDP, the variables change will affect the company credit provisions, therefore, influencing the yield to maturity of bond credits.

Numerous panel data are used along the lines of the above specification: Random effects (RE), Fixed effects (FE), and Pooled ordinary least squares (POLS). Overcoming the difficulties linked to credit quality de-escalation of most developing economies issuers can be a vector to the development of corporate bond markets through securitization.

4.3.7 Empirical Analysis and Summary Statistics

4.3.7.1 Summary statistics

In this section, we provide a summary of the statistical analysis of the data used. In this chapter, we chose a large set of independent variables based on different factors used in previous studies. The summary statistics derived from the use of twenty factors given in Table 4.1 below. This section is the descriptive analysis of the data for this paper. We provide the number of the observation of our sample; the mean the standard deviation, the minimum and the maximum number for each of the factors considered in this analysis. There are 3598 observations for each of the variable of our data set as indicated in the table below. We include in this sample many independent variables to measure the degree of relationship and the effect of these factors affect credit spreads based on our data. Table 5.1 indicates that there are 22 different variables divided as indicated in the introduction of three main groups of variables. The first group is the macroeconomic factors, the group is the firm's specific factors and the third group is the country-specific factors.

Table 4.1: Correlation matrix

	Sprd	GDP	Infla	CPI	Mkt Ve	Size	Inctax	Ltbor	Cliab	TTDebt	Corptax	ROA	Profitability	Tangibility	Liquidity	Corindx	Legor	Distbank	Finsys
Sprd	1.0000																		
GDP	-0.0522	1.0000																	
Infla	0.0206	-0.0986	1.0000																
CPI	0.0204	0.0847	0.5780	1.0000															
MktVe	-0.0070	-0.0345	0.0359	0.0413	1.0000														
Size	-0.0511	0.1074	0.2964	0.4859	0.2850	1.0000													
Inctax	-0.0055	-0.0288	0.0281	0.0250	0.9601	0.2307	1.0000												
Ltbor	-0.0167	-0.0388	0.0733	0.1080	0.7525	0.5141	0.6631	1.0000											
SHT	-0.0137	-0.0653	0.0311	0.0457	0.7209	0.4450	0.6136	0.8863	1.0000										
TTDebt	0.0134	0.0219	0.1050	0.1333	-0.0347	0.1175	-0.0477	0.0289	0.0282	1.0000									
Corptax	-0.0375	0.2538	0.3874	0.4838	-0.0262	0.3677	-0.0169	0.0126	-0.0442	0.1650	1.0000								
ROA	-0.0632	-0.0466	0.0046	0.0128	0.0972	0.0557	0.1040	0.0689	0.0431	-0.3045	-0.0341	1.0000							
Prof	-0.0350	-0.1695	0.1091	0.1095	0.2234	0.1571	0.2113	0.2686	0.1821	0.2214	0.0304	0.4808	1.0000						
Tang	-0.0169	-0.0128	-0.1285	-0.1457	0.0380	-0.1875	0.0542	-0.0406	-0.0383	-0.6374	-0.1736	0.3432	0.1945	1.0000					
Liqty	0.0453	0.0084	-0.1945	-0.2629	-0.0252	-0.3020	-0.0247	-0.0963	0.0343	0.1386	-0.1891	-0.0802	-0.1513	0.0316	1.0000				
Corindx	-0.0284	-0.2361	-0.3870	-0.4884	-0.0539	-0.3831	-0.0405	-0.1062	-0.0195	-0.0816	-0.4316	0.0078	-0.0761	0.0916	0.1156	1.0000			
Legor	0.0231	0.2589	-0.3057	-0.2977	-0.1954	-0.2941	-0.1530	-0.3259	-0.2902	-0.0917	-0.3596	-0.0218	-0.2035	0.1020	0.1998	-0.1265	1.0000		
Distbank	0.0107	-0.1175	-0.0028	0.0023	0.0669	-0.0488	0.0754	0.0195	0.0 222	-0.0468	-0.0175	0.4248	0.5307	0.4402	0.4275	0.0045	-0.0505	1.0000	
Finsys	-0.0339	0.3549	0.4050	0.6595	0.1229	0.5711	0.0740	0.2392	0.1651	0.1594	0.7037	0.0101	0.0872	-0.1621	-0.2274	-0.4113	-0.4166	0.0127	1.0000

Notes: For the analysis, we proceed as follows: we provide a summary statistic of the variables in table 4.1.
There are 3598 observations for the sample for a large set of variables. The results provided by the variables,
number of observations, the mean, the standard deviation, minimum and maximum of each of the studied factor.
We also perform a correlation matrix to determine the degree of correlation between individual and among variables.

We measure the relationship between the individual variables to observe the close relationship between the dependent and independent factors. We observed that macroeconomic variables such as GDP, corporate tax, corruption index financial system and the firm-specific factors including profitability, tangibility, and firm size have a negative relationship with spread level. The result obtained from the matrix tends to indicate that these variables behave in an opposite way while there is a variation or change on credit spread behavior. The remaining variables correlate positively with the spread with no high degree of correlation.

We identified a similar relationship between rating and inflation. Thus, the relationship between the others independent variables are relatively weak and mostly negative. The above correlation between the independent and the dependent variables indicates that the spread is highly correlated to some variables compare to others. The summary of the matrix table gives the following the results; in the first column, we observed that the spread is negatively correlated to several factors in the sample. For example, there is a negative correlation between spread and GDP at 5 per cent, market value and, size and corporate tax have a negative correlation with spreads. Meanwhile, we found that there is a positive relationship between inflation and consumer price index and spread. However, the degree of relationship between these factors scaled with the spreads is very small. Additionally, we found that firm-specific factors are negatively correlated with credit spread. The estimate also demonstrates that there is a lot of variation between country-specific factors. Here, the results show that corruption and legal origin have a positive relationship with spreads while the financial system provides a negative correlation. However, we identified a perfect relationship between the individual factors; therefore, their estimate demonstrates that there is no covariation between the individual factors.

The following table 4.2 provides a correlation matrix between the spread and various other factors used in this paper. The advantage of using this technique simply allows to determinate the degree of correlation between the individual factors.

4.4 Empirical estimates of corporate spread parameters

In this section, we provide the results of different regressions analysis where we regress the dependent variable spread against the independent variables of macroeconomic, firm's specific and country-specific effects. We used the historical credit spreads obtained from Bloomberg because the actual corporate bonds data is scarce especially for emerging economies. The following tables provides an analysis of the relationship between 3 groups of countries according to their location; ASIA, Latin America, Europe, Middle East, and Africa. The next table provides an analysis of the data for two groups, advanced emerging economies, and less advanced emerging economies.

4.4.1 Regional analysis of credit spreads

In this section, we investigate the effect of corporate credit spreads at the regional level to see whether there is a difference between the variables affecting the spreads level or there are similarities among the variables. We divide the sample based on the country's geographical location. For instance, all Asian countries with at least a minimum of three years of consecutive spreads data are under one group. We grouped Europe the Middle East and Africa under the same group since their markets are relative of a small size. We also do the same grouping for countries from the Latin America region.

4.4.2.1 Determinants of credit spread EMEA region

As we stated earlier in the introduction of this chapter, we evaluate various relationship on the credit spreads in emerging market. To proceed, we split the data set into three main groups, categorizing countries of the same region in each group. To answer the first

empirical question of this chapter, we use data from each region separately, and here we determine the main determinants of credit spreads in the Asian region.

The EMEA region main characteristic shows that there are three different continents including some European countries, the Middle East and African region. These three continents have mixed economies. Most emerging economies in the Middle East have different model of economies which differs to the one in the Europe and Africa where countries are generally either bank or market based. We use many factors to evaluate the degree of relationship, this help to understand the differences between the regions.

Table 4. 2: Determinants of Credit Spread EMEA

Models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables						
GDP	-1.895	-1.374	-1.930	-1.661	-1.697	-1.959
	(0.198)	(0.233)	(0.233)	(0.257)	(0.211)	(0.225)
Inflation	0.340	2.038	0.318	0.757	1.954	0.334
	(0.852)	(0.140)	(0.611)	(0.681)	(0.132)	(0.855)
LGT Debt	0.000		-0.000		0.000	0.000
	(0.807)		(0.112)		(0.796)	(0.172)
Size	-3.551	-1.721	-1.103	-4.255	[-3.481]*	-3.226
	(0.154)	(0.458)	(0.757)	(0.129)	(0.075)	(0.305)
Corptax	14.605		16.378	60.286	-0.795	-42.360
	(0.178)		(0.837)	(0.433)	(0.313)	(0.673)
Profitability	[-81.105]*	[-78.98]**	-61.016	-52.982	-55.781	-58.284
	(0.071)	(0.040)	(0.140)	(0.158)	(0.194)	(0.144)
Tangibility	-12.948	-14.753	-16.811	-14.026	-19.854	-71.279
	(0.665)	(0.649)	(0.512)	(0.591)	(0.523)	(0.110)
Liquidity	4.504	2.620	4.785	5.167	1.044	8.007
	(0.830)	(0.910)	(0.822)	(0.811)	(0.961)	(0.720)
Interest Rate	0.160	1.600		0.557	1.464	-0.093
	(0.928)	(0.234)		(0.762)	(0.242)	(0.960)
Distance Bank	-0.534				0.827	1.398
	(0.772)				(0.714)	(0.481)
BLEV	9.922	8.524			-1.556	-58.309
	(0.536)	(0.585)			(0.929)	(0.112)
Legal Origin	135.012	12.554	155.105	517.940	5.845	-332.85
	(0.139)	(0.164)	(0.814)	(0.419)	(0.148)	(0.689)
Geolocation	-128.577	-5.477	-147.183	-510.64		340.89
	(0.153)	(0.399)	(0.823)	(0.424)		(0.682)
SHT Debt		0.000	0.000			[0.000]*
		(0.348)	(0.137)			(0.052)
Income tax		-0.000	0.000	-0.000	-0.000	-0.000
		(0.357)	(0.364)	(0.461)	(0.813)	(0.855)
ROA			[-0.467]*	[-0.454*]	[-0.549]**	[-0.546]**
			(0.077)	(0.079)	(0.047)	(0.036)
CRPrem			-40.696	-1,955.4		2,553
			(0.990)	(0.541)		(0.558)

MLEV			2.777 (0.600)	3.472 (0.567)	3.917 (0.531)	5.310 (0.446)
TT Debt				0.000 (0.425)		[-0.000] * (0.052)
Constant	**-265.608 (0.145)**	**-2.074 (0.943)**	**-303.980 (0.835)**	**-1,110 (0.437)**	**28.704 (0.219)**	**837.037 (0.655)**
Observations	**331**	**331**	**331**	**331**	**331**	**331**
R-squared	**0.068**	**0.065**	**0.084**	**0.075**	**0.070**	**0.091**

Robust P-Val in parentheses

Statistically significant at * 10, ** 5, *** 1 percent

This table provides an analysis of different factors used between the dependent variable and the independent factors. The data used originated from EMEA countries which are a combination of three different regions (Europe, the Middle-Eastern region and Africa) there are six different models developed on this table; the independent factors have been selected from many empirical papers. These include, the macroeconomic factors such as GDP, the interest rate, the level of inflation during the studied years, the current corporate tax applied paid the distance to bankruptcy. Firms' level data, LGT D (long term debt) of the firms, SHT Debt (Short term debt), TT Debt (total debt), the size of the firm, the profitability, the assets tangibility, liquidity, BLEV (book leverage), MLEV (market book leverage), geolocation indicate the region the firms is currently located, CRPrem (credit risk premium). Return on assets, legal origin.

Table 4.2 provides an analysis of the independent variables and against the dependent variables for Latin America. We ran various numbers of tests to identify the relationship between the selected variables. We analyze the impact of the determinants of spread based on three mains regions. Asia, EMEA, and Latin America are the three regions.

The second level of analysis is at the regional level as illustrated in the table. To compute the regression, we divide the sample into three main regions including Asia, Europe-Africa, and Latin America. In most empirical papers generally, because of the bond's markets size, Africa, the Middle East and Europe are combined under the same umbrella we also adopt the same grouping. Our raw data analysis shows that there are currently no bond data for firms' in the Middle East region. The table shows that profitability, return on assets, size and short-term debt are statistically significant to the spreads level. Thus, some of these relationships are rather negative. For example, there is a negative relationship between return on assets and leverage.

4.4.2.2 Determinants of credit spread Latin America

Latin American countries have undergone important economic and financial restructuration over the last decades. A series of economic and financial slums that hit

the region in the early 2000's and the 2007-2008 financial crisis have been important vector of important economic and financial reforms in most LA countries. The following table Having investigated the factors affecting leverage decisions in emerging economies in both the Asian and the EMEA region. The following table 5.4 provides the statistical results for credit spreads determinants regression using data deriving from several countries located in Latin America region.

Table 4.3: Determinants of credit spread Latin America

Models	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
Variables						
GDP	0.270	0.365	0.515	0.477	0.293	0.339
	(0.366)	(0.331)	(0.295)	(0.308)	(0.335)	(0.328)
Inflation	-0.062	0.006	-0.096	-0.105	-0.098	-0.103
	(0.510)	(0.946)	(0.365)	(0.347)	(0.378)	(0.383)
LGT Debt	-0.000		0.000		-0.000	0.000
	(0.935)		(0.469)		(0.937)	(0.333)
Size	-0.934	-0.886	-0.529	-0.098	-0.989	-1.076
	(0.218)	(0.191)	(0.639)	(0.941)	(0.191)	(0.221)
Corptax	1.263		0.720	1.925	1.312	0.524
	(0.114)		(0.596)	(0.217)	(0.138)	(0.701)
Profitability	-30.578	1.200	8.516	6.612	-22.481	-22.182
	(0.180)	(0.913)	(0.519)	(0.580)	(0.248)	(0.254)
Tangibility	[-18.152]*	-12.755	16.388	16.101	-14.356	-14.876
	(0.085)	(0.216)	(0.506)	(0.511)	(0.165)	(0.141)
Liquidity	10.394	29.308	28.409	26.412	10.885	14.878
	(0.392)	(0.298)	(0.300)	(0.315)	(0.382)	(0.325)
Interest Rate	-0.263	0.133		-0.263	-0.256	-0.235
	(0.203)	(0.106)		(0.184)	(0.206)	(0.204)
Distance Bank	8.283				8.716	8.101
	(0.272)				(0.269)	(0.290)
BLEV	-12.734	3.029	-3.953	-5.031	-10.895	-20.279
	(0.179)	(0.548)	(0.866)	(0.837)	(0.233)	(0.515)
Legal Origin	-21.907	-26.294			-19.927	-20.976
	(0.241)	(0.218)			(0.284)	(0.287)
Geolocation	-5.296	4.310	1.404	-5.486	-4.799	-2.252
	(0.178)	(0.237)	(0.762)	(0.168)	(0.206)	(0.584)
SHT Debt		-0.000	-0.000			0.000
		(0.203)	(0.201)			(0.413)
Income tax		0.000	-0.000	0.000	0.000	0.000
		(0.268)	(0.911)	(0.180)	(0.871)	(0.574)
ROA			[-5]**	[-9]**	[-1]**	[-0.186]*
			(0.040)	(0.043)	(0.050)	(0.070)
CRPrem			69.217	-110.415		210.789
			(0.876)	(0.786)		(0.689)
MLEV			0.303	0.246	0.341	0.350
			(0.415)	(0.468)	(0.426)	(0.400)
TT Debt				-0.000		-0.000
				(0.299)		(0.367)
Constant	**-14.475**	**14.321***	**-31.919**	**-58.995**	**-19.433**	**-1.283**
	(0.476)	**(0.088)**	**(0.486)**	**(0.301)**	**(0.416)**	**(0.969)**

Observations	**360**	**360**	**360**	**360**	**360**	**360**
R-squared	**0.054**	**0.040**	**0.042**	**0.041**	**0.056**	**0.057**

Robust P-value in parentheses
Statistically significant at * 10, ** 5, *** 1 percent
Notes: The following table provides an analysis of different factors used between the dependent variable and the independent factors. The data used originated from Latin America countries which are a combination of including Argentina, Brazil, Chili and Peru six different models developed on this table; the independent factors have been selected from many empirical papers. These include, the macroeconomic factors such as GDP, the interest rate, the level of inflation during the studied years, the current corporate tax applied paid the distance to bankruptcy. Firms' level data, long term debt of the firms,
the size of the firm, the profitability, the assets tangibility, liquidity
Short-term debt (SH Debt)
Total Debt (TT Debt),
BLEV (Book leverage)
MLEV (Market leverage), geolocation indicate the region the firms are currently located, CRPrem credit risk premium). Return on assets, legal origin.
ROA = return on asset
CR Prem =

In this section, we provide some analysis on the key determinants of credit spread in emerging economies.

We analyze data region per region and provide an overview of the overall statistical results for a better comprehension of differences. We ran six different regressions for each region. We use credit spreads data as the main dependent variable in this section and analyze the data from these three regions separately. The regressions show some important differences in the results. For instance, when analyzing the ASIA region, we found that some of the factors are correlated positively to the spread and others provide a negative correlation with the spread. For instance, the following factors are positively correlated to spread, GDP CPI, corporate tax, tangibility, liquidity, corruption index, and distance to bankruptcy, total debt, market leverage and legal origin. On the other hand, we found that inflation, size, earnings before tax and interest, profitability, short-term debt, market value and business leverage are negatively related to spread. Thus, do not demonstrate a non-statistical significance relationship with the credit spreads. Nevertheless, we found that the return on asset is the only factor that is statistically significant at 10 per cent. At the other hand, firms with high spreads will pay will have larger income tax request from the government, if the firms are highly liquid the spread on bond credit might be high because investors will not trust the ability of the firms to transform the liquid assets into cash.

4.4.2.3 Determinants of credit spread Asia region

The following table provides the statistical results for the investigation of credit spreads determinants using data collected from several countries located in the Asia region.

Table 4.4: Determinants of credit spread ASIA

Models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables						
GDP	0.029	0.001	-0.027	0.018	0.016	0.018
	(0.905)	(0.997)	(0.912)	(0.940)	(0.947)	(0.944)
Inflation	0.642	0.594	0.261	0.627	0.631	0.621
	(0.317)	(0.342)	(0.399)	(0.318)	(0.318)	(0.327)
LGT_Debt	0.000*		0.000*		0.000	0.000**
	(0.077)		(0.087)		(0.167)	(0.040)
Size	-0.874*	-0.983**	-1.043**	-1.041*	-0.970*	-1.013*
	(0.058)	(0.042)	(0.049)	(0.053)	(0.062)	(0.060)
Corporate Tax	0.383		0.111	0.288	0.396	0.466
	(0.419)		(0.791)	(0.521)	(0.412)	(0.354)
Profitability	-7.406	-14.387*	-5.214	-5.067	5.030	4.710
	(0.376)	(0.064)	(0.245)	(0.256)	(0.562)	(0.585)
Tangibility	3.609	1.879	5.000	4.943	5.081	5.115
	(0.392)	(0.627)	(0.409)	(0.412)	(0.299)	(0.297)
Liquidity	4.639**	2.098*	3.130**	3.174**	5.511**	5.483**
	(0.032)	(0.090)	(0.011)	(0.012)	(0.027)	(0.027)
Interest Rate	0.396	0.336		0.390	0.390	0.386
	(0.287)	(0.327)		(0.289)	(0.291)	(0.295)
Distance Bank	-1.235**				-0.963*	-0.912
	(0.048)				(0.090)	(0.110)
Financial	-5.308	-2.725	-1.159	-4.295	-4.620	-5.009
em						
	(0.330)	(0.305)	(0.745)	(0.402)	(0.370)	(0.343)
BLEV	2.624	3.109*			-2.604	-2.674
	(0.104)	(0.056)			(0.452)	(0.443)
Legal Origin	-1.996	-1.124	-0.881	-1.285	-1.335	-1.398
	(0.356)	(0.364)	(0.643)	(0.510)	(0.498)	(0.483)
SHT Debt		0.000	0.000			0.000*
		(0.247)	(0.795)			(0.070)
Income Tax		0.000	-0.000	0.000	-0.000	-0.000
		(0.720)	(0.754)	(0.511)	(0.743)	(0.135)
ROA			-0.051	-0.051	-0.081	-0.080
			(0.595)	(0.600)	(0.464)	(0.469)
MLEV			6.709*	6.658*	7.246	7.448
			(0.082)	(0.082)	(0.116)	(0.113)
TT Debt				0.000		-0.000**
				(0.131)		(0.039)
Constant	**-5.373**	**4.347****	**0.047**	**-5.720**	**-8.142**	**-9.643**
	(0.610)	**(0.028)**	**(0.996)**	**(0.617)**	**(0.493)**	**(0.435)**
Observations	**2,878**	**2,878**	**2,878**	**2,878**	**2,878**	**2,878**
R-squared	**0.009**	**0.008**	**0.012**	**0.012**	**0.013**	**0.013**

Robust P-value in parentheses

Statistically significant at * 10, ** 5, *** 1 percent

Notes: In the following table, we use specifically the data from the Asian region to scale the independent factors with the dependent factors. The countries in the ASIA region include among others, countries such as Indonesia, India, Philippines, and Malaysia. There are three groups of factors including the macroeconomic, firms specific and country specific factors. These include, the macroeconomic factors such as GDP, the interest rate, the level of inflation during the studied years, the current corporate tax applied paid the distance to bankruptcy. Firms' level data,

LGT D (long term debt) of the firms,
SHT Debt (Short term debt),
TT Debt (total debt), the size of the firm, the profitability, the assets tangibility, liquidity,
BLEV (book leverage),
MLEV (market book leverage), geolocation indicate the region the firms is currently located,
CRPrem (credit risk premium)
Return on assets, legal origin.
ROA = Return on Asset

Studies on the determinants of leverage have been highly studied over the decades. Thus, regional examination of leverage evidence appears mitigate as most studies have rather been on individual countries. The analysis of the Asian region provides different results, it was found that debt to equity (leverage), liquidity, distance to bankruptcy and current liability are statistically significant to spread; whereas, total debt, profitability, tangibility, equity multiplier and book leverage are all negatively correlated to spread. This demonstrates that, in the South-America region, highly leveraged firms pay a higher interest rate even though the contracted debt is for a short-term period. Generally, these firms will be close to bankruptcy. Firms with greater profitability and highly valued assets will have fewer interest rates on bond debts. With regards to the EMEA, our analysis demonstrates proximity between the EMEA region and ASIA.

The major difference observed in that relationship is that except that in the EMEA regions the market value of the firm is also positive to the spread. This tends to demonstrate that in some of the countries, the size of the firms does not matter. The major difference between ASIA and EMEA is that ROA (return on asset) is negatively correlated to spread. Suggesting that firm with a high return on assets will not pay the extra premium that is generally asked to compensate investors for investing in risky assets since they will be receiving a better return. Overall, our findings suggest the following; firm size and return on assets are negatively correlated with the spreads level and this relation is negative, for firm size, this back our intuition that large firms will pay less as the investors will demonstrate that the larger the size of the company, the smaller the spread due to low interest rate and small probability of default. Additionally, if the firm has a better return, therefore, investors will tend to ask a lower interest rate on further loans. Liquidity also

provides a statistical significance level of 1 per cent. This finding suggests that the more liquid a company is, the more the firm will pay interest loans, as investors will not trust the ability of the company to transform the asset into cash. In the same line of reasoning, we find that the distance to bankruptcy is negative but statistically significant to spread. Furthermore, we did not find any statistical significance of the macroeconomic and country-specific factors and spread, although some of the factors related to the spreads give mixed results.

4.4.2.4 Difference Advanced and Less Advanced emerging markets

In this section, we investigate the corporate bond spread difference between advanced emerging markets and less advanced emerging markets. For this purpose, we consider advanced emerging markets as countries where there are the following characteristics, an economy with a relatively high economic development and security.

We analyze the data for the three main regions including Asia, EMEA, and Latin America, and split the data set into two sections, advanced and less advanced emerging markets. The statistical results of the credit spread determinants difference between advanced and less advanced emerging economies demonstrate that there are differences between the levels of factors affecting bond spread across these two specifications. The first observation is that there are more characteristics affecting credit spread in less advanced emerging and developing economies than there are in advanced emerging economies. For instance, the results suggest that less advanced emerging markets have more characteristics affecting corporate bonds spread development in this respect we will assume that countries falling into this category would have difficulties of finding funds through the issuance of the bond. Several reasons will be on the line, first, advanced emerging economies are affected by the risk premium, size and the taxation in this context. On the other hand, less advanced economies are affected by the level of firms' leverage, the corporate tax level, the return on asset, tangibility, liquidity, and equity.

These findings demonstrated that several factors are responsible for the excess demand on corporate bond spreads through high-interest rate required by bond investors to some emerging economies.

4.4.3 Macroeconomic and firm-specific effects on the spreads

In this section, we provide an analysis of the effects of macroeconomic and firm factors on spreads data with specific attention to firms' level data. The aim is to investigate the effects of both macroeconomic and firms' level data on the level of spreads as identified in the literature. To accomplish this, we use both firms' level data and macroeconomic data from two different sources.

4.4.4 Robustness check

For the robustness check, we alter the data set to see whether we will have the same results. We first remove few countries in our dataset including Argentina, Czech Republic, Philippines, and Thailand. The reasons why we decided to remove these countries are the following. First, some of those countries had a very small sample size that might bias the results of the regression. The second reason is that these countries had many missing values in some of the variables. We compare our primary results from the initial dataset with the altered data without the four main countries removed from the sample. Our batteries of tests provide similar results to the one we obtained previously with several macroeconomic firms specific and country's specific factors being statistically significant.

In this section, we evaluate the effect of estimators on total bond; we reduce the sample size by removing countries with data less than 5 years of history. The results demonstrate that there is not a big difference in outcomes between the first estimate and the last estimate. However, we observed that income tax is now significant whereas it was not significant in the previous estimates. To better evaluate the development of the bond

market in developing economies and observe whether the results obtained in first few regressions are valid, we reduce our sample by removing few countries that have less than 3 years historical data. Our estimated results show that there is not much difference between the estimated results obtained in the last regression analysis. This, therefore, confirms that the selected variables are the determinants of bond market development.

4.4.5 Market and Bank-based effect on the spread

We are now proposing to investigate the role of financial on firms financing decisions, and its implication on credit spreads in emerging and developing economies. There is a link between financial systems and the financing decisions in general and investigating the relationship between market and bank-based financial models and access to finance in the context of emerging economies has an important implication. The fundamental utility of the financial sector in economic growth has received considerable attention ever since the groundbreaking work of Gurley and Shaw (1955) demonstrated that the development of the financial sector promotes economic growth by improving physical capital gathering. Based on the Gurley and Shaw (1955) conclusions, McKinnon (1973) and Shaw (1973) argued that the key of economic growth related to financial sector development, however, there should be a dismantlement of the financial repression, (Ngare, Nyamongo and Misati 2014). There is not clear evidence on this relationship in the literature, nevertheless, one will assume that based market characteristics such as efficient and stable legal systems, both market-based and bank-based financial systems will provide a different level of spread and affect financing decisions in a different way. There are two main economic models developed in the literature, market-based and bank-based models. We analyzed the relationship between the market and bank-based models and their effect on credit spread. Table 3.5 provides the results of the regressions for the relationship to investigate.

4.4.6.1 Credit spread in bank-based economy

There are two important aspects when analyzing the data for emerging economies. Specifically, one must be aware of the relationship between macroeconomic variables effects on spreads, but also, the distinction between market-based and bank-based and their respective effects on spreads in emerging economies. The two following tables project these relationships between market and bank-based effect on emerging economies spreads level.

To identify the degree of relationship, we use data from various sources; the macroeconomic data generally is at the country level, whereas firms' data is generally published by listed firms to the public. The following table is on the determinants of credit spreads in a bank-based economy.

Table 4.5: Determinants of credit spread in bank-based economy

Models	Model	Model 2	Model 3	Model 4	Model 5	Model 6
Variables						
GDP	0.026	0.026	0.027	0.025	0.029	0.029
	(0.574)	(0.585)	(0.571)	(0.600)	(0.556)	(0.558)
Inflation	-0.056	-0.061	-0.041	-0.053	-0.046	-0.048
	(0.186)	(0.142)	(0.557)	(0.419)	(0.542)	(0.529)
Riskprm	0.767*	0.357*	0.739	0.802	0.769	0.793
	(0.067)	(0.055)	(0.141)	(0.142)	(0.171)	(0.157)
SHT Debt		-0.000	-0.000			-0.000
		(0.178)	(0.503)			(0.854)
Size	-0.174	-0.139	-0.224	-0.188	-0.163	-0.156
	(0.276)	(0.408)	(0.161)	(0.184)	(0.300)	(0.365)
Inctax		-0.000	-0.000**	-0.000**	-0.000*	-0.000**
		(0.252)	(0.032)	(0.046)	(0.054)	(0.040)
Profitability	6.759	5.943	-1.856	0.939	4.722	4.697
	(0.400)	(0.439)	(0.446)	(0.792)	(0.180)	(0.187)
Distance Bank	-0.894**	-0.884**			-0.891	-0.913
	(0.032)	(0.042)			(0.117)	(0.127)
Tangibility	-4.246	-4.209	-5.355	-5.533	-4.143	-4.109
	(0.290)	(0.290)	(0.220)	(0.276)	(0.273)	(0.275)
Liquidity	4.670**	4.807**	3.128**	3.463**	4.657**	4.827**
	(0.038)	(0.045)	(0.039)	(0.035)	(0.034)	(0.039)
Legal Origin		-0.829*				
		(0.086)				
EBIT		0.000	0.000**	0.000**	0.000**	0.000*
		(0.110)	(0.017)	(0.026)	(0.021)	(0.051)
Interest Rate	0.028	0.029	0.056	0.046	0.048	0.049
	(0.632)	(0.624)	(0.497)	(0.549)	(0.555)	(0.554)
BLEV	-0.218	-0.069	1.026		0.347	0.324
	(0.745)	(0.913)	(0.354)		(0.807)	(0.824)
LGT Debt	-0.000		-0.000		-0.000	0.000

	(0.681)		(0.757)		(0.145)	(0.941)
Corporate tax	-0.371		-0.355	-0.355	-0.350	-0.366
	(0.135)		(0.184)	(0.223)	(0.214)	(0.179)
ROA			0.050	0.052	0.070	0.069
			(0.671)	(0.534)	(0.527)	(0.531)
TOT Debt				-0.000		-0.000
				(0.185)		(0.811)
MLEV				1.155	0.654	0.638
				(0.278)	(0.669)	(0.690)
Constant	**7.535**	**0.614**	**7.115**	**6.338**	**5.996**	**6.221**
	(0.101)	**(0.811)**	**(0.143)**	**(0.199)**	**(0.240)**	**(0.209)**
Observations	**1,479**	**1,479**	**1,479**	**1,479**	**1,479**	**1,479**
R-squared	**0.048**	**0.049**	**0.048**	**0.048**	**0.051**	**0.051**

Robust P-value in parentheses
Statistically significant at, *10, ** 5, *** 1 percent
Notes: We build different models changing dependent and independent factors as specified above in the bank-based economic system. There are six different models on the table, and for each of the model we ran various tests subsequently. These include, the macroeconomic factors such as GDP, the interest rate, the level of inflation during the studied years, the current corporate tax applied paid the distance to bankruptcy. Firms' level data,
LGT D (long term debt) of the firms
SHT Debt (Short term debt)
TT Debt (total debt), the size of the firm, the profitability, the assets tangibility, liquidity,
BLEV (book leverage)
MLEV (market book leverage), geolocation indicate the region the firms are currently located,
CRPrem (credit risk premium)
Return on assets, legal origin.
EBIT = Earnings Before Interest and Tax
ROA = Return on Asset

Table 4.8 provides the results of the outcome from the different factors identified in the literature to affect the credit spreads in a market-based economy. We identified market-based economies as countries where market plays the major part of the financial transactions. We found that there is a statistical significance between credit spreads and inflation and this relationship is negative. The results in table 4.8 indicate that in a period of high inflationary, the cost of capital will tend to be accessible, as financial intermediaries will reduce the costs. We also find that income tax and tangibility corporate tax are also negative to credit spreads. On the other hand, we found a significant and positive relationship between risk premium, liquidity and earnings before tax and credit spreads. The degree of relationship between these factors and the spreads varies subsequently from 10 percent for the risk premium, liquidity at 5 per cent and the earning before tax and interest at 5 per cent. Our results show that there is a negative correlation between the inflation, the size of the firms, and the nature of the debt (short-term debt) the distance to bankruptcy, tangibility and corporate tax.

4.4.6.2 Credit spread in a market-based economy

In this section, we provide an examination of credit spread effects when an economy operates on a market based financial model, bearing in mind the characteristics of a market-based economy as illustrated in chapter two.

The table below describes the behaviour of factors in a market-based economy on the spreads level.

Table 4.6: Determinants of credit spread in a market-based economy

Models	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables						
GDP	-0.864	-0.871	-0.950	-0.874	-0.638	-0.782
	(0.193)	(0.163)	(0.161)	(0.182)	(0.178)	(0.219)
Inflation	0.714	0.697	0.736	0.836	0.559	0.689
	(0.202)	(0.182)	(0.187)	(0.165)	(0.216)	(0.246)
Risk Prm	1.081	1.152	0.677	5.654	0.888	6.314
	(0.389)	(0.338)	(0.580)	(0.473)	(0.466)	(0.465)
SHT Debt		-0.000	0.000			0.000
		(0.184)	(0.663)			(0.326)
Size	-1.319	-1.080	-0.949	-0.933	-0.934	-1.357
	(0.100)	(0.188)	(0.317)	(0.328)	(0.304)	(0.163)
Income Tax		0.000*	0.000	0.000*	0.000*	0.000*
		(0.062)	(0.129)	(0.064)	(0.073)	(0.066)
Profitability	-21.973	-22.647	-7.446	-6.643	-7.682	-11.254
	(0.116)	(0.104)	(0.599)	(0.636)	(0.666)	(0.510)
Distance Bank	-0.595	-0.786			-0.528	0.593
	(0.672)	(0.574)			(0.683)	(0.645)
Tangibility	8.159	7.966	8.665	3.177	8.611	6.641
	(0.225)	(0.239)	(0.231)	(0.661)	(0.200)	(0.496)
Liquidity	3.199	3.889	3.556	4.650	4.239	4.607
	(0.233)	(0.167)	(0.321)	(0.239)	(0.160)	(0.157)
Legal Origin	2.656*	2.620	2.567*	4.080**	2.088	0.840
	(0.069)	(0.138)	(0.071)	(0.031)	(0.148)	(0.597)
Geolocation	-1.620	-1.463	-1.751	-2.264		-2.939
	(0.290)	(0.328)	(0.240)	(0.224)		(0.131)
EBIT		-0.000*	-0.000	-0.000*	-0.000*	-0.000*
		(0.098)	(0.141)	(0.077)	(0.082)	(0.065)
Interest Rate	0.121	0.086	0.102	0.186	0.033	0.132
	(0.523)	(0.586)	(0.583)	(0.355)	(0.837)	(0.494)
BLEV	8.343**	7.883**	6.730*		5.998*	5.322
	(0.025)	(0.030)	(0.061)		(0.084)	(0.303)
LGT Debt	0.000		-0.000		-0.000	0.000
	(0.529)		(0.390)		(0.255)	(0.566)
Corporate Tax	-0.042		-0.138	-0.042	-0.108	0.276
	(0.872)		(0.628)	(0.890)	(0.699)	(0.290)
ROA			-0.369**	-0.376**	-0.340**	-0.384***
			(0.024)	(0.021)	(0.022)	(0.009)
TOT Debt				-0.000		-0.000
				(0.281)		(0.326)
MLEV				0.642*	0.381*	0.218
				(0.058)	(0.086)	(0.359)
Constant	**-5.789**	**-7.807**	**-1.637**	**-28.835**	**-4.095**	**-34.076**
	(0.640)	**(0.415)**	**(0.902)**	**(0.586)**	**(0.742)**	**(0.562)**
Observations	**2,119**	**2,119**	**2,119**	**2,119**	**2,119**	**2,119**
R-squared	**0.017**	**0.017**	**0.020**	**0.020**	**0.019**	**0.026**

Robust P-value in parentheses
Statistically significant at *10, **5, ***1 percent
Notes: This table provides an overview of the main determinants of credit spreads for emerging economies under the bank-based financial model. There are three main groups of factors these include, the macroeconomic factors such as GDP, the interest rate, the level of inflation during the studied years; the current corporate tax applied paid the distance to bankruptcy. Firms' level data, legal origin
LGT D (long term debt) of the firms
SHT Debt (Short term debt)
TT Debt (total debt), the size of the firm, the profitability, the assets tangibility, liquidity,
BLEV (book leverage)
MLEV (market book leverage), geolocation indicate the region the firms are currently located,
CRPrem (credit risk premium)
Return on assets, legal origin.
EBIT = Earnings Before Interest and Tax
ROA = Return on Asset

Often, studies on credit spread tend to neglect the importance of the economic structure. However, one could think that analyzing the financial structure of an economy will provide a better understanding of how markets determine stocks price. In this section, we evaluate the relationship between the financial structure of the 16 economies in the dataset and their relationship with corporate credit spread. The findings suggest that in the bank-based financial system, income tax and return on equity are significant and positively related to spreads, whereas, size is significant and negatively related to spreads. Examining the same relationship in the market based financial system; our results show that there is a positive correlation between income tax, liquidity, risk premium and market value of the company and spread. Whereas there is inflation, firm's size legal origin and distance to bankruptcy are significant and negative. These results raised several interrogations. First, more variables are correlated to the market-based financial system compares to the bank based; it is surprising to observe a negative relationship between inflation and spread in a market-based. Nevertheless, firm size is negative for both the bank and market based financial system while income tax is positive for both financial systems.

Analyzing the impact of the legal system on credit Legal origin on the spread, the following two tables provide some insight on which of the two legal systems (Legor French and Legor English) on the sample has more effect on the level of the spread.

4.4.6.2 Legal origin and spread in emerging economies

Over the years, there has been intense research linking legal origin and economic performance of an economy. We follow the literature to establish the degree of this relationship. There is a correlation between legal origin and financing decisions. There is enough evidence on the role of legal origin on a country or firms' level spreads. In this section, we evaluate the relationship between two legal origin French and British and a country level of spreads. Following the ground work developed by LLSV Laporta, Lopez, Shleifer and Vishny (1998), the literature of law and finance originated from the empirical work of Laporta et al. (1997; 1998) shows the differences in the legal protection of investors gives details a much cross-markets discrepancy in financial sector growth and that legal origin enlightens much of the cross-markets differences for the legal investor's security.

4.5 Conclusion

This chapter investigates the determinants of corporate credit spreads in selected emerging economies for 19 years period using spreads panel data for 16 emerging economies collected from Bloomberg Thomson Reuters. The study uses macroeconomic variables, firm-specific factors, and country-specific factors to estimates the relationships between the dependent variables (credit spread) and the independent variables (macroeconomic, firm's specific and country's specific). The methodology used in this study follows the path of several empirical papers focusing on a structural model for credit risk measurement. We found that many factors affect credit spreads at a local and global level. However, these factors effect certainly varies according to the geographical presence of the firms its size; the more liquid is the company and more importantly the level of a country's debt. In addition, we found that several firm-specific variables have a greater influence on corporate yield spreads as summarized in the credit risk literature. In addition to firms' specific factors, we found that country's factors are good indicators

of the level of credit spreads. Thus, our results do not confirm conclusions from previous studies for the role of the macroeconomic factors such as GDP, inflation, and the consumer price index are the main drivers of credit risk escalation. This, therefore, backs conclusions from previous on the relative importance of some macroeconomic factors on credit spreads.

Corporate bonds spread variability effects on capital structure: Further evidence from emerging markets non-financial firms

5.1 Introduction

There is enough evidence in the literature on the factors constraining capital structure for non-financial firms in developed economies. Less evidence is presented for non-financial firms operating in emerging economies. Thus, there is still no clear evidence on the real impact of corporate bond spread variability on the financing of non-financial firms in emerging economies.

The corporate capital structure is determined by the debt and equity ratios used for investment operations (Awan and Amin 2014). Companies choice to implement a specific mixture of financing over others[11] possible options derived from the endogenous or exogenous conditions within the environment in which the firm operate. According to the literature, exogenous (external) factors fall under the macroeconomic and country-specific factors not under firm control. While endogenous (internal) factors are generally under the firm's management control and these generally correlates to the overall firm's financial health.

The biggest advancement for emerging economies companies in the 20th century relate to their integration to the global capital markets. Particularly, emerging economies firms[12]

[11]There are several options available for a firm to structure the approach to finance their operations. For instance, firms operating in the same industry will have different financing approaches. These decisions (the choice between more equity and more debt and vice versa) are generally based on several factors which include the liquidity level of the firms, their level of profitability, and the size of the firms.

[12] Either financial or non-financial companies.

have been permitted to access funds from international capital markets regardless of the geographycal location and the economic structure of the firm seeking funds. Emerging economies firms are no longer limited to domestics funds providers. Thus, despite the important progress observed over several decades, the last couple of decades, access to financing through capital markets remain the most important challenge for emerging economies non-financial firms. While firms in developed economies seem to face less stress in accessing capital through financial markets, it seems apparent that firms in developing economies faces more challenges for the survival due to the unvailability of adequate financing options locally. Numerous studies have investigated the determinants of capital structure in various occasions across sectors; including manufacturing firms (Long and Matlitz 1985; Titman and Wessels 1988), electric-utility companies Miller and Modigliani (1966), non-profit hospitals Wedig et al. (1988) and agricultural firms Jensen and Langemeier (1996).

The existence of various factors potentially able to upset financing decisions and these are segmented into three main groups including, macroeconomic (GDP growth, economic growth, inflation and taxes). Country's specific factors, financial structure, market or bank-based financial model, cultural influence, a country's legal origin (civil and common-law), a country's colonial history (British, French, Germany, Spanish and Portuguese) are included in the sample.

In addition of the above constituents, other factors including, corruption, country credit risk, geographical location, firms' factors (current debt level, asset tangibility, levels of profitability and liquidity) affect the provision of finance for emerging markets companies. Consistent evidence of the effects of these factors is provided theoretically and empirically beginning with the theoretical work from Modigliani and Miller (1958; 1963) thereafter MM. The Modigliani and Miller (1958)[13] empirical paper is highly

[13] The Modigliani and Miller (1958) theorem, is incontestably the cornerstone of the modern capital structure approach. In a very narrow way, the theorem contends that in a world without taxes, insolvency

regarded as the beginning of the modern days of capital structure theory with reference to their irrelevance hypotheses. In their seminal work, they proposed that under some conditions such as the absence of taxes and the presence of information symmetry[14], the size of a firm debt does not affect its initial value, therefore the ability to access further capital.

This point is important because financial institutions usually refer to the firms' borrowing history to allocate or reject requests to further funds requests. To enlighten these assumptions Miller (1977), in a separate work re-assessed their previous inferences using conditions in their primary model. He identified that by relaxing some of the main assumptions, the capital structure becomes relevant. This inference conflicted with earlier assumptions formulated in their joints work. Early papers on modern firm financing puzzle include among others and not limited to Gleason et al. (2000); Zingales (2000); Myers (2001); Antoniou et al. (2002); Bevan and Danbolt (2002) and Karmel and Bryon (2002). The abovementioned studies used different methodologies to approach the puzzle of leverage leading to dissimilar conclusions. Nonetheless, these studies reveal that financing decisions in developed and emerging markets suffer from similar factors.

In the emerging economies context, less evidence developed over the last two decades explaining the emerging markets firms' capital structure decisions due to data scarcity. In this sense, Booth et al. (2001) empirical paper examined financing decisions using data from developed and developing economies to derive inferences. Their study paved the way to subsequent other studies on the issue of firm financing in emerging and less developed markets. Several studies e.g. Vim (2017) investigates the determinants of

charges, the intermediary charges, and unequal data access, the firm net worth cannot be affected by the financing model.

[14]Asymmetric information, in finance literature, general refers to deal conditions in which one party of a specific deal possess some valuable information that the other party does not possess. The party with the information will use this for its own benefits and probably get the deal done in its advantage. This rather self-evident principle has however renovated contemporary financial thought since the 1970s.

capital structure in emerging markets using sample data from Vietnam. De Jong et al. (2008) and Huang and Song (2006) investigate the determinants of capital structure from the Chinese perspective.

Cespedes, Gonzales and Molina (2001) investigated ownership and capital structure in Latin America. Thus, most studies on financing decisions for emerging economies targeted single economies. Specifically, these studies tend to contrast capital structure decisions between industries within the same market. One important caveat with this process is that, it does not allow to fully understand the key drivers for financing decisions across different industries. Nevertheless, financing mechanisms have changed over the years with important challenges particularly to emerging economies non-financial firms. Thus, firms in need of funds to finance operations rely on the equity or debt accessible through financial institutions using the bond or equity markets.

Capital markets have been a good medium for capital access to developed economies firms over several decades. However, these markets have had a very small impact on financing decisions in emerging economies. According to the literature, emerging economies firms are generally small or medium size and mostly not listed on the stock exchange, which potentially reduces their ability to access funds through capital markets. The issue of financing through financial markets for emerging economies companieshas revive the controvertial issue on market growth. Despite the controversies around the importance of capital markets development in emerging economies, the efforts from local authorities in developing local markets, the size of emerging economiescapital markets remains relatively small compare to developed economies such UK, or US. As a result, a number of emerging economies non-financial firms still relying in foreign capital markets and borrows funds at high-interest rates due to lack of funds at the local level. The main concern with respect to this is, therefore, the spreads level between the interest rates applied to loans contracted by local governments and the interest charged to companies

seeking funds from international financial markets. The fundamental questions raised in this paper regarding the corporate bonds instruments as financing mechanism are:

What explains the higher proportion of credit spread on bonds loans observed on emerging economies assets valuation?

What are the effects of high credit spreads variation on firms financing decisions for emerging economies firms?

Several empirical papers partly address these questions and conclude that the observed spread in the markets does not generally reflect the risk level exposed by investors within a specific market. Therefore, other factors must explain the high volatility of bonds for emerging economies, particularly for non-financial firms. To the best of our knowledge, there are very few studies in the field of finance that investigated the role of credit spreads variability on leverage for non-financial firms for emerging economies. Thus, the closest study to this study is a study by Flannery et al. (2012). The study investigates the leverage expectations and bond credit spreads using a large set of data from a limited number of economies. Their study uses capital structure theory to build investors' expectations for future leverage change. Although our approach of firms financing tends to be close to the one used by Flannery et al. our study distance itself based on the choice of factors and the size of the data sample between the two studies. Thus, the continuous assessment of capital structure factors over the past couples of years has merely contributed to a better understanding of the effects on financing decisions for developed economies. Nevertheless, less attention is given to the effect of credit spreads variability on capital structure decisions for non-financial firms in emerging and developing economies.

This aim of this chapter is, therefore, to fill the gap in the literature by investigating the effect of corporate credit spreads variability for non-financial companies in emerging economies using a panel dataset collected from 1998–2016 from majors emerging economies. The initial sample size targeted all emerging economies, the purpose was to collect data from all emerging markets to have a better understanding of similarities and

differences between markets. However, due to data limitations, our sample data is reduced to 16 emerging market economies. The choice of emerging economies is based on the indices provide by the EMBI (Emerging Markets Bond Index). The current sample size is 3578 bonds transactions for a period of 18 years. To conduct the research, we follow the recent literature on both firms financing and credit risk for emerging economies. Secondly, we build a unique econometric model with four groups of variables including the macroeconomic factors, country's specific factors, the credit spreads and the firm-specific factors with several countries' dummies variables to measure the relationships. We performed a Haussmann (1979) test to differentiate between the fixed and random effects for data estimation. The rejection of the key random effect using this test suggests that there is a degree of correlation between the explanatory variable, therefore we use the fixed effect model since it provides better estimates of the explanatory variables.

This study is part of the large existing literature list that examines the determinants of capital structure decisions for non-financial companies focusing on emerging and developing markets. The analysis and the methodology derived from the theoretical framework of Vergas et al. (2015). The model definition focused on the fixed and static effects used in various finance studies. Several contributions of this paper are first, the use of a new and extensive corporate bond data set collected from emerging economies local financial markets, this allows us to avoid the use of a proxy as it has been done in many empirical papers. The second contribution of this chapter is the building of a new econometric model with the inclusion of macroeconomic, firms specific and country-specific factors in addition to credit spread data. In addition, we include three dummies, for financial system (market and bank-based economies), Geolocation, determining the geographical location of the company, and the corruption index. We provide new evidence on the relationship between credit spreads in emerging economies in the spirit of empirical work from Cavallo and Valenzuela (2010) and Flannery et al. (2012) who

respectively investigate the determinants of sovereign spreads specifically looking at Latin-America region; and the effect of credit spreads on capital structure.

The rest of the chapter is organized as follows: The next section focuses on the empirical literature on capital structure. The third section is the methodology, section four focuses on data analysis and discussion. The last section focuses on the conclusion and recommendations.

5.2 Literature Review

We review the existing literature on the theory of capital structure and determinant affecting leverage decisions in emerging economies. The theoretical framework is build based on the past and current literature.

5.2.1 Theoretical framework theories development and implications

The history of firm financing can be traced back as early as the early 19th century. Thus, the modern days of capital structure begin with the empirical work from Graham and Dodd (1951) focusing on picking winners, and the progressive hypotheses formulated by MM (1958; 1963) from which many modern firms financing theory derived. However, three main theories developed for a capital structure that has been subject to intense debate among academics. The trade-off theory, the Agency theory and the pecking order theory. Surprisingly, none of the existing theories holds all necessary characteristics to explain firms' leverage decisions in a large sense.

5.2.2 Theoretical studies of capital structure

Capital structure studies attempt to clarify the provenance of a mix of securities financing used by firms to funds their operations. There is an increasing number of studies examining the capital structure for emerging and advanced economies developed over the last sixty years. Early research on the determinants of capital structure attempt to identify the degree to which the explanatory variables affect debt-financing decisions for

developed markets firms. These studies have mostly limited the investigations on firm's profitability, tangibility, size and growth opportunity, the GDP, inflation, tax, andother countries determinants for developed markets. The first modern empirical studies examining capital structure decisions appear in the early 1980s, DeAngelo and Masilus (1980); Marsh (1982); Breadly, Jarrell and Han-Kim (1984); and Friend & Lang (1988) provide evidence on the relationship between ownership structure and capital structure.

Korajczyk and Levy (2003) investigates several variables affecting financing choices and content that there is a high probability to observe a change of factors across periods due to change in macroeconomic and firms' financial conditions based on the degree of financial market access over time. Vergas, Cerqueira and Brandao (2015) investigate the determinants of capital structure for non-financial companies listed on the Portuguese stock markets. The study evaluates the determinants of capital structure focusing on the four main schools of thought in this field: the trade-off theory, pecking order theory, agency costs theory and the market timing theory for the period 2005-2012. Their results highlight likewise, to previous studies the presence of the pecking order theory in financing decisions for Portuguese firms included in the sample. One of the main weaknesses of this study is the size of the sample that is limited to a single country and does not take into consideration a variety of industries.

De-Jong, Verbeek and Verwijmeren (2011) test the static trade-off and the pecking order theories and conclude that the pecking order theory seems to provide better results for small firms and the trade-off theory will better suits highly profitable organizations.

Tsuji (2011) demonstrated that despite the continuing development of the theories over the last couple of years the current understanding of the relationship is still incomplete. Using a set of variables derived from the empirical literature, Salawu (2006) study revealed that companies' settings such as ownership structure, management control, growth opportunity, profitability, issuing cost, and tax issues associated with debt are among the major factors influencing bank's capital structure. In addition, Rajan&

Zingales (1995); Bevan and Danbolt (2001) considered that the company size, profitability, tangibility, growth opportunities and non-debt tax shields are the main possible determinants of capital structure. Rajan and Zingales (1995) for instance, used thirty-six factors in a single study to determine the factors affecting corporate financing decisions for many economies. Their research provides a comparative test of the pecking order and trade-off theories using a comprehensive firm-level dataset covering listed, non-listed manufacturing, and non-manufacturing firms of different size.

Alipour, Mohammadi and Derakhshan (2015), investigates the capital structure determinants using data collected from the Iranian's stock exchange market. Their study concludes that the theories seem not to provide greater results when investigating capital structure for Iranian firms. They conclude that the actual theories could provide sounds explanation of financing pattern unless these theories are constructed and adapted considering some of the characteristics differing developed and emerging economies investment environment.

Vinh-Vo (2017) investigates the determinants of capital structure in an emerging market with focus on Vietnam. Using a unique dataset containing firm-specific attributes of over 9 years period, they used GMM estimator to control for potential endogeneity among the variables and conclude that there are differences between the determinants of capital structure for long and short-term indicators in the case of Vietnam and this conclusion can be generalized across different markets.

5.2.3 General emerging economies characteristics

The traditional characterization of "emerging markets" given by the International Finance Corporation (IFC) stipulates that, emerging markets characteristics are grounded on dual core features. The growth of the economy (market-based in a developing country) and market expansion (stock market capitalization level). The conceptual statement "emergence" also connects to the information availability usually connected growth and

market development. Principally, emerging markets are portrayed to have high volatile business cycles generally inclined to experience economic distresses more frequently than their counterpart of developed economies. Evidence suggests that this relate to the international credit access cyclicality. These markets faced highly countercyclical rates of interest volatility, most often attributed to the countercyclical risk of default (Arellano 2008). Furthermore, these economies generally encounter highly volatile macroeconomics and access to credit funds is constrained by local government policies, low GDP and high social and political instability.

Emerging economies on the database of this thesis originated from the EMBI (emerging markets bond index) classification to determine what an emerging economy is. According to the EMBI index, there are 43 emerging economies globally, many of those concentrated in Africa, South America, and East Asia. To observe differences across different regions and countries based on the data availability, we segmented the database in different groups as follows: Asia EMEA, and LATAM. The first action consists of differentiating emerging economies between the most successful ones (we name them after advanced emerging economies; including China, India, Brazil, Russia and South-Africa) these countries generally have large markets size, good institutional arrangements, sounds financial regulations that follows international standards with a GDP approximately meeting social expectations. The second category of countries is less-developed emerging economies. Less advanced emerging economies present the following characteristics, lower GDP per capita, underdeveloped markets and no clear established financial regulations. In addition, these countries generally possess a highlevel of unemployment, high rate mortality and high level of unskilled or uneducated young population. However, emerging economies present similar characteristics such as fewer growth rate economies, increasing population. Despite the relatively slow growth rate and other underdeveloped characteristics, emerging economies provide both significant challenges and high prospects for global companies and investors compare to

developed markets. These countries generally display some features such as rapid trade progression and development while developing economies are generally countries with limited industrial growth and poor economic performance as well as low human development index (LHDI) compare to their counterpart of the developed world.

The capital structure literature for emerging economies only appeared several decades ago due to some market imperfections and high government's interventions on financial systems of those economies. In respect to capital structure literature Booth et al. (2001) provide evidence that firms operating in both developed and developing markets are constrained by similar sort of endogenous and exogenous factors. However, there are persistent differences in leverage decisions across countries. Recently, the literature of firm's financing shows that there are numbers of characteristics that differ emerging to developed economies and these characteristics are specifically on the models economic, cultural and management style.

Gungoraydinoglu and Oztekin (2011) investigate firm and country–level determinants of corporate leverage using data from 37 countries. They conclude that institutional arrangements matter for capital structure decisions, both the country and firm-specific factors covariate with capital structure. Nevertheless, some interesting researches investigate capital structure determinants using data collected from local emerging markets. These studies include among others, Huang and Song (2006) used new data collected from 1994-2003 for 1200 Chinese listed firms to evidence their capital structure components. Their conclusion demonstrates that Chinese firms have an upward demand for leverage. When extending their investigation to the firm size and fixed assets, they found a reduce leverage level with the profitability, non-debt tax shields, growth opportunity, managerial shareholdings and associates with the industries.

Koksal and Orman (2014) investigate the determinants of capital structure using data from Turkey local markets, they provide a comparative test of the pecking order and trade-off theories using a comprehensive firm-level dataset covering listed and non-listed

manufacturing and non-manufacturing firms of different size. They conclude that regardless of the size of firms', the pecking order theory seems to provide better justification for firm financing decisions for Turkish firms particularly during periods of good economic conditions.

5.2.4 Macroeconomic and capital structure evidence

Empirical evidence demonstrates that there is a strong relationship between macroeconomic factors and emerging economies financing patterns. These factors include among others the institutional, infrastructure, legal, financial structure (market or bank-based economies) and macroeconomic such as Macroeconomic effects on companies financing decisions have been subject to extensive study in the literature for many years.

Copeland and Weston (1993) in their seminal paper identify the capital structure as long-lasting funding through shareholders' equity, long-term debt, and preferred stock. In respect to this, it cannot be stress enough that a financing model choice developed by a company today will reflect the future growth.

Subsequent studies indicate a high correlation between macroeconomic change and firms financing decisions. Monetary and fiscal policies adopted by a country are generally the principal macroeconomic directives in this regard (Gajurel 2005). Given this argument, it is established in many capital structure empirical researches that growth opportunity and GDP, for instance, have a positive influence on firms' level debt. On the other hand, tax, inflation and interest rate could possibly negatively affect leverage decisions the following studies are an illustration of some of the important research on macroeconomic conditions on firm financing structure (e.g. Cook and Tang (2010); Choe et al. (1993); Gertler and Gilchrist (1993) and Korajczyk and Levy (2003). These studies demonstrate that under favourable economic conditions, such as a low level of tax, high economic growth, low inflation and interest rate, the firm will realize profits. Under such high

profits' conditions, financial institutions will tend to relax access to financial markets conditions and therefore favour firms with low credit history.

Whereas, under financial constraints, there are changes in macroeconomic conditions from the government to curve economic conditions thereby raising taxes and applies others financial restrictions to funds structural projects. Banks and markets become more reluctant to lend to firms, as there is a potential deterioration of macroeconomic conditions, with high-interest rate, high taxes rate resulting to high inflation completed to help the government to fund the structural project.

Joeveer (2013) uses firm-level data from 1995-2002 from 9 Eastern European countries examined the firms', country and macroeconomic determinants of capital structure using transition economies in their sample. They found that largest share of the listed firms' leverage variation is influenced by the industry. While unlisted firms 'leverage measures used does not provide robust results. Their findings also demonstrate that firms' characteristics are significant determinants of-of financial decisions, particularly for unlisted firms. Their study is limited in term of the sample size; therefore, the conclusions from this study can only be generalized to other markets to a lesser extent. Korajczyk and Levy (2003) provide evidence of macroeconomic conditions effect on capital structure choice when using debt financing. In their study, they model a firm's target leverage as a meaning of macroeconomic settings and firm-specific factors. They conclude that macroeconomic conditions provide different results for constrained and unconstrained firms and these conditions related to debt choice. The findings of these studies are in line with many empirical studies as it is reported that macroeconomic, and institutional and firm's specific factors explained more than a half of the observed variation of the leverage decisions, the remaining is explained by country's specific variables.

Mokhova and Zinecker (2014) study the influence of macroeconomic variables on corporate financing structure in different European countries and compare their results with the data for emerging economies collected for the period span 2006–2010.

According to the study, the recent financial Europe financial crisis shows the implication of a country's financial stability demonstrate that macroeconomic policies impact a firm's financial performance, future growth, and development. Their finding shows the significance of macroeconomic variables effect on decisions making process. Khanna, Srivastava and Medury (2014) shed a light on the macroeconomic effects on firm financing decisions in the context to the equity market timing theory, based on collected from firms' operating in India in the period 1992-2013, they conclude that macroeconomic variations have a high impact on firms' financing decisions for both a long and a short run financing. They find in their analysis that secondary sector leverage is countercyclical, while the primary sector firm's leverage is pro-cyclical, therefore, identifying windows opportunity for leverage decisions is done accordingly to the sector to which the firms operate.

5.2.5 Credit spread and capital structure theoretical background

The financial theory contends that the variation on a firm risk of default should reflect in the debt price. Merton (1974) identifies bond credits spreads in terms of companies' assets changes, initial leverage and the period of maturity, Flannery, Nikolova and Oztekin (2009). Based on the empirical literature, credit risks and the default probability have been for many years the predominant explanation for corporate bond spreads in developed economies. Studies in this field have for long assumed that bond spreads observed in the markets are in majority attributable to default risk; while the default risk itself is considered the probability that a firm will at some point in the future not be able to fulfil its debts obligations. The probability of a firm defaulting to their debt obligations have raised greater concern for credit provision particularly for developing markets companies seeking funds and this is even true for non-financial companies. Several studies provided in the literature for credit risk proposed the essentials reasons for credit spreads development includes, for example, Delianedis and Geske (2001) show that credit

risk and the embedded spreads are driven by recovery rate, tax, liquidity, and market factors that is the situation for many emerging economies companies.

Collin-Dufresne et al. (2001) find that changes in credits spreads are attributable to the supply-demand shock, which is independent of the proxies for both credit and liquidity risk. Meanwhile, Huang and Huang (2003) demonstrate that credit risk only explains a small portion of the yield spread for investment grade bonds. Longstaff, Mithal and Neis revealed that risk is the main determinant of the high corporate yield spreads. Covets and Downing (2007) report similar findings to Longstaff, Mithal and Neis (2005) based on very short-term commercial paper issued by non-financial U.S corporations. Cáceres et al. (2010) demonstrate that the sources of risk have changed from global risk aversion to country-specific factors, on the contrary leading to different approaches to risk.

Whestphalen (2001); Christopher, Kim and Wu (2012) studied sovereign ratings on bonds, and on stocks. They find that there is a contagion effect regarding the debt in regions studied, but this effect does not seem to occur with stocks since there is a capital migration to the neighbourhood when a country is credit score is not high.

In contrast, Jones et al. (1984); Delianedis and Geske (2001); Huang and Huang (2003); Tsuji (2005) and Liu et al. (2009) demonstrate that, the risk of default does not highly contribute to explaining the overall yield spread level. As compared to other non-default factors, these studies admitted that there are numbers of other factors that contribute to the increasing and continuous high yield spreads observed. Moreover, Bekaert and Harvey (2002) in their seminal paper conclude that political risk is the main barrier to bond pricing in emerging market securities. Elton et al. (2002) in their seminal work claimed that bonds characteristics alone are unable to explain the current default rate, they argue that there should be others unidentifiable factors such as credit rating, the firm location, the macroeconomic and most likely the cultural difference account for the

heightened of the spreads level. Based on this argument, they proposed that further work is required to enhance the understanding of the spread main characteristics.

Khan, King and Wolman (2002) concluded that Elton et al. (2001) work fails in the model specification and the systematic risk has a limited explicative power on the spread. On the other hand, Durbin and Ng (2005) provided evidence that there is a positive correlation between corporate risk and sovereign default risk. Furthermore, they found weak evidence in the sector (industry) factors affecting the corporate spread.

Cavallho and Valenzuela (2010) explore the determinants of corporate bond spreads in emerging markets economies using a large and comprehensive unexplored dataset, their analysis concludes that bond spreads are determined by firm-specific variables, bond characteristics, macroeconomic conditions country-specific sovereign risk and global factors. Using a variance decomposition analysis, they show that firm-level performance indicators account for the larger share of the variance. In addition to these results, they observed that corporate spreads react positively to the sovereign and global risk increases rather than decreases.

On the same line of argument, Klein and Stellner (2013) used a different methodology with data collected from selected European countries and reached similar conclusion. The above literature also provides evidence that systematic risk affects the economy, therefore, financing strategies. Our study of credit spread follows the above-mentioned studies and include the probability that emerging non-financial companies operating in emerging economies will find it difficult to access funds since economies in which these firms generally operate are very volatile.

The following the table provides a summary of a few empirical papers found in the literature that examined the relationship between credits spreads and leverage for both developed and developing markets.

Table 5. 1: Empirical and theoretical literature of the determinants of capital structure

Authors name	Study title	Study area and sample size/period	Empirical Model	Main findings
Hovakimian et al., 2004 Journal of Financial Economics	Determinants of target capital structure: the case of dual debt and equity issues	1,689 firm's year 1982-2000 Full coverage using debt and equity from private and public sources	Ordinary least-squares with robust t-statistics for heteroskedasticity .	Profitability and stock market performance are the characteristics explaining financing choice. The existence of target leverage. There is a preference for internal financing and temptation to time market by selling equity by selling equity when share table price is high.
Hack Barth et al., 2006 Journal of Financial Economics	Capital structure, credit risk, and macroeconomic conditions	Cash flow 1959-1998 For the USA data	GMM (generalized method of the moment)	Results are in line with those observed in the market. Market leverage is countercyclical Credit spreads are higher in the recession than in the boom.
Huang and Song, 2006. China Economic Review	The determinants of capital structure: evidence from China	1994-2003 1000 Chinese listed firms up to the year 2000.	OLS	Chinese firms leverage increases with firm size, non-debt tax shields, firm assets and volatility. Leverage decreases with profitability, and there is a correlation with industry. In addition, they also found a relationship between leverage and ownership structure. Thus, Chinese firms tend to have much lower long-term debt.
Bancel and Mittoo, 2004 Financial Management	Cross-Country Determinants of Capital structure choice: A survey of European Firms	16 European countries and the US	Univariate test analysis	Firms determine the optimal capital structure by trading off factors such as tax advantage of debt, bankruptcy costs, agency costs and accessibility to external financing. These conclusions confirm those of Tittman (2002).

Bevan and Danbolt, 2002. Journal of Applied Financial Econometrics.	Capital structure and its determinants in the UK- A Decomposition Analysis.	822 UK listed firms Data 1991 following Rajan and Zingales study.	OLS test	Leverage is significantly positively correlated to tangibility and logsales (for book leverage), whereas the relationship is negatively correlated with (market-to-book) and the level of profitability. The results are highly modeled specific.
Kayo and Kimura, (2011). Journal of Banking &Finance.	Hierarchical determinants of capital structure.	40 countries developed and developing countries 100 firms a year 17,061 companies 127,340 firms / year observations 1997-2007.	(HLM) Hierarchical Linear Model	Time and firms level explain 78% of firm leverage The results demonstrate that the majority of leverage variance is due to firm level, industry and country factors also play a vital role.
Joeveer, (2013) Journal of Comparative Economics	Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies.	9 Eastern European Countries for listed and Unlisted Covering SMEs and large firms Amadeus top 1 million companies 1995-2002.	ANOVA ANCOVA	The largest share of listed firms' leverage variation is explained by industry factors for listed firms For unlisted companies, the results are not robust. Country characteristics are important determinants of capital structure.

Table 5.1 represents an illustration of capital structure studies developed with both data collected from developed economies and emerging economies. This table demonstrates that several methods and different data sample have been used to investigate firm financing decisions. Thus, these studies have reached various conclusions. Column 4 of the table demonstrates the extent of the number of analytical models used in various studies for the capital structure puzzle. Joeveer (2013) uses several factors to determine the relationship between firms, macroeconomic and capital structure using the ANOVA and the ANCOVA. Kayo and Kamura (2011) uses the hierarchical linear model to evaluate the determinants of capital structure for a total of 40 countries developed and emerging markets.

5.2.6 Sovereign spreads influence on corporate credit spreads

The literature on the effects of the sovereign spreads on corporate credit spread is comprehensive for developed markets. The transfer of risk between the sovereign spread and firm-level data is not a straightforward link. Several empirical papers in the literature support that, when a country debt becomes larger to the extent that the country default to the debt obligation, there will be a transfer of risk from the sovereign level to corporate level. In this case, the state might have to raise the tax rate, forcing firms to pay more tax through corporate tax and other forms of taxation. The higher the sovereign spreads the larger is the interest rate applied to loans; this implies that firms in emerging economies will face difficulties to access loans, as they will be expected to default. In addition to this, it appears that in a country with no strong institutional law protecting creditors the degree of sovereign debt effect on corporate spreads is high and does affect a firm's financing decisions.

Over the last couples of years, bond financing has increasingly become an important financing option for both sovereign and corporate in developed and developing economies. Theoretically, there is a close unidirectional relationship between the sovereign and the corporate spreads. Recent shocks in affecting the global economy brought up apprehensions on the speed to which sovereign credit risk has been developing since the 2007-2009 economic downturns and the effects this growth could have on non-financial firms' debt. Recent studies on corporate credit spread including Collin-Dufresne, Goldstein and Martin (2000); Gruber, Agrawal and Mann (2000) conclude that the biggest section of the corporate bond and the credit spread dynamics does not derive on the firms' expected default risk alone (Westphalen, 2001). According to Borensztein et al. (2007), public debt highly affects private sector because corporate borrowings rating aligns their criteria based on the sovereign rating level, sovereign debt is the most important determinants of corporate debts. Several empirical studies including Edwards (1984, 2002) and (Duffie et al. (2003) investigate the relationship between sovereign and

corporate spreads, their finding suggests that corporate spreads are affected by several factors including the sovereign spreads. (Mauro et al., (2002); Geyer et al. (2004)); Pan and Singleton (2008); Longstaff et al., (2011) proposes in their findings that there is a correlation between common global factors to credit spreads and financial markets factors.

Caceres et al. (2010) provide evidence that there is swift of sources of risk; from a more global risk aversion to country-specific factors, contradicting the evidence provided important conclusions in the literature. Agca and Celasun (2009) documented that an increase in the sovereign debt affect private sector by increasing the country's default risk level, concluding that this increase of government debt makes the public firms less attractive to foreign investors. A study from Celasun and Harms (2011) assesses the effect of private sector debt on sovereign default in developing countries. They explore how the share of the private sector in total external debt affects perceived creditworthiness and the likelihood of sovereign default. They conclude that the greater the private debts the less potentially a country can default to its debt, which backs up the evidence that sovereign credit rating is virtually the ceiling for the corporate one.

Other researchers' using different approaches on their methodologies such as Grandes et al. (2010) claim that the corporate spreads determinants inferiority over the sovereign risk spreads is due to the inability of firms to contract debt greater to the sovereign debt. The above-listed literature shows the superiority of sovereign spreads over the corporate spreads. There are several limitations from these above studies one key limitation is that these studies have compared the sovereign spreads with the corporate spreads of firms from specific industries. The second limitation of these studies, they are limited in their sample size. We do not provide further statistical evidence of these two since this is not the focus of this chapter.

5.2.7 Theories implication on firms financing

The corporate finance literature proposes several theories examining capital structure choices such as the pecking order theory, the trade-off theory, the agency and the market timing theory.

The trade-off theory provides a different perspective in their approach to financing first by prioritizing the debt financing and believing in the existence of optimum capital structure. The pecking order, on the other hand, proposes that firms should seek internal financing in priority and use equity financing as the last resorts, thus there is no existence of optimum capital structure. In addition, the market timing theory that seems to combine both the trade-off and the pecking. This specific theory supports that companies' times their equity issues in that they stock is issued when the stock price is overvalued, and buy stock when prices are low. In this sense, the variations in stock prices diminish the capital structures of companies. Hence, although the trade-off theory and the pecking order theory have been subject to discussion for several years, none of the theories regardless of their disagreement has been able to explain all firms' financing models. Meanwhile, there is still very little evidence of studies in the emerging markets context in which the theories proposed have been modified to suit the financing pattern of emerging economies financial systems. In relation of the bond market in emerging economies, it can be argued that the market timing theory seems to be more appropriate for issuing bond firms in emerging economies since firms will tend to require large leverage when the interest rate on loans is relatively at their lowest and market conditions are more favourable for borrowing.

5.2.7.1 Trade-off theory of capital structure

The first theory of capital structure developed is the so-called trade-off- theory. The trade-off theories (TOT) probably the oldest existing theory of capital structure, (Robichek and Myers 1966; Kraus and Litzenberger 1973 and Scott 1976), developed using the concept of an optimum capital structure determined the trade-off between bankruptcy costs

stabilization and the benefits from internal and external financing has widely been examined in the literature for developed markets. The advantage of using the trade-off theory to explain capital financing allows elucidating the point that businesses use part of equity and part of the debt for capital budgeting. The theory is grounded on the inclusion of tax benefits of debt and the overall costs of financing. Thus, the theory supports that firms should use debt financing for tax shields benefits. The optimal capital structure level is the perception of the optimum debt level allowed to firm from external funds providers before triggering the distress action that can lead the firm filling bankruptcy act. Seminal evidence of the dynamic cross-sectional test of the trade-off theory includes studies (see, DeAngelo and Masulis 1980; Titman and Wessel 1998; Michealas et al. 1999, Fama and French, 2002) among others. However, in the perspective of the emerging economy non-financial firms, there is currently no supporting evidence to the best of our knowledge for the test of the trade-off theory to support the use of debt financing for bond non-financial companies in emerging economies.

5.2.7.2 Pecking Order Theory (POT)

In contrast to the trade-off theory, the Pecking Order Theory (POT) Myers & Malouf (1984) provides a different approach for firm financing decision. The most important aspect of this theory is the rejection of optimal capital structure idea as proposed by the trade-off theory and promote the use of internal financing. The pecking order theory perceived as an alternative to the trade-off theory considers that there is no optimum capital structure tied to firms during their life cycle. Thus, this theory proposes that the firm current need for funds is a function of several different factors including, firms' past borrowings behaviour, the firm's existing financial situation, and the present country economic conditions. Once these characteristics are assessed, then managers will have a better perception of the financial capacity needed by the firms and make the decision whether the firm need or can borrow from external providers. The pecking order theory is based on two main pillars; the existence of three different sources of finance including

internal funds, debts and new equity. The theory advocates the use of internal financing as the cheapest and the safest way firms should be targeting to deal with their financing issues. In addition, equity option as a way of financing should only use as a last resort. Several empirical studies attempting to justify the use of this theory for financing choice include among others, Kraus and Litzenberger (1973) give a traditional report to the theory of firm financing reflected by a one-off period of the trade-off between the benefit of debt financing and the deadweight charges of potential bankruptcy. Myers and Majluf (1984) demonstrated the existence of information asymmetry between managers (insiders) and investors (outsiders). In their study, they argued that managers have more inside information than investors and act in favor of old shareholders.

5.2.7.3 Market Timing theory (MTT)

The Market Timing Theory developed by Baker and Wurgler (2002) refers to the concept of issuing shares at a high price and re-buys them when their price goes under some threshold. The market timing is the first order determinant of a company's financial arrangement use equity or debt; thus, firms prefer external equity when the price of the related option is lower and will pick debt otherwise. In other words, this theory implies that firms do not systematically give importance to whether they use debt or equity to finance their operations; instead, companies tend to use one or another financing strategy accordingly to whether the option provides better incentive to maximize shareholders profits. The market timing theory relies on the idea that firms 'study market behaviour and only borrow to markets if the current conditions are favourable. The theory has recently been subject to wide attention several studies focus on examining this theory includes among others Mahajan and Tartaroglu (2007); Tian, Shao and Luo (2008); Elliott, Kotter-Kant and Warr (2007); Bie and Dehaan (2007).

Others evidence from the literature examining market-timing theory explains capital structure decisions still very limited. Ina period of financial uncertainty, firms avoid borrowing from financial markets as the interest rate on the credit will very high making

the costs of borrowing to be very high. Companies will prefer to use funds saved during periods of good economic conditions to finance their operations during a period of financial distress and avoid borrowing at the high-interest rate.

5.3 Data and econometric model specification

This section discusses the approach for data collection methods and the econometric specification of the data analysis. This section proceeds as follow; an identification and selection of factors affecting leverage decisions. The dependent factors and the independent factors and how these are correlated. A summary of the relationship between the individual factors and the current capital structure theories (see table 5.2).

5.3.1 Variables identification

5.3.2 Dependent and independent variables

This section provides a summary of different measures of debt used in this study. There are five levels of debt used short term debt ratio, long term debt ratio, total debt ratio, market leverage and book leverage. Since the MM, economists have allocated enough efforts to understand financing decisions focusing essentially on the macroeconomic factors influence on leverage. Thus, despite the substantial progress on the factors affecting financing decisions, there has been very little evidence on the relationship between credit spreads and leverage decisions. This is surprising because an important aspect of financing is the interest rate and the length of the debt. More importantly, despite substantial development of the literature, little attention has been given on the role of credit spreads on financing decisions at the regional. In this chapter, like the empirical literature debt is define as the extra fund required by companies in order to run their business (Baltaci and Ayaydın 2014).

The leverage (LEV) is total debt divided by total capital. The short-term debt ratio (SH-Term) is total short-term debt to total capital while the long-term debt ratio (LG-Term) is

the total long-term debt divided by total capital. The book value is determined by the ratio between the sum of total liabilities divided by the sum of long-term liabilities and the book value. The other long-term debt used in this research is the market leverage, this long-term debt is computed as the product of a long-term liabilities divided by the sum of long-term liabilities and the market value of equity. The entire variable for this study is based on book value in line with the argument by (Myers 1984) that book values are proxies for the value of assets in place. Several studies have used similar factors to determine the degree of relationship between the overall firms financing strategy and the level of debt or equity.

The literature proposes several definitions for the leverage level and classifies them accordingly to the type of industry and specific market in which the firm operate. Rajan and Zingales (1995) and Harris and Raviv (1991) use the ratio of leverage given by the total liabilities scaled to total assets in which they removed cash and others, borrowers. Padron et al. (2005) employ a different measure aiming at expressing debt by using total liabilities ratio scaled with capital market value. Cortez and Susanto (2012); Gaur et al., 2005) investigated respectively the Japanese and Turkish non-financial companies. In the study, the authors use the ratio of total liabilities over total equity. In this study, based on the theoretical argument, different markets characteristics and the model definition we use the firm's liability as the dependent variable and followed Gaur et al. way of defining and calculating debt ratios.

The review of capital structure literature provides a long list of potential determinants affecting leverage decisions for developed or developing economies. Most of the variables used in this research derived from the theoretical grounds as suggested by firms' financing structure theories. Many variables are selected and, build a new leverage model using existing models and using new variables. Identified studies in this field that investigate this issue of capital structure using specific factors. However, most studies encountered have investigated capital structure using the same variables at a different

point in time in history. In this chapter, we use three groups of factors including, macroeconomic variables, firms' specific factors and country-specific factors. The macroeconomic factors include GDP growth rate, inflation rate, interest rate, consumer price index and tax. Firm's specific factors include size, profitability, tangibility, long-term debt ratio, short-term debt ratio, current liabilities and total liabilities. Country-specificfactors include corruption index, legal origin of the country, corruption index, and financial structure of the county, legal system. These variables potentially tend to explain the behaviour of corporate debt.

The dependent variables are represented by five measures of debt including short-term liability (short-term debt), long-term debt (long-term debt), total debt, book leverage and market leverage. We now provide a list of the variables used in this study on the following table, their measure and the expected sign in connection with either the pecking order or the trade-off theory. We divided the table into three important sections. The first group of variables is under the macroeconomic group. The data used for this specific research are secondary data collected from the World Bank group Development Indicators (WDI).

5.3.4 Different variables and their relationship with theories

Table 5.2 is a list of variables used for the research and the approach to measure these factors. In addition, the table also provides the source of the data and the relationship with two important theories of leverage which include the pecking order, the trade-off theories and the market timing theory. We omitted to provide the nature of the relationship between the market timing theory and the various factors used in this study. The fundamental reason being because the literature on the nature of the relationship is still relatively scarce.

Table 5. 2: Capital structure factors and relationships with theories

Variable name	Measure	Source	Pecking order	Trade -off
Macroeconomic				
GDP	gross value added plus product taxes - subsidies not included in the value	WDI	+	-
Inflation	Percentage change in CPI	WDI	?	-
Credit Spreads	Corporate bond – risk-free interest rate	Bloomberg	-	-
CPI	(Cost of market/cost of the market) *100	WDI	N/A	N/A
Market value	(Current stock) x (total outstanding shares)	DataStream	N/A	N/A
Risk premium	Return on Assets – Risk-free rate	FRED	N/A	N/A
Corporate tax	Country tax to corporate	WDI	?	?
Income tax	Tax paid on the firm's earnings	WDI	N/A	N/A
Firm-Specific				
Size	Natural logarithm of total net sales	DataStream	-	+
Profitability	Operating income/total assets	DataStream	-	+
Tangibility	Net fixed assets/ total assets	DataStream	-	+
Liquidity	Current assets – current liabilities	DataStream	+	+
Equity	Total liabilities – total assets	DataStream		
ROA	Net income – Total assets	DataStream		
ROCE	Earnings before tax/capital employed	DataStream		
Distance to bankruptcy	The time that separate the firm from being a successful company to going out of business	Own calculations	-	?
Legor	F = 0 B = 1	Laporta	N/A	N/A
Corruption Index	1= less corrupted 10= highly corrupted	Kunt-Maksimovic	N/A	N/A
Geolocation	1 = Latin America; 2 EMEA; 3 Asia		N/A	N/A
Financial system	1 Bank-based 2 Market-based		N/A	N/A
Debt Ratios				
Short-Term leverage	Short-term debt/ Total assets	DataStream	N/A	N/A
Long-term Leverage	Long-term debt/ Total assets	DataStream	N/A	N/A
Total-Leverage	(Short term debt +Long term debt) / Total assets	DataStream	N/A	N/A
Book-Leverage	(Total debt +Short-term debt) / Total assets	own calculations	N/A	N/A
Market-Leverage	(Long-term debt + short-term debt) / Total Debt	own calculations	N/A	N/A

Legor: F = 0; B = 1 F represents France and B represents Britain
Notes: Corruption Index: from 1 to 10 with 1 being the less corrupted and 10 the most corrupted.
N/A not applicable; WDI (World Development Indicators)
FRED (Federal Reserve Economic Data).
+ sign indicates that there is a positive relationship between the factors and the theory
- sign indicates a negative relationship between the indicator and the theory
? sign indicates the unknown nature of the relationship between the factor and the theory.

Table 5.2 shows the dependent and the independent variables. We use five measures of leverage including short-term leverage, long-term leverage, total leverage, market leverage and book leverage. The independent variables are divided into three groups, macroeconomic variables GDP (gross domestic product), inflation, CPI (consumer price index) the second groups of variables are firms' specific related, which include firm size, tangibility, profitability. We can also add specific characteristics such as EBIT, EBITDA.

Moreover, the last group is country-specific variables that include corporate tax, culture, geographical location, corruption level, financial structure[15].

5.3.5 Econometric model specifications

The dependent and the independent factors selection method are guided by the empirical literature on firms and countries determinants of capital structure. The following section focuses on building a mathematical econometric model, which will reflect the effects of credits spreads and other related variables on firm liability. The model is built on the basis that firm leverage is composed of both debt and equity. Companies for tax shields advantage, making borrowing cheaper compare to equity finance, employ debt financing. Hence, both modern keys of trade-off and pecking order theories characterize the capital structure. Generally, firms trading in developed economies use both debt and equity financing and are ready to bear different costs involved. The objective of the firm according to the model is to maximize its value achieved by maximizing the expected discounted sum of the cash flows to investors. The models statistically provide information between sets of variables for a period. The fixed and random effects models are the most common models of this type.

The econometric model provided in this study examines capital structure determinants in harmony with the theoretical and the empirical literature discussed in previous subsections. This subsection characteristic is an attempt to identify whether factors such as spreads, macroeconomic and firms and country-specific variables affect leverage decisions in emerging economies. We estimate the following equations for the three measures of leverage, Lev 3 is the short-term leverage, Lev 2 is the long-term leverage and Lev 3 is the total leverage. M = 17 countries X = 5 macro variables, N = 16 countries, F = 4 firm variables X number of firms.

[15] The market-based and bank-based financial structure of an economy represent an approach which a country used to develop and provide better life conditions to the population.

$$Lev_{1j,i,t} = \alpha + v_t + \sum_{k=1}^{M} \beta_k MEF_{k,t-1} + \sum_{i=1}^{F} \gamma_i FSF_{j,i,t-1} + \sum_{j=1}^{N} \delta_j CSF_{j,t-1} + \varepsilon_{i,t}$$
(6.1)

$Lev_{1j,i,t}$, represent the short-term leverage in this equation, we examine the effect of three different parameters including macroeconomic factors (MEF) here represent by a parameter β_k , firm specific factors (FSF) are represented by a factor γ_i , and country specific factors (CSF) represented by a parameter δ_j, ε is the error term. The subscripts j, i, t represent a specific industry at a specific time.

$$Lev1_{j,i,t} = \alpha + v_t + \left(\gamma_1 S_{i,t} + \sum_{I=1} \gamma_i FSF_{i,t-1}\right) + \sum_{K=2} \beta_k MEF_{k,t-1} + \left(\delta_1 C_{j,t} + \sum_{j=2} \delta_j CSF_{j,t-1}\right) + legdummy + \varepsilon_{i,t} \quad (6.2)$$

$$lev_{2j,i,t} = \alpha + v_t + \left(\gamma_1 S_{i,t} + \sum_{i=2} \gamma_i FSF_{i,t-1}\right) + \sum_{k} \beta_k MEF_{k,t-1} + \left(\delta_1 C_{j,t} + \sum_{j=2} \delta_j CSF_{j,t-1}\right) + legdummy + \varepsilon_{i,t} \quad (6.3)$$

$$lev_{3_{i,c,t}} = \alpha + v_t + aL_{i,c,t-1} + \beta_k S_{i,t} + (\beta_k S_{i,t} + Corruption) + \sum_{k=1} \beta_k MEF_{k,t-1} + \sum_{j=1} \beta_j FSF_{J,t-1} + \sum_{l=1} \beta_l CTF_{L,t-1} + U + \varepsilon_{i,t} \quad (6.4)$$

Where,

$(lev_{i,t})$, represents the dependent variables of the three leverage measures which include:

$$Lev1 = leverage\ 1, represents\ the\ short\ term\ debt$$

$$Lev2 = leverage\ 2, represents\ the\ long\ term\ debt$$

$$Lev3 = leverage\ 3\ and\ represents\ the\ total\ \ debt$$

The subscripts *i,c,t*, represents the firm, country and time respectively

$aL_{i,c,t-1}$, represents previous year leverage of a firm *i*

S – Represent the credit spread measured as the difference between corporate bond yield and the yield on treasury bonds

$\beta_k MEF_{K,t-1}$, including, GDP growth, Inflation rates, interest rate, tax, here for all the macroeconomic, firm's specific factors and country specific factors are summed up to avoid a long list of variables and represent the year before macroeconomic conditions and the actual year conditions.

$\beta_l CTF_{L,t-1}$, represents the country's specific factors including corruption index, country credit risk, country legal system, the geographical location of the firms the term

U represent dummies variables incorporating companies fixed effects (cross-section) and the years' times' series respectively.

$\beta_j FSF_{J,t-1}$ Including Size, liquidity, tangibility, profitability, EBIT (Earnings before Tax and Interest), ROA (Return on assets), NDTS (Non-Debt tax Shields)

i,t, is the year fixed the effect

ε_{it}, , represent the random error term assumed to be possibly heteroskedastic and correlated between firms (Petersen, 2012)[16].

[16] Lemmon, Roberts and Zender (2008) demonstrated that leverage economic significance is reduced when incorporating the firm fixed effects in equations.

Table 5.3: Emerging market corporate bond spreads

Number of issued bonds per country	
Country Investigation	**Number of bonds**
ARGENTINA	26
BRAZIL	21
CHILE	69
CHINA	821
CZECHREP	22
INDIA	1,297
INDONESIA	156
MALAYSIA	604
MEXICO	184
PERU	60
PHILIPINNES	11
POLAND	55
RUSSIA	119
STH Africa	93
THAILAND	18
TURKEY	42
TOTAL	3598

Source: Bloomberg 2016

Notes: Table 5.3 represents the emerging economies corporate bond spreads distribution 1990-2016. The following table provides an indication of corporate bonds transactions for emerging economies present in our data set. There are 16 countries including Argentina, Brazil, Chile, China, Czech Rep, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, Sth-Africa, Thailand, and Turkey. There is 3598 after winsorizing the data. The number of countries on the data sample is determined by the data availability. A close look of the the table shows that there are five bonds issuing countries in Latin-America, one country in the sub-saharan region and ten countries in the Asian region. The table also shows that India, China and Malaysia are the most bond issuing countries.

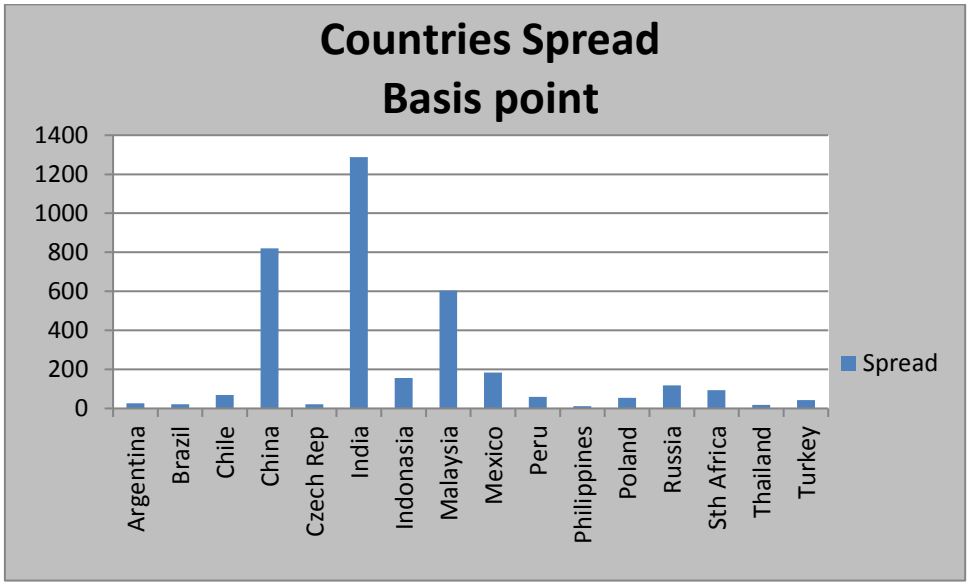
Examining credit spreads in emerging economies context is important for the academic and practitioners, it helps to understand the level of economic growth and particularly, to understand what the differences between countries economic systems are. In the following analysis, we provide evidences on bond issuance among 16 emerging economies. Table 5.3 above provides a summary distribution of bonds transactions collected for 16 countries in our dataset between 1998 and 2016. The initial sample was

composed of a much large number of countries; thus, many countries had no data available, some others had data but not large enough to be considered on the data sample. The above list of countries had enough data for all the variables; these countries include India, China, and Malaysia. A quick observation from this is that these three countries are all located in one region, Asia. This can also provide an explanation of the transformation growth of these economies. The total number of bond transactions for the period between 1998 and 2016 given before the winsorizing the data is equal to 3598 transactions. Since the data has outliers, we winsorized the data set at a probability of 0.05; leaving us with 3771 corporate bond transactions.

A key indicator of this table is that there although the sample has been divided into three mains regions, it can be observed that two of the three regions make use of this new way of acquiring financial debts through markets rather than the old banking system which has monopolized corporate and individual lending for several decades. Looking at the table below we can conclude that two the Asian's regions come first with 6 countries that have data for corporate bonds totalling in the region of about 2889 corporate bonds spreads data. Latin America also has quite a few, whereas the number of countries in Europe and Africa is very little. The most surprising observation is that there are no corporate bonds data for the Middle East region.

In the next graph, we provide graphically the level of spread points per country of issuance. We limit the number of countries considerably due to data availability and for consistency of the data sample.

Figure 5.1: Number of spreads issued per country of incorporation



Notes: The following figure is an illustration of the number of spreads data collected from each country in our dataset 1998-2016. The original dataset with a much larger number of emerging economies, however, these were significantly reduced due lack of data for a number of economies. The final dataset was reduced to 16 emerging markets which include markets such as Argentina, Brazil, Chile, China, Czech Republic, India, Indonesia, Malaysia, Mexico, Peru, Philippines, Poland, Russia, South Africa, Thailand, and Turkey.

The above graph represents credit spreads distribution among the countries included in in the data set. We can clearly observe the difference between the countries within the diagram. It is observable that there are three majors' countries with almost the triple of bond issuance of the rest of countries. The study can also be translated in terms of economic development of other countries although individuals' markets have some more specificities not captured in our dataset. The above table gives a distribution of credit spreads data across 16 emerging markets. It is observable from the list that there are three countries with more than 200 spread data points available. Two majors' bond issuers in emerging economies being India and China, with respectively more than 1300, 821 bonds spread data, followed by Indonesia has far less spreads data identified compare to India. The above graph gives an overview of the spreads distribution by country. The major observation here is that there are fewer emerging economies in Africa represented in this

table. Thus, African's economies are certainly the poorest countries on earth but yet the most indebted economies.

This section focuses on data analysis to highlight some interesting results from the performed regressions analyses. In the following subsections, we provide at the first place a summary descriptive statistic of our empirical dependent and independent variables. The results of the summary descriptive statistics table derived from the computation of the mean, standard deviations, the minimum and maximum value of each of the variable in our data set. Table 1 on the appendix provides basic statistics of the macroeconomic, firm's specific factors and country-specific factors. The results of the summary statistics originated from the data collected for the following countries Argentina, Brazil, Chile, China, India, Indonesia, Mexico, Malaysia, Peru, Philippines, Poland, Russia, Thailand, Turkey, and South Africa. There are six macroeconomic factors, GDP growth, CPI, inflation, interest rate, corporate tax.

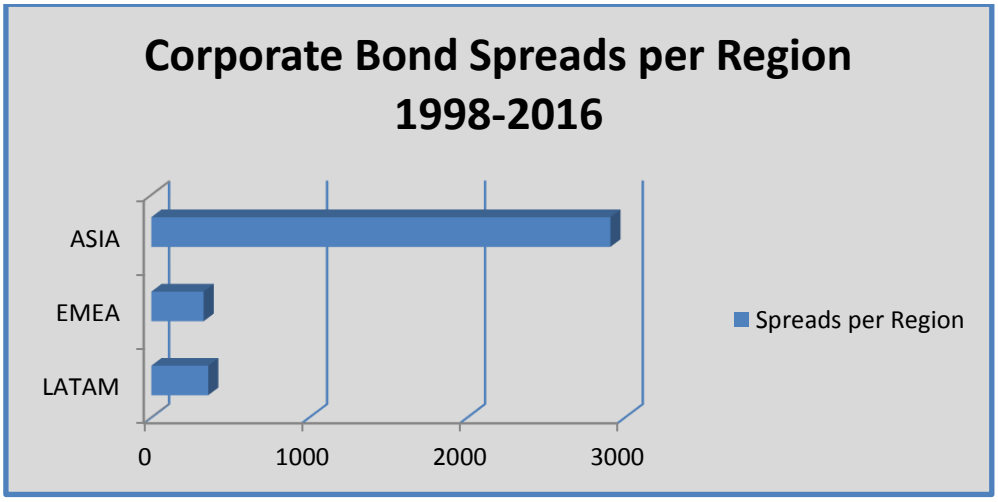
The summary of the data gives the following results: there are sixteen countries in this sample with 3598 corporate bonds spread transactions collected over the period between 1998 and 2016 included. It is worth pointing out that the initial sample size was much larger; we targeted all emerging and developing economies globally. But due to data restriction across markets, our dataset was reduced to 16 emerging economies. Four categories of variables, the corporate credit spread; we use mid spreads as a proxy to measure the spreads between the corporate and sovereign bonds. In this paper, we analyzed the relationship between leverage and a few variables using the spreads which are calculated using the difference between the bond's prices ask and the bond price bid. The specific spread is the most accurate measure of credit spread. We also investigate the influence of others independent variables on different leverage measures including for macroeconomic include GDP, CPI, inflation and corporate taxation and the risk premium, firms' specific and country-specific factors in which we. Firm's specific factors are calculated using company's income statement we calculated profitability, liquidity and

uses logs to calculate companies' size. Most empirical papers conclude that Country-specific factors have a major influence on firms' capital structure decisions. Geolocation of the company, the country financial system and legal origin (either the firm operate on the market or bank-based financial system) some of these variables have been studied in many empirical capital structure studies.

We estimated the data for all countries at three different levels including the market leverage, business leverage and the total leverage. Our expectations for this are that there should be a clear difference between the three levels of levels

The below figure, we provide a graph demonstrating the evolution of the spreads per region and per country.

Figure 5.2: Total bond spread collected per region



Notes: The graph above is a representation of several spreads data per region. Having split the original dataset, we have three main groups based in the geographical location of each country; we end up with groups of countries including Asia, EMEA (Europe, Middle-East and Africa), and LATAM (Latin-America). It is worth to mention here that, the sample of emerging economies based on the EMBI (Emerging Market Bond Index) supports that there are currently more than 40 countries classified as emerging market. It is also important to note that for the EMEA region, there are no countries from the middle-east region. The reason is due to lack of significant data for most of Arab markets. Additionally, there is also an issue of cultural difference between the Arab market and the other regions of the world.

The above graph provides the spread distribution by region. There are three main regions, LATAM (Latin America), EMEA (Europe, Middle East, Africa) and ASIA. The graph shows that the LATAM region has 360 bonds spreads identified and EMEA has 331

bonds spread identified for a similar period. However, both regions remain behind in terms of several bonds' issuance by the ASIA where we found 2907 spreads points during the same period. Clearly, the addition of LATAM and EMEA represent less than a third of ASIA spread or the number of bond contracts issued by the ASIA region.

5.4.1 Descriptive Analysis

The summary descriptive statistics derived from the computation of the mean, the standard deviation, the minimum and the maximum value of the computed factors in our data set. Table 6.3 provides the basic statistics of macroeconomic, firms' specific factors and country-specific factors. Our results are based on the data collected from the countries reported in table 5.3 which include: Latin America (Argentina, Brazil, Chile, Mexico, and Peru) Asia (China, India, Indonesia, Malaysia, Philippines, and Thailand) EMEA (Poland, Russia, Turkey, and South Africa) most studies have been at the individual country level.

The following table provides a summary statistic for the independent and dependent factors.

Table 5.4: Summary Statistics

Variables	Counts	Mean	Median	STD Dev	Skewness	Min	Maxi	Percentile	
		%	%	%				25	75
GDP	3598	4.746	5.248	2.509	-.7507632	-6.22	13.63	3.343	6.358
Intrate	3598	4.215	3.8659	3.681	1.610145	-12.28	34.791	2.4735	5.8598
Riskprm	3598	7.730	7.4	1.296	1.050697	6.124	14.94	6.43	8.82
Inflation	3598	3.825	2.9877	4.071	3.901124	-5.015	40.851	1.2117	6.0638
Spread	3598	2.287	1.044367	20.028	22.84125	-66.275	663.973	.67645	1.72246
Corptax	3598	26.76	25	3.323	-.2831131	19	35	24	30
Inctax	3598	4115	741	2059	20.33217	-116874	9017000	97.418	14326
Mkt value ($ Billions)	3598	18179	113195	393683	1.493261	17.615	969753	23158	251132
Profitability	3598	.08993	.0865	.0609791	5.098527	-.215	1.340	.0554	.1154
Tangibility	3598	.37071	.3719118	.1517448	4843182	-.776	2.042	.2548775	.459143
Liquidity	3598	.31373	.2491784	.2148066	1.330663	.0158	2.201	.15345	.423348
Size	3598	5.1277	5.1235	1.129613	.0725675	1.044	8.254	4.2978	6.0651
ROA	3598	3.223601	3.391574	4.132917	-1.068572	-33.685	34.690	1.326	4.57973
ROE	3598	4.22299	3.8659	3.677174	1.591954	-12.28	34.791	2.5714	5.8598
EBIT	3598	58200.98	5379.8	117541.3	3.680685	-26193	971413	598.89	87032
Distbank	3598	1.007731	.9438	.6486989	3.874424	-1.714	12.211	652	1.1983
Legor	3598	1.175653	1	.5990882	-.0876722	0	2	1	2
Finsys	3598	.4110617	0	.4920948	.3615184	0	1	0	1
Corindx	3598	3.9775	3.8	.780834	1.561019	2.1	7.5	3.6	4
Geoloc	3598	.2607004	0	.5945408	2.13518	0	2	0	0

Sources: World Development Indictors (WDI) a World Bank Group.

Notes: The spread originate from the Thomson Reuters.

Notes: The table provides a descriptive summary of the factors described in the literature to impact leverage decisions. These factors can be divided into three or four main groups which include, the macroeconomic factors such as GDP, Inflation, corporate and income tax and spread). The second group of variables considered in the literature is the firms' specific variables which include (Market value, profitability, tangibility, liquidity, firm size, ROA and ROE, Distbank or distance to bankruptcy). The other group of factors is generally the country factors which is generally interchanged with the macroeconomic factors, country's factors generally include factors such as the legal system, the financial model of the country, the cultural aspect of the country, the corruption level of the market.
Mkt Value = Market Value
ROA = Return on Asset
ROE = Return on Equity
EBIT = Earnings Before Interest and Tax
Legor = Legal Origin
Finsys = Financial System
Corindx = Corruption Index

Table 5.2 provides a summary statistic of computed variables we study in this paper. The factors are segmented into three main categories in this table the country-specific variables include geolocation, corporate tax, financial system[17], legal origin. We also added some extra information such as the median, the skewness and the percentile. The total number of observations of this sample is equal to 3598. It can be observed that many countries from Latin America (LA) and the Asian markets issue bond more than European and Africans' emerging economies. In addition, the distribution of bonds issuance data shows that there are no bonds available for the Middles-East. This might be link to the cultural difference between their religious beliefs.

The table results are given in billions of dollars for income and percentage point for consistency between countries. The summary statistic gives the following results for the independent variables at the mean of the GDP per capita for the 16 countries of the sample is equal to 4.6 million dollars, the standard deviation or the change on income is equal to 2.5 million dollars spreads between the 18 years of the sample. The maximum of GDP per capita is equal to 13.7 million dollars per country. Another important point in this summary analysis is that the consumer price index and the GDP per capita seem to have the same

[17] The literature in finance demonstrates that there are generally two main categories in which countries fall into: market based, bank based or a mixed economy where there is no domination. Currently, number of economies has moved from the banking based to open economies moving towards the market economy system.

mean but their minimum and maximum. The mean consumer price index is equal to 4.8 million dollars while the standard deviation is equal to 3.9 and the mean is equal to 3.4. In addition, the above shows that the standard deviation of 2.29, mean 20.03118, minimum -66.28, maximum 663.97. We also observed that there is not much a difference between the mean of tangibility and profitability which is different to around 1 percentage point, their standard deviation, on the other hand, is much different.

Furthermore, the result demonstrates that for the primary analysis China and India have the highest number of non-financial firms seeking funds through the bonds issuance. In addition, these two countries with many more many emerging economies in the sample present some important characteristics that require further examinations. A close examination of these primary results shows that many emerging economies in the sample follow the French type of legal origin. Country-specific factors providing the following results, there are eight countries with English legal origin and seven countries with French legal origins and one unknown. Three dummy variables have been included in the sample Finsys (Market-Based or Bank-Based) here they are denoted by 0 for market-based economies and 1 for bank-based economies. The others dummy variables include legal origin and geolocation. Legal origin here is represented by French and English systems, 0 stand for the legal origin not known 1 for French and 2 for common law or English origin.

5.4.2 Correlation Matrix

Examining the correlation between variables, we found that a number of variables were negatively correlated with both measures of leverage. For example, we measured the correlation between total debt and other independent variables. We observed a negative relationship between the corruption indexes, the legal origin, and the geolocation. We also reach the same conclusion for the following factors distance to bankruptcy, tangibility, earnings before tax and interest, the return on assets and the return on the cost of equity the changes of these negative correlation vary between positive correlation market leverage

and spreads whereas, many macroeconomic variables are negatively correlated to market leverage. In the meantime, these variables are positively related to the book leverage. In addition, the matrix indicates that there is a negative correlation between firms' level data and leverage, except for the company size that correlated positively with market leverage. The analysis of the book leverage, only a few variables present some negative correlations, for example, one could have expected to observe a positive correlation between the return on assets and the book leverage.

Table 5.5: The correlation matrix

	GDP	Inflat~n	GDP_Gr~h	Taxes IT	St~s_TTV	St~d_ TTV	Stocks~R	TT Chge~S	Deposi~R	Intere S	Real_R	Lending R	Bank C	Exchge Vol	Exe Market~p	List Firms	Firm_UB	Openess	Fiscal
GDP	1.0000																		
Inflation	-0.0621	1.0000																	
Gdp G	0.1012	-0.1523	1.0000																
Taxes IT	0.0351	0.0212	0.0381	1.0000															
Stocks_TTV	-0.0295	-0.0220	0.0766	-0.0263	1.0000														
Stocks_Trd	-0.0015	-0.0148	0.0572	-0.0048	0.3041	1.0000													
Stocks TTR	-0.0191	-0.0178	0.0541	-0.0124	0.5530	0.3429	1.0000												
TTC DBTS	0.0948	0.0507	0.0576	0.0488	0.0214	0.0220	0.0320	1.0000											
Deposit_IR	-0.0129	0.0521	-0.0125	-0.0100	-0.0032	0.0047	-0.0031	-0.0009	1.0000										
Interest_IS	-0.0092	-0.0010	-0.0045	-0.0072	-0.0029	-0.0044	-0.0012	-0.0080	0.9641	1.0000									
Real_IR	0.0464	-0.0399	0.0480	-0.0149	0.0107	0.0227	0.0299	0.0278	0.4261	0.4348	1.0000								
Lending_IR	-0.0088	-0.0015	-0.0069	-0.0078	-0.0035	-0.0069	-0.0033	-0.0088	0.9801	0.9871	0.4459	1.0000							
Bank_Conc	0.0563	-0.0482	0.0543	0.0445	0.0526	0.0833	0.1320	0.0604	0.0204	0.0237	0.0737	0.0254	1.0000						
Exch_Rate	0.0710	0.0032	0.0496	0.0741	0.1196	0.2020	0.1076	-0.0096	-0.0058	-0.0056	0.0236	-0.0082	0.1477	1.0000					
Vol_EXCH	0.0577	-0.0099	-0.0440	0.0435	0.0697	0.0720	0.0700	0.0338	-0.0035	-0.0028	0.0134	-0.0034	0.0999	0.0921	1.0000				
Market CAP	0.0323	-0.0363	0.0614	0.0226	0.2741	0.5018	0.3818	0.0390	-0.0034	-0.0054	0.0191	-0.0065	0.1262	0.1449	0.1080	1.0000			
List_Cmps	-0.0328	-0.0089	0.0674	-0.0434	0.3223	0.2256	0.2970	0.0786	0.0024	-0.0032	0.0109	-0.0030	0.0648	0.0314	0.0181	0.2384	1.0000		
Firm_UB	0.0543	-0.0226	0.0471	0.0108	0.0399	0.0798	0.0430	0.0422	-0.0042	-0.0026	0.0069	-0.0030	0.0827	0.0494	0.1279	0.0633	0.0396	1.0000	
Openess	0.0902	0.0019	0.0721	0.0742	0.0206	0.0853	0.0246	0.1014	-0.0177	-0.0124	0.0150	-0.0167	0.0612	0.0790	0.0295	0.0769	0.0309	0.0211	1.0000
Fiscal	0.0429	0.0255	0.0187	-0.0392	0.0503	0.0549	0.0210	0.0173	0.0044	0.0087	0.0181	0.0084	0.0526	-0.0216	-0.0111	0.0790	0.0106	0.0174	-0.0184	1.0000

Notes: Table 5.5 is the correlation matrix of the factors affecting bond market growth in EMs.

Table 5.5 is the correlation matrix estimation between the independent variables. We found that there is a fewer correlation between the variables. However, some of the factors have a negative relationship with the variable debt and spreads. The matrix shows that macroeconomic variables such as CPI, GDP per capita are negatively related to leverage, at the meantime, firm's specific factors such as EBIT, tangibility, profitability, liquidity, and return on assets (ROA) are negatively related to leverage, while size. We found a low relationship between the independent variables. More importantly, we found that there is a positive correlation between credit spreads and leverage and these leverage measures are not correlated to market leverage. We observed that a few macroeconomic variables are statistically significant with leverage. For example, we found that GDP has a positive relationship with Long-term debt meaning that the larger is the GDP of a country the more companies tend to borrow fund for a longer period. The other hands the link between GDP and the others measure of the debt are significant but the relationship is negative. In addition, the results show that the spread is statistically significant with short-term debt, long-term debt and total debt and the relationship is positive. This confirms our primary intuition that the spread is not favourable with borrowing. We also found that there is a statistical significance between the levels of leverage and corruption index, geolocation and the nature of the financial system of an economy.

5.4.3 Regression analysis and empirical results

We analyzed the relationship between different dependent variables using different models previously used in numbers of capital structure studies to test our hypotheses. We performed the Hausman test to decide between the fixed and random effects. Finally, we run several regressions using Prais-Winsten method to test for a different relationship between variables. For the analysis, we proceed to the Hausman test to identify the fixed and the random effect. This test compares an estimator known to be consistent and another estimator known to be efficient under the tested assumptions.

Table 5.6: Test for autocorrelation between Fixed and Random effect

Random Effect				Fixed Effect		
Constant Models	R-Sq	observations	No countries	Constant	observations	R-Sq.
-82,28*** (0.000)	0.29 33	3,598	16	- 65,894*** (0.000)	3,598	0.296
-673,7** (0.042)	0.27 69	3,598	16	-32797*** (0.000)	3,598	0.279
-31,04*** (0.000)	0.20 66	3,598	16	- 95,711*** (0.000)	3,598	0.222
0.459*** (0.000)	0.60 82	3,598	16	0.833*** (0.000)	3,598	0.614
-0.477* (0.066)	0.03 04	3,598	16	1.242*** (0.000)	3,598	0.051

Table 5.6 is the statistical analysis of the factors affecting leverage decisions in emerging and developing economies. It examines the difference between the fixed and the random effects. In terms of observations, both the random and the fixed effect have equal number of observations 3598. The analysis also demonstrates that the number of countries in the dataset is equal to 16 for each of the test undertaken. There are five different models for the test; it is observable that for the first three tests constant for the models are highly statistically significant at 1 percent, but this relationship is negative. In term of R-Square, both the fixed and random effects have a similar percentage. The rejections of several factors due to collinearity between the investigated factors in the fixed effect constraints the choice of the random effects.

5.4.4 Cross-country examination of the determinants of leverage

There are various studies in corporate finance that examine the relationships between macroeconomic, firms' specific factors and country factors. Thus, in most cases, the credit spread has been overlooked as one of the factors affecting leverage decisions. Instead, several studies have emphasized the importance of this relationship using leverage as independent factor. We provide a cross-country examination of the factors affecting leverage decisions in emerging economies based on data collected from 16

emerging markets which include Argentina, Brazil, Chile, Peru, Czech Republic, Poland, South Africa, and Turkey.

Table 5.7: Cross-country examinations of the determinants of leverage

Models Variables	Model 1	Model 2	Model 3	Model 4	Model 5
GDP	-12,5	-12,7**	-18,4**	-0.002*	-0.001
	(0.123)	(0.018)	(0.032)	(0.056)	(0.620)
Risk Premium	-587***	-291***	-574***	-0.007	0.004
	(0.000)	(0.001)	(0.000)	(0.399)	(0.648)
Income Tax	-2.209	-4.952***	-4.797*	0.000**	0.000**
	(0.374)	(0.003)	(0.065)	(0.033)	(0.013)
Spread	503.341	489.921	758.546	0.000	0.001*
	(0.350)	(0.185)	(0.217)	(0.740)	(0.066)
Inflation	-41**	6,735	-16,102	-0.002	-0.003
	(0.013)	(0.534)	(0.359)	(0.407)	(0.283)
Corporate Tax	109***	35,7**	83,2***	-0.003	-0.006
	(0.001)	(0.035)	(0.008)	(0.461)	(0.112)
Distance Bank	-550***	-257***	-500***	-0.015**	-0.029***
	(0.000)	(0.009)	(0.000)	(0.033)	(0.001)
Profitability	5015***	4724***	7602***	2.163***	0.145
	(0.000)	(0.000)	(0.000)	(0.000)	(0.563)
Tangibility	479,4*	-140,27	-8,221	-0.600***	-0.554***
	(0.067)	(0.494)	(0.980)	(0.000)	(0.000)
ROA	-14,00	-20,16**	-32,9**	-0.023***	-0.019***
	(0.288)	(0.023)	(0.034)	(0.000)	(0.000)
ROE	-10,52	906	-4,80	-0.006***	-0.004
	(0.429)	(0.915)	(0.714)	(0.000)	(0.183)
EBIT	-6.894***	-3.742***	-8.563***	-0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.039)	(0.152)
Liquidity	176***	130	828***	0.255***	0.024
	(0.000)	(0.411)	(0.001)	(0.000)	(0.468)
Size	472***	297***	478***	0.011**	0.031***
	(0.000)	(0.000)	(0.000)	(0.011)	(0.000)
Market Value	0.660***	0.434***	0.822***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.848)	(0.000)
Corruption Ind	4,290.9	-51,751	-44,564	0.015*	-0.027***
	(0.949)	(0.152)	(0.491)	(0.087)	(0.000)
Financial Sys	-187,	-13,6	-76,5	0.140***	-0.036
	(0.330)	(0.899)	(0.684)	(0.000)	(0.153)
Legal Origin	-112***	-463***	-969***	0.094***	-0.040***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)
Geolocation	976***	525***	942***	-0.032***	0.034**
	(0.000)	(0.000)	(0.000)	(0.004)	(0.049)
Constant	**390**	**721**	**1233**	**0.497*** **	**0.873*** **
	(0.781)	**(0.392)**	**(0.405)**	**(0.005)**	**(0.000)**
Observations	**3,134**	**3,134**	**3,134**	**3,134**	**3,134**
R-squared	**0.822**	**0.871**	**0.835**	**0.703**	**0.496**

Robust P-Value in parentheses
Statistically significant at 10% *, 5%, **, 1%***
Notes: The following table is an analysis of the factors affecting leverage decisions for non-financial firms in the region. The countries considered in the sample for this region include: ASIA, EMEA, LATAM There are five models developed to test and craw inference on the factors affecting credit provision in emerging economies. The independent variables here are similar to the ones used in previous tables which include short term debt, long term debt, total deb. We also include market and book leverage. The independent factors are GDP, risk premium, income tax, the spread, inflation, corporate tax, distance to bankrutcy, profitability, tangibility, ROA, ROE, EBIT, liquidity, size, market-value, corruption index, financial system, legal origin. The are 3598 observations on the sample. The P-value is provided in parentheses and the significance level ranged from 1 to 10 percent. With one star being 10 percent, 2 stars

5 percent and three stars 1 percent. One percent significance level indicate a strong relationship between the indepedent and the dependent factor.
Profitability is computed as the ratio between gross profit and net sales (Gross Profit/Net Sales)
Liquidity is measured as the ratio between the firm's current assets and current liabilities (Current Assets/Current Liabilities)
ROE = Return on Equity is computed as the ratio between the netincome and the average total assets (Net income/Average total assets).
ROA = Return on Assets is computed as the ratio between the net income and the total assets (Net Income/ Total Assets).
EBIT = Earnings Before Tax ans Interest is the addition between net profit and interests and taxes (Net profit + interests and tax).

The estimates between the dependent (leverage measures) and the independent factors are used to estimate the degree of various relationships. We also include book and market leverage in this analysis of firms' level leverage. Many empirical studies attempt to examine capital structure decisions and generally focused on the effect of traditional (macroeconomic, and firms specific). Studies examining capital structure at regional and international level started to appear only during the last decade. Early research of corporate capital structure was performed using seven developed markets was performed by Rajan and Zingales (1995); Demirguc-Kunt and Maksimovic (1999) contrast capital structure of 30 countries including 19 developed economies and 11 emerging economies. This study found that there are several factors differentiating emerging and developing economies capital structure decisions. Joeveer (2013) investigates firm, country and macroeconomic determinants of capital structure using sample data from transition economies.

Table 5.6 provides evidence on a series of tests performed on our estimates of a firm's level data based on macroeconomic and country-specific variables demonstrate that there is a statistical significance between leverage and the several factors include in our sample.

The findings of our analysis partly confirm our intuition on the effect of macroeconomic, firm-specific and country-specific factors on leverage. For instance, we found the GDP is not highly correlated with leverage for the first three models. Thus, the relationship is significant although negative for market and book leverage.

On the other hand, we found that there is a strong relationship negative relationship between the risk premium and the leverage. We found a positive and statistically significant relationship between Tangibility and leverage at 1 percent. Thus, one of the models provides a non-statistical significance with leverage. In addition, we also found that liquidity, size, market value and geolocation are all three statistically significant to leverage at 1 per cent. This backs up the previous papers on the leverage decisions.

Additionally, it is important to point out the behaviour between the return on assets and the return on equity, which are both negatively related to total leverage. In addition, distance to bankruptcy, earnings before tax and interest and legal origin are statistically significant but negatively correlated to leverage. Furthermore, the findings demonstrate that there is a no specific correlation between the current spread level and the leverage decisions in emerging economies. These results are in line with the inference from many studies, particularly, these studies conclude that the actual level of spread observed in the market does not necessarily reflect the current firms' financial situation or the risk taken investors.

5.4.5 Regional analysis of credit spreads effect on leverage

We divided the sample into three sub-samples that represent the three main regions including Asia, Europe-Middle East and Africa, and Latin America. Our expectation when carrying such analysis is that these three regions because of cultural and economic development differences, there should be a major dissimilarity, especially between Asia and the EMEA based on the respective level of development observed in most Asians' markets over the last couple of decades.

5.4.5.1 Bond market growth for the Asian region

Asian bond markets showed remarkable growth since the Asian financial crisis. It is widely accepted that the main causes of the Asian for the 1997-1998 economic crisis was link to their capital markets underdevelopment. The current level of the Asian capital market has now contributed to the relative stability of these economies since the most recent recent global economic slum. Table 5.7 below provides a statistical regression results of the data analysis for the Asian region. ASIA region for the studied period. The models used are based on the level of debt. The variables are from macroeconomic, country's specific and firm-level factors. We provide a P-value respectively at 1, 5, and 10 per cent. The Asian region over the last couples of decades have been subject to important transformations. A large number of these economies have embraced the globalization. Thus, most of these economies have faced important economic challanges over the last couple of decades due to important changes on macroeconomics drivers such as GDP and iflation changes, government policies changes.

Table 5.8 Panel (A) the determinants of leverage in the ASIA region

Models	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**
Variables					
GDP	-12,5	-12,7**	-18,4**	-0.002*	-0.001
	(0.123)	(0.018)	(0.032)	(0.056)	(0.620)
Risk Premium	-587***	-291***	-574***	-0.007	0.004
	(0.000)	(0.001)	(0.000)	(0.399)	(0.648)
Income Tax	-2.209	-4.952***	-4.797*	0.000**	0.000**
	(0.374)	(0.003)	(0.065)	(0.033)	(0.013)
Spread	503.341	489.921	758.546	0.000	0.001*
	(0.350)	(0.185)	(0.217)	(0.740)	(0.066)
Inflation	-41**	6,735	-16,102	-0.002	-0.003
	(0.013)	(0.534)	(0.359)	(0.407)	(0.283)
Corporate Tax	109***	35,7**	83,2***	-0.003	-0.006
	(0.001)	(0.035)	(0.008)	(0.461)	(0.112)
Distance Bank	-550***	-257***	-500***	-0.015**	-0.029***
	(0.000)	(0.009)	(0.000)	(0.033)	(0.001)
Profitability	5015***	4724***	7602***	2.163***	0.145
	(0.000)	(0.000)	(0.000)	(0.000)	(0.563)
Tangibility	479,4*	-140,27	-8,221	-0.600***	-0.554***
	(0.067)	(0.494)	(0.980)	(0.000)	(0.000)
ROA	-14,00	-20,16**	-32,9**	-0.023***	-0.019***
	(0.288)	(0.023)	(0.034)	(0.000)	(0.000)
ROE	-10,52	906	-4,80	-0.006***	-0.004
	(0.429)	(0.915)	(0.714)	(0.000)	(0.183)
EBIT	-6.894***	-3.742***	-8.563***	-0.000**	0.000
	(0.000)	(0.000)	(0.000)	(0.039)	(0.152)
Liquidity	176***	130	828***	0.255***	0.024
	(0.000)	(0.411)	(0.001)	(0.000)	(0.468)
Size	472***	297***	478***	0.011**	0.031***
	(0.000)	(0.000)	(0.000)	(0.011)	(0.000)
Market Value	0.660***	0.434***	0.822***	-0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.848)	(0.000)
Corruption Ind	4,290.9	-51,751	-44,564	0.015*	-0.027***
	(0.949)	(0.152)	(0.491)	(0.087)	(0.000)
Financial Sys	-187,	-13,6	-76,5	0.140***	-0.036
	(0.330)	(0.899)	(0.684)	(0.000)	(0.153)
Legal Origin	-112***	-463***	-969***	0.094***	-0.040***
	(0.000)	(0.001)	(0.000)	(0.000)	(0.002)
Geolocation	976***	525***	942***	-0.032***	0.034**
	(0.000)	(0.000)	(0.000)	(0.004)	(0.049)
Constant	**390**	**721**	**1233**	**0.497*** **	**0.873*** **
	(0.781)	**(0.392)**	**(0.405)**	**(0.005)**	**(0.000)**
Observations	**3,134**	**3,134**	**3,134**	**3,134**	**3,134**
R-squared	**0.822**	**0.871**	**0.835**	**0.703**	**0.496**

Robust P-Value in parentheses
Statistically significant at 10% *, 5%**, 1%***
Notes: The following table is a descriptive of the data analysis of the factors affecting leverage decisions for non-financial firms in the ASIAN region. The countries considered in the sample for this region include: India, Indonesia, Malaysia and Philippines. There are five models developed to test and craw inference on the factors affecting credit provision in emerging economies. The independent variables here are similar to the ones used in previous tables which include short term debt, long term debt, total deb. We also include market and book leverage. The independent factors are GDP, risk premium, income tax, the spread, inflation, corporate tax, distance to bankrutcy, profitability, tangibility, ROA, ROE, EBIT, liquidity, size, market-value, corruption index, financial system, legal origin. There are 3134 observations for this data sample and the number of data points are similar to all models. The P-value is provided in parentheses and the significance level ranged from 1 to 10 percent. With one star being 10 percent, 2 stars

5 percent and three stars 1 percent. One percent significance level indicate a strong relationship between the indepedent and the dependent factor.
Profitability is computed as the ratio between gross profit and net sales (Gross Profit/Net Sales)
Liquidity is measured as the ratio between the firm's current assets and current liabilities (Current Assets/Current Liabilities)
ROE = Return on Equity is computed as the ratio between the netincome and the average total assets (Net income/ Average total assets).
ROA = Return on Assets is computed as the ratio between the net income and the total assets (Net Income/ Total Assets).
EBIT = Earnings Before Tax ans Interest is the addition between net profit and interests and taxes (Net profit + interests and tax)

In panel A, we examine countries from the Asian region and draw the following inferences; we found that GDP is not statistically significant for two models (short term debt and book leverage) and the relatiohsip is negative with all the models. Additionally, three of the models gives a statistically significance level on the relationship between the dependent and the independent factors and not for the other measures of leverage. There is a odd relationship between leverage and consumer price index, in a short-term and market leverage, the relationship is positive and statistically significant, whereas, for long-term debt, this relationship becomes negative but significant. The risk premium is statistically significant at 1 per cent but the relationship is negative. This demonstrates that the higher is the demande for more funds from investors, unlikely firms will be tempted to borrow funds. We found a that there is a no statistical significance between book and market leverage and the others independent factors.

In addition, the results show that there is a negative correlation between income tax for short-term debt and long-term debt, but the relationship is positive for market leverage. The analysis of the relationship between corporate credit spreads and leverages measures, we found that there is a positive relationship between spreads and leverage measures but this relationship is not statistically significant for all models. The findings also suggest a negative connection between inflation, distance to bankruptcy, ROA (return on assets), ROE (return on equity), EBIT (Earnig before interest and tax), financial system and legal origin. On the other hand, we found there is a positive correlation between profitabiliy, liquidity, size and market value of the

firms, these relationship are statistically at 1 per cent which denotes a very strong relationship between the independent and the dependent factors. These results provide an overview of the factors affecting leverage decisions in emerging eeconomies, however, the table demonstrates that there is no statistical relationship between credit spreads and leverage decisions in the Asia region, thus the relationship is positive.

Furthering the analysis, we found that legal origin is negatively correlated to leverage and the most of the models are statistically significant at 1 percent. This shows that there is no direct connection between legal origin and the level of leverage of a firms. We observed that the R squared is almost similar to the first three measures of leverage and different for the last two regressions.

5.4.5.2 The determinants of leverage in the EMEA region

Table 5.8 below provides a statistical regression results of the data analysis for the EMEA region for the studied period. The models used are based on the level of debt. The variables are from macroeconomic, country's specific and firm-level factors. We provide a P-value respectively at 1, 5, and 10 per cent.

Table 5. 9: Panel (B) the determinants of leverage in the EMEA Region

Model Variables	Model 1	Model 2	Model 3	Model 4	Model 5
GDP	0.537	-506	-188	0.002	0.005
	(1.000)	(0.684)	(0.928)	(0.187)	(0.417)
Risk Premium	79,484	-51,422	73,643	0.200*	0.044
	(0.520)	(0.267)	(0.499)	(0.067)	(0.899)
Income Tax	12.52***	9.151***	13.824***	0.000***	0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Spread	58.530	6.812	31.987	-0.000***	0.000
	(0.146)	(0.786)	(0.444)	(0.007)	(0.856)
Inflation	1,154	2,066	3,515	0.002	0.001
	(0.652)	(0.199)	(0.148)	(0.211)	(0.850)
Corp Tax	-154,0	127,2	-152,3	-0.485	-0.005
	(0.671)	(0.326)	(0.627)	(0.113)	(0.996)
Distance Bank	-2,130	-13,4***	-15,6**	0.010**	-0.030
	(0.727)	(0.004)	(0.037)	(0.035)	(0.151)
Profitability	-94,40	-2,653	-54,64	0.120**	-0.369
	(0.216)	(0.932)	(0.384)	(0.027)	(0.167)
Tangibility	42,52	13,36	19,47	-0.880***	-0.339***
	(0.126)	(0.398)	(0.404)	(0.000)	(0.000)
ROA	-2,302**	-16.116	-1,140	-0.002***	-0.013***
	(0.010)	(0.962)	(0.126)	(0.000)	(0.000)

ROE	746.73	1,355	2,252	0.003	0.002
	(0.738)	(0.327)	(0.259)	(0.150)	(0.803)
EBIT	-3.623***	-0.545***	-2.194***	-0.000***	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.906)
Liquidity	-541.3	19,74**	21,14	0.080***	0.198**
	(0.976)	(0.022)	(0.181)	(0.000)	(0.032)
Size	-3,212	16,29***	3,832	-0.017***	0.024
	(0.470)	(0.000)	(0.404)	(0.000)	(0.412)
Market Value	0.442***	0.138***	0.393***	0.000	-0.000***
	(0.000)	(0.000)	(0.000)	(0.689)	(0.000)
Corruption Ind	15,40	10,59	18,74	-0.016	-0.011
	(0.529)	(0.191)	(0.343)	(0.411)	(0.818)
Legal Origin	-1283	1079	-1264	-3.994	0.042
	(0.673)	(0.320)	(0.630)	(0.119)	(0.996)
Constant	**48656**	**-433654**	**47949**	**16.795**	**0.198**
	(0.692)	**(0.320)**	**(0.650)**	**(0.103)**	**(0.995)**
Observations	**288**	**288**	**288**	**288**	**288**
R-squared	**1.000**	**1.000**	**1.000**	**0.936**	**0.319**

Robust P-value in parentheses

Statistically significant at *10%, **5%, ***1%

Notes: The following table is an analysis of the factors affecting leverage decisions for non-financial firms in the EMEA (Europe, Middle-East and Africa) region. The countries considered in the sample for this region include: South Africa, Czech-Republic, Poland Russia. There are five models developed to test and craw inference on the factors affecting credit provision in emerging economies. The independent variables here are similar to the ones used in previous tables which include short term debt, long term debt, total deb. We also include market and book leverage. The independent factors are GDP, risk premium, income tax, the spread, inflation, corporate tax, distance to bankrutcy, profitability, tangibility, ROA, ROE, EBIT, liquidity, size, market-value, corruption index, financial system, legal origin. The are 288 observations on the sample for this region. The P-value is provided in parentheses and the significance level ranged from 1 to 10 percent. With one star being 10 percent, 2 stars 5 percent and three stars 1 percent. One percent significance level indicate a strong relationship between the indepedent and the dependent factor.

Profitability is computed as the ratio between gross profit and net sales (Gross Profit/Net Sales)

Liquidity is measured as the ratio between the firm's current assets and current liabilities (Current Assets/Current Liabilities)

ROE = Return on Equity is computed as the ratio between the netincome and the average total assets (Net income/ Average total assets).

ROA = Return on Assets is computed as the ratio between the net income and the total assets (Net Income/ Total Assets).

EBIT = Earnings Before Tax ans Interest is the addition between net profit and interests and taxes (Net profit + interests and tax).

Analysing the same relationship between leverage and our independent variables for EMEA (Europe, Middle-East, and Africa), we found a negative relationship between short-term leverage and GDP whereas the others measures of leverage are positive. In addition, we did not find the relationship statistically significant. There is the difference between the CPI in Asia and the CPI in EMEA, where the consumer price index is statistically significant and positive for long-term debt, total debt and book leverage. The relation is negative but not statistically significant with short-term debt and market leverage. In addition, we find that there is no statistical significance between leverage and spread for EMEA countries. Profitability is significant for

market leverage, and not significant for the other measures of leverage, but the relationship is negative. Tangibility is negative and statistically significant for short-term leverage, total leverage, book and market leverage but this relationship is negative, whereas the relationship is not statistically significant. In addition, we found that there is no statistical influence on the corruption index and in panel B analysis.

The macroeconomic factors including GDP, CPI are statistically significant for Latin-America; however, the relationship is negative for GDP on total debt and book leverage and not significant for the other measures of leverage. On the other hand, CPI is positive for total debt and book leverage. We find a high statistical significance between income tax and leverage for short-term leverage, long-term leverage and total leverage. The spread is significant but negative for book leverage but positive for long-term debt, total debt, and market leverage. Similar to panel A we find a positive relationship between size and leverage for short-term debt and long-term debt; whereas the relationship is not significant but positive for total and book leverage. We found a negative relationship between legal origin and the five measure of leverage but the relationship is significant for the short term, long-term, and market leverage. We did not find any correlation between corruption index and leverage in LA. But there is a statistical significance between the financial system and leverage for long-term debt and market leverage.

5.4.5.3 The determinants of leverage in the Latin America region

Table 5.10 below provides a statistical regression results of the data analysis for the Latin America region for the studied period. The models used are based on the level of debt. The variables are from macroeconomic, country's specific and firm-level factors. We provide a P-value respectively at 1, 5, and 10 per cent.

Table 5.10: Panel (C) Determinants of leverage in the Latine America

Models	Model 1	Model 2	Model 3	Model 4	Model 5
Variables					
GDP	119**	3,069	27,914*	-0.004***	0.040
	(0.033)	(0.580)	(0.062)	(0.005)	(0.478)
Risk Prem	-4095**	-282,57*	-1080***	-0.060	4.825**
	(0.010)	(0.080)	(0.010)	(0.276)	(0.028)
Income Tax	-23.1**	9.84***	4.467	0.000***	0.000
	(0.030)	(0.000)	(0.151)	(0.001)	(0.934)
Spread	-1,217	338***	35.253	-0.000***	0.002
	(0.405)	(0.001)	(0.928)	(0.001)	(0.101)
Inflation	58,83*	4,758	17,27*	0.001	0.008
	(0.075)	(0.141)	(0.051)	(0.414)	(0.583)
Corporate Tax	1340**	63,17	324,1**	0.016	-1.945**
	(0.028)	(0.343)	(0.042)	(0.455)	(0.045)
Distance Bank	-2537***	-145,3***	-704,3***	-0.011	-0.571**
	(0.000)	(0.004)	(0.000)	(0.227)	(0.014)
Profitability	-21041	270,7	-314,4	0.048	-3.221*
	(0.390)	(0.293)	(0.610)	(0.576)	(0.069)
Tangibility	1331*	-172,6**	138,2	-0.972***	-1.064
	(0.064)	(0.017)	(0.451)	(0.000)	(0.175)
ROA	36,25	3,312**	11,49**	0.002***	0.016
	(0.109)	(0.047)	(0.042)	(0.000)	(0.445)
ROE	17,76	6,817	7,638	-0.001	-0.061
	(0.640)	(0.224)	(0.467)	(0.248)	(0.390)
EBIT	6.673**	-2.661***	-1.029	-0.000***	0.000
	(0.020)	(0.000)	(0.214)	(0.001)	(0.949)
Liquidity	1278***	278,3*	3140***	0.144***	-0.348
	(0.000)	(0.083)	(0.000)	(0.000)	(0.725)
Size	822,3***	143,5***	307,4***	0.006	-0.072
	(0.001)	(0.000)	(0.000)	(0.148)	(0.842)
Market-Val	0.091	0.204***	0.232***	-0.000***	-0.000
	(0.279)	(0.000)	(0.000)	(0.001)	(0.408)
Corruption	176,7	-18,48	-2,475	-0.002	-0.506
	(0.580)	(0.626)	(0.977)	(0.825)	(0.392)
Financial Sys	1827**	1440*	4872**	0.174	-24.99**
	(0.016)	(0.064)	(0.014)	(0.499)	(0.011)
Legal Origin	-3669**	-184,5	-965,1**	-0.081	2.960
	(0.013)	(0.258)	(0.013)	(0.128)	(0.271)
Constant	**-1.227***	**-118,4**	**-2434**	**0.874*** **	**23.54***
	(0.089)	**(0.891)**	**(0.199)**	**(0.000)**	**(0.064)**
Observations	**360**	**360**	**360**	**360**	**360**
R-squared	**0.606**	**0.986**	**0.935**	**0.908**	**0.260**

Robust P-value in parentheses
Statistically significant at 10% *, 5%**, 1%***

Notes: The following table is an analysis of the factors affecting leverage decisions for non-financial firms in the LATAM (latin amrica) region. The countries considered in the sample for this region include: Argentina, Brazil, Chile, Mexico and Peru. There are five models developed to test and craw inference on the factors affecting credit provision in emerging economies. The independent variables here are similar to the ones used in previous tables which include short term debt, long term debt, total deb. We also include market and book leverage. The independent factors are GDP, risk premium, income tax, the spread, inflation, corporate tax, distance to bankrutcy, profitability, tangibility, ROA, ROE, EBIT, liquidity, size, market-value, corruption index, financial system, legal origin. The are 306 observations on the sample. The P-value is provided in parentheses and the significance level ranged from 1 to 10 percent. With one star being 10 percent, 2 stars 5 percent and three stars 1 percent. One

percent significance level indicate a strong relationship between the indepedent and the dependent factor.
Profitability is computed as the ratio between gross profit and net sales (Gross Profit/Net Sales)
Liquidity is measured as the ratio between the firm's current assets and current liabilities (Current Assets/Current Liabilities)
Size = computed as the log of total assets (ln Total assets)
Tangibility = the ratio between non-current tangible assets and total assets (Non-Current Tangible Assets/Total assets)
ROE = Return on Equity is computed as the ratio between the netincome and the average total assets (Net income/ Average total assets).
ROA = Return on Assets is computed as the ratio between the net income and the total assets (Net Income/ Total Assets).
EBIT = Earnings Before Tax ans Interest is the addition between net profit and interests and taxes (Net profit + interests and tax)

Various studies have investigated the capital structure determinants in both cross-country and a standalone market (see Booth, Aivazian, Demirguc-Kunt and Maksimovic 2001; De Jong, Kabir and Nguyen 2008; Rajan and Zingales 1995). Table 5.9 provides an investigation at the regional level of the effect of macroeconomic, firm and country's factors. The results demonstrate some mixed relationships between the independent and the dependent variables for some models, for example, we found that GDP, tangibility, spread, income tax and market value have mixed results where some of the models are positive and others are negative for the same variable. Our findings are as follows; there is a positive relationship between long-term debt, market leverage and spread with most of the independent variables in some of the models, but this relationship is negative for book leverage. We also found a positive relationship between gross domestic product and short-term debt at 1 per cent and total debt at 10 per cent, while the relationship is negative for the market value at 1 per cent. Risk premium and the consumer price index also have a negative relationship with leverage at 1 per cent. In addition, there is a higher negative correlation between distance to bankruptcy and all the measures of leverage at respectively 5 and 1 per cent. These results confirm our thoughts that the closer the firms are getting to the bankruptcy level; the less markets investors are willing to allocate more extra funds to the firms. The findings also suggest that while there is a positive relationship between liquidity and size and leverage. The results confirm

previous studies on the relationship between the independent factors affecting financing decisions.

5.4.6 Firm's leverage analysis for Lower and Upper-Lower markets

Previous studies on the determinants of leverage have merely focus on the investigating firms' access to capital through the lens of cross-country examination see Abe, Kabir and Nguyen (2007). This section of the thesis provides a comparison of access to finance comparing countries income levels. We use two different categories the first is lower markets and upper lower markets.

Table 5.11 different models are developed for each income group which is called advanced and less advanced emerging economies. Advanced emerging economies are defined as countries with fewer unemployment rates, a country where basic need such as water, electricity, transportation, health policy and food can be easily access to most of the population. In addition, these countries are generally subject to a high level of institutional framework, but fundamental issues with advanced emerging economies is the lack of sounds domestic markets and a low level of economic growth.

	Emerging Economies with advanced markets					Emerging Economies With Less Advanced markets				
Models	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 1**	**Model 2**	**Model -3**	**Model 4**	**Model 5**
Variables										
GDP	4,431*	-329.8	1,890	-0.002*	0.001	113,03**	83,36***	137,2***	-0.007***	0.017
	-0.095	-0.881	-0.433	-0.08	-0.415	-0.014	-0.001	-0.001	0	-0.678
Risk Prem	113,5***	-179,5***	-79,4***	-0.007	0.016	-141,1	-111,4	-180,52	-0.009**	-0.17***
	0	0	0	-0.561	-0.278	-0.108	-0.136	-0.146	-0.013	0
Income Tax	20.15***	-6.322***	4.221***	-0.00***	0.000***	-6.11**	-6.05***	-8.10***	0	0
	0	0	0	0	0	-0.023	-0.003	-0.008	-0.446	-0.572
Spread	-515.8**	352.6***	-141.8	0	0	1,270.14	1,936	2,979	0	0.001**
	-0.028	0	-0.54	-0.344	-0.462	-0.283	-0.158	-0.162	-0.606	-0.037
Inflation	-1,654	15,47***	12,68***	0.005*	0.002	48,38*	33,48*	54,30*	-0.002**	-0.017
	-0.618	0	0	-0.052	-0.4	-0.055	-0.073	-0.076	-0.047	-0.392
Corporate tax	3,275	-22,63***	-21,0***	-0.01***	-0.02***	-23,39	-60,19***	-94,1***	-0.008***	-0.007
	-0.484	0	0	0	0	-0.421	-0.001	-0.001	0	-0.704
Distance Bank	-46,68***	-10,85	-49,5***	-0.03***	-0.04***	-227***	-808,6***	-163***	0.002	-0.113*
	0	-0.16	0	-0.001	0	0	0	0	-0.723	-0.091
Profitability	94,45	413,6***	528,6***	2.759***	0.329	1558***	1231***	2053***	-0.064	-2.18***
	-0.388	0	0	0	-0.141	0	0	0	-0.149	0
Tangibility	-16,34	-153,8***	-134***	-0.58***	-0.43***	299,0	-218,33	-296,1	-0.862***	-0.81***
	-0.582	0	0	0	0	-0.57	-0.519	-0.547	0	0
ROA	-17,42***	3,296***	-9,37***	-0.02***	-0.02***	-11,18	-67,21***	-92,6***	0	0.009
	0	-0.002	0	0	0	-0.659	0	-0.001	-0.868	-0.27
ROE	-1,774.60	12,27***	9,361***	0.001	0.002	112,1***	92,22***	151,9***	-0.003***	-0.080**
	-0.582	0	-0.001	-0.557	-0.391	0	0	0	0	-0.031
EBIT	-4.334***	1.471***	-0.631	-0.00***	-0.000**	0.386	1.979**	1.847	-0.000**	0

	0	0	-0.106	0	-0.045	-0.686	-0.015	-0.127	-0.03	-0.914
Liquidity	357,08***	-143,1***	14,15	0.326***	0.075**	8200***	578,6	2792***	0.032*	-0.435
	0	0	-0.398	0	-0.032	0	-0.127	0	-0.09	-0.302
Size	-15,0**	18,40***	-69,0***	0.017***	0.070***	1168***	661,9***	1148***	-0.009***	0.034
	-0.05	-0.007	0	-0.002	0	0	0	0	0	-0.529
Market Val	0.347***	0.285***	0.463***	0.000***	-0.00***	0.153***	0.001	0.057	0.000***	0
	0	0	0	0	-0.001	0	-0.977	-0.277	0	-0.716
Corruption	90,26***	-114,9***	-46,7***	-0.018**	-0.05***	22.47*	-1,686.40	8,683.04	-0.022***	0.353***
	0	0	-0.001	-0.039	0	-0.07	-0.976	-0.926	0	-0.001
Financial Sys	-119,7***	309,1***	197,6***	0.021	0.011	1020**	1552***	2519***	0.017*	-0.241*
	-0.004	0	0	-0.396	-0.767	-0.036	0	0	-0.054	-0.061
Legal Origin	225,3***	-229,6***	-66,47*	0.001	0.002	480**	494***	867***	-0.046***	-1.09***
	0	0	-0.09	-0.963	-0.965	-0.02	0	0	0	0
Geolocation	-34,84**	19,293.33	-8,946.45	-0.10***	-0.07***	106,6	65,53	49,76	0.038***	0.464***
	-0.017	-0.149	-0.486	0	0	-0.386	-0.349	-0.663	0	-0.003
Constant	**-1569***	**2513***	**1661***	**0.887***	**0.917***	**-735***	**-1746**	**-3713***	**1.29***	**2.054**
	0	**0**	**0**	**0**	**0**	**0**	**-0.151**	**-0.071**	**0**	**-0.025**
Observations	**2,453**	**2,453**	**2,453**	**2,453**	**2,453**	**1,225**	**1,225**	**1,225**	**1,225**	**1,225**
R-squared	**0.981**	**0.973**	**0.986**	**0.784**	**0.491**	**0.771**	**0.814**	**0.765**	**0.796**	**0.238**

Robust P-Value in parentheses
Statistically significant at 10% *, ** 5%**, 1%***

Table 5. 11. The determinants of capital structure in less advanced and advanced emerging economies

Notes: The following table provides an estimation of the credit spreads effect on leverage decisions making in the emerging and more advanced emerging markets for a period of 30 years. We use similar indicators usually used in past empirical papers which include macroeconomic firms financing and country's specific factors. We provide a statistical analysis of the considered determinants at 10 percent 5 per cent and 1 per cent as provided the P-value.
We use similar dependent and the indepedent variables similar to previous tables. We also include market and book leverage. The independent factors are GDP, risk premium, income tax, the spread, inflation, corporate tax, distance to bankrutcy, profitability, tangibility, ROA, ROE, EBIT, liquidity, size, market-value, corruption index, financial system, legal origin. The are 306 observations on the sample. The P-value is provided in parentheses and the significance level ranged from 1 to 10 percent. With one star being 10 percent, 2 stars 5 percent and three stars 1 percent. One percent significance level indicate a strong relationship between the indepedent and the dependent factor.
Profitability is computed as the ratio between gross profit and net sales (Gross Profit/Net Sales)
Liquidity is measured as the ratio between the firm's current assets and current liabilities (Current Assets/Current Liabilities)
Size = computed as the log of total assets (ln Total assets)
Tangibility = the ratio between non-current tangible assets and total assets (Non-Current Tangible Assets/Total assets)
ROE = Return on Equity is computed as the ratio between the netincome and the average total assets (Net income /Average total assets).
ROA = Return on Assets is computed as the ratio between the net income and the total assets (Net Income/ Total Assets).
EBIT = Earnings Before Tax ans Interest is the addition between net profit and interests and taxes (Net profit + interests and tax).

Table 5.11 provides an analysis between countries based on the level of market development. Capital structure past studies have primary focus on the examination of leverage decisions at the firm level for individual markets. Financing decisions are important for future growth and financial stability; therefore, firms in emerging economies should select the best option possible to raise funds. Our estimates of advanced and less advanced emerging economies debt analysis of the independent variables provide the following results; we observed that GDP is not significant for both emerging and developed economies for short-term debt. However, this relationship is negative for total debt and in both case and negative but statistically significant for total debt and book leverage. We did not find any statistical significance between leverage and GDP and inflation for advanced emerging markets. The analysis of CPI shows that there is no fixed relationship between all levels of leverage. The regression analysis of the risk premium demonstrates that for less developed economies, the risk premium is negatively correlated with leverage for the five levels of leverage, but the relationship is negative. On the other end, for advanced emerging economies, debt level of

firms is statistically significant, but the relationship is negative. This result demonstrates that the premium paid by companies to borrow from financial institutions has a negative contentious relationship with debt. For instance, a higher level of debt means that the premium will be lower and small leverage the premium will be higher. In addition, we found that there is a positive and statistically significant relationship between spread and leverage at 10 per cent. Furthermore, we find a negative relationship between income tax, corporate tax, and distance to bankruptcy and leverage in most cases for both advanced and less advanced markets. The statistical significance between firm level factors with a negative relationship between profitability and tangibility in most cases, this suggests that the more a company is profitable or has valuable assets, and there is a high probability that the firm will have fewer debts.

The estimates of country-specific parameters for both advanced and less advanced emerging markets demonstrated that factors such as corruption index model economic and legal origin shows that corruption these two factors have a negative relation with leverage in most cases, this result suggest that in a less corrupted economy, access to financing is easier than in a highly corrupted one. However, the correlation between the corruption level and debt financing or leverage is also dependable to the legal origin. For instance, examining this relationship between the French and British legal system, we found that there is a high corruption level in countries with French legal origin, and therefore access to financing is more complicated for firms in those markets. While there is a positive relationship between these factors and leverage, geolocation, the model economy and the relationships are statistically significant in most of the cases for both advanced emerging and less advanced emerging. In conclusion, the analysis of leverage for advanced and less advanced economies demonstrate that overall there are very little differences in terms of the factors affecting both advanced and less advanced emerging economies.

5.4.7 Credit spreads, macroeconomic and firms' specific factors change

Capital structure studies suggest that changes in macroeconomic components such as interest rate, inflation level and the GDP level influence further debt that could be obtained by a firm from external funds providers. In this study, we also test whether any change operated on the main factors has an impact on leverage. More importantly, we stress on the role of credit and risk premium change on leverage for non-financial firms.

The following is the econometric model approach on the effect of macroeconomic, firms specific, and country's changes on leverage.

$$\Delta Lev1_{j,i,t} = \alpha + v_t + \sum_{k=1}^{M} \beta_k \Delta MEF_{k,t-1} + \sum_{i=1}^{F} \gamma_i \Delta FSF_{j,i,t-1} + \sum_{j=1}^{N} \delta_j \Delta CSF_{j,t-1} + \varepsilon_{it} \quad (6.5)$$

$$\Delta Lev2_{j,i,t} = \alpha + v_t + \sum_{k=1}^{M} \beta_k \Delta MEF_{k,t-1} + \sum_{i=1}^{F} \gamma_i \Delta FSF_{j,i,t-1} + \sum_{j=1}^{N} \delta_j \Delta CSF_{j,t-1} + \varepsilon_{it} \quad (6.6)$$

$$\Delta Lev3_{j,i,t} = \alpha + v_t + \sum_{k=1}^{M} \beta_k \Delta MEF_{k,t-1} + \sum_{i=1}^{F} \gamma_i \Delta FSF_{j,i,t-1} + \sum_{j=1}^{N} \delta_j \Delta CSF_{j,t-1} + \varepsilon_{it} \quad (6.7)$$

Where, $\Delta Lev_{j,i,t}$ change in leverage for short term (leverage 1), long term (leverage 2) and total debt (leverage 3).

v_t, represents corporate credit spread

$\beta_k \Delta MEF_{k,t-1}$, is the representation of macroeconomic variables including GDP, CPI, and inflation change.

$y_{i,} \Delta FSF_{i,t-1}$, change on firms' variables, including size, profitability, tangibility

$\delta_j \Delta CSF_{j,t-1}$, represents change in firms's firms 'specific factors including a change on taxation policy, political change, Changes, reduction of the level of corruption and others institutional changes.

We performed various regressions analysis to examine the relationship between several independent variables and the dependent variables.

The theoretical literature of leverage and credit spreads asserts that a change of leverage is conditioned by a change of one or several factors. For instance, high inflation or change of government fiscal policy, the character of the risk faced by investors will also change and therefore, their return on investment appetite will change. This swift of behavior from investors might not reflect the actual risk they face by investing in some projects. In this section, we attempt to predict the impact of change of some factors. We chose to control several indicators including the GDP of a country credit spread, the return on asset, and liquidity of the company.

Table 5. 12: Dynamic factors (Δ) change effects on credit provision in emerging markets

Models	Model 1	Model 2	Model 3	Model 4	Model 5
Variables					
ΔGDP	-16,503	-14,086	-29,876	0.001	-0.036**
	(0.725)	(0.624)	(0.550)	(0.840)	(0.040)
Risk Prem	-278,6***	-311,98***	-445,08***	-0.000	-0.072***
	(0.000)	(0.000)	(0.000)	(0.859)	(0.000)
Δ Spread	-47.66	406.29	405.53	0.000	0.000
	(0.966)	(0.549)	(0.731)	(0.110)	(0.619)
Income Tax	-6.197***	-2.225***	-5.232***	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.191)	(0.106)
Δ ROA	307.749	-6,762*	-9,599	-0.006***	-0.005**
	(0.960)	(0.073)	(0.143)	(0.000)	(0.045)
Market value	0.196***	0.096***	0.166***	-0.000	-0.000**
	(0.000)	(0.000)	(0.000)	(0.494)	(0.011)
Financial Sys	163,30	460,45***	513,45***	0.059***	0.095*
	(0.208)	(0.000)	(0.000)	(0.000)	(0.051)
Geolocation	368,60***	217,35***	380,08***	-0.032***	0.167***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Dist to Bank	-861,49***	-409,20***	-752,62***	-0.029***	-0.184***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Liquidity	363916***	850,69***	23408***	0.312***	0.161*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.078)
Tangibility	954,32***	204,619	590,262**	-0.710***	-0.363***
	(0.000)	(0.193)	(0.031)	(0.000)	(0.000)
Profitability	4586***	4797***	70836***	1.522***	0.089
	(0.000)	(0.000)	(0.000)	(0.000)	(0.748)
Legal Origin	-910,10***	-715,2***	-11477***	0.050***	-0.120***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Corruption Ind	167,69***	-130,67***	-129,06**	0.001	0.251***
	(0.001)	(0.000)	(0.020)	(0.798)	(0.000)
Corporate Tax	-78,630***	-73,65***	-118,54***	0.004***	0.003
	(0.000)	(0.000)	(0.000)	(0.000)	(0.646)
Size	955,2***	576,53***	10043***	-0.003	0.109***
	(0.000)	(0.000)	(0.000)	(0.282)	(0.000)
Δliquidity	-384,07**	-172,05*	-437,91***	-0.040***	0.117**
	(0.014)	(0.073)	(0.009)	(0.000)	(0.046)
Constant	**-10254**	**26163*** **	**28069*** **	**0.449*** **	**-0.283**
	(0.147)	**(0.000)**	**(0.000)**	**(0.000)**	**(0.285)**

Observations	**3,597**	**3,597**	**3,597**	**3,597**	**3,597**
R-squared	**0.701**	**0.737**	**0.662**	**0.593**	**0.137**

Robust P-value in parentheses
Statistically significant at 10% * at ** 5%** at 1%***

Notes: The following table is the regression results of the models for dynamic capital structure for 16 emerging economies for the period 1990-2016. We examine the effects of several independent factors such as change on the gross domestic product (GDP), the change on the spreads level, the change on the return on assets. The same method to compute the change level of independent factors is applied to change in equity, and to the liquidity level of the firms. Here the change level is computed as $\Delta x = xt2 - xt1$. X in this specific case is the actual value of a determinant. The models are developed based on the dependent and the independent variables. In this specific study, the dependent factors are all levels of leverage which include the short term, long term and the total debt.

The estimated coefficient on change of credit spread measures the correlation with future leverage changes after controlling for the contemporaneous leverage change. Table 5.12 reports the estimated results of variables change and the effect on leverage decisions. The findings of the dynamic model for leverage measure for cross-country examination demonstrate that a few variables are no longer significant. For instance, it was found that a change in a country income level is negatively correlated to leverage although our finding suggests that the relation is not statistically significant at all levels, there is a statistical significance in model 5. The results also show that a change on the return of asset is negatively correlated to leverage decision. This implies that, if the return on the assets become negative, that certainly will affect leverage as more firm will tend to borrow more from external sources rather than getting funds from retain earnings. For market value, we found that the signs of the factors have changed with most becoming not significant and negative. The factor corporate tax has changed a sign and it is now positive but unlike in the first regressions, it is significant in this dynamic model, corporate tax is no longer significant, but the relationship is positive. Geolocation and legal origin are significant for short-term debt and long-term debt and not significant for total-debt, the book leverage, and market leverage. However, these relationships are now positive. Our results also demonstrate that equity remains significant, but the relationship with market leverage is negative. Finally, like geolocation and legal origin, financial model and corruption index are significant for model 1 and model 2 is no longer significant for the other leverage measures. However, we found

a positive statistical significance for the spread in model 5 is significant for book leverage and this relationship is positive. We found that there is a negative relationship between spreads and short-term leverage.

5.4.8 Financing decisions and credit spread an ambiguous relation

The nature of the relationship between corporate capital structure and corporate credit spreads is of great importance for financing decisions. The literature examining this relationship remains very scarce particularly for emerging economies; this is generally due to spreads data availability issue in the case. However, the recent financial and economic crisis revived the old debate on the role of credit spreads on the borrowing patterns of companies. However, credit spreads proposed that these issues avoid misleading bonds issued companies' in their approach for capital building. In the literature such as; what characterize credit spreads and the impact on leverage structure of firms. Since the groundwork from Black and Scholes (1973); Jensen and Meckling (1976) and Galai and Masulis (1976) demonstrate that changes of the macroeconomics constituents such as interest rate or tax rises change impacts firms' financing. Thus, it can estimate that there is a highly significant correlation between the two factors.

The nature of the relation between credit spreads and financing pattern has been examined over decades, thus, neither of the paper has clearly stated this relationship. However, most of the papers we examined demonstrated in their inferences that high credit spread affects borrowing pattern. Since firm's primary objective of companies is to increase their earnings, therefore, interest rate on loans will make borrowings costs high, whereas lower interest rate will make borrowing costs lower and firms in this specific condition will borrow more for investment purpose.

The empirical literature however has examined leverage and credit spreads in the case where capital structure impact credit spreads level. See for instance Huang and Huang (2001), Chen and Kou (2009).

5.5 Robustness check

In this section, we discuss additional sensitivity analyses to validate the results obtained on first analysis. First, we remove few countries in the data a country with less than 5 years observations, we have approximately been two countries in that case, and we have 14 countries left with 3571 bonds annual bond transaction. Secondly, we control for country-specific factors and only keep specific factors such as corruption, country risk level, whether the country is market-based or bank based, we also keep geolocation the choice helps to control for endogeneity among the variables. We keep macroeconomic and firm-specific variables. We check the results obtained from the regression and with our previous results. Although the sample size was initially altered, the obtained results are robust and confirm the idea that several macroeconomic and country factors determine the choice of firms' leverage decisions.

5.6 Conclusion

This paper investigates the effect of corporate credit spreads variations on firm financing decisions for non-financial companies in selected emerging economies using an unbalanced panel data set from emerging markets collected from 1998 –2016 for 16 economies. Given the increasing importance of emerging markets and the threats these markets could possibly poses to the global financial markets, undertaking an investigation on financing decisions in the context of emerging and developing economies is a passionate topic on its own merits.

Following the Modigliani and Miller (1958) assumptions, number theories have been developed explaining the relevancy of capital structure, up to date there is no general theory that explains all firms' leverage decisions. In this respect, there have been various studies developed based on developed economies firms' characteristics. In the context of developing economies, the literature for capital structure have growing over the years, however, the literature on the relationship between leverage and credit spreads for developing economies and emerging markets remains very scarce. Although the findings from these studies have

guided to better understand emerging and developing economies firms financing structure, it is remains that both developed and emerging economies are different in terms of markets sizes, financial structure, and level of development. Based on these attributes, examining aspects of financial structure for emerging economies should therefore take into accounts their specificities.

The findings of this paper suggest that emerging and developing economies non-financial firms unlike developed markets firms faces greater threats in accessing capital through the bond markets due to their relatively small size, and the belief that these firms are much riskier compare to their developed economies counterparts. It was also found that inflation and corporate tax are important factors on the approach to leverage decisions. Thus, the most important aspects for leverage decisions related to firms' factors which include the actual debt level, the profitability of the firms, how much tangible assets and its actual size. In addition, the return on assets of the company is also a good indicator of whether the firms can afford to have further credit from funds providers. Nevertheless, our findings demonstrate that there is not a direct connection between leverage decisions and credit spreads levels in emerging economies leverage. A large credit spreads negatively affect debts provisions as the larger the spread, the shorter the maturity time and the higher the interest paid by the firm. The statistical results from linear tests of a few variables demonstrated that there is a highly significant correlation between the independent and the dependent variables. The examination of whether the pecking order or the trade-off theory better explains leverage decisions for emerging markets capital structure is out of the scope of this research and has not been pursued.

Moreover, some of the important variables have not been considered for example the influence of a cross-cultural effect on leverage decisions could be an important aspect of the investigation. Further direction for this study could be to investigate both sovereign bond and corporate bond influence on companies financing decisions by considering, others emerging economies characteristics.

CHAPTER SIX

Conclusion and Further Direction

6.1 Introduction

In this chapter, we provide a summary of the three empirical chapters formulated and discussed in this thesis, we also provide a summary of the main findings and further directions if some researchers have interest in the field of economic and financial development in emerging economies. In this respect, the theoretical and methodological contributions formulated to the existing body of literature detailed in subsequent chapters. In addition, we provide a section explaining policies implications and highlight different guidelines for economic and financial development for emerging and developing economies. The last section of the thesis provides future direction for helping to shape the theory of financial and economic development for non-financial firms operating in emerging economies.

The concepts of financial development and economic growth have been at the centre of important research for over a century (e.g. Bagehot, 1873 and Schumpeter, 1911) are among the first research. Levine (2005) provides a description of the four main mechanisms in which finance can promote economic development. Levine (2005) proposes that financial organisations and markets have the ability to boost economic growth through several channels, i.e. by (i) assisting the trade of goods and services through the provision of payment services, (ii) assembling and combining funds from a bulky quantity of investors, (iii) obtaining and dealing with information about companies and potential venture plans, thus

allocating savings to their most productive use, (iv) monitoring projects and undertaking corporate governance, and (v) spreading, cumulative liquidity and tumbling intertemporal risk. Respectively, each of these segments can impacts saving and investment decisions and hence economic growth. Despite the existence of several frictions and rules, normalisations, and policies variates undoubtably across markets and over time, positive changes along a unitary dimension could have dissimilar inferences for income distribution and the integrity dependently on further impacts in the economy.

Firms financing decisions and capital markets development in emerging economies are important for both sustainable markets and economic growth locally and internationally. In this sense, emerging and developing economies have over the last couple of years attempted to developed mechanisms to supports economic and financial growth. Thus, one of the particularities of emerging economies is that these countries are usually subject to financial distress, which in some ways are hampering emerging and developing economies financial and economic growth. Emerging and developing markets have experienced an economic and financial decline over the last 10 years, resulting in poor economic and financial conditions resulting in poor market conditions, economic growth decline and worsening business climate. For instance, the economic and financial recession 2007-2008 has deteriorated emerging economies financial and economic development over the past years, with several economies unable to satisfy the basics for economic and financial growth. Prior to the financial crisis, emerging markets (EMs) firms gained important momentum in the global finance market, both large corporations and governments in emerging economies seeking funds could easily access finance through capital markets due to good economic climate favouring growth opportunities. In the aftermath of the financial crisis 2007-2009, emerging economies debt has grown considerably and exponentially. However, considering the size of the overall emerging economies debt, there has been a high concern on the ability of most emerging economies in their ability to service their debt based on the contractual terms of their debt and the consequences this could generate on the global financial market's stability.

A key component of both financing decision and growth for emerging economies firms is the term structure of credit spreads. This generally represents investors' appetite for returns on investments. A substantial number of studies have focused on the determinants of corporate credit spreads in developed economies and their effects on financing decisions. The conclusions deriving from several studies demonstrate few important aspects, first, large credit spread is indicators of financial struggle for firms, at the others hand its permits in the investor's perspective to evaluate a specific company or a specific market performance, and the overall financial conditions. On the other hand, emerging markets corporate spreads have had very limited attention. The credit spread has several attributes including the aspect of being a good indicator of a country economic development level, in addition, to supporting financial intermediaries in rating firms. High spreads will demonstrate that the company might have liquidity issues, and therefore it might not be secure for investors to risk investing. Whereas, a low credit spread might be a sign that the firm is prosperous. Regarding economic development, emerging markets bond markets in most cases are very underdeveloped this as many studies pointed out, is due to the size of these markets, but in addition, the lack of strong financial mechanisms to protect investors, and the instability of these economies. Thus, many studies claim that a stable bond market will support economic and financial development, and help built strong institutions, favouring the incoming of external investors.

6.2 Summary and Conclusion

This thesis has examined three different issues in the emerging economies perspective. The chapter two focused on the emerging economies financial structure (market-based and bank-based) financial systems, the third chapter has investigated the extent of the emerging economies bond market development, the fourth chapter provide new evidence on the determinants of credit spreads in emerging and developing economies. And the last chapter is on the role of credit spreads on non-financial firms in emerging economies. Particularly,

the study provides a new dimension by examining the bond market development and access to finance reliability by non-financial firms in bank and market based financial models.

The modern days of capital structure begin with the irrelevance theory of capital structure based on the seminal paper by Modigliani and Miller (1958). Based on their assumptions, several subsequent papers developed in which several theories of the capital structure derived including the pecking order theory, the trade-off theory and the market-timing theory. These theories supported some of the important advancement of both debt and equity financing. Firms in both developed and developing economies use different sources to finance their operations using the combination of equity and debt. Debt financing has the potential to generate a future income stream for investors; in the meantime, it presents some degree of risk that mitigated. One important aspect of credit financing generally relates to the interest rate level usually required by investors for investing in risky projects. Highly risky projects that necessitate large fund from a company with shallow financing position carry high-interest rates required by investors to compensate for the potential risk of default from the borrower. In the case of emerging economies firms seeking funds, these firms are generally subject to greater control by rating agencies to evaluate their creditworthiness. Due to the general economic and financial conditions in which many emerging economies find themselves, (e.g. highly indebted and generally very underdeveloped markets, and absence of tight regulations) many firms operating in less developed economies generally find themselves paying high-interest rate than their peers in developed markets. Because of this, the difference between the sovereign rate of a specific class of debt and the corporate debt become widened which causes the default from companies.

Most of the empirical evidence on capital structure comes from studies of the determinants of corporate debt ratios (e.g., Titman and Wessels, 1988; Rajan and Zingales, 1995; Graham, 1996) and studies of issuing firms' debt versus equity financing choice (e.g., Marsh, 1982; Jalilvand and Harris, 1984; Bayless and Chaplinsky, 1990; MacKie-Mason, 1990; Jung et al., 1996). Studies of this nature have fruitfully demonstrated that companies features

including research development (R&D) force, assets market-to-book ratios, size, returns on stocks, profitability, tangibility of the assets and the marginal tax rate are considered the most important factors of a particular financing choices. Fundamentally, it was found that the association between market-to-book ratios and profitability are of prime importance.

One of the most important debate in the of economics recently has been around markets development. The financial growth discussion has revolved around two main theories, the market and the bank-based financial models. The evidence sufficiently presented in the literature demonstrates that the approach to financial and economic growth is very different from the viewpoint of these two concepts. For instance, in a bank-based financial model, financing consists mostly of institutions that perform financial intermediation on their balance sheet. These financial institutions bear risks and generally provide funds through close relationships with their clients. Onthe other hand, a market-based financial structure mostly channels savings directly to those in need of funds through markets. These markets serve as a platform where equity and debt securities are priced, distributed and traded, in addition, the market-based model allowsbetter control of managers behaviour (Bats and Houben, 2017). However, several development economists admit that both banks and market play a vital role in promoting financial and economic growth economic therefore idealistically, countries should promote the two models to have the most efficient systems.

A key aspect of economic and financial growth is the development of local bond markets to support local economies thereby easing access to finance for local firms. Over the last twenty years, emerging economies have become very active in international markets due to progress made in the. During the early 1990s, the corporate bond market was underdeveloped and limited to the restricted number of industries, while the equity market appeared somehow ahead. Although the prominent role of bond markets on fostering economies has generally been accepted, it remains the that there is a very little consensus on the real impact of bond markets in supporting financial development in emerging markets still produce intense debate.

For decades, decisions makers have provided arguments favouring the development of the capital market in general and bond market in particular[18]. Theoretically, the diversification of sources of funds should guide towards better risk sharing and efficient capital allocation. The analysis confirms that there is a long list of factors contributing to the underdevelopment of the corporate bond market in EMs. Having said this, the principals and the sensitivity differ from one-bond characteristics to the other. Theoretically, the credit spread is a measure of the risk generally paid by investors to compensate for the various risks that investors accept to take on a risky investment. In addition, it generally represents a good indicator of the general trend of the economy. There is enough evidence proposed in the literature for credit spreads. An important aspect of the credit spreads is the default probability, measured based on the grounds work proposed by (Black and Scholes, 1973) and (Merton, 1974); advanced credit risk measures main objective was to provide better forecasting edge to limits the number of firms defaulting to their debt obligations. However, some empirical studies demonstrate that the models provide unrealistic estimates. These models fall under two main different categories of structural and reduced form models. The reduced form models derived from the firms' trend progression and treat default as a jump process (Jarrow, Lando and Turnbull, 1997); (Madan and Unal 1998); (Duffie and Singleton 1999). On the other hand, structural models developed based on (Black and Scholes 1973) and (Merton 1974), the models propose a complete understanding of every aspect dataset held by corporate managers. In most situations, the implication of the information could contribute to forecast a company's future default period. The data analysis proposed that several macroeconomic factors including among others, GDP PPP, inflation and tax, affects credit spreads. However, factors such as market capitalization and size seem affects credit spreads more than the other factors. In addition, we found that income and liquidity are the main firms' specific factors to affect the spread level.

[18]The Asian Bond Fund 1 & 2, the idea was proposed by 11 biggest central banks in Asia Pacific constituency, conducted by the BIS, represent one of the illustrations of a given policies. In addition, the World Bank, the IMF and the ECB developed a combined action plan in the 2007-08 under the G8 umbrella for local bond market development in Emerging Markets.

6.3 Empirical finding

In this section, we provide general findings on emerging economies financial development and economic growth based on the three empirical chapters developed on the thesis. The issue of firm financing has always been an interesting issue of debate between academics for decades. Particularly, in the current economic context, there is the resurgence of this debate in the academic world for emerging and developing economies debt. In this thesis, we have focused on the factors affecting the financial development of non-financial firms in emerging economies. The findings from the data computation suggest some interesting relationship that raises concern for the future.

Ours is not the first to examine in a cross-country examination this issue of bond market development, however, our paper differs from the rest of the papers in the field in several ways. First, we use a large dataset composed of both emerging and developed market for 154 countries. Second, we include the economic model of the countries and investigate whether market or bank-based gave the same opportunity to emerging economies to develop. Third, we include dummies such as corruption, location, and legal origin, which not mentioned in previous studies. Our empirical results demonstrate very interesting results. For instance, we found that several country-specific factors that affect the bond market development. Thus, we did not find a macroeconomic affect much spreads development. Whereas, the market capitalization and stock value, for instance, affect the development of the bond market. More importantly, we find that market-based financial systems better promote bond development even though in some regions bank-based financial system also contribute to bond market development, but their contribution is relatively small. We also find that the geographical position of the market also plays a vital role in the development of local bond markets.

Our findings on credit spread and capital structure suggest that there is a there is a correlation between the three measures of debt and credit spreads. The analysis suggests that in countries where there is high credit spread history, there is a high level of default from firms, and the

economic performance of these countries are generally not the best. These findings suggest that when macroeconomic conditions are not favourable, firms find it difficult to access funds at a lower interest rate possible. In addition, we found that traditional determinants of leverage such as profitability and tangibility are negatively related to credit spreads. Whereas, we did not find any significant impact of credit spreads on the firm size. Furthermore, our investigation of the relationship between credit spreads and firm financing at the regional level suggests that there could be spillover effects from one region to the other regardless of the financial model under which the country operates.

On the determinants of credit spreads, the analysis demonstrates that there are many factors affecting credit spread particularly in emerging economies context. For instance, although the financial model is irrelevant, it remains that countries operating under market-based model seem to have reduced level of spreads whereas, in a bank based, the spreads level seems to be an important issue as financial intermediaries including banks charge their customers a large interest rate on debts.

The relationship between credit spreads and capital structure in emerging economies, our finding suggests that macroeconomic and, firm specifics and country factors impact the approach used by firms in emerging and developing markets. These results back from previous studies on the relationship between credit spreads and leverage decisions in developing and emerging economies.

6.4 Theoretical and empirical contributions to the study

The present study contributes to financial decisions, economic development and credit risk studies for emerging and developing economies in several ways. Empirically, this study extends the examination of firm-level determinants and bond market development in the context of emerging and developing economies thereby examining their relationship. In this respect, we provide new evidence on the specific role local bond markets development will contribute to the economic and financial growth of emerging economies, particularly for non-

financial firms. The second important aspect of the contribution to the body of knowledge for bond development is that we use a new dataset including both emerging and developing economies data, that has not been the case in most previous empirical studies as most of these studies only concentrate at providing evidence for emerging economies.

Previous studies on capital structure determinants have extensively investigated the role of traditional determinants of leverage in the context of both emerging and developing economies, it remains that, the current literature in both capital structure studies and bond market is a very limited study on the effect of credit spread on leverage for non-financial firms in developing economies.

6.5 Suggestions for further research

Potential extensions are possible for those interested in the field of corporate finance and particularly for financing decisions of non-financial economies. There have been cross-countries examinations of financial models and their impact on financial and economic development in general and for emerging economies. Nevertheless, a few past and recent studies stressed that the distinction between the financial models has a very narrow effect on the actual financial development for many emerging economies. Therefore, the debate should be oriented on how to efficiently use and maximize bank and market-based to support emerging economies growth. Firms financing decisions are the most important decisions firms either in developed or developing markets. It is therefore important that managers make the right decisions to avoid facing financial issues that could lead firms to bankruptcy. In this specific context, managers generally face two important choices to raise capital debt or equity.

Notwithstanding the encouraging atmosphere and prospective openings, emerging economies must still prudently the expansion of their capital markets. In emerging markets, there is often a tendency to misrepresent corporate intrinsic values, which favour the stock market development, thereby swelling the volatility of the market and finally having a

negative influence on market reliability. In addition, firms' long-term investments to supports upward productivity diminished if the markets converge to high volatility. Under these conditions, there is less probability to develop sounds and stable financial markets, under the market and bank-based financial system. As a result, firms in emerging economies will continue facing the same financial pitfalls.

To enhance our understanding of the relationship between capital structure and bond market in emerging economies context various can be explored using different methods. However, we suggest that further research can be undertaken by exploring the relationship between specific assets class and capital structure, non-financial firms specifically looking at the effect of a specific bond class on the capital structure of specific industries. This aspect of has been overlooked in the context of emerging markets non-financial firms, in addition, a new methodological approach could be tested to estimate the degree of relationship between an explanatory variable and the dependent variables.

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