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Capital Markets Development, Financial Structure and Economic Development in Africa.

By

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Dissertation Submitted for the Degree of Doctor of Philosophy, School of Economic and Business Sciences
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ABSTRACT

This dissertation examines the evolution of Africa's capital markets, and the determinants of their stock markets and banking sectors development. It also ascertains the linkages between financial structure and economic development of selected 15 African countries. These largely adaptive and innovative empirical analyses record some interesting results.

We find a trend towards market-based financial systems in most African economies (Chapter 3). Though both equity markets and banks have been deepening in the last decade, the trend is stronger for markets than for banks. There is still however large domination of traditional banking finance, because the recorded trending towards markets is mainly driven by a rise in equity market size (capitalization) and less so by trading activities in these markets. There is a wide cross-country variation in financial system depth and, in banking sector and stock market development in Africa, with South Africa and North African countries in our sample featuring relatively large markets.

Additional findings suggest that banking sector development, GDP per capita, private capital flows; domestic investment, trade openness, FDI, interest rate and inflation are important determinants of stock market development (Chapter 4). Specifically, institutional quality has a positive effect on stock market development, especially regulatory quality. Corruption and government effectiveness have negative effects on stock market development, with the latter finding being theoretically counter-intuitive. For banking sector development, GDP per capita, remittances, domestic investment, exchange rate and FDI are important determinants. We also confirm that the relationship between stock market development and the banking sector development for a sample of African countries is positive, indicating that financial intermediaries and stock markets are complements, not substitutes.

In agreement with extant empirical evidence, we find that financial structure does not matter in determining economic development; instead, it is level of financial services that positively and significantly determine economic development in selected African countries (Chapter 5). The policy implication that emerges here is that relevant authorities should invest in accumulating both quantity and quality financial services in order to impact economic development in Africa without necessarily a concern for the forms of the financial services.

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CHAPTER 1: INTRODUCTION OF THE STUDY

Capital markets[2] have been cited as an engine of economic development in industrialized countries. Organized capital markets can lead to economic development by raising long term finance for productive investment. These markets have the ability to spread the risk of long term investment projects and lower cost of capital of the corporate sector. They have also been observed to provide channels for effective corporate governance and efficient resource allocation, whereby resources are allocated to the most productive projects and innovative firms, and gains of improved allocation of funds can be realized (Wurgler, 1999).

The principal channel that links stock market development and economic performance is said to be liquidity provision to the market (e.g. Ngugi et al, 2003; Ang, 2008; Demirguc-Kunt and Levine, 1996). A well-organized, liquid market, which is characterized by active trading amongst various investors and firms, can provide an exit strategy for both investors and issuing firms. Liquidity is therefore a crucial feature of stock market development. High levels of liquidity and efficient price discovery, reduces investors' demanded required returns and, thus reduces the cost of capital to the issuers of securities.

The entry of foreign investors into emerging markets is theoretically expected to enhance stock market stability, increase liquidity, promote efficiency and lengthen investor's horizon (Aitken, 1998). But if the market is thin, and is characterized by low quality and small capitalization shares, this will eventually reduce its capacity to absorb capital inflows and results in excessive stock market volatility and overheating of the domestic economy. Stock market volatility is of interest to any risk-averse saver as well as policy makers. Any volatility induced by noise in the capital market in the trading process makes it more difficult for investors to extract useful signals from stock prices, thus reducing their information content for the allocation of resources.

[2] Capital market is the market for trading long term financial securities, including ordinary shares, long term debt securities such as debentures, unsecured loan stock and convertible bonds. It comprises of equity and bond markets.

1.1 Background to the study

Much research has been done to assess the role of capital markets in emerging economies. Singh (1992) argues that stock markets can do more harm than good for economic development in both mature and developing markets. The main argument being that immature markets have been observed to be characterized by high volatility that often deters risk-averse savers. He believes that the role and impact of capital markets can differ across different countries. The same message was put forward by Jefferis (1995): that it is not yet possible to make conclusive assessment about the impact of Botswana Share Market (BSM) on the country's developmental objectives. The interaction of capital markets and development goals are long-term and in many cases a cumulative process that is gradual.

Empirical findings on the ability of foreign investors' funds to foster economic development have been mixed. Studies based on East Asia countries have shown that capital markets can be disruptive due to the possibility of large sudden withdrawal of invested funds, which can occur due to a change in investors' perception. The evidence from Latin America during the 1990s, following market liberalization, offers a contrasting account: large flows of portfolio investment to these economies resulted in modest economic growth (Singh, 1997).

Many stock markets in Africa, on past examinations, are shown to have failed to attract significant proportion of global capital flows. However, there are a few stock markets that have expanded and attracted significant foreign capital flows; such is the case of Johannesburg Stock Exchange (JSE), Nairobi Stock Exchange (NSE) and The Nigerian Stock Exchange (NISE). Kenny and Moss (1998) noted that Africa has already managed to attract a much larger quantity of portfolio investment than the limited size of its stock market could have suggested. The entry of more foreign investors into emerging markets may lead to pressure to upgrade trading systems and modify legal systems to support more trading and the introduction of greater variety of financial instruments.

There have been quite a number of reforms taking place in Africa's stock markets. For instance, the Casablanca Stock Exchange of Morocco experienced reform in 1993, resulting in the use of an electronic trading system. So far, the process of modernization of trading systems has been implemented by eight capital markets in Africa. The majority of Africa's stock markets are, however, still using the open-outcry or call-over systems. In theory,

trading system reforms are expected to increase market liquidity and enhance transparency, thus reducing market microstructure costs and volatility (Pagano and Röell, 1996).

Many African markets undertook a revitalization process of their regulatory systems, through establishment of market regulators.[3] The establishment of a regulator in theory is expected to enhance transparency, information disclosure, and price stability; and eventually increase liquidity of the market. Many capital markets saw a relaxation of restrictions on foreign investors' participation. In regard to capital controls relaxation, Zimbabwe and Kenya were among early reformers who opened up their stock exchanges to foreign investors in 1993 and 1995, respectively.

1.2 The general characteristics of African stock markets

The second-half of the last two decades has witnessed a remarkable increase in the financial markets in Africa. The number of stock exchanges rose from 10 in early 1990s to 22 in 2006, including 2 regional exchanges. The rise of these financial markets in the past 15 years was underpinned by improved macroeconomic fundamentals and stellar performance of already existing stock markets. The Egyptian stock exchange was very active in the 1940s and ranked fifth in the world. Ghana was ranked the sixth best performing emerging stock market in 1993 with a capital appreciation of 116% and the best performing emerging stock of all emerging markets in 1994 with a price index growth of 124.3%. In 1996, the Zimbabwean stock exchange witnessed an increase in market capitalization of 165%, making it one of the star emerging markets. The South African JSE Securities Exchange (JSE) is by far the largest in Africa and it competes globally.

One of the main drives behind establishment of stock markets in Africa was the need for government to borrow locally through the issuance of Treasury Bills (TBs). This was the case with the formation of the Nigerian Stock Exchange (Arowolo, 1971). The experience of establishment of Nairobi Stock Exchange offers a sharp contrast where its development was motivated by the need for funds by the private sector.

[3] Also known as Security Exchange Commissions (SECs), this is sometimes referred to as a process of establishing market infrastructure which generally reflects the degree of investors' protection and the quality of accounting standards.

Major sources of funds for stock market activity are insurance companies and pension funds; these are typically restricted by law from pursuing investments outside their home countries. The local private investors also are becoming active in these markets and this has been further fuelled by local banks in other countries such as Nigeria, Kenya and Zambia who are providing personal loans to brokerage firms to invest in the stock market.

The stock markets that were operating before 1990 include the Abidjan, Casablanca, Tunis, Nairobi, the Nigerian, Zimbabwe stock exchanges, with the South African exchange being the oldest market. Africa has got some of the youngest stock exchanges in the world; these are in Swaziland, Namibia, Uganda and Mozambique. The smallest of emerging markets both in terms of listed companies and market capitalization are also found in Africa. These are referred to as "frontier markets".

Table 1: The Stock Market Development Indicators for Selected African Countries.

	Market Capitalisation (%)		Value Traded (%)		Turnover Ratio (%)		No. of listed companies (numbers)	
Countries	1995	2010	1995	2010	1995	2010	1995	2010
Botswana	8.34	27.40	0.80	0.94	9.81	3.47	12.00	21.00
Cote d'lvoire	7.87	31.20	0.13	0.58	2.16	1.99	31.00	38.00
Egypt	37.70	13.40	17.00	1.13	43.00	11.00	211.00	746.00
Ghana	25.50	11.30	0.34	0.33	1.25	3.37	19.00	35.00
Kenya	20.80	46.00	0.72	3.45	2.62	8.60	56.00	53.00
Malawi	----	26.70	----	0.39	----	1.46	----	14.00
Mauritius	32.90	66.90	1.73	3.67	4.93	6.36	28.00	86.00
Morocco	18.00	75.80	7.35	11.80	47.00	16.30	73.00	44.00
Namibia	5.40	9.67	0.09	0.15	1.54	1.82	10.00	7.00
Nigeria	7.23	26.30	0.05	2.73	0.59	12.50	181.00	215.00
South Africa	186.00	278.00	11.30	93.50	6.73	39.60	640.00	360.00
Swaziland	29.20	6.88[1]	0.02	0.00[2]	0.11	0.03	4.00	5.00
Tunisia	21.80	24.10	3.68	3.84	20.40	17.20	26.00	54.00
Zambia	0.55	17.40	0.09	0.78	2.80[3]	4.07[4]	2.00	19.00
Zimbabwe	28.70	153.60	2.11	15.30	7.76	5.09[5]	64.00	76.00

1 – Latest available data is for year 2007
2 – Actual value is 0.0022, the latest is 2006
3 – Latest available data is for year 2007
4 – 1996 value; 1995 value is unavailable
5 – the latest available data is for year 2007

Source: World Development Indicators (WDI) & Global Development Finance (GDF).

The most apparent features of the African stock markets, shown in Table1, is that they are small relative to their own economies, as measured by the ratio of market capitalization to GDP. The South African JSE Securities Exchange (JSE) is the largest as shown by its market capitalization to GDP percentage value and Namibia and Botswana stock exchanges are the smallest in value traded, market size and number of domestic listed companies. The challenges facing stock markets in Sub-Saharan Africa are social, economic and political in nature. The effective functioning of stock exchanges is also affected by limited number of trading hours, lack of liquidity and small number of listed companies.

1.3 The research problem

The African continent is known to harbour some very poor countries, which are socially and economically underdeveloped. Some countries have had stock markets for a long time but have lagged behind in their economic development when compared to Asian and Latin American counterparts. The capital markets in many African countries in the early 1990s were associated with structural weaknesses, slow progress of growth, small domestic markets and limited supply of market-issued and/or tradable financial assets.

The lack of domestic participation in these markets has been flagged as a leading factor in deterring growth in Africa's capital markets especially during the 1990s. These markets have been largely dominated by few large companies, with the range of assets traded being narrow[4]. The evidence on barriers facing stock market, as documented by Hearn et al (2010), are that these countries' highly skewed income distribution and low level of average income have resulted in low level of domestic activities in, for example, Mozambique and Swaziland stock markets.

The domestic investment environment in some economies has led to higher level of uncertainty mainly due to lack of appropriate regulations to protect investors. There is still a higher compliance cost of listing, though in some economies they have adopted the option of second-tier listing. This is the case with Lusaka, Nairobi and Botswana stock exchanges. This means that some small and medium firms that fail to meet official listing criteria can still be quoted alongside the large listed firms. These firms will gain from the benefits of association

[4]Only on the JSE and the Namibia Stock Exchange are derivatives traded. The majority of Africa's secondary markets deal with shares, government and few corporate bonds.

with an already existing stock exchange listed firms whilst incurring lower costs of accessing external funds.

The unstable business environment in the past which led to higher information asymmetry between investors and issuers has resulted in recurrent illiquid market conditions. Illiquid market conditions are created by lack of investor participation since no investor will engage in transactions without correct or perceived correct and adequate information. Armed with the evidence[5] that external funds have proved volatile in East Asian economies (See Stiglitz, 2000 and Suchanek and Vasishtha, 2009-2010), one can surmise that financial autarky has not been a successful policy in the past for Africa. There is little evidence to believe it will be now (Kenny and Moss, 1998).

The future of economic development outcomes in Africa can critically depend on, among other factors, the capacity of the continent to attract capital funds. Stock markets in Africa have reformed beginning from the late 1980s and extended to the 1990s, with the focus of enhancing liquidity. Reforms such as privatization were intended to diversify ownership of state owned entities and encourage investments on stock markets by mutual funds, pension funds, insurance companies and foreign investors.

A well-developed capital market performs critical functions of diversifying risk and providing liquidity (Yartey, 2008; Levine and Zervos, 1996). Indeed, previous studies on stock market and economic development highlight that better developed stock markets result in faster growth (Goldsmith, 1969; King and Levine, 1993; Levine and Zervos, 1998; Beck et al. 2000; Ang, 2008a and 2008b). The upshot of the laid out problems is the question of what factors underpin or inhibit stock market and banking sector development and performance for emerging and frontier markets in Africa?

1.4 Research questions

As derivatives of the problem statement, we will seek to answer the following specific questions:

i) What characterizes the evolution of capital markets in Africa**?**

ii) What are the processes behind development of stock markets and banking sectors for selected African countries?

iii) Does financial structure have any significant link with economic development for these selected African countries?

These questions, in general, seek to assess the microstructure characteristics of the emerging and frontier capital markets[6] in Africa. Consequently, they will enable us to assess the degree of integration[7] of local markets with global markets and its impact on stock market liquidity. Answers to these questions will also bring to light the ability of these markets to mobilize savings for the corporate sector, especially after implied reforms, occasioned by this research, are implemented.

1.5 Research objectives

The aims of this study are therefore to establish determinants of stock markets development, as well as ascertain the linkages between foreign investors' participation, capital market liquidity, and economic development, for selected African capital markets. Specifically the study intends to:

i) Provide a synthesis of African capital markets' depth and breadth (liquidity)

ii) Establish the determinants of stock market and banking sector development

iii) Establish whether there exists a significant relationship between financial structure (or effectiveness) and overall economic development in Africa.

The empirical evidence on the impact of macroeconomic environment, foreign participation and regulations, on overall performance of emerging and frontier capital markets in Africa, has several policy implications. For instances, it will facilitate the search and establishment of mechanisms/models for a more effective and efficient investment resource allocation.

[6] Frontier markets are very small and less developed markets as defined by International Financial Corporation (IFC) and Standard and Poor's Emerging Market Indices (2007).

[7] Foreigners free access to local capital markets (and local investors' access to foreign capital markets) is a scenario deemed to reflect the degree of market integration.

1.6 The hypotheses

Consistent with literature from other emerging markets countries[8] and few individual country case studies in Africa (Ngugi et al., 2003; Jefferis, 1995; Yartey, 2008; and Kyereboah-Coleman and Agyire-Tettey, 2008), this research's hypotheses, in the alternative form, are that:

i) The African stock markets, banks and bond markets are evolving well over time in terms of depth and breadth (liquidity).

ii) Institutional and macroeconomic factors do influence the stock market and banking sector development (performance) in our sample of countries.

iii) Financial structure does not have a significant role in promoting economic development in our sample of countries.

1.7 Findings of the study

In Chapter 3 we showthat it is important to understand the origins of capital markets in our sample of African countries. Firstly, this chapter compiles and compares the various indicators of stock market and banking sector development. Then, it investigates the primary determinants of financial development with particular emphasis on both the stock market and the banking sector.

The estimations we compute in chapter 4, using the first index constructed as per Demirguc-Kunt and Levine (1996) methodology, show that domestic investment and savings, bank credit to the private sector and interest rate, are insignificant in determining stock market development for the case of selected African countries. Our third index for stock market development using, Demirguc-Kunt and Levine (1996) methodology, shows that banking sector has a complementary role to stock market activities.

The overall observation of the results from Demirguc-Kunt and Levine (1996) methodology and ours, is that the magnitude of the impact of income per capita and capital flows on stock market development is low but qualitatively similar to our results. Further, domestic investment and savings have a weak significant effect on stock market development for our sample countries. Our methodology is an improvement on the Demirguc-Kunt and Levine (1996) approach because it attaches correct weights to different components of stock market

[8] Errunza (2001)) finds no evidence that liberalization influences stock market volatility, but he documents that it helps in fostering stock market development. See also Khambata (2000) and Levine(1996).

development and it gives results that are qualitatively similar with Demirguc-Kunt and Levine (1996) methodology. The other observation is that our method provides strong evidence on complementary role of stock market and financial intermediaries.

The other aspect of the study explores the relationship between economic development and financial structure; that is, whether the degree to which the financing sources mix is slanted (bank-based or market-based finance) matters for economic development for our sample of African countries? None of the financial structure indicators enters any of the economic development regressions significantly at the 10% level. The result is inconsistent with bank-based and market-based system view of financial system. Financial structure does not matter for economic development in selected African countries. However, financial services quality is a significant determinant of economic development for our sample of African countries. This means that the level of financial development is important for economic development goals than the mode of the financing system.

This research contributes to literature in several fronts. In Chapter 4 we provide a measure of stock market development using principal component analysis. In the same vein, it would be helpful to identify the key aspects of financial development that are important for economic development for selected African countries. First, we determine the determinants of stock market development in Africa using a comprehensive measure of stock market development which we constructed. Then, we compare the determinants of banking sector development in Africa with the ones of stock market development. Our methodology is an improvement on the Demirguc-Kunt and Levine (1996) approach because it attaches correct weights to different components of stock market development and it gives results that are qualitatively similar with Demirguc-Kunt and Levine (1996) methodology. The other observation is that our method provides strong evidence on the complementary roles of stock markets and financial intermediaries. Lastly and importantly, we also account for both macroeconomic factors and institutional factors in our analysis.

1.8 Organization of remainder of the study

The rest of the study report is organized as follows: Chapter 2 discusses some empirical literature on barriers to stock market development and performance, foreign investor's

participation and their links to economic development. Chapter 3 provides an overview of Africa's stock markets and the synthesis of evolutions about characteristics of participating industries and investor groups in these markets. Chapter 4 provides empirical evidence on what inspires and/or drives development in stock markets and banking sectors in Africa. Chapter 5 provides a framework and evidence on what explains linkages between stock markets and economic development. Concluding remarks and policy implications are offered in Chapter 6.

CHAPTER 2: OVERVIEW LITERATURE ON CAPITAL MARKETS DEVELOPMENT

This Chapter gives a synthesis of both theoretical and empirical evidence on financial markets development and its potential and documented links with both economic growth and development. The matrix of literature on what matters for financial markets development and its nexus with both economic growth and development focuses on macroeconomic evidence**,** for example**,** Schumpeter (1911)[9], Goldsmith (1969), McKinnon (1973); and microeconomic evidence, for example, Schiantarelli et al. (1992). There is some point of convergence in the literature as well as a contrary view. For example, the works of Robinson (1952), Lucas (1988), Levine and Renelt (1992) which argue that economists tend to overemphasize the role of financial factors in the process of economic growth.

2.1 Related Literature on Growth-Finance Nexus

Most literature on capital markets deals with the relationship between financial development and economic growth[10]. In Chapter 4, we focus on factors that lead to development of stock markets and banking sector; but for now, the next sub-sections will provide a synthesis of both empirical and theoretical literature on the issues that characterise stock market and banking sector development and the potential impact of financial structure on economic development. The literature is based on the interaction of traditional stock market characteristics (market size and liquidity) with macroeconomic and institutional environments. The other strand of literature focuses on effects of the interaction of stock market development, privatization programme and foreign investors' participation. Lastly, the literature on linkages between financial structure and economic development is explored.

[9] Schumpeter (1911) argued that financial intermediaries can mobilize savings, manage risk, monitor activities of managers, facilitate adoption of technology, and finance research and development projects which foster economic development.

[10] There are a number of literature that focus on relationship between stock market and economic growth, including but not limited to Demirguc-Kunt and Levine (1993), Levine and Zervos (1996, 1998), Singh (1992, 1997) and Jefferies (1995).

2.1.1 Barriers to Development of Stock Markets: A review

Legal barriers, information asymmetry, lack of accounting standards and investor protection laws, liquidity risk, political risk, economic policy risk and currency risk were found to be major factors that hinder investment flow to emerging market countries in Latin and Asia (Bekaert et al., 2003). These barriers can be classified as direct and indirect barriers. Direct include the presence of different legal provisions for foreign and domestic investors (legal barriers). Indirect are information asymmetry and varying accounting standards (both good and bad). Furthermore, some barriers can be classified as emerging market specific risks; that is, risk which discourages foreign investor participation.

Many African frontier capital markets face challenges in their role of mobilizing savings and allocating resources to productive projects. The study by Hearn and Piesse (2010) establishes evidence that Swaziland and Mozambique stock exchanges face barriers in their trading operations. These barriers include inadequate investment opportunities, poverty and economic deprivation of local investors, settlement risk, and poor policy. These factors have contributed to low level of liquidity in these markets. Their study concludes that until these barriers are addressed, economic benefits from the establishment of these markets will remain minimal.

Hearn and Piesse (2010) show evidence related to political economy issues as being the biggest set of barriers to growth in small markets of Swaziland and Mozambique. The initiative of establishing stock markets have been that of transferring ownership from the state to the wider population, but in Swaziland the participation has been exclusively by social elites. Swaziland is unique in that as a kingdom the dominance of royal stakeholders has led to delays in passing securities market bill in Swaziland due to lack of political will. The general lack of appropriate property rights have also led to delay in corporate disputes resolutions in Mozambique, which has affected investor's confidence (Hearn and Piesse, 2010).

The problem of minority and social elites' participation effects on Cote d'Ivoire stock exchanges led to illiquidity and poor regulation practices in the early stages of formation of the bourse (Lavelle, 2001). The evidence on market participation by few social elites points

to the continual existence of poor institutional aspects of the stock market. Small economies such as Zambia and Mozambique are characterized by low savings as a result of substantial informal sector and lack of institutional investors (Marone, 2003). The small number of listed companies, small number of stocks traded, poor performance of listed companies, and limited number of trading hours have led to a low level of liquidity in the Lusaka Stock Exchange (Marone, 2003). Jefferis (1995) and Arowolo (1971) suggest that low income and asset preferences of the investing public in Africa is skewed towards commodities and livestock rather than holding financial assets.

Kenny and Moss (1998) support the view that stock markets in Africa are facing external and political risks. These challenges have resulted in poor financial infrastructure, poor commercial risk rating, and lack of domestic investor participation, low savings and investments and limited foreign purchase. Bhattacharya et al (1997) suggest that the most important impediments of portfolio investment flows in Sub-Saharan Africa are political instability, weak macroeconomic fundamentals and structural weakness[11].

The Botswana Share Market (BSM) lacks breadth in terms of the number of listed stocks and range of economic activities covered; it is heavily dominated by financial and distribution services corporations which makes it difficult to obtain a good spread of risk (Jefferis, 1995). The social, economic and political uncertainties in African frontier stock markets can have significant effects on market stability and structure of stock returns[12]. This study will seek to suggest policies that can make African frontier stock markets work better.

[11] Chapter 3 provides an overview of macroeconomic and institutional environments for the sample countries over the past decade.

[12] Chapter 3 provides an account of development and performance of African stock markets.

2.1.2 A Review of Macroeconomic and Institutional Determinants of Stock Market Development

A well-developed stock market can lead to overall positive impact on economic development. Sound macroeconomic environment with low and predictable inflation, high domestic savings and investments support stock market development (Yartey and Adjasi, 2007). The stock market as an important segment of capital markets in Africa needs to address its liquidity constraints emanating from smallness of the market, infrastructural bottlenecks and weak regulatory institutions (Yartey and Adjasi, 2007). A well-functioning stock market should allow for accurate, reliable and timely flow of information, and disclosure of corporate business and financial affairs of listed companies.

The frontier stock markets should enthrone good legal infrastructure to protect investors against wealth transfer and insider trading. There is need for promotion of institutional investors through the improvement of regulatory and supervision standards[13], which in turn can increase involvement of foreign investors. Regular disclosure, transparency and enforcement standards form an integral part of effective regulation and supervision of stock markets. Enforcement requires compliance and ability to prosecute. The presence of securities regulators is important to ensure effective enforcement.

Bhattacharya et al (1997) and Kenny and Moss (1998) suggest that institutional support should create an adequate regulatory system to curb fraud and insider trading. This has the potential to improve the performance of stock exchanges. They also suggest that the development of a healthy domestic base of investors such as pension and mutual funds, with improvement in financial and institutional infrastructure has the potential of attracting a large pool of foreign investments.

Kyereboah-Coleman and Agyire-Tettey (2008) show that macroeconomic policies do influence stock exchange performance. They find that macroeconomic indicators such as rate of inflation, lending rates and exchange rate do affect stock market activities of Ghana. Their

[13] Regulation is the set of rules imposed by the authorities on the actions of participants in stock markets. Supervision is the manner in which the authorities verify and enforce compliance with the requirements of the regulatory framework.

study is limited in that they use one country and also neglect institutional aspects of stock market development. In the study of development of stock markets, there is need to broaden the scope by looking at many countries in order to draw stronger conclusion. Similarly, Garcia and Liu (1999) used a pooled panel data approach for the study of Latin and East Asian economies, and provide evidence that macroeconomic factors such as real income, saving rate and level of financial intermediation are significant and important determinants of stock market development. These results were confirmed by Naceur et al. (2007) for a panel of countries in the Middle East and North African (MENA) region. However, they did not evaluate the impact of institutional factors on stock market development.

In the modern view of financial development, institutions have the potential to facilitate economic exchange and control of investable resources which can result in long-term accumulation of capital. The literature on institutions and finance has identified three candidates as most important drivers of financial development: legal, cultural and political institutions.

La Porta et al (1997, 1998) made seminal contributions to the literature that links finance and the legal environment. The main result of their studies of 49 countries is that legal environment as described by legal rules and the quality of law enforcement has a positive influence on the size of equity markets. Legal family was consistently found to shape the quality of laws the country enact and also their enforcement. Common law countries have developed capital markets compared to civil law countries in their cross-sectional study.

Levine (1999) examines the link between legal environment and financial development, and his findings were that financial intermediaries are better developed in countries with good legal and regulatory systems. The study used micro-level institutions such as creditors' rights, contract enforcement quality, legal origins and accounting standards to proxy for legal and regulatory systems. Law and Habibullah (2009) provide evidence on the influence of institutional quality, trade openness and financial liberalization on financial market development. The overall conclusion from their work is for emerging markets to develop adequate institutions and sound macroeconomic policies before undertaking policy reforms. Their study was based on G-7, European, East Asian and Latin American countries only, and neglected African countries. The evidence uncovered by Rajan and Zingales (2003) is that

trade openness in the absence of capital flow controls is correlated with financial market development. These findings are dependent on the interests of particular "group politics" who can influence financial institutions' outcomes to support their own activities.

The existence of a well-functioning capital market, and in particular stock market, is essential for mobilization of production resources from both internal and external sources. These stock markets need to operate with some degree of efficiency and the main conditions highlighted in literature are: macroeconomic stability, an appropriate capital market infrastructure; and adequate regulatory, legal and supervisory framework in order to protect investors, promote public confidence and guarantee market discipline. Thus the literature on stock markets development points to macroeconomic and institutional environment being the most important factors that influence their performance.

The study by Cherif and Gazdar (2010) on Middle East and North African (MENA) region provides evidence that income level, saving rate, stock market liquidity and interest rate indeed influence stock market development. Measures of institutional environment as captured by composite index of political risk were found to be insignificant determinants of stock market development in this region. The key insights though can be gained by looking into individual components[14] of political risk in relation to their potential impact on stock market development.

There is however, little empirical research in this area for African emerging and frontier stock markets. This research will fill that void by exploring the institutional and macroeconomic determinants of stock market development. We follow the study by Andrianaivo and Yartey (2010) and El-Wassal (2005) by incorporating various components of political risk to proxy for institutional quality measures rather than using a composite measure of political risk. We vary from the study by Andrianaivo and Yartey (2010) by considering stock market development as measured by both the market size and liquidity (depth) in our analysis to provide robustness test for the existence of a relationship between financial development and its determinants.

[14] Individual components of political risk of primary interest to this research are level of control of corruption, rule of law, bureaucratic quality, regulatory quality and government accountability.

This study complements the existing literature on determinants of stock market development by constructing an aggregate measure of stock market development following the algorithm of Demirguc-Kunt and Levine (1996). The composite measure of stock market development is useful since the measure of market size and liquidity, when considered separately, does not reflect the entire complexion of the development of stock markets. The examination of key determination of stock market development in Africa is carried out in Chapter 4.

2.1.3 A review of Stock Market Development and Capital Flows

Theoretically, remittances can contribute to the growth of the economy in a number of ways. Firstly, an inflow of remittances may directly contribute to capital accumulation through easing the availability of funds for capital acquisition. If the availability of remittances may increase the credit rating scores of the recipient country and in turn lowers the cost of capital. Furthermore, remittances may improve the stability of the macro economy. This will lead to low uncertainty, more investment and improvement in the financial sector base. Secondly, remittance can increase total factor productivity growth as a result of an increase in efficiency in the receiving country. This can be achieved through ease in adoption of new technology or through economies of scale.

On the other hand, flow of funds, in the form of remittances, from the developed world into the developing countries has increased dramatically by about 8700 percent from 1975 to 2007 (World Bank, 2009). In recent years remittances have become second to foreign direct investment as sources of external finance for developing countries (Aggarwal et al, 2011). Just like the abundant research on the finance-growth nexus, there is huge literature on the remittance-growth nexus. However, very little attention has been given to the role of remittances on financial development.

Remittances are considered to boost financial development in a number of ways, but primarily through an increase in financial products and loanable funds. An increase in the flow of remittances to developing countries leads to a rise in the demand for money transfer services. Since the receiving country's citizens in a well-functioning economy do not instantaneously withdraw the money from transfer agencies, this provides a short run boost in

savings (Aggarwal et al, 2011). Moreover, as identified by Demirguc-Kunt et al. (2011), sending remittances is associated with a fixed cost and this comes primarily in the form of the sending and received fees. Given these costs, economic agents who send money home tend to send the money in batches so as to spread the fixed costs over a lump sum of money. As a result, the receiving households find themselves holding more liquid than they need. To safely store the funds for future consumption, these households seek the services of the financial institutions. This results in an accumulation of savings by the financial institutions.

Firstly, there is a direct effect of these savings on stock market as noted by Billmeier and Massa (2007). Some of these households do not only save these funds through the banking sector but make use of the stock market. Even though the number of counters per household might be small, the summation of the total households' acquisitions brings about more liquidity on the stock market and hence stock market development. Secondly, there is an indirect effect that goes through the banking sector. As argued by Demirguc-Kunt et al. (2011), remittances direct people into the financial sector as those households who did not previously have access to or utilize the services of the financial sector end up demanding financial products as they hold funds received through remittances. This increases the depth and the breadth of the banking sector. All the excess savings collected from different branches of these banks are channeled to the bank's headquarters for investment and some of these funds find their way onto the stock market.

However, an increase in the flow of remittances to developing countries might not directly result in increases in banking deposits or investments on stock market if either, (a) remittances are immediately consumed or (b) deposits are channeled towards government spending (Aggarwal et al, 2011). Aggarwal et al (2011), further stress that if the remittance receiving households lack confidence in the financial sector they may end up channeling these excess funds into other forms of savings other than the financial sector and hence no significant contribution to the financial sector development. Aggarwal et al (2011) found that remittances are positively related to the measures of financial development, but the magnitude of the relationship in bank deposit share of GDP is larger than the coefficient for bank credit as a share of GDP. The key observation made in literature is that the effect of remittances on financial development depends on how the recipient households use them. The study by Gupta et al (2009) provides evidence of positive effect of remittances on

financial deepening of sub-Saharan Africa. These studies however, did not look into the potential impact of remittance flows on stock market development, which is part of our focus in this study.

2.1.4 A Review of Stock Market Development and Privatization

Literature on privatization experiences of world stock markets suggests that sustained privatization programs can help in reducing public debt, improving incentives for broader share ownership, and increasing efficiency and transparency in the divesture of state owned enterprises through stock market public offerings.

The study by Perotti and van Oijen (2001) establishes evidence of the indirect effect of privatization on stock market development through the resolution of political risk in the case of emerging countries. They also show that political risk has a positive relationship with stock market development. Bortolotti et al (2007) support these results by providing evidence of privatization improving domestic market liquidity for both US and non-US OECD stock markets. In addition, they provide some evidence that privatization has spill-over effects on liquidity levels of listed non-privatized companies.

Turkey was among the first developing countries to start privatizing state assets in the mid-1980s and its program was not successful. In contrast, Mexico's stock exchange was more capitalized, more liquid and developed prior to privatization program. Privatization in Mexico saw a limited initial impact on stock market development since it had been carried out through strategic investor sales method. Privatization has had dramatic second-order effects on the Mexican stock market; the privatized companies had a large portion of market capitalization and were the most actively traded in 1996.

The privatization experience in other emerging economies has mixed success. Poland's equity market responded positively to supply of privatized shares in 1990s. The privatization through Warsaw Stock Exchange resulted in increased stock market stability and liquidity; and due to its strict regulatory environment, it attracted significant foreign capital (Lieberman and Kirkness, 1998). Similarly, the Czech Stock Exchange maintained its restrictive listing and membership standards during its privatization program. The prudent regulations helped

to attract foreign capital that was significant to the development of the exchange in the 1990s. By contrast, Russia in early 1990s was characterized by underdeveloped stock exchange infrastructure, weak regulation, enforcement and protection of shareholder's rights. The Russian privatization program of the 1990s was well-organized but weakness of the Russian stock exchange resulted in minimal gains of this process being realised (Fine and Karlova, 1998).

Naceur et al (2010) found that privatization of state assets through use of public offerings can contribute to stock market development, but the effects were shown to vary according to geographical regions[15]. The variation of privatization effects were due to the specificities of the divestiture process and varying levels of stock market development prior to the process.

Overall, the empirical and theoretical literature suggests two possible channels on the potential impact of privatization on domestic stock market development. A direct effect comes from the choice of privatization method. If the privatization program is done through Share Issue Privatizations (SIPs)[16], this will result in more firms listing on the stock markets, thus potentially increasing stock market size and liquidity. An indirect effect stems from the privatization program's sustained efforts observed over time. The sustained privatization efforts will signal to investors government's commitment to bear residual risk. The sustained privatization efforts have a positive signal, and help in reducing uncertainty regarding future government actions, and possibility of policy reversal, this in turn encourages investors to increase their demand for privatization offerings as well as increase investors' participation in the markets.

2.1.5 Evidence on Linkages between Stock Markets and Economic Development

There is considerable literature on the linkage between finance and growth. Jefferis (1995) finds that the Botswana Stock Exchange (BSE) has had a major impact in mobilizing savings

[15] Chapter 3 provides an account on privatization sales in Africa for sample countries especially, in the last decade.

[16] Share Issue Privatizations (SIPs) is and "strategic investor sales method" is

from domestic institutional investors but has managed to attract little flows of foreign investment, and concluded that the activities of BSE might not have a significance impact on the performance of the economy. Singh (1992, 1997) found contradictory evidence: that stock market has little potential to foster long-term economic growth in most developing countries since they are associated with higher volatility. Hearn and Piesse (2010) also found that small stock exchanges' impact on economic development is minimal due to poverty and inequality constraints faced by domestic investors in Africa.

King and Levine (1992) provided a genesis of the research on the linkages that might exist between financial development and economic growth. They used four financial indicators in their research namely: ratio of M1 to GDP (financial depth), ratio of liquid assets of the banking system to GDP, ratio of quasi-liabilities of the financial system to GDP and ratio of claims on the private sector by central bank and deposit money bank to GDP. The main findings of the study were that investment share of GDP and efficiency of investment (resource use) are major channels that matter for growth (see also King and Levine, 1993). Similarly, Minier (2003) found that the relationship between stock market and economic development may be different in countries with smaller stock markets. The research used the split regression method to divide low and high capitalization countries into two distinct groups. The relationship between stock market and economic development was found to be positive for high capitalization countries and negative for low capitalization countries.

Levine and Zervos (1996) found that stock market is positively correlated with long-run growth for a selected pooled cross-country analysis. They suggested that more research was necessary to identify policies that will aid sound securities market development and also explore the channels through which stock market improves growth outcomes. Harris (1997) provides evidence of a weak relationship between the level of stock market activity and growth in per capita output. The research shows that the relationship is weaker for developing countries than for developed countries.

The study by Rajan and Zingales (1998) discovered some interesting fresh ideas based on industrial level impact of financial development. Their evidence developed a new methodology that shows that financial development can foster growth in industries that are

financial dependent[17] and can also lead to emergence of new firms. Further evidence on the mechanisms by which financial development[18] can result in economic development was provided by Ang (2008b). In his study of Malaysia, he found that financial liberalization has a negative impact on financial development and hence it can retard economic growth. The main contribution of his study to the literature is the provision of the qualitative and quantitative channels that link financial development and economic growth. Savings and investment behavior were found to be the main channels that promote financial development impacts on economic growth. His study however did not investigate the role of stock market in promoting economic development.

Ang (2008a) provides an overview of the theoretical and empirical evidence on the relationship between financial development and economic growth. The main contribution of his work to the main body of literature on finance and growth is the recognition of the multiplicity of roles of financial institutions such as that of: reducing risks, exercising corporate control, facilitating business transactions through credit facilities and guaranteeing payments. Financial markets however, can also play a major role in privatization of state owned enterprises and also in facilitating successful mergers and acquisition transactions on top of the other traditional roles of mobilizing savings for productive projects.

Durham (2002) provides evidence that the impact of stock market development on economic development differs across countries depending on countries' initial income level, credit risk, and development of legal environment. His findings suggest that the stock market has a deleterious effect on economic development until a country attains a threshold income and legal infrastructure development[19]. This finding justifies the necessity to embark on a research for African countries whose levels of development in income and legal infrastructure are comparable to a certain degree.

[17] Financial dependent industries are capital- and high-technological-intensive industries.

[18] Financial development was limited to banking sector development in Ang (2008)'s study.

[19] There is a necessity for more research on the contribution of stock markets at early stages of economic development (Patrick, 1966).

The evidence highlighted above seems to support a key argument that there is a positive relationship between stock market development and economic growth. What is not so clear-cut is the mechanism that links the two? The current study seeks to fill this gap by exploring the policies that can make existing African frontier markets work better and also explore the channels that link stock market development and economic development. These specific objectives are formalized in Chapter 4 and 5.

2.1.6 Barriers to Development of Bond Markets: A Review

Bond market instrument is an important complementary source of finance since it would ensure that there is greater dispersion of risk in the economy. Developed bond markets should also reduce maturity mismatches in the corporate sector occurring as a result of firms undertaking short-term loans from the banking sector in order to finance long-term projects.

Debt is a contract in which borrowers accept some money and agree to pay it back. If the borrower fails to pay back the creditor rights have to be upheld. According to Hart (1995), the other reason besides the presence of creditor rights that will induce borrowers to pay is the possible reputational concerns which usually define the ability of personal and municipal re-borrowing. Viewed from a perspective, the benefits of settling with creditors are avoidance of liquidation, job retention on the part of managers, resumption of dividends and unrestricted borrowing. Shleifer (2003) offers the same view that these powers of the creditors are the main reason that borrowers pay back and debts market exist and prosper.

The issue of creditor rights depend on whether the management can sit on the assets or can be replaced when creditors file for liquidation. If the corporates can unilaterally default without consent of creditors then the interest rate spread and default rate on debt is likely to be high. In terms of the sovereign debt the creditors have no rights to the money they lend out. In this case the management (government) cannot be replaced and countries in most cases default unilaterally without the consent of creditors (Shleifer, 2003). There is however the reputation effect.

La Porta et al (1997, 1998) examine the relationship between creditor rights and size of the debt markets in 49 countries. Their work shows that countries with poorer investor

protection, as measured by legal rules protecting investors and the quality of their enforcement, have narrower capital markets. On the other hand, the studies found that good law enforcement has a large effect on the valuation and breadth of debt market. These findings apply for both equity and debt markets.

Herring and Chatusripitak (2000) identified pricing a bond as a main challenge facing bond market development. The challenge in pricing a bond is setting an interest rate that compensates for the opportunity cost of funds, liquidity risk, purchasing power and other risk associated with features of the bond.

The close inter-linkages between banks, business, and government might have contributed to underdevelopment of the demand side for corporate bonds in Indonesia, Malaysia and Thailand, (Sharma, 2001). These connections between banks, companies and government created strong incentives for companies to rely heavily on banks for their external finance in the 3 countries, and this also limited the potential growth of bond finance that could have been expected from the process of financial liberalization. Since the corporations borrowed increasingly from local and international banks, their debt to equity ratios began to increase. Given this, the preference of companies was not to carry additional debt (such as bond finance) but for instruments such as equity finance that reduced their net debt exposure (Sharma, 2001).

Inadequate and low quality of market makers has been cited as another weakness that led to small bond markets in these three countries. The other problem in Southeast Asian countries is the inadequate development of rating agencies and unfavourable primary market regulation. In turn, the poor quality of corporate transparency and lack of issuance and investment have hindered operations and profitability of rating agencies. These shortcomings taken together have discouraged the issuance and purchase of bonds in the primary markets of Indonesia, Malaysia and Thailand (Sharma, 2001).

Shleifer (2003) provides a benchmark for measuring bond markets performance, i.e, if the debt instruments functions well then it will have low spreads and few defaults and in most cases creditors' rights are sufficient. The study by Jaramillo and Weber (2012) provides evidence that domestic bond yields are determined by risk stemming from macroeconomic

shocks such as inflation and real GDP growth. Domestic yields are closely linked to macroeconomic fundamentals, in most cases their fiscal position in times of economic stability. Countries with higher overall fiscal balance tend to have lower domestic bond yields, while countries with higher debt tend to have higher domestic bond yields. However, during times characterized by high global risk dispersion, creditors are more concerned with default risk and the fiscal performance indicators such as government deficit and debt play an important role in determining domestic bond yields (Jaramillo and Weber, 2012). Jeanneau and Verdia (2005) share the views that macroeconomic factors and policy decisions can lead to poor performance of government bond instruments. They found that poor inflation record and the weak credibility of monetary authorities made it impossible for the Mexican government to issue standard long-term debt securities in the domestic market.

The study by both Sharma (2001) and Jaramillo and Weber (2012) provide some evidence on the importance of external environment for domestic bond yields. In literature, U.S. long-term bond yield is used to account for global liquidity conditions. The study on different features of African government debt instruments by Christensen (2005) found that foreign indebtedness is more of a burden than domestic debt (see also Blommestein and Horman, 2007). The commercial banks in most countries in Africa hold most of domestic debt and that has a negative effect on private sector credit (Christensen, 2005). The institutional investors (nonbank sector) play a limited role in most African countries' domestic debt market. The other feature of many African debt markets is low presence of non-residence investors (Blommestein and Horman, 2007).

Literature shows that barriers to debt markets are from both supply and demand sides. The major risks associated with debt market are interest rate risk, currency risk, legal or regulatory risk, sovereign or country risk. These factors depend on the quality of investors and the legal infrastructure that govern the trading of these debt instruments. The results from the literature reviewed add up to a consistent case that the quality of the legal environment measured by creditor rights, strong accounting and disclosure standards, clearing and settlement arrangements, reliable bond ratings and legal origin has a significant effect on the ability of firms in different countries to raise external finance through the debt market.

2.1.7 Development and Role of the Banking Industry and the Bond Market

Patrick (1966) provides two ways in which financial services can affect growth processes. These are through (i) its influence on efficient allocation of resources as it changes ownership and composition of capital assigned to accumulate capital stock. The financial institutions can encourage a more efficient allocation of new-investment to accumulate additional capital as resources are allocated to more productive uses (ii) it induces an increase in the rate of capital accumulation by providing incentives to invest, save and work.

McKinnon (1973) asserts that if the real interest rate is allowed to freely flow according to market mechanisms this will propel more financial development. The cost of capital therefore is regarded as a key/leading indicator to reflect on decisions of investors to deposit their funds into the banks or hold a stock of corporate or government bonds. McKinnon (1973) advanced a case of complementarity between money markets and capital markets in developing countries due to presence of fragmented interest rate structure. Lynch (1996) also supports the idea of unifying the fragmented financial systems in underdeveloped economies. Liberalisation of financial products prices can lead to valuable liquidity and risk management features in the financial system as well as enhancing its contribution to economic development.

Shaw (1973) argues that higher interest rates are essential for attracting more savings. The more supply of credit due to well-developed financial intermediaries may promote investment and raise output growth through borrowing and lending. The development of financial products through creation of banks and bond markets can therefore lead to emergence of new capital that can be used for technological progress and accumulation of capital stock and hence, foster long-term growth. We therefore expect a positive relationship between real interest rate and financial savings in this study. Demetriades and Luintel (1996) in their study for India found that the banking sector controls[20] had a negative influence on financial development. However, they also found that the imposition of the lending rate ceiling had a small positive effect on financial deepening in India. Financial deepening and

[20] Banking sector controls include directed credit, fixed and floor lending rate, reserve ratio and liquidity ratio controls.

economic growth were found to be jointly determined and therefore, measures of banking sector controls affect both economic and financial development jointly.

King and Levine (1993a, b) show that bank development helps to explain economic growth in a sample of more than 80 countries. They are however criticized by many authors for using traditional measures of banking sector development that are quantity based instead of quality-based that have greater influence on economic activities. Levine (1998, 1999); Beck et al. (2000) and Levine et al. (2000) confirm this finding but improve upon King and Levine (1993a, b) by using credit to the private sector (quality of financial services) as a proxy for banking sector development and therefore excluding credit to the public sector and hence using a measure that has strong links to productivity of capital. Beck and Levine (2004) find that stock markets and banks are important for economic growth. These findings are consistent with models that predict that well-functioning financial systems ease information and transaction costs and thereby enhance resource allocation and economic growth.

The study by Ang and McKibbin (2007) on contribution of Malaysian financial system to economic activities found that financial depth is correlated with economic development though the relationship is from economic development to financial depth not the other way around. What matters for growth in financial institutional services is growth rate in real income, relevance of finance to key industries, variances/disparities in growth on different industry that belongs to different sectors and government attitude towards economic goals and its size of the debt.

The important characteristic of economic development noted in the literature is the increase in the number of financial institutions that can give rise to diverse financial assets and creation of more tangible wealth. Ang (2008a) supports this view that creation of more financial institutions and provision of greater variety of financial products and services generates a positive effect on saving-investment process, and hence economic growth. Claessens and Laeven (2005) find that banking competition is positively associated with industrial growth, suggesting that more competitive banking systems are better at providing financing to financially dependent firms.

Andrianaivo and Yartey (2010) in their analysis of banking sector development in Africa show that political risks, creditor rights protection and trade openness positively influence banking sector development. Further evidence has shown that inflation volatility and reserve requirements negatively associate with banking sector development in Africa. In addition, private capital flows were found to be positively associated with banking sector development.

The study by Allen et al. (2012) found that the most relevant determinant of banking sector development[21] in Sub-Saharan Africa countries is population density. A larger population was found to spur financial development due to scale and network effects, i.e., it is easier for financial institutions to accumulate savings when the higher number of potential depositors has access to them. They also found that institutional development[22] measures explain less variation in financial development in Africa.

Eichengreen et al. (2006) provide evidence on the factors that matter for bond market development in terms of its maturity structure, market capitalization and liquidity. They showed that East Asian bond markets are better in terms of market capitalization and maturity structure due to high saving rates in Asia, stable macroeconomic policies (especially price stability) and relatively stronger investors protection as compared to Latin American countries. Higher levels of savings mean more funds potentially available for investment in debt securities. The Latin American countries have bond markets with more liquidity compared to East Asian countries due to presence of foreign investors' participation.

In terms of maturity structure of bonds, firms with better capitalization issue bonds with longer maturity as well as those firms located in countries with higher ratings. Eichengreen et al. (2006) also provide evidence that GDP per capita is positively associated with corporate debt maturity. The development of the banking sector matters for bond market development since banks provide underwriting services to the prospective issuers. The establishment and activities of institutional investors activities such as pension funds, mutual funds, insurance companies and banks favours bond markets development. These entities have natural appetite for bonds and can easily channel savings towards the bond market.

[21] Banking sector development is measured by ratio of liabilities to GDP and the ratio of banking sector credit to private sector as a share of GDP.

[22] They used the measure that was created by Kaufmann et al (2007) to proxy for institutional development.

Chapter 4 answers the following questions in context of selected African countries: What factors matter for stock market and banking sector development? Are factors that determine stock market development different from the ones that matter for banking sector development? Do the factors that affect both stock market and banking sector development influence them similarly?

2.1.8 Financial Structure and Economic Development: A review

La Porta et al. (1997) posed the questions that relate to relevance of financial structure in diverse world. Why do some countries have so much bigger capital markets than others? Why do Germany and France have such extensive banking systems even relative to other wealthy economies like US and United Kingdom?

There are four theories recognized in literature about financial aspects of economic development, i.e., financial structure is in-determinant feature of economic development (Luintel et al, 2008). The second theory states that either bank-based finance matters for economic development or market-based finance is superior in promoting economic development. Thirdly, provision of quality and quantity financial services matters for economic development (financial services view). This theory suggests that the distinction between bank-based or market-based finance is immaterial, what matters is the financial services themselves not the form of their delivery. Lastly, La Porta et al. (1997, 1998) and Levine, (1999), added law and finance view to the literature of financial aspects of economic development. They maintain that the role of legal system in creating growth-promoting financial sector, with legal rights and good enforcement standards facilitate the role of both equity markets and banks.

Mayer (1990) noted that a large proportion of corporate financing for 8 countries[23] he studied comes from retention finance, followed by bank loans while equity finance contribute a smaller portion of total corporate finance. The ability of banks to collect and process

[23] Canada, Finland, France, Germany, Italy, Japan, United Kingdom and United States of America comprise their sample.

information that markets are unable to do or can only do at a high cost, made them to play a prominent role in these 8 countries for the period of 1970 to 1985. Mayer (1990) concluded that banks may be superior to equity markets in promoting economic growth and development at the early stages of development. Rajan and Zingales (1998) stress that powerful banks can effectively force firms to repay their debts than the equity markets, especially in countries with weak institutions, whilst economies will benefit from market-based system as the legal system improves.

Gurley and Shaw (1995) pointed to scant evidence that exists on the financial aspect of economic development. They noted that many researchers have concentrated on the real aspects of economic development such as goods, savings, investment and consumption and neglected the debt issues that are used to accumulate income and wealth among balanced, surplus and deficit spending units of the economy. Their work emphasises the role played by financial intermediaries and liabilities of non-bank intermediaries as an alternative form of holding liquid balances by surplus units in the economy and this can influence the pace and character of economic development.

The researchers have attempted to investigate the merits of bank-based and market based financial systems. The empirical work tries to specify the conditions under which bank-based financial systems will do a better job of channelling capital to its most productive ends than market-based financial systems. Some theories stress that bank-based finances are suited for underdeveloped countries with poor legal and accounting systems. Banks can credibly induce firms to reveal information and pay debts than market-based finance that relies on efficient legal and accounting systems. Furthermore, banks can commit to providing staged finance as the project develops than markets which have difficult in making credible and long-term commitments.

Demirguc-Kunt and Levine(2001) advanced the role of market-based finance that encourages competition and research and development of innovative industries than bank-based finances that strives on extracting information rents from firms and thereby reducing incentives of firms to undertake profitable projects (see also Rajan, 1992).

Gallego and Loayza (2000) provide evidence that bank and capital market development has potential to improve firm access to capital and also improve overall financial development, thereby leading to increased capital accumulation and higher output growth. There is no evidence in their study that financial structure per se influenced firm performance in Chile. Luintel et al (2008) in their study of 14 low-and-middle income countries found that for the majority of their sample countries financial structure and financial development appear to be significant in explaining output levels for both time series and panel data estimates. Luintel et al (2008) test also found mixed results on the prospective role of financial development and financial structure when countries develop both economically and financially. Their results reinforce the existence of heterogeneous relationship of financial aspects and economic development across countries with different production structures. Levine (2002) shows no empirical support for bank-based or market based-view in his seminal paper for cross-country studies. This cross country evidence supports the financial services view that well-developed financial systems positively influence growth and it is unimportant whether this financial system development is bank-based or market-based.

The data compiled by Beck et al. (2009) on financial systems shows that richer countries have larger, more active and more efficient banks, non-banks, stock markets, and bond markets. In summary, the data shows that financial systems are more developed in richer countries than poor countries. The literature reviewed shows that financial development has a strong connection with economic activities, both economic growth and development but there is no overall empirical support for either the bank-or-market based view. The hypothesis of the relevance of bank-based or market-based (or both) financial systems in Africa is going to be tested in Chapter 5.

CHAPTER 3: EVOLUTION OF AFRICA'S CAPITAL MARKETS

There has been a significant decrease in credit to the private sector in many of Africa's economies, accompanied by an increase in the number of stock exchanges in the continent. The obvious research question flagged in this context is whether this phenomenon of development in the financial sector translates itself into good economic fortunes for these countries? Most related research so far has concentrated on the question of whether financial development promotes economic growth? Examples of such work are: Goldsmith (1969), King and Levine (1993), Levine and Zervos (1998), Beck et al(2000), and Ang (2008). But little research has been conducted on the determinants of financial development in Africa. The studies by Quartey and Gaddah (2007) and Kyereboah-Coleman and Agyire-Tettey (2008) provide some evidence on the impact of macroeconomic factors on asset-pricing characteristics of stock market (stock market returns) in Ghana.

The purpose of this chapter is to sketch an account of developments in Africa's financial markets[24] since 1995 and provide a comparative analysis of these developments with financial market developments in select emerging and developed countries. We especially focus the trends in development of financial intermediaries and stock markets in the sample countries. This chapter will also provide an overview of trends in portfolio investment flows and the privatization experience of the sample countries since 1990. Overall, we seek to provide an account of key features of Africa's financial markets with particular reference to banks and stock markets[25].

The last aspect of this chapter is an account of the nature of institutional and macroeconomic environment in which these mapped financial markets operate. Stock markets and banks are viewed as alternative sources of financing corporate activity, and of pooling and trading risks. However, these financial platforms will only perform such roles effectively if the

[24] For the purpose of this study, our sample of African countries is comprised of 15 countries: Botswana, Cote d'lvoire, Egypt, Kenya, Ghana, Malawi, Mauritius, Morocco, Namibia, Nigeria, South Africa, Swaziland, Tunisia, Zambia and Zimbabwe. Our focus on these 15 countries is due to the fact that these are only countries that have stock exchanges before 1995 and this gives sufficient length of time to allow for empirical examination and testing.

[25] These two are the most prominent sources of private financial resources in the region, but we will also provide evidence on status of non-banking institutions such as bond markets.

macroeconomic and institutional environments are conducive. This was suggested by Garcia and Liu (1999), El-Wassal (2005) and Andrianaivo and Yartey (2010), who in one form or another, found evidence in support of positive impact of quality of institutional and macroeconomic policies on stock market development in different parts of the world.

3.1 Financial Systems in Africa

The measure of financial system development often used in the literature, according to King and Levine (1993), are as follows in the next paragraphs. The ratio of liquid liabilities of financial intermediaries to GDP, for example, M3 money supply divided by GDP (Table 2). This measure is a proxy for the overall size of the formal financial system, often referred to as the depth of the financial sector. If the size of the financial system is positively related to its ability to meet financial services needs, then it can be viewed as a good measure of the function of financial sector in the economy.

The other measure of financial system development is the ratio of quasi-liquid liabilities to GDP; that is, M3 minus M1 divided by GDP. This measure is an improvement on M1 to GDP ratio which measures the highly liquid bank deposits and in most cases may not be closely associated with efficient financial intermediation of longer-term investments by financial intermediaries (Demirguc-Kunt and Levine, 1996). According to Demirguc-Kunt and Levine (1996), liabilities and quasi-liabilities that finance government deficit may not reflect efficient provision of financial intermediaries, such as information acquisition, corporate governance and risk diversification.

In light of the experiences of many African countries with recurrent domestic and foreign debt problems in the past, the financing of budget deficit by banks was a common practice in 1990s. Therefore, there is need to look at a measure of financial services provision to the private sector by financial systems, as to have a picture on how financial intermediaries help in extending developmental financial resources to productive uses. It is a standard indicator in the finance and growth literature: countries with higher levels of private credit to GDP have been shown to grow faster and experience faster rates of poverty reduction (King and Levine, 1993).

Table 2: Liquid liabilities (M3) as % of GDP.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Botswana	37	39	53	59	61	55	66	70	69	56
Cote d'lvoire	24	33	30	36	38	42	55	61	66	43
Egypt	72	70	63	67	76	83	94	100	100	81
Ghana	32	39	42	48	54	70	88	100	-------	59
Kenya	35	38	43	44	48	55	67	74	75	53
Malawi	19	22	21	23	24	22	28	42	48	28
Mauritius	78	83	108	123	121	118	130	156	146	118
Morocco	71	76	89	100	112	125	155	175	170	119
Namibia	34	28	42	51	55	62	63	60	63	51
Nigeria	25	27	26	27	32	42	66	102	86	48
South Africa	51	48	73	92	108	117	132	125	126	97
Swaziland	18	16	25	30	33	37	42	40	50	32
Tunisia	56	58	64	70	72	74	81	92	92	73
Zambia	22	22	24	30	32	53	56	70	53	40
Zimbabwe	58.4	173.0	76.1	34.2	50.4	111.6	------	-------	-------	84

Source: World Development Indicators.
----indicates the information is not available.

In Table 3, for our sample of countries, the average amount of domestic credit to private sector was below 75% of GDP for the period 2001-2009, with the exception of South Africa. Countries like Botswana, Cote d'lvoire, Ghana, Kenya, Malawi, Swaziland and Zambia, have credit to private sector of less than 20% of GDP. This generally low level of financial depth in these economies compares to above 90% averages for developed countries (see Table A3.5, in the Appendix). Comparing this trend in financial depth with other emerging countries outside Africa, Table A3.5 shows that it is only India and Indonesia that have credit to private sector less than 90% of GDP, similar to patterns in African countries. The poor credit provision to the private sector in Africa was also hinted by Allen et al (2011). The main reason for poor credit intermediation in Africa, especially from the banking system is that large banks invest in government securities, primarily treasury bills which have minimal risk.

The evidence from Table 3 and Table A3.1 seems to suggest that higher income countries such as Japan, Germany, France, South Africa, United States and United Kingdom have higher financial depth. This suggestive evidence portrayed by Table 2 has the support of Ang (2008) who found that financial development leads to higher output growth via its promotion of both private savings and private investment in Malaysia. Malaysia has a higher financial depth as indicated by its average of 113.7% for credit provided to private sector as a percentage of GDP (shown in Table A3.1, in the Appendix section).

Table 3: Domestic Credit to Private Sector (% GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Botswana	15.1	17.2	18.6	19.6	19.1	18.4	20.0	21.0	25.5	19.4
Cote d'lvoire	15.7	15.1	13.6	14.4	13.8	14.2	16.1	16.3	17.1	15.1
Egypt	54.9	54.7	53.9	54.0	51.2	49.3	45.5	42.8	36.2	49.2
Ghana	11.9	12.1	12.5	13.2	15.5	11.1	14.5	15.9	-------	13.3
Kenya	25.2	25.9	24.6	26.8	25.9	26.1	27.0	30.3	31.5	27.0
Malawi	8.4	5.8	5.5	6.0	7.9	8.8	10.9	11.9	14.2	8.8
Mauritius	57.8	58.6	73.2	73.1	75.3	74.2	77.7	87.8	85.1	73.6
Morocco	44.6	43.4	42.4	42.6	46.2	48.6	58.4	63.2	64.4	50.4
Namibia	41.3	41.9	44.7	46.7	51.8	50.8	49.9	44.9	46.8	46.5
Nigeria	15.2	13.0	13.8	13.1	13.2	13.2	25.3	33.9	37.6	19.8
South Africa	142.6	115.0	118.9	128.6	138.7	157.1	161.9	145.1	147.1	139.4
Swaziland	10.5	12.5	15.6	18.6	21.6	23.5	24.9	23.6	25.0	19.5
Tunisia	67.9	68.5	66.7	65.4	65.0	63.7	63.2	65.8	68.4	66.1
Zambia	7.5	6.3	6.7	8.1	7.7	9.8	12.0	15.2	12.0	9.5
Zimbabwe	34.6	104.5	57.7	18.5	16.3	46.5	-------	--------	-------	46.3

Source: World Development Indicators.
---- indicates the information is not available.

The overall size of formal financial system as measured by the ratio of M3 money supply divided by GDP portrays a better developed financial system in our sample countries, as shown by Table 2, than the picture in Table 3. This measure as an indicator of provision of

financial intermediary services can be misleading. The higher liquid and quasi-liquid liabilities that finance government deficits may not reflect the provision of efficient financial intermediaries (Demirguc-Kunt and Levine, 1996). An efficient intermediation is the one that caters largely to the private sector's production financing.

The liabilities and quasi-liabilities scaled by GDP captures the degree of monetization in the financial sector while the credit to private sector gives an account of the level of credit intermediation to productive sectors. But these measures of financial system sophistication do not capture broad access to specific financial services such as bank facilities by individuals and firms. More generally, credit to private sector scaled by GDP does not give the whole picture on the quality of credit allocation, quality of banking services and efficiency of providing banking services. These special features of banking sector development and efficiency will be highlighted in the next section for the sample countries.

3.2 Banking Sector Development and Efficiency

The banking system constitutes the largest part of the financial system in most countries, especially in emerging and frontier market economies. In this section we will review the structure of the banking sector in our sample countries in terms of their size and efficiency in credit allocation. To measure the level of development of the banking sector for countries that constitute our sample, we use domestic credit provided by banks as a percentage of GDP. Three countries within our sample have the highest values: South Africa, Egypt and Mauritius. At the other extreme, Botswana, Swaziland and Nigeria have the lowest ratio of bank credit to GDP during the period from 2001 to 2009, on average, as shown in Table 4.

Half of the countries in our sample have very small size banking sectors and it is only South Africa and the North African countries that boast of having relatively sizeable banks in Africa. As Table 4 shows, the level of domestic credit by the banking sector as a percentage of GDP has been declining over the years for many of the sample countries. This trend does not bode well for these African countries with low levels of alternative resources for financing their development projects. Allen et al (2011) however, suggest that banking systems in Nigeria, Botswana, Malawi and South Africa are well capitalized and dynamic mainly because the banks pursue innovative banking practices.

Table 4: Domestic credit provided by banking sector (% of GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Botswana	-64.0	-25.7	-6.3	0.3	-5.3	-13.4	-16.3	-11.2	-1.0	-15.9
Cote d'lvoire	21.6	21.1	18.9	18.6	18.2	18.0	20.7	20.1	22.8	20.0
Egypt	94.6	101.6	104.6	104.7	98.0	93.0	84.1	77.7	75.4	92.6
Ghana	35.1	34.6	26.9	31.4	30.8	21.1	22.9	27.9	--------	28.8
Kenya	37.5	40.3	39.8	40.2	38.4	38.0	37.3	40.5	44.8	39.7
Malawi	15.8	15.4	16.0	16.0	16.6	14.1	16.6	27.4	32.0	18.9
Mauritius	74.4	74.1	98.3	102.2	107.2	105.7	102.8	111.8	109.7	98.5
Morocco	70.5	71.2	68.8	68.4	73.4	78.8	91.4	98.9	100.5	80.2
Namibia	43.5	42.1	46.5	49.6	55.6	52.7	48.8	43.1	43.5	47.3
Nigeria	17.7	19.5	21.2	11.7	8.6	4.9	20.2	26.7	35.9	18.5
South Africa	184.3	159.8	163.1	169.6	178.5	192.9	195.2	172.2	183.5	177.7
Swaziland	11.4	15.6	17.2	19.1	17.6	14.8	6.7	1.9	9.1	12.6
Tunisia	73.9	74.4	71.8	71.1	70.8	70.8	70.3	72.0	75.2	72.3
Zambia	50.5	46.7	38.0	35.2	22.6	16.7	16.6	19.2	18.5	29.3
Zimbabwe	71.0	165.9	81.2	41.3	57.0	79.0	-------	---------	--------	82.6

Source: World Development Indicators. ---- indicates the information is not available.

Of all countries in our sample only South Africa has comparable banking sector depth with developed countries such as Japan, United States, Germany and exemplary emerging countries like Malaysia and South Korea, as shown in Table A3.5 in the Appendix. The data suggest that richer countries generally have more developed banks than poorer countries, though Malaysia has systematically developed banks than France.

Higher levels of interest rate spread indicate lower levels of banking sector efficiency, as banks incur higher production costs and there is higher wedge between lending and deposit

gathering. The trends in banking sector efficiency is shown in Table 5, and below it is the discussion on the variation of banking sector efficiency in the African context. The interest rate spread is different in African countries in our sample; much of this difference might be due to different interest rate regimes adopted by countries in the region. The interest rate spread is where the bank makes its money and covers the risk it takes on by lending money. The wider interest rate spread theoretically reflects the risk a bank is taking or the monopolistic nature (behaviour) of the banking sector in the region. As Table 4 indicates, Zimbabwe[26], Zambia, Malawi, Mauritius and Kenya are the countries with average interest rate spread of above 10% between years 2001 and 2009. Financial sector competiveness remains very limited in these countries. With more efficient banking practices, this spread should narrow.

The persistent existence of oligopolistic structure[27] in the banking sector of many African countries allows for very limited deposit and lending competition, reinforcing high lending and deposit spreads. The interest rate margins have been declining in some countries, including Kenya, Namibia and Nigeria. Senbet and Otchere (2006) suggested that countries that continue to build institutional capacity with multiple financial institutions and increase in the availability of nonbank finance can foster competition in the financial systems and experience declining spreads as well as better financial intermediation.

[26] Zimbabwe exhibit an abnormal interest spread due to the persistent presence of hyperinflation during this period and this interest rate has to do with abnormal inflationary risk. Allen et al (2010) suggest that a high bank spreads are symptomatic of the instability in the macroeconomic environment and a weak financial system.

[27] See Table A3.7a and A3.7b, for details on banking sector concentration in Africa.

Table 5: Interest rate spread (lending rate minus deposit rate, %).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Botswana	5.7	5.8	6.5	5.9	6.5	7.6	7.6	7.9	6.3	6.6
Egypt	3.8	4.5	5.3	5.7	5.9	6.6	6.4	5.7	5.5	5.5
Kenya	13.0	13.0	12.4	10.1	7.8	8.5	8.2	8.7	8.8	10.1
Malawi	21.2	22.5	23.8	23.1	22.2	21.3	21.7	21.8	21.8	22.1
Mauritius	11.3	11.1	11.5	12.9	13.8	11.5	10.1	11.4	10.8	11.6
Morocco	8.2	8.6	8.8	7.9	8.0	-------	------	------	------	8.3
Namibia	8.2	8.1	6.5	5.5	7.4	7.2	6.7	3.5	5.1	6.5
Nigeria	8.2	8.1	6.5	5.5	7.4	7.2	6.7	3.5	5.1	6.5
South Africa	4.4	5.0	5.2	4.7	4.6	4.0	4.0	3.5	3.2	4.3
Swaziland	7.1	7.2	7.0	6.7	6.6	6.2	6.1	6.7	6.0	6.6
Zambia	22.8	21.9	18.6	19.2	17.0	12.8	9.7	12.5	15.0	16.6
Zimbabwe	24.1	18.1	61.4	175.7	144.6	293.1	457.5	------	------	167.8

Source: World Development Indicators and author' calculations.
---- indicates the information is not available.

The indicator of banking structure we use in this research is the concentration ratio**,** which is computed as the ratio of the three largest banks' assets to total banking sector assets. There seems to be no clear correlation between concentration and income levels of countries. Almost all countries in our sample have high concentration ratios with the exception of Nigeria and Tunisia. Also there has been little variation in concentration ratios over time, see Table 3.7a in the Appendix.

3.3 Bond Markets in Africa

This section provides information on the relevance of bond markets as a source of corporate funding as compared to bank loans in Africa. The key question to answer is: Are banks in Africa managing to maintain their funding dominance over marketable bond and equity funding in recent times. In general banks dominate the financial markets in developing countries (Ul Haque, 2002).

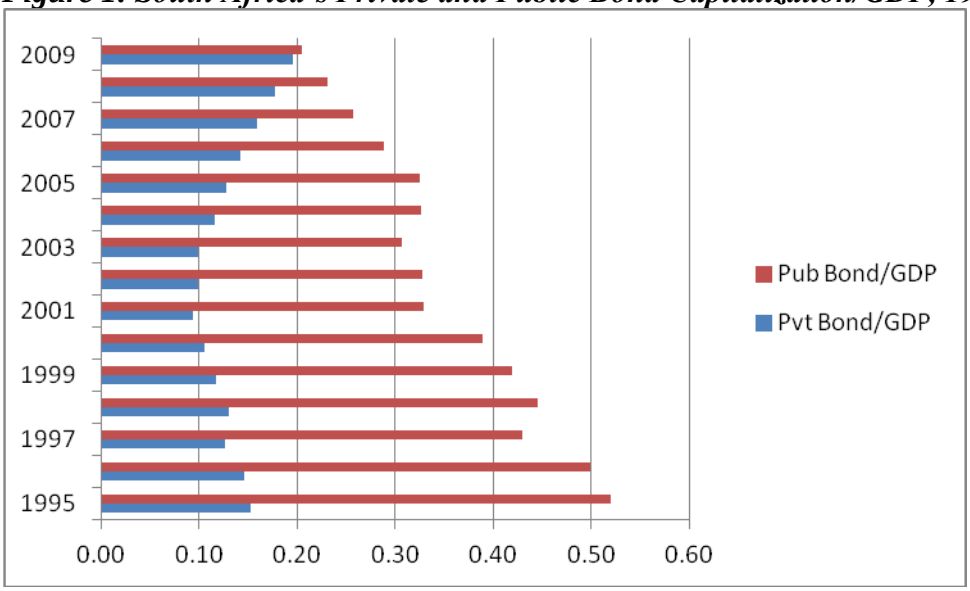
Theoretically, permanently low inflation environment will, over time, lead to a larger appetite for fixed-income and relatively high interest rate saving instruments such as bond investments. Low inflation is therefore important in building deeper local bond markets. Domestic bond markets in particular can play a key role in reducing a country's external vulnerability as well as serve as an additional source of mobilisation of capital (Ojah and Pillay, 2009). There are conflicting views on the determinants of bond market development. Most argue that fundamentals are stable policies, improved regulation, enhanced transparency, and stronger investors' protection (Adelegan and Radzewicz-Bak, 2009).

Christensen (2005) suggests that long term saving instruments are important for preventing excessive exposure to short-term debt portfolios by government, which could cause a significant burden on, and risk to the budget. His observation, however, is that the length of maturity is related to per capita GDP rather than size of domestic debt capitalization to GDP.

In terms of the composition of budget deficit finance, most of Sub-Saharan African (SSA) countries rely less on the domestic bond market than on the banking sector. The domestic non-bank debt markets in these countries are generally small, highly short term, and often have narrow investor base (Christensen, 2005). South Africa is one of the few countries in emerging economies with well-developed bond market due mainly to the establishment and expansion of the corporate public debt market in the late 1980's. Debt instruments with short maturity structure may result in government facing a considerable refinancing risk. Short term instruments have higher frequency of debt rollover; the government in this case is highly vulnerable to a sudden increase in interest rates, which can raise debt service significantly. This can lead to deterioration in the market's confidence in government bonds, prompting even higher than normal interest rates on government debt.

In most cases, foreign debt is cheaper than domestic debt but domestic debt is easier to roll over than foreign debt since there is no foreign exchange requirement. An indicator of the importance of private bond markets, i.e., private bond market capitalization to GDP, is the ratio of the total amount of outstanding domestic debt securities issued by private and/or public domestic entities to GDP.

Figure 1: South Africa's Private and Public Bond Capitalization/GDP, 1995-2009.



Source: Financial Structure Dataset, Beck et al (2000).

As indicators of the size of the domestic bond market, we use the ratio of private and public bond market capitalization, respectively, to GDP. These two indicators thus measure the size of the market for public and private bonds relative to the real economy. The evidence by Beck and Demirguc-Kunt (2009) shows that while private bond market capitalization is positively correlated with income levels of countries, there is no such clear correlation for public bond markets.

In Figure 1, it can be seen that up to year 2007, the South African bond market was dominated by public bond issues and only in year 2004, we saw growth in private bond capitalization being sustained to recent times. The bond markets in the other African countries of our study are still very small and in some countries they are yet to commence as an organised market. Christensen (2005) observes that debt markets in Africa are generally small, highly short term, and often have a narrow investor base.

Table 6: Domestic Debt/GDP of selected Sub-Saharan Countries (%).

Country	1980-89	1990-94	1995-2000
Botswana	0	0	0
Ghana	3	2	6
Kenya	21	23	22
Malawi	13	8	9
Mauritius	27	29	33
Namibia	0	8	19
Nigeria	28	29	16
South Africa	30	37	45
Swaziland	4	37	1
Zambia	25	9	6
Zimbabwe	35	29	37

Source: Adapted from Kahn (2005).

Countries that have relied on domestic debt as shown by Table 6 have included Kenya, Mauritius, Nigeria, South Africa, Zambia and Zimbabwe. Botswana has no appreciable debt market mainly due to the fact that the government has been accumulating a fiscal surplus during most years of the study period and consequently had no need for external finance. It is worth noting that in most of bond issues in these African countries are government issued bonds and corporate bonds are very tiny.

3.4 An Overview of African Stock Markets

This section seeks to answer the following question: do countries with well-developed banks and non-bank financial intermediaries have well-developed stock markets? To address this question we look at four types of measure of stock market development and the correlation between them. Following the algorithm by Demirgüç-Kunt and Levine (1996), we construct the aggregate measure of stock market development by combining measures of stock market size and liquidity. The validity of constructing a composite measure of stock market development will be discussed in detail in Chapter 4.

Stock markets are essential for information disclosure, price discovery, providing liquidity and pooling savings, risk sharing, and facilitating global integration with other financial markets; and can be used as an instrument for improving corporate governance. Levine (1991) provides some insights into the role of stock markets in endogenous growth models. In the endogenous growth model, the role of stock markets emerges as one of allocating risks, altering investment incentives by facilitating the ability to trade ownership of firms without disrupting productive process occurring within the firms, and allowing agents to diversify portfolios.

There is some evidence on the failure of African stock markets to perform some of these roles adequately. For example, see Arowolo (1971), Jefferis (1995), Marone (2003) and Hearn and Piesse (2010). These empirical studies on Africa, in other words, show that the stock exchange must have certain qualities that will allow the host country to absorb benefits linked to stock markets. The detailed discussion on the role of a well developed stock market is provided in Chapter 4.

Equity markets in Africa have diverse and contrasting natures. The markets vary in terms of their depth, number of market participants and level of trading activities. They do vary also in terms of the trading systems, financial instruments being traded and their restrictions on foreign investor's participation. These differential institutional development characteristics of Africa's markets are explained on a case by case basis for all sample countries in the following paragraphs.

Botswana Stock Exchange (BSE) was established in 1989 when it was known as the Botswana Share Market, and then there were 5 listed entities. The government of Botswana has listed bonds with maturities of 2, 5 and 12-years on the BSE since 2003; these issues were open to domestic and foreign investors. In year 2007, the domestic listed companies were 19; dual listed equities were 12; corporate and parastatal bonds were 23; government bonds were 2. Mutual funds operate on the Botswana Stock Exchange. Foreign investors may own a combined maximum 55% of the share capital issued by a company listed on the exchange. The limit on share ownership by individual foreign investors is 10%. Trading occurs by the open out-cry system.

Bourse de Tunis was established in 1969. The Tunisian Stock Exchange trades equities or debt securities issued by private companies, the state and local municipalities. In October 1996 the stock market migrated from traditional manual system of trade to the automated system of trade. The Tunis Stock Exchange, BVMT, is a private company owned by its member brokers. In Tunisia the reform of the stock market was an important building block of financial sector reform in the 1990s (Jbili et al, 1997). Stock market legislation was updated, the bourse was privatized and the management was transferred to the associations of brokerage houses. Independent supervisory commission was created, the legal basis for brokerage firms and mutual funds was established, and accounting and transparency rules were strengthened. As a result of these reforms the average number of listed companies rose to 47 for the period of 2002 to 2009 (as shown by Table 7) as compared to 37 for the period 1995 to 2001(as shown by Table A3.8).

The Abidjan Stock Exchange was established in 1974 in Ivory Coast, and it was the only stock exchange in Francophone West African states until the formation of the regional exchange in 1998. The exchange started trading in 1976 and was closed at the end of December 1997 to facilitate the opening of the expanded regional exchange, the **Bourse Règionale des Valeurs Mobilières** (BRVM), which started operations in 1998, serving the following West African countries: Benin, Burkina Faso, Guinea Bissau, Cote d´lvoire, Mali, Niger, Senegal and Togo. The BRVM is entirely electronic based in trading, clearance and settlement of securities transactions. It trades bonds and equity securities, with no restrictions on foreign participation.

The **Cassabalanca Stock Exchange** was established in 1929. Since then it has undergone a number of structural and institutional reforms, which have lent legal support to the exchange. The exchange has also been strengthened with the launching of an electronic-based trading system and a central securities depository system in 1997. The exchange is now organized as two markets: the Central Market and Block Trade Market. There are no restrictions on foreign investment on the Casablanca Stock Exchange, nor on the foreign ownership of companies. Next section contains a detailed account on the reforms that took place at Casablanca Stock Exchange (see also the paper by Ghysels et al., 2003).

The **Ghana Stock Exchange (GSE)** was established in 1989 with trading commencing in 1990. The exchange trades securities and government and corporate bonds. A single foreign investor is allowed to hold up to 10% of any equity listed on the exchange. Foreign investors may hold up to a cumulative 74% of any equity that trade on the market. There is 8% withholding tax on dividend income for all investors. Capital gains on securities listed on the exchange will remain exempt from tax until 2015. The exemption on capital gains applies to all investors on the exchange.

The **JSE Securities** was established in 1887, and is the largest and oldest equity market in Africa. The JSE has evolved from traditional floor based equities trading market to a modern securities exchange providing fully automated trading, clearing and settlement system. The electronic clearing and settlement system used is Share Transactions Totally Electronic (STRATE)[28]. The JSE Securities consists of equity shares, corporate and governance debt securities, derivatives market for trading futures and options; currency derivative markets for trading currency futures and options; interest rate market; and the SAFEX commodity derivatives market dealing with agricultural products, precious metals and crude oil (JSE, 2010). Trading is open to foreign investors since there is no special restriction for foreign investors on listed securities traded.

Lusaka Stock Exchange (LuSE) was established in 1994 and trading is open to foreign investors, since there is no special restriction for foreign investors on listed securities traded. Its formation was directly linked to the economic reforms and liberalization of the Zambian economy that began in 1991, a key feature of which was the privatization of state-owned enterprises. The formation of the stock exchange was viewed as pivotal to the success of the privatization program which was also intended to facilitate foreign investment. The formation of the exchange was part of the government's economic reform program aimed at developing the financial and capital markets in order to support and enhance private sector initiative. The electronic system of trade is used. The LuSE is incorporated as a private limited liability

[28] STRATE is an electronic settlement system with rolling, contractual and guaranteed settlement for equities taking a maximum of five days after trade (T+5). The system is also used by the Botswana Stock Exchange (BSE) and the Namibia Stock Exchange (NSX).

company owned by the broker members. LuSE operates a unified market dealing with both equities and debt financial instruments.

Malawi Stock Exchange (MSE) was established in 1995. Equities and government securities are traded on the exchange. Foreign investment in securities traded on the exchange is subject to a 10% limit for any individual investor and a 49% aggregate limit during initial public offerings only and there is no restrictions for foreign purchase on the secondary market. The stock exchange uses manual trading system for trading, clearing and settlement of securities transactions. The capital market is in its infancy with 4 stockbrokers operating on the Malawi Stock Exchange. Stock Brokers Malawi Limited (SML) is the major registered broker in Malawi. Other brokerage firms are Continental Discount House, First Discount House and Trust Securities Limited. The MSE remains regulated by the Stock Exchange Commission.

Nairobi Stock Exchange (NSE) was established in 1954, equities and fixed income securities are traded. The automated trading system that was implemented in 2006 is used for trading, clearing and settling market transactions. Foreign investors are limited to holding a maximum aggregate of 75% of the shares of any one Kenyan company listed on NSE. In 1988 there was a first privatization through the NSE and this was a successful sale of 20% government stake in Kenya Commercial Bank. The sale left the Government of Kenya and affiliated institutions retaining 80% ownership of the bank. In 1996, the largest share issue in the history of NSE was the privatization of Kenya Airways through the market. The sale was aided by prior removal of barriers to foreign investment that enabled foreign investors to subscribe to the offer and this shored up the image of the firm. The exchange recently introduced a central depository system and automated all its operations-a move that is expected to speed up clearing and settlement.

Namibia Stock Exchange (NSX) opened for trading in 1992. The exchange uses the electronic trading system installed from JSE; and common stocks, government and corporate bonds and derivatives are traded. There are no special restrictions on foreign investment in shares traded on NSX. The exchange has co-operation agreements with JSE Securities Exchange of South Africa and the London Stock Exchange, which have boosted skills and resources in Namibia and contributed to the smooth and steady growth of Namibia's capital market.

The **Stock Exchange of Mauritius** (SEM) was established in 1989 and both equities and fixed income securities trade on SEM. Trading, clearing and settlement is fully automated. SEM's Automated Trading System (SEMATS) was launched on the 29th June 2001. It constitutes a state-of-the-art electronic trading system built on third generation technology. SEMATS put an end to traditional trading patterns which have typified the Stock Exchange of Mauritius since its inception. SEM operates two markets: the Official Market, the Development and Enterprise Market (DEM). The Official Market started its operations in 1989 with five listed companies and a market capitalisation of nearly USD 92 million. SEM set up in 2006 the DEM, which is a market designed for small and medium-sized enterprises (SMEs) and newly set-up companies which possess a sound business plan and demonstrate good growth potential. The SEM has been open to foreign investors since 1994. Foreign investors do not need approval to trade shares, except for listed sugar companies, where foreign investors collectively cannot hold more than 15% of the shares. Foreign investors benefit from numerous incentives such as revenue on sale of shares can be freely repatriated and there are no withholding tax on dividends and no tax on capital gains. Since April 2011, SEM is listing, trading and settling equity and debt products in USD, Euro and GBP, becoming the first exchange in Africa and one of the world's exchanges that offer these services. This innovative thrust positions SEM very favourably on the international front and contributes to the internationalisation of the Exchange.

Swaziland Stock Exchange (SSX) started operating in 1990 and trading, clearing and settlement systems are manual. Trading of securities is executed via the call-over system. Equities and fixed income securities are traded on the exchange. Non-residents are not subject to any special restrictions on their investments in securities on SSX. In 2007, the SSX comprised of 6 Equity companies, 2 government bonds and 4 corporate bonds all listed on the main board.

The Egyptian Stock Exchange was officially established in 1888 and 1903, respectively, as two bourses operationally. In the early 1940s, the two bourses were merged. The two exchanges were very active in the 1940s and the Egyptian stock exchange was ranked fifth in the world. The central planning and socialist policies of the government in the 1950s led to the suspension of activity on the stock exchange for three decades between 1961 and 1994

(Shahid, 2002). The stock exchange never shut down but they were only 9 listed companies trading during this period. In late 1990s the government embarked on privatisation of state owned enterprises that led to the revival of market activities through public offerings. The trading system in the Cairo and Alexandria Stock Exchange (CASE) witnessed a gradual evolution from an open outcry prior to 1992 to an automated, order-driven system. Egypt's stock exchange has no restriction on foreign investment and no taxes on capital gains, dividends or repatriation of earnings.

The Nigerian Stock of Exchange was established in 1960 as the Lagos Stock Exchange. In 1977 it became the Nigerian Stock Exchange, with branches established in some of the major cities of the country. At present, the Exchange has six branches, each having a trading floor. The exchange uses automated system for trading, clearing and settling transactions. The exchange trades in equities, Nigerian federal government bonds, state government and corporate bonds, commercial papers and other money market instruments. Most of the listed companies have foreign/multinational affiliations and represent a cross-section of the economy, ranging from agriculture through manufacturing to services. Following the deregulation of capital markets in 1993, the Nigerian Stock Exchange is open to foreign investors' participation and there are no limits to the percentage of foreign holding in any company registered in the country.

Table 7: A summary of infrastructural indicators of African stock exchanges[a].

Country	Clearing and settlement	Foreign participation	Trading system
Botswana	Manual	Yes	Manual
Cote d'lvoire	Electronic	Yes	Electronic
Egypt	Electronic	Yes	Electronic
Ghana	Manual	Yes	Manual
Kenya	Manual	Yes	Electronic
Malawi	Manual	Yes	Manual
Mauritius	Electronic	Yes	Electronic
Morocco	Manual	Yes	Electronic
Namibia	Manual	Yes	Electronic
Nigeria	Electronic	Yes	Electronic
South Africa	Electronic	Yes	Electronic
Swaziland	Manual	Yes	Manual
Tunisia	Electronic	Yes	Electronic
Zambia	Electronic	Yes	Electronic
Zimbabwe	Manual	Yes	Manual

[a]*Adapted from Allen et al (2011).*

Zimbabwe Stock Exchange (ZSE) started operation in 1946, and equities and government securities trade on the ZSE. Trading is paper based and executed on open outcry basis. Foreign investment in securities traded on the exchange is subject to a 10% limit for any individual investor and 40% aggregate limit. A maximum of 15% of an individual investor's hard currency imported to Zimbabwe may be invested in primary share and bond issues.

Table 7 shows the summary of clearing, settlement and trading system operating at the stock exchanges of our sample of countries. It also indicates that all stock exchanges of interest in this study allows for foreign investors participation in the securities market, though some countries allows for limited participation as discussed in proceeding paragraphs in this section. The next section provides an assessment of historical developments in seven oldest stock exchanges in Africa that are covered in our sample.

3.4.1 Historical evolutions in African stock markets

African countries' stock markets have evolved overtime in terms of their relative size (market capitalization) compared to GDP, level of trading activities and liquidity, and sophistication levels, as was discussed in section 3.4. This section seeks to answer questions such as: what are the specific features of African stock markets? How far have these stock markets evolved in terms of issuing companies and participating investors overtime? How integrated are African stock markets with global and emerging stock markets? Lastly, we seek to infer the dynamic nature of African stock markets in terms of risk and rewards. Answering these questions will allow for better understanding of qualitative and quantitative characteristics of African stock markets starting from their inception to as recent as data availability permits.

The emerging and frontier stock markets in Africa exhibit much dispersion at the group level, especially in terms of market depth, asset characteristics and liquidity, all of which will be highlighted in the next section. First, some stock markets are older than others. Stock markets in South Africa, Egypt, Morocco, Zimbabwe, Kenya, Nigeria, Tunisia and Ivory Coast were for example established in 1888, 1903, 1929, 1946, 1954, 1960, 1969 and 1974, respectively

whereas Botswana, Mauritius, Ghana, Swaziland, Lusaka, Namibia and Malawi stock markets were only created in 1989, 1989, 1989, 1990, 1992,1992 and 1995, respectively.

The Casablanca Stock Exchange.

The Casablanca Stock Exchange (CSE) was established as far back as 1929 as the Securities Trading Board, and initially managed by the Casablanca Chamber of Commerce; CSE is also the third oldest exchange in the African continent. In 1993, following the major overhaul of Morocco's capital markets, it became Casablanca Stock Exchange, a private company, owned by the brokers. Casablanca Stock Exchange (CSE) witnessed some fundamental trading system reforms. The CSE held the first trading session in November 1929 and has witnessed some trading reforms since then. In 1948 the exchange was established as a legal entity and in 1967 a legal and technical reorganization of the exchange was done defining the exchange as a public institution.

The other major reform that followed was the privatization of CSE and other State owned enterprises (SOEs) in 1993. The privatization program saw a total of 22 state owned enterprises and 17 hotels being transferred to private ownership between 1993 and 1996 with 32.5% of the sales raised through public offerings on the CSE (Ghysels et al, 2003). On September 21, 1993, the security laws were passed regarding the operations of CSE; the securities commission was formed and coupled with creation of mutual funds. Prior to the reforms that were announced in 1989, CSE was a state owned financial institution with the board and a manager of the exchange appointed by state. Then, the exchange was a broker/dealer market with the banking sector holding a monopoly on the stock transactions. The exchange was extremely illiquid and most stocks did not trade for several weeks. The most actively traded stocks were banks and few agricultural sector firms. The reforms of 1993 saw the establishment of the securities commission which helps in monitoring the market's activities as well as ensuring shareholders protection and helping the government in regulating the stock exchange. The security commission enforced public disclosure laws that were lacking before the reforms were introduced.

The Egyptian Stock Exchange.

The Egyptian Stock Exchange (CASE) comprises of two exchanges, Cairo Stock Exchange established in 1903, and Alexandra Stock Exchange established in 1888. The Exchanges

trade in equities, corporate and Egyptian sovereign bonds and mutual fund certificates. Nasser's nationalization program of the 1960s affected the trading volumes of CASE, which resulted in de-listing of many firms and the government responded by providing subsidies to brokerage firms (Al-Zaubia et al, 2010). Sadat's open door-economic policy of the mid-1970s promoted participation by the private sector and foreign investors.

The JSE Securities Exchange.

Within 13 months of the discovery of goldfields at Witwatersrand, the JSE Securities Exchange (JSE) was established in a single-storey building in Simmonds Street, Johannesburg in 1887. Industrial shares were virtually non-existent due to lack of industrial development in the country during the 1880s. According to Jefferies et al. (1995**),** the JSE is still dominated by mining companies. Now the JSE has evolved from traditional floor-based equities trading market to a modern securities exchange, providing fully electronic trading, clearing and settlement in equities, debts, financial and agricultural derivatives, and other instruments. On 7 June 1996, the open outcry-trading floor was closed to give way to an order driven, centralised, automated trading system known as the JSE Equities Trading (JET) system. Dual trading and negotiated brokeraging were also introduced. On 13 May 2002 the JET system gave way to the JSE Stock Exchange Trading System (SETS); this trading system was implemented in conjunction with London Stock Exchange (LSE).

The Nairobi Stock Exchange.

Nairobi Stock Exchange (NSE) witnessed a lot of policy and institutional reforms in the 1990s, of which the main changes were: shifts in trading systems, tightening of the regulatory systems, reform of taxation policy, and relaxation of capital controls. In terms of ownership, the post-independence Kenyan government implemented a policy to orderly transfer assets from immigrants to Kenyan citizens (Ngugi, 2003). But Ngugi (2003) highlights that despite the concerted effort by government to enhance local participation, low savings and little knowledge in share trading among local investors, trading among local investors remain low and has failed to match that of foreign investors. The government of Kenya in 1971 imposed some tax policies that made investment in the stock market unfavourable. In order to control the movements of funds, the government imposed 12.5% tax on dividend and interest paid by corporations to residents and non-residents. In addition, they also put a 20% tax on all fees

and royalties payable to all non-residents. In 1975, a capital gain tax was introduced and was set at 36%, aimed at generating additional revenue and curbing excessive speculation.

The Nigerian Stock Exchange.

The Nigerian Stock Exchange was established in 1960 as the Lagos Stock Exchange. The exchange trades in equities, Nigerian federal government bonds, state government and corporate bonds, commercial papers and other money market instruments. The origins of stock exchange date back to colonial times when the British government, ruling Nigeria at the time, sought funds for running its administration. On June 5, 1961 the Lagos Stock Exchange opened for business with 19 listed securities made up of 3 equities, 6 Federal government bonds and 10 industrial loans. The Nigerian capital market was deregulated in 1993, and in 1995, during which certain laws were repealed in favour of unrestricted foreign participation by investors. Since then foreign portfolio investment flows have continued to rise as shown by Table 12.

The Tunis Stock Exchange.

Tunis Stock Exchange was created in 1969 as a public institution and is organized in the following way: The official system which is composed of two markets: Equities market reserved for trading equities of companies that meet key criteria relating to performance, public participation and transparency. Bond market reserved for debt instruments issued by the state, financial institutions and public and private companies. Tunis Stock Exchange witnessed key reforms on the following dates[29]: **February 1969:** Creation of the Tunis Stock Exchange as a public establishment. **November 1994:** Reorganization of the financial market which separated the functions of control and management of the stock market. The reorganization of the financial market seeks to guarantee a better adherence to international standards; the Tunis Stock Exchange was entrusted with the management of the market while a separate regulatory body was formed. The Financial Market Council (CMF) was created to supervise the market's operations, regulate the issuance of new securities, protect investors and oversee the stock exchange. **November 1995:** Creation of the Tunis Stock Exchange, a limited company held by the brokers, who were 24 in total. The brokerage firms created a brokerage fund in order to guarantee the settlement of the traded transactions on the Tunis

[29] http://www.africansea.org/ASEA/Members/member.aspx?member=Tunisia#lach has the bulk of this information.

Stock Exchange. **October 1996:** Set up of the trading electronic system NSC. **April 1998:** Launching of the index TUNINDEX (Base 1000 in December 31, 1997). **December 2007:** Launching of the Alternative Market, for small and medium-sized companies, migration to the latest version of the electronic trading system, V900. The implementation of an electronic trading system was aimed at ensuring efficient and transparent pricing of securities at the exchange. The alternative market is intended to facilitate fund raising by small firms through market access conditions adapted to their size, needs and purposes.

The Zimbabwe Stock Exchange.

Zimbabwe Stock Exchange (ZSE) was established in 1946, and then named Rhodesian Stock Exchange (RSE)[30]. Trading of stocks and shares goes back to 1891, when the first stock-broking firm was opened. The stock exchange stopped trading operations in 1902 due to massive withdrawal (delisting) of mining companies. In 1946, the Rhodesian Stock Exchange was established mainly in response to the boom in agriculture and manufacturing sector (tobacco processing industry in particular) during World War II. In 1952, a total of 48 mining, industrial and retail companies were listed on the RSE. Sixteen of these were light industrial companies mostly producing consumer items. The circumstances under which the RSE and the early exchanges were formed differed widely. An important difference is the nature of the economy.

Although the ZSE was originally established to cater for the mining industry, in recent times, the majority of listed companies are non-mining (Mangena and Tauringana, 2007). The stocks on the exchange include financial, insurance, retail, construction, transport, pharmaceuticals, property, telecommunications, manufacturing and agricultural-related stocks. The financial instruments traded on the ZSE are common stock, preference shares, corporate debentures, warrants, government stocks and fixed-interest securities. However, the bulk of trades and listings on the exchange are for common stock. Zimbabwe has a fully developed capital market with an active and equally developed institutional base. Zimbabwe has a pension fund industry, an insurance industry, and a local asset management industry supported by nineteen (19) registered stockbroking firms.

[30] A detailed account on the history of Rhodesian Stock Exchange is given by George Karekwaivenani, of the Department of Economic History, University of Zimbabwe.

The seven major stock exchanges in Africa were established based on different reasons. The JSE Securities and Zimbabwe Stock Exchange were formed to raise capital for mining companies. The other stock exchanges were formed either to raise capital for the government or for the private sector. It will be interesting to investigate whether these stock markets are still dominated by mining, agricultural or manufacturing sector or they still strive on raising money for the government whether directly or indirectly.

3.4.2 Evolutions in Specific Capital Market Risks

The increasingly global nature of portfolio investments has made understanding of countries' risk a very important aspect of the act of investing. The risk measures that matter for portfolio investment referred to in literature are political, financial, currency, economic, composite risk and institutional investor's country credit ratings risks. The study by Erb et al. (1996) found that country risk measures are correlated with future equity returns. Their main finding is that a financial risk measure contains the most information about future expected returns and that political risk contains the least. These risk sources, if they exist and persist over time in the African financial markets, they should also command a risk premium.

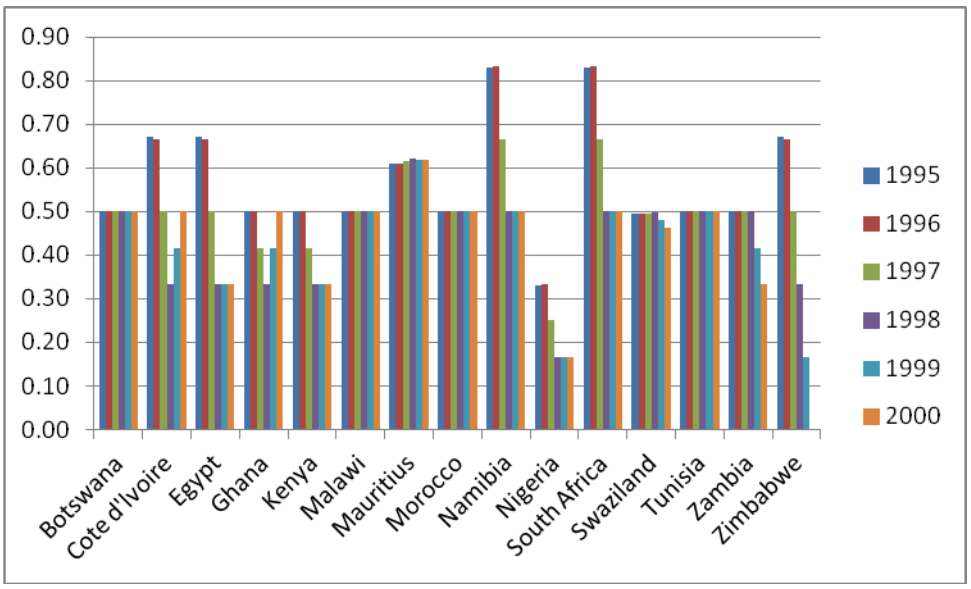
There are potential impacts of factors such as macroeconomic and debt sustainability indicators i.e., level of income and growth, total debt and debt service as % of exports revenue, diversification and competiveness, on the stock market and banking sector development of sample countries. The levels of debt, external liquidity and government's ability to mobilize resources can signal to investors the level of financial risk associated with a country. These metrics for African countries are detailed in the following paragraphs.

Political risk.

The political risk rating constructed by International Country Risk Guide (ICRG) provides a means of assessing the political stability of the countries covered on comparable basis. This is done by assigning risk points to a pre-set of group of factors, termed political risk components. These components are government stability, socioeconomic conditions, investment profile, internal and external conflict, corruption, military in politics, religious tension, law and order, ethnic tensions, democratic accountability and bureaucracy quality.

The assesment of corruption within the political system is given by the ICRG. The highest rating (more points) is given to those countries where there is very low risk of corruption and the lower rating (less points) signals the presence of higher risk of corruption. Financial corruption is a threat to foreign investment flows as it distorts the economic and financial environment, and in some cases may force the withdrawal or withholding of an investment.

Figure 2: Control of Corruption of Sample Countries, 1995-2000.

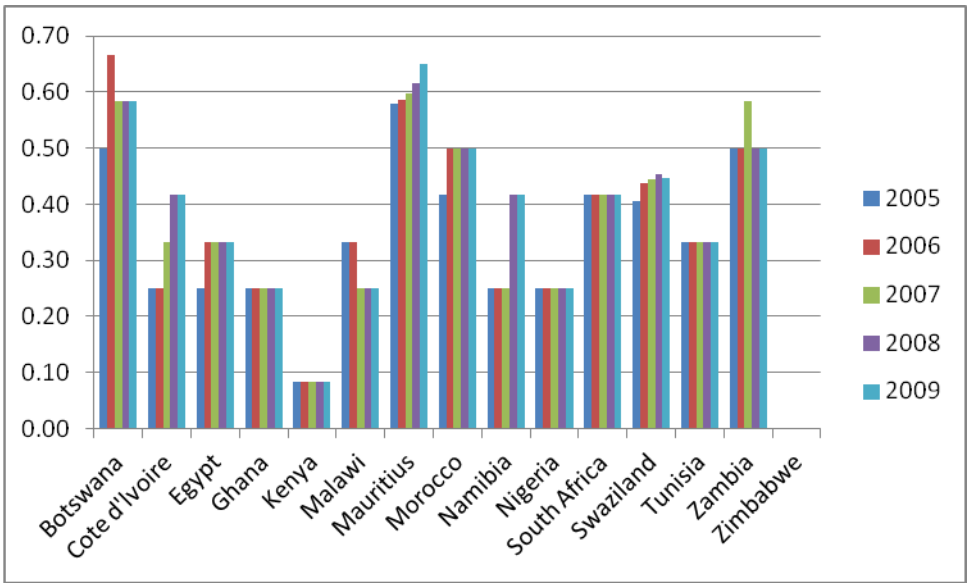


Source: *Transparency International: http://www.transparency.org/.*

In Africa, for our sample of countries, Egypt, Kenya, Nigeria, Zambia and Zimbabwe were perceived as countries with potentially great risk of corruption to foreign businesses between the period of 1995 and 2000 (Figure 2).

As shown by Figure 3, Ghana, Nigeria, Kenya and Zimbabwe pose a great risk of corruption between years 2005 and 2009. Zimbabwe was still experiencing economic crisis during this period and corruption tendencies were high in business due to high level of unemployment and food shortages that were prevailent in the country. According to Figure 3, Zimbabwe has a zero corruption ranking points, which makes it the worse case scenario in our sample of countries. Kenya experienced a period of political and ethnic violence between year 2007 and 2008 and this increased cases of corruption in the country.

Figure 3: Control of Corruption of Sample Countries, 2005-2009.



Source: Transparency International: http://www.transparency.org/.

Liquidity risk

One of the key roles of stock markets is to provide liquidity. Stock market liquidity makes investment less risky and more attractive to the trading public. Savers are able to acquire assets and sell them quickly and cost effectively when they need to access their savings or to alter their investment portfolios (Demirguc-Kunt and Levine, 1996). The evolution of trading activities for our sample countries is shown in the next section. In Figure 4 in section 3.4.3.2, Structure-Activity measure of financial systems shows that many countries have severe illiquidity challenges, with the exception of South Africa. Hearn and Piesse (2005) echoed the same conclusion that continued illiquidity and incomplete institutions indicate that an integrated financial community remains premature in many African capital markets. The stock exchanges in Sub-Saharan Africa are still marked by two main features: small size in terms of capitalization and listings, and low liquidity as measured by turnover ratio (Harris, 2008).

Currency and Economic risk.

The currency risk associated with investing in equity markets should be priced in the stock market. The findings by Kodongo and Ojah (2011) suggest that international investors can diversify into Africa's equity markets without worrying about unconditional risk associated with movements in exchange rates. They also hinted that conditional (time-varying) foreign

exchange rate still remains a concern to be considered. The economic risk rating by political risk services (PRS) Group (2011) provides an assessment of a country's economic strength and weaknesses. The economic risk components that comprise their rating are GDP per head, real GDP per capita, budget balance (as % of GDP), and current account (as % of GDP). These indicators are contained in Table 11 of section 3.7. Africa's capital markets' ability to improve global risk-reward ratio of investors is reviewed in the next section using the Sharpe ratio, which is the weighted-means of stock market returns and returns from risk free assets.

3.4.3 Recent Experiences in African Stock Markets

Stock markets in Africa are relatively small in size, liquidity, and number of domestic listed companies. In this study we consider two measures of stock market size and two measures of market liquidity, to enable us analyse the development of stock markets in Africa.

Table 8 shows that South Africa has the biggest stock market in the region both in terms of market size and liquidity. The average values of stock market development between years 1995 and 2001 also show that Namibia, Swaziland and Zambia were the smallest markets in our sample of 15 countries. But generally many African stock markets are still small in size and level of trading is still low, with the average liquidity levels still below 10%, with the exception of South Africa, Egypt, Morocco and Zimbabwe.

The stock market indicators of development show some marginal increase between the averages of years 1995-2001 (see Table A3.8 in the Appendix) and the ones for years 2001-2009 (Table 8). South Africa's stock market doubled its average size and tripled its level of trading activities between these periods. The smallest markets of Namibia, Swaziland and Zambia remain conspicuous in their low trading levels as shown in Table 8. The South African and Egyptian stock markets experienced a dramatic fall in number of listed companies over these two periods, some marginal fall in average number of listed companies was also witnessed by Kenya and Namibia. The rest of the sample countries saw increases in the average level of listed companies between year 2002 and 2009 though their size relative to the whole economy remain small as well as their level of trading activities, as shown in Table 8.

Table 8: Stock market development indicators, 2002-2009 (annual average).

Country	No of listed companies	Market Capitalization (as % of GDP)	Value Traded (as % of GDP)	Turnover ratio (in %)
Botswana	19	30.80	0.8	2.81
Cote d'lvoire	39	21.08	0.52	2.33
Egypt	671	61.78	24.72	38.11
Ghana	30	15.38	0.45	3.19
Kenya	52	33.74	2.95	8.81
Malawi	11	18.26	0.56	3.53
Mauritius	53	45.55	2.76	6.32
Morocco	64	56.97	15.64	23.97
Namibia	11	6.81	0.17	2.64
Nigeria	207	21.89	3.81	15.91
South Africa	410	218.99	102.66	50.1
Swaziland	6	8.97	0.005	0.05
Tunisia	47	13.42	1.8	13.97
Zambia	15	12.88	0.24	2.05
Zimbabwe	82	171.72	17.5	10.77

Source: World Development Indicators.

Many studies refer to market capitalization and number of listed companies as measures of market size, which proxy for stock market development. The economic significance behind this assumption is that market size is positively correlated with the ability to mobilize capital and diversify risk (Demirguc-Kunt and Levine, 1996). This suggests that countries like the Korea Republic, Japan and United Kingdom, as shown by Table 9 have immense ability of mobilizing capital and pooling risk, through the use of their stock markets compared to African economies which have small market sizes.

The other measure of stock market development considered in the literature are those that proxy for market liquidity. Liquidity generally refers to the ability to buy and sell securities easily. This allows investors to rebalance their portfolio quickly and affordably and thus makes investment less risky. The ratio of total share value traded to GDP measures liquidity on an economy wide basis. A second measure of market liquidity is the turnover ratio. High turnover ratio is often used as an indicator of low transactions costs. This is computed as total value traded divided by market capitalization. Turnover ratio measures the value of equity transactions relative to the size of the equity market; this ratio complements the other measure of market size since some markets may be small relative to the whole economy, but yet be liquid.

Table 9: Stock market development indicators of Non-African countries, 2001-2010 (annual average).

Country	No of listed companies	Market Capitalization (% of GDP)	Value Traded (% of GDP)	Turnover ratio (%)
India	5113	68	62.6	115.8
Indonesia	359	30	14.5	53.2
Korea Republic	1650	73.8	145.0	227.3
Malaysia	950	140.3	41.7	31.4
France	851	80.6	79.0	97.9
Germany	658	45.4	65.0	141.7
Japan	3336	78.3	89.6	111.7
United Kingdom	2404	128.6	179.0	142.7
USA	5226	123.7	234.9	194.9

Source: World Development Indicators.

In terms of stock market liquidity, Namibia, Swaziland, Mauritius, Malawi, Botswana, Zambia, Kenya, Ghana and Cote d'lvoire all have total value traded as percentage of GDP and turnover ratio percentage of less than 10%, on average, for years 2002 to 2009; thus, they are deemed to have illiquid stock markets. United States, United Kingdom, Korea Republic and South Africa on the other hand have average total value traded to GDP above 100% for the period 2001 to 2010, as shown in Table 9 and Table A3.8. Alternatively, South Africa has higher market capitalization to GDP percentage value but generally an average turnover ratio. Japan, India, Korea Republic and Germany have small markets depth relative to the size of their economies similar to South Africa compared to the case of United Kingdom and United States (see Tables 8 and 9). On the other hand Japan, India, Korea Republic and Germany have high degree of liquidity shown by their turnover ratios, reflecting that these economies have small but active stock markets.

The stylized facts emerging from the above discussion suggest that countries with large size stock markets also exhibit high liquidity. Although this is the case for developed markets and emerging markets in Africa, countries like Egypt, Malaysia and India have large market capitalization (market size) but below average value traded to GDP ratios (See Tables 8, 9 and A 3.11). The overall message emerging is that countries with well developed stock markets tend to have well developed financial intermediaries.

3.4.3.1 Stock Market Performance: Absolute and Risk-adjusted Bases

This section reviews Africa's competiveness in attracting international capital, which depends on its markets' ability to improve global risk-reward ratio of investments within their markets. Global integration of capital markets is essential in that it exposes African capital markets to the best practices and standards, and increases pressure to reform local stock markets.

Table 10: Risk-Adjusted Performance of African stock markets, 2007-2010.

Country	Mean return	Risk-adjusted return (Sharpe measure[a])
Botswana	4.1	0.84
Ghana	15.6	0.14
Kenya	1.5	-1.42
Morocco	9.9	5.00
Namibia	19.1	2.97
Nigeria	31.1	5.02
South Africa	14.9	5.28

Source: International Financial Statistics and World Bank Development Indicators.
[a]Sharpe measure is based on means stock market return and risk-free (treasury bills) rates of return from 2007-2010**,** computed as ($Rm - R_{rf} / \sigma_{Rm}$).

African stock markets were among the best performers during the global financial crisis of 2008. The average national stock market returns in absolute terms vary across the sample countries, with Nigeria having the highest average earnings return of 31 percent and Kenya recording the least average returns over the past 4 years (See Table 9). The risk-adjusted performances of the stock markets are still poor in some cases, with Botswana and Ghana recording low risk-adjusted average stock returns in the past 4 years whilst Kenya even recorded negative average risk-adjusted return between year 2007 and 2010.

It has to be noted that Morocco, Namibia, Nigeria, South Africa surprisingly recorded high Sharpe performance values between 2007 and 2010. In South Africa they recorded their highest risk-adjusted stock returns in 2007, which might be attributed to investors who were seeking safe heavens for their portfolios in liquid emerging markets due to persistence of financial crisis in developed economies. The stock exchanges in Morocco, Nigeria and Namibia recorded higher returns during the past 4 years in year 2010.

The performance of developed countries between year 2007 and 2010 was poor, with France, Japan and United Kingdom stock markets recording negative average absolute returns as

shown in Table 11. The Asian stock exchanges of Korea Republic, India, Indonesia and Malaysia performed well both in absolute stock returns and risk-adjusted returns.

Table 11: Risk-Adjusted Performance for Selected Countries, 2007-2010.

Country	Mean return	Risk-adjusted return (Sharpe measure[a])
India	31.8	0.98
Indonesia	39.0	----
France	-4.3	-0.86
Germany	6.7	3.18
Japan	-2.0	-0.49
Korea Republic	16.1	1.28
Malaysia	20.7	1.48
United Kingdom	-1.0	-0.72
United States	0.3	-0.64

Source: International Financial Statistics and World Bank Development Indicators.

[a]Sharpe measure is based on means stock market return and risk-free (treasury bills) rates of return from 2007-2010**,** computed as $(Rm - R_{rf} / \sigma_{Rm})$.

The risk-adjusted returns for France, Japan, United Kingdom and United States stocks were all negative over the past 4 years. The financial crisis in developed countries resulted in investors seeking higher risk premiums for their investment in these markets during the same period. The poor stock market performance in developed economies during the global financial crisis provided further evidence for the relevance of African stock markets for portfolio diversification to investors, especially the ones external to Africa. The next section assesses whether the indicators of stock market development are correlated in our sample of countries, and as such strengthen their choice as appropriate proxies for stock market development.

3.4.3.2 Correlations between various indicators of stock market development

We run a Spearman rank correlation test to investigate the level and significance of correlation among the different measures of stock market development. This test is widely used to test the degree of association of two variables. The analysis on stock market size and liquidity trends shows that these measures of stock market development might be significantly correlated. We perform a correlation test to see whether this is the case for our

sample of 15 African countries. The correlation test is done on 3 measures of stock market development and aggregate measure of stock market development. The aggregate of stock market development (SMINDEX) comprises of three different ranges of traditional measures[31] of stock market development to derive a uni-dimensional measure of stock market development. This is because each variable used individually, may not be sufficient to represent the attributes of stock markets that are discussed in Chapter 4.

The results in Table 12 confirm that indeed value traded/GDP (VSTG) is highly correlated with the computed index of overall stock market development (SMINDEX), with a correlation coefficient of 0.98, but having a correlation coefficient of 0.85 and 0.91 with market capitalization/GDP (MCAPG) ratio and turnover ratio (TOR), respectively (See Table 12). The market capitalization/GDP ratio and turnover ratio have a 0.85 correlation with the index of overall stock market development.

Thus, the degree of trading relative to the size of the economy (Value traded/GDP) is highly correlated with the degree of trading relative to the size of the market (Turnover ratio). These two measures of liquidity do not move one to one, they therefore provide complementary information on stock market liquidity. There is a relatively low correlation between turnover ratio and market capitalization/GDP ratio; at a correlation coefficient of 0.60 it shows that these nuanced different indicators capture different aspects of stock market development.

We followed Demirguc-Kunt and Levine (1996) in computing the overall index of stock market development (SMINDEX); the discussion on the algorithm behind this composite indicator is provided in Chapter 4.

[31] Traditional measures of stock market development of interest to this research are market capitalization, value traded and turnover ratio.

***Table 12: Spearman rank correlation matrix for sample countries*[32].**

Indicators*	SMINDEX	Market capitalization/GDP	Value Traded/GDP	Turnover ratio
SMINDEX	1	**0.8485**	**0.9835**	**0.8435**
p-value	0	0.0000	0.0000	0.0000
No. observations	240	209	206	206
Market capitalization/GDP		1	**0.8415**	**0.5979**
p-value		0.0000	0.0000	0.0000
No. observations		209	205	204
Value Traded/GDP			1	**0.9149**
p-value			0.0000	0.0000
No. observations			206	203
Turnover ratio				1
p-value				0.0000
No. observations				206

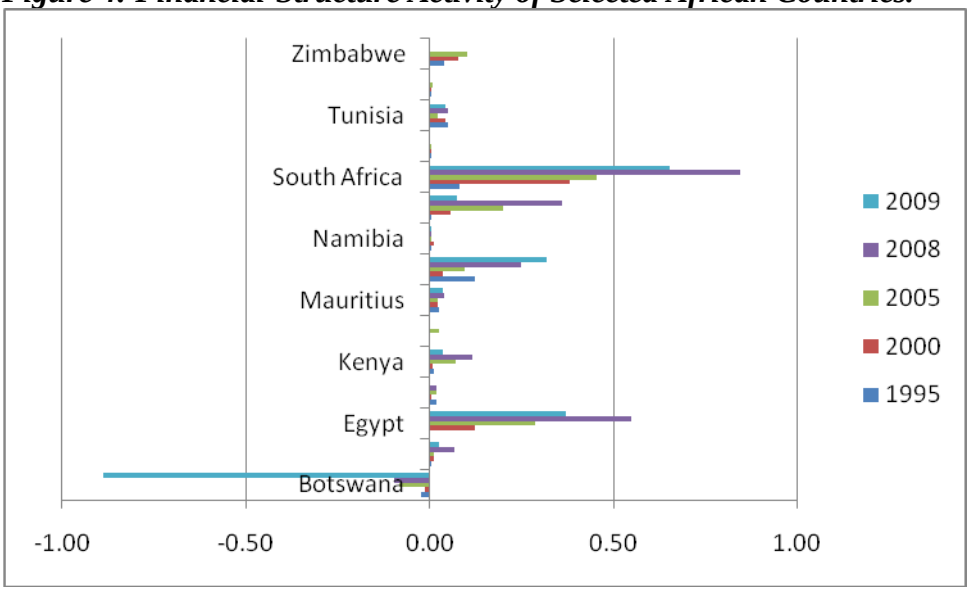
*The bolded numbers corresponding to each indicator is the measure of degree of correlation between these variables.

The last aspect of this section is a discussion on the financial structure of the sample countries. The discussion tries to answer the question about: What is the relative development of stock markets versus banks in these countries over the past 15 years? The two indicators of financial structure included in this study are the **Structure-Size**, measured as the ratio of Stock Market Capitalization to GDP divided by the ratio of Bank Credit to GDP. The other measure of financial structure is **Structure-Activity**, measured as the ratio of Stock Market Value of share traded to GDP divided by the ratio of Bank Credit to GDP. In both cases, higher values indicate a market-based financial system. The difference between the two indicators is that the Structure-Size focuses on the value of total outstanding shares of the country's stock exchanges. The Structure-Activity on the other hand, focuses on the liquidity of the country's stock exchanges.

Figure 4 on Structure-Activity shows that many countries have severe illiquidity challenges, with the exception of South Africa and Egypt. Figures 4 and 5 show that African countries in our sample recorded an increased importance of the stock markets relative to the bank systems over the past 15 years.

[32] See also the results from Kendall's tau correlations in Table A3.14 in the Appendix.

Figure 4: Financial-Structure Activity of Selected African Countries.



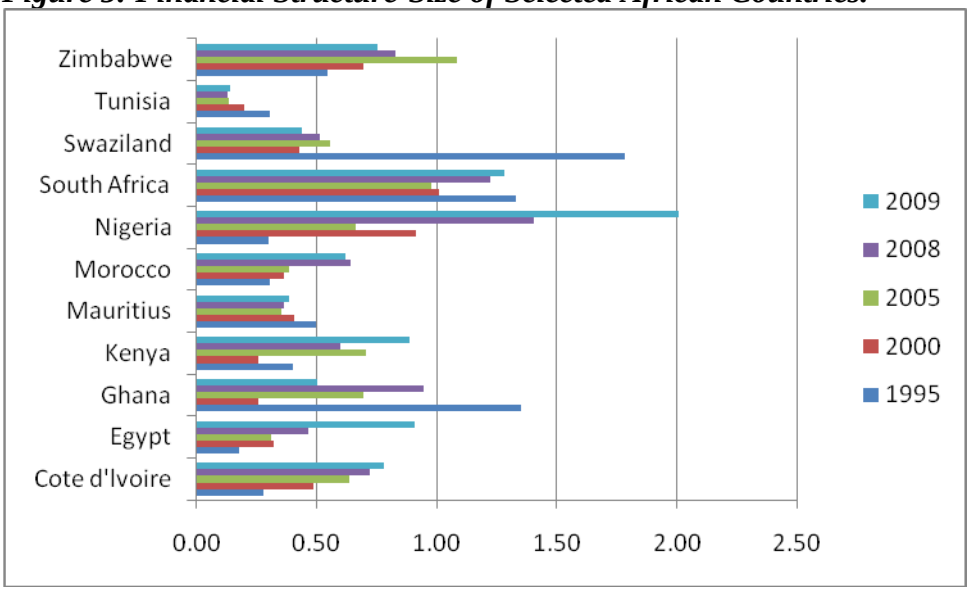
Source: World Development Indicators.

The stock market depth has been increasing at greater pace as shown by Figure 5 for all countries with the exception of Tunisia, Morocco and Mauritius. The other countries such as Zimbabwe and Nigeria have been witnessing a higher number of new listings (see Table 8) South Africa and Egypt have the highest number of listed companies among our sample of stock exchanges but they have been massive delisting in these two exchanges over the past decade.

The study by Beck and Demirguc-Kunt (2009) shows that though indicators of the Structure-Size do not vary much across countries, indicators of the Structure-Activity clearly suggest a more important role for stock markets than banks, since a high liquid market helps in easing trading of risk. In the sample of selected African countries, all countries indicate a significant growth trend in these markets but a rather disappointing big and inactive markets as shown by Figure 4, Botswana is an interesting case in point with negative bank credit in the past few years.

As expected African countries boast of relatively big stock exchanges in terms of size due to increased level of listing in recent years as reflected in Figure 5; but as an advance on current empirical literature, this study will try to explore the relevance of both stock market liquidity and size in the economic perfomance of our sample countries.

Figure 5: Financial Structure-Size of Selected African Countries.



Source: World Development Indicators.

3.5 Global and Regional Financial Integration.

In the past few decades, and along with recent economics literature that recognise the interconnection between financial integration (FI) and financial development (FD), the main potential benefits of financial integration observed in economic literature are: risk diversification and consumption smoothing; domestic investment and growth; incentivised macroeconomic regulation and supervision; and increased banking sector efficiency and financial development and stability (Agenor, 2003).

Economists, however, have recognised that there are significant costs of financial integration and openness, namely: lack of access to capital due to asymmetry of capital flows to a concentrated group of countries; for example, the historical exclusion of Sub-Saharan African (SSA) countries from accessing international financial markets (see World Bank, 2003; Basu and Srinivasan 2002); inefficient allocation and utilisation of capital flows (typically through fuelling private consumption and taking on risky and unproductive investments, often due to pre-existing distortions) (Agenor, 2003).

Some challenges facing the SSA region are lack of macroeconomic stability and presence of pro-cyclical short-term capital flows; “domination-risk” of foreign banks in domestic banking

sector, creating powerful, oligopolistic sectors with asymmetrical allocation of credit to mainly household sectors these can hamper FD. Lastly, financial integration may result in potential exposure of African economies to financial crises due to herding, contagion and volatility of capital flows that can bring additional cost to the region (Agenor, 2003). The partial indication of "domination in risk" in African banking sector can be inferred from huge interest rate spreads reported in Table 5 in Section 3.2.

Table 13: Equities Portifolio Flows (2001-2009), in millions of U.S. $.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009
Botswana	54	83	87	61	65	109	140	215	357
Cote d'lvoire	66	67	81	49	65	77	76	57	298
Egypt	655	596	1038	2193	5064	7821	16503	6792	10006
Ghana	225	632	1511	45	15	402	101	178	211
Kenya	21	19	49	129	186	162	297	299	618
Malawi	21	10	31	6	3	5	5	12	92
Mauritius	353	305	336	1000	1384	3464	5334	3379	8194
Morocco	532	544	735	1126	1540	1959	5168	2698	1146
Namibia	6	62	5	1	44	73	43	275	156
Nigeria	4	8	13	45	150	340	820	915	1916
South Africa	13029	18821	27408	41978	63207	67366	84087	48832	85847
Swaziland	395	24	75	10	46	10	76	21	194
Tunisia	107	90	123	193	173	253	323	309	440
Zambia	6	22	10	13	20	44	171	129	324
Zimbabwe	143	522	48	29	55	208	567	76	304

Source: International Monetary Fund's Coordinated Portfolio Investment Survey (CPIS).

Foreign direct investment (FDI) is an important source of investment in Africa. The last column of Table 13 shows that FDI to African countries peaked in 2008 at USD 72.2 billion (UNCTAD, 2010), five times the value of FDI receipts in 2000. The rise of FDI to African countries in 2008 was triggered by a surge in prices of raw materials, particularly oil, which triggered a boom in commodity-related investments. Although the FDI flows are of growing

importance to the whole continent, these flows continue to be unevenly distributed. A large share of FDI goes to extractive industries in a limited group of countries.

Most FDI flows to Africa in the past decade has been received by North African countries, particularly Algeria, Egypt, Libya and Tunisia, targeting oil-exporting countries. In West Africa the major recipients are Nigeria and Ghana which are big economies and producers of oil in this region. The same goes for Central African region where Angola is by far the biggest FDI recipient in the region and accounts for two-thirds of investments flows. South Africa is the main FDI destination in the Southern Africa region, accounting for 85% of the regional FDI flows during 2007-2009 (African Economic Outlook, 2011). Unlike in most other African countries, much of the foreign investment in South Africa went to the manufacturing sector.

In Botswana, Namibia and Zambia, foreign investment was mainly directed to their mining and tourism industries. Attracting investment into diversified and higher value-added sectors remains a challenge for many African countries. Many African governments are tackling this challenge by showing commitment in improving the institutional framework of their economies.The state of countries' institutional framework is the predominant source of variation in stock returns accross countries. Macroeconomic and political stability matters lead to high volatility on financial markets (Senbet and Otchere, 2006). For example, investors are concerned about country risk associated with adverse changes in government policies.

The survey by International Monetary Fund (IMF) on the flows of foreign portfolio investment into Africa's equity markets shows that most of these markets have managed to attract a modest amount of these flows. The highest recipients of equity portfolio flows are South Africa, Egypt, Morocco and Mauritius; these countries boasted of having better equity market infrastructure and well-developed markets. Table 12 shows that much of the portfolio flows into Africa's emerging and frontier markets were received in years 2007 and 2009, owing to commodity boom period and the aftermath of the global financial crisis as global investors sought to diversify their investment portfolios into less affected markets.

3.6 Privatization in Africa

The emergence of many African stock markets was mostly driven by the desire to privatise state-owned enterprises (Mlambo and Biekpe, 2001). The move by African countries towards privatization and market friendly reforms during the 1990s has helped to strengthen their stock exchanges as the number of listings has increased. In addition, the listing of many subsidiaries of large international companies has helped to further stimulate and firm-up African stock markets.

We noted from the preceding sections that most of Africa's stock exchanges face limited trading and hence might not be able to perform its expected role efficiently. Indeed, there are some measures that are being used to improve depth and liquidity of these stock markets. Large scale privatization programs through stock markets and financial sector reforms to attract foreign capital are major policies being pursued by the African countries in our sample.

The experiences of some of Africa's stock markets appear convincing that they are used as vehicles for privatization. Frèmond (1998) reviews the privatization experience of Egypt and Morocco in the 1990s. The privatization in Morocco which started in 1993 was designed to attract public participation and the Ministry of Privatization developed share allotment strategies that favoured small investors. During the first wave of privatization in Morocco in early 1990s, foreign investors including industrial operators and institutional investors provided 26% of the revenue from privatized shares. The privatization program elicited modest gain in market capitalization, liquidity, share ownership structure and foreign capital flows.

According to Debrah and Toroitich (2005) the privatization of Kenyan Airways managed to affect positively its managerial and liquidation problems. The open and transparent way in which Kenyan Airways' shares were sold to both local and external investors boosted the confidence of all interested investors in investing in a company with good governance. Additionally, the improvements in the airline's financial performance owe a great deal to its strategic alliance with Royal Dutch Airlines (KLM). The Kenyan government in January

1996 sold its 26% shareholding to KLM for U.S. $26 million. This strategic sale by government of its shareholding in Kenyan airways brought more quality employees and managers (external expertise) and the nature of corporate governance changed as well. Oyieke (2002) found the evidence of gains from the privatization of Kenyan Airways were in terms of improved output efficiency, fiscal revenue inflows and reduces the of burden government subsidies.

The privatization experience of Egypt started slowly in 1991 and only accelerated in 1996. The revenue from privatization reached $1.2 billion in 1996, from $173 million in 1995 (Lieberman and Kirkness, 1998). Value of shares traded increased by 130% between 1995 and 1996, but only few companies were actively participating in the market.

The momentum of divestiture of state owned enterprises resulted in the 1994 partial privatization of Ashanti Goldfields Corporation (AGC) in Ghana. The privatization, however, remained erratic according to Moss (2003). The floatation of AGC, a national gold mining giant, in 1994 was oversubscribed by local investors. The other notable divestiture that followed was that of the Produce Buying Company (PBC) in December 1999. The PBC is the domestic buying arm of the Ghana Cocoa Board which is a crucial export commodity of the country.

The period from year 2000 to 2008 saw rapid privatization sales in Egypt, Tunisia, Morocco and Nigeria as shown in Table 13. The governments of these countries consider the stock market as the primary vehicle of their privatization program. The total recorded sales value of state owned enterprises through the stock market is the highest in Egypt at US$11.5 billion, with Morocco second with close to US$8 billion and Nigeria third with US$6.5 billion. Tunisia in its sell of public and semi-public companies also managed to generate in excess of US$3.6 billion between 2000 and 2008. Ghana and Kenya are other countries in our sample with significant successful privatization programs through their stock markets. They both managed to generate over US$1 billion between 2000 and 2008.

Most of the other countries in this case study have minimal to negligible privatization sales over the same period (see Table 14). Namibia and Malawi are the two countries with lowest

privatization sales through the stock market, as they record US$9 million and US$31 million, respectively. The interesting stylized fact is that during the period from year 2000 to 2008, the countries that carried out massive privatization through their stock markets witnessed increases in stock market size and liquidity, with the exception of Tunisia, whose increases were marginal. Why did many of our sample countries in Africa witness unsuccessful episodes of privatization sales, received scant portion of global capital flows, and remained relatively marginalised in the global financial economy?

Table 14: Privatization Sales Episodes of 2000-2008 (amounts in US$, millions).

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total sales
Egypt	308	207	-------	--------	52	2173	7583	311	926	11560
Ghana	-------	-------	28	--------	46	--------	-------	120	950	1144
Kenya	-------	-------	--------	-------	27	-------	113	390	775	1305
Malawi	------	-------	-------	------	-------	-------	31	-------	-------	31
Mauritius	------	261	-------	--------	--------	--------	--------	--------	-------	261
Morocco	2110	--------	1551	--------	2616	-147	650	847	--------	7921
Namibia	-------	-------	-------	--------	--------	--------	--------	9	-------	9
Nigeria	67	749	344	--------	387	2179	1403	1358	-------	6487
South Africa	19	28	190	528	-------	15	-------	-------	-------	780
Tunisia	230	--------	227	-------	247	121	2282	61	480	3648
Zimbabwe	-------	131	--------	-------	--------	--------	-------	-------	------	131

Source: World Bank Privatization Database.
----Years with no privatization sales

The next section assesses the institutional and macroeconomic environment that African financial systems are operating in, which appears to offer some answer to this section's closing question.

3.7 Institutional and Macroeconomic Environment in Africa

There is a growing awareness that the mere establishment of stock exchanges is of very limited value unless there is an enabling environment for these markets to perform vital liquidity and information production functions. Senbet and Otchere (2006) noted that the mere existence of banks is of little value if they do nothing more than mobilize deposits and use them primarily to purchase government securities. The relevance of institutional and macroeconomic policies for growth of the financial system has long been appreciated (e.g., La Porta et al. 1997, 1998 and 2000; Rajan and Zingales, 2003; and Law and Habibullah, 2009).

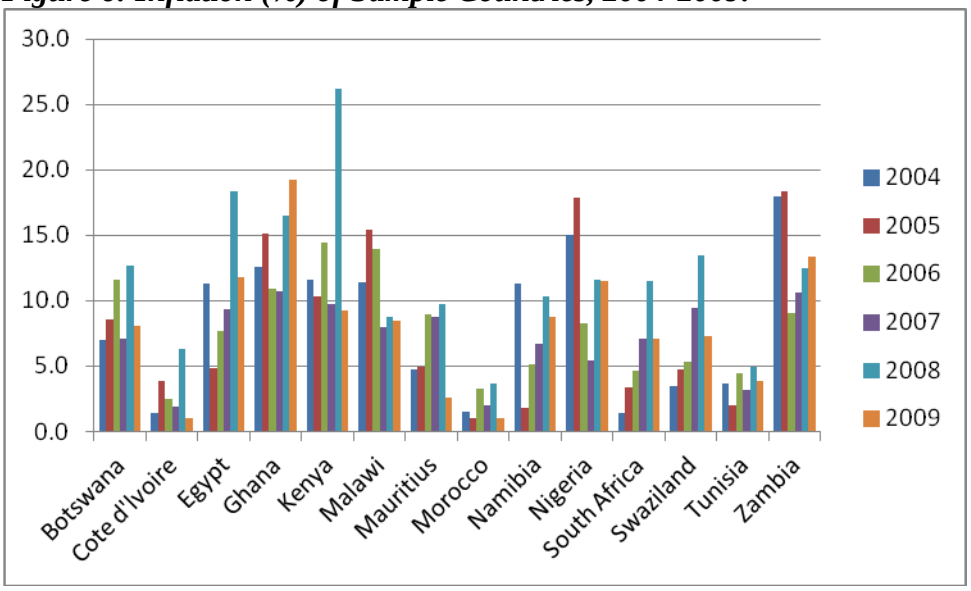
Africa's economic performance improved significantly from 1990 to recent period, recording robust real economic growth of 4.9 per cent in 2010, up from 3.1 per cent in the previous year as reported in Table 15. The economic growth in Africa has been on an upward trend since 1990, only suffered a downward trend in 2009 due to adverse effects of the global financial crisis. Since 2009, Africa's economic climate has, in general, improved significantly, and expectations are favourable.

There is still however considerable political uncertainty about developments in some countries especially in North and West Africa, notably Libya and Cote d'lvoire, and thus concerns about the spillover effects of these events on Africa's growth. At the same time, inflation remains at a modest level, around 7.7 percent in 2010 and fiscal balance has been narrowing over the past decade. Investment and savings expressed as a percentage of GDP stood at around 25% in 2010 (see Table 15).

The control of inflation in Africa varies from country to country. About nine countries in our sample had double digits inflation between year 2000 and 2009, including hyperinflation in Zimbabwe due to persistent economic crisis. Ghana, Kenya, Malawi, Nigeria and Zambia are among countries with high inflation rates. Regionally, Southern African countries in our sample had the highest inflation rates (See Fig 6). South Africa and Namibia's fiscal and monetary stability policies have reduced inflationary pressures. North African countries have relatively low levels of inflation, with the exception of Egypt. High level of inflation brings

an additional risk associated with investing in financial markets; thus, high inflation results in investors demanding high risk premium for their investments.

Figure 6: Inflation (%) of Sample Countries, 2004-2009.



Source: World Development Indicators (WDI).

Africa's average per capita GDP increased by 6% from US$742 in 1998 up to US$787 in 2003. The regional average level of economic development has increased, though it masks significant variations between countries, with average per capita GDP of US$145 in Malawi, US$310 in Zambia compared to US$4892 in Mauritius.

High volatility of currency exchange rate is prevalent among African economies; it creates an impediment to foreign portfolio investments. The foreign direct investment, however, have been increasing in the past decade. In 1990 the regional aggregate stood at US$2.8 billion and in 2009 it went up to US$58.6 billion. The terms of trade has been favourable over the last decade and trade balance has been positive though real export growth declined in 2009, coupled with a fall in terms of trade which resulted in current account deficit. As shown in Table 14, in 1990 and 2009 African economies, on aggregate, experienced a current account deficit, negative fiscal balance due to adverse weather conditions in the region in 1990 and global financial crisis and unfavourable terms of trade in 2009.

The total external debt has been declining over the past years, from 56.5 percent of GDP in 1990 to 20.2 per cent of GDP in 2010. In overall terms[33], the larger the total external debt of a given country to its capacity to generate foreign currency, the more onerous the servicing of this debt tends to become and the greater the risk of default by the issuer of debt. The official development assistance (ODA) has been on an upward trend for Africa, reaching US$47 billion in 2010 up from US$25 billion in 1990. The debt burden and aid dependence continued to constitute a serious obstacle to the growth of Africa's economies, although some progress has been made over the years. Debt service to exports ratio has been declining over the past few years, reflecting the general decline in debt burden in many African economies. Disparities between countries exist, with Botswana and Morocco having 2% debt service to export ratio compared to Malawi and Tunisia with above 15% of the same ratio, which greatly impacts a country's diversification and competitiveness profile; in 2003.

Most African countries rely heavily on exporting a limited range of raw materials and the degree to which this is the case varies by region (see Figure 7). North Africa (including Egypt, Morocco and Tunisia) and Southern Africa (South Africa, Swaziland and Zimbabwe) are much more diversified than countries in other regions of our sample, with the exception of Kenya and Mauritius. Such lack of diversification and global competiveness in the other regions as shown in Figure 7-i.e., Botswana, Cote d'lvoire, Ghana, Malawi, Namibia, Nigeria and Zambia, can be seriously affected by commodity price fluctuations and possibly other external shocks.

[33] Figures A3.1-A3.4 in the Appendix show the trends in main macroeconomic fundamentals in the past 10 years.

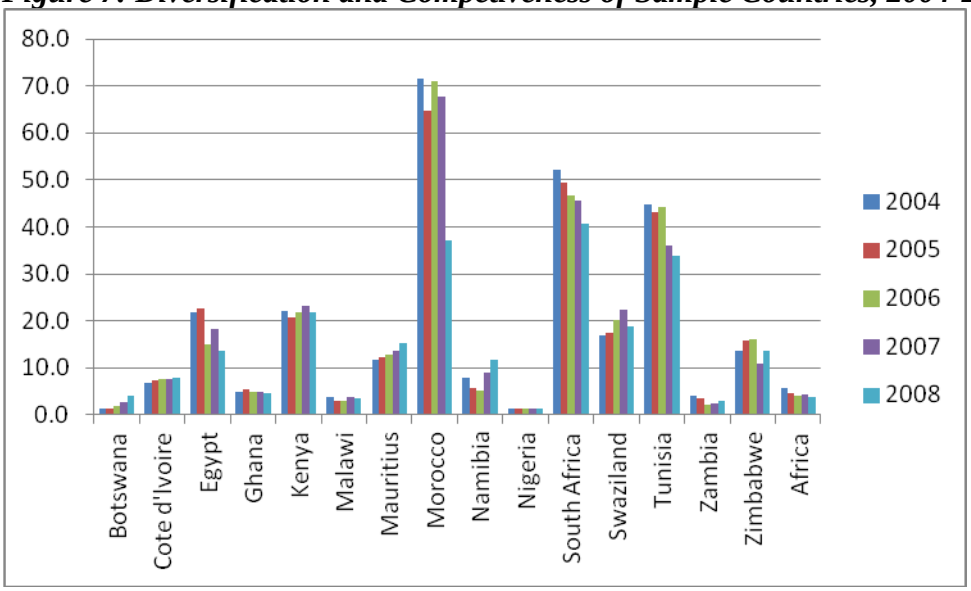
Table 15: African macroeconomic indicators, 1995-2010.

Indicator	1990	2000	2007	2008	2009	2010
Real GDP growth rate (%)	3.1	4.3	6.5	5.5	3.1	4.9
GDP per capita (US$)	746	726	1379	1573	1452	1668
Inflation (%)	14.4	9.1	6.8	10.4	10.0	7.7
Fiscal balance[a]	-5.4	0.2	1.9	2.8	-5.2	-3.3
Gross Domestic Investment[a]	20.6	18.8	23.8	25.2	25.7	24.6
Gross National Savings[a]	20.7	22.2	28.6	29.4	24.5	25.4
Real Export Growth (%)	10.1	7.9	6.6	0.9	-5.6	1.6
Trade Balance[a]	1.5	5.5	6.5	7.4	0.3	2.8
Current Account[a]	-1.0	3.2	4.4	4.1	-1.6	0.4
Terms of Trade (%)	7.8	16.3	1.4	10.8	-15.0	11.3
Total External Debt[a]	56.5	54.4	23.4	21.1	23.6	20.2
Debt Service (% of Exports)	34.9	25.8	12.8	11.0	14.7	12.6
Net total ODA (US$ Billion)	25.0	15.3	38.9	43.4	47.0	------
Foreign Direct Investment Flows (US$ Billion)	2.8	9.8	63.1	72.2	58.6	-------

Source: AfDB Statistics Department, UNCTAD and IMF.
a-all expressed as % of GDP.

In Botswana, the mining sector, particularly diamonds exports, account for more than a third of the country's GDP (African Economic Outlook Report, 2010). Sample countries' export commodities are tea, sugar, timber, peanut oil, petroleum, cooper and gold, among others. The global export markets of these raw materials has been characterized by high price fluctuations and a declining market share in the last decade, with the exception of gold whose monetary status is considered a "safe investment" vehicle.

Figure 7: Diversification and Competiveness of Sample Countries, 2004-2008.



Sources: ADB Statistics Department ; COMTRADE Database (Harmonized system, Rev.1) - UN Statistics Division.

3.8 Conclusion

This Chapter uses evidence from Africa's economies to analyse the development, evolution and performance of Africa's financial systems. A special attention was given to stock market and banking sectors which are predominant in Africa as sources of financial capital funds. In our sample of countries, most economies saw an emergence of the stock market in the 1990s, though these capital markets are still thin and illiquid, their early growth potential show that a positive trend can be sustained into the future. The study by Beck and Demirguc-Kunt (2009) shows that whilst stock markets have become larger throughout the world, they have not become more liquid outside the high-income world; this applies to our sample of African countries as well.

We find a trend towards market-based financial systems in most African economies. Though both markets and banks have been deepening in the last decade, the deepening is stronger for markets than banks. There is still however large domination of traditional banking finance, since the trend in Africa towards markets is mostly driven by a rise in market capitalization but less in terms of trading activities in these markets. There is a wide cross-country variation in financial system depth, and the banking sector and stock market development in Africa, with South Africa and North African countries in our sample having relatively large markets.

Further, we used a number of economic performance indicators to assess the evolution of macroeconomic and institutional environments in which the African capital markets operate. The economic indicators of the sample countries show a positive pace of development in terms of the growing income levels and a reduction in debt service burden coupled with a continual decline in total external debt holdings. Corruption levels, however, are still perceived to be high by institutional and foreign investors in our sample countries. The level of diversification is still poor and due to persistent erratic movements in terms of trade of products that African countries produce, and this might continue to have a deterrent effect on sustainable development path of both financial markets and economic performance in Africa.

Appendix 1

Table A3.1: Domestic Credit to the Private Sector (%GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
France	87.8	85.6	88.3	90.4	92.2	98.0	105.1	107.9	110.3	96.2
Germany	118.2	116.9	115.4	112.2	111.7	109.0	105.1	108.3	112.3	112.1
India	29.1	32.8	32.1	35.6	39.4	43.2	44.8	49.0	46.8	39.2
Indonesia	20.3	21.3	22.9	26.4	26.4	24.6	25.5	26.5	27.6	24.6
Japan	193.0	182.4	180.7	174.1	182.9	180.0	172.6	165.5	171.0	178.0
Korea Rep.	81.8	88.5	90.3	84.9	87.1	95.1	99.6	108.8	107.6	93.8
Malaysia	129.1	121.8	119.0	111.9	110.8	107.7	105.3	100.5	117.1	113.7
United Kingdom	134.4	138.3	143.1	150.8	159.6	171.1	188.1	210.3	213.5	167.7
USA	176.7	167.6	183.3	191.1	195.5	205.4	212.5	190.4	202.9	191.7

Source: World Development Indicators.

Table A3.2: Liabilities to GDP (%).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
India	59	64	70	77	84	91	111	121	117	88
Indonesia	48	53	59	59	60	69	77	79	80	65
Japan	179	174	187	196	190	175	170	198	238	190
Korea Rep.	65	70	76	75	83	89	87	83	80	79
Malaysia	136	135	139	146	152	168	182	198	205	162
United Kingdom	107	115	134	160	177	199	244	264	235	181
USA	75	77	79	80	84	90	98	106	109	89

Source: World Development Indicators.

Table A3.3: Quasi-liabilities (M3-M1) to GDP ratio.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
India	42	46	50	54	58	64	80	90	87	63
Indonesia	35	38	42	41	42	48	52	55	56	45
Japan	124	110	105	107	100	91	89	105	127	107
Korea Rep.	58	61	67	66	72	76	74	72	69	68
Malaysia	111	108	111	117	121	134	144	157	161	129
USA	63	65	66	67	72	78	86	94	94	76

Source: World Development Indicators.

Table A3.4: Quasi-liabilities (M3-M1) to GDP ratio.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Botswana	30	32	45	46	50	43	53	56	56	46
Cote d'lvoire	7	9	11	12	12	14	17	20	22	14
Egypt	56	54	49	52	59	63	70	75	74	61
Ghana	7	8	11	13	17	22	29	33	------	18
Kenya	20	22	21	22	24	26	29	31	37	26
Malawi	10	11	10	10	10	10	11	21	25	13
Mauritius	66	71	81	91	91	88	95	113	102	89
Morocco	27	29	32	35	40	45	55	69	67	44
Namibia	15	13	17	20	25	25	26	22	20	20
Nigeria	9	11	11	12	13	21	31	48	48	23
South Africa	36	34	53	68	79	88	101	98	99	73
Swaziland	12	11	16	20	21	26	29	27	35	22
Tunisia	32	34	39	42	42	43	48	55	54	43
Zambia	5	6	7	9	11	16	18	24	18	13
Zimbabwe	58.4	173.0	76.1	34.2	50.4	111.6	-------	-------	------	30

Source: World Development Indicators.

TableA3.5: Domestic credit provided by the banking sector (% of GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
France	105.6	103.1	104.9	105.8	108.5	115.0	122.0	124.3	128.4	113.1
Germany	144.0	142.4	140.6	137.8	136.1	131.0	124.5	126.3	131.8	134.9
India	54.7	58.9	57.4	57.6	58.4	60.9	60.8	68.2	69.4	60.7
Indonesia	54.5	52.4	49.2	49.6	46.2	41.7	40.6	36.8	36.9	45.3
Japan	299.4	299.2	307.3	303.5	312.8	305.0	294.3	295.4	320.5	304.2
Korea Rep.	83.8	89.6	92.0	87.4	91.4	99.9	101.8	112.3	112.4	96.7
Malaysia	146.5	143.6	139.8	127.5	122.4	119.0	113.4	115.2	137.4	129.4
United Kingdom	135.7	140.8	144.9	153.2	161.9	171.9	188.4	211.3	228.9	170.8
USA	206.1	198.8	214.4	221.3	225.2	235.1	242.7	219.7	230.5	221.5

Source: World Development Indicators.

Table A3.5: Interest rate spread (lending rate minus deposit rate, %).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average
Indonesia	3.1	3.4	6.3	7.7	6.0	4.6	5.9	5.1	5.2	5.3
Japan	1.9	1.8	1.8	1.7	1.4	1.0	1.1	1.3	1.3	1.5
Korea Rep.	1.9	1.8	2.0	2.0	1.9	1.5	1.4	1.3	2.2	1.8
Malaysia	3.8	3.3	3.2	3.0	3.0	3.3	3.2	3.0	3.0	3.2

Source: World Development Indicators.

Table A3.7a: Banking Sector Concentration in Africa

Country	1995	1996	1997	1998	1999	2000
Botswana	0.97	0.97	0.98	1.00	0.99	0.94
Cote d'lvoire	0.93	0.92	0.87	0.85	0.79	0.77
Egypt	0.59	0.57	0.56	0.57	0.56	0.57
Ghana	1.00	0.94	0.92	0.95	0.95	0.91
Kenya	0.58	0.53	0.51	0.56	0.57	0.60
Malawi	----	0.95	0.90	0.97	0.91	0.90
Mauritius	0.96	0.91	0.85	0.91	0.92	0.84
Morocco	0.68	0.62	0.54	0.54	0.54	0.53
Namibia	----	----	----	----	----	----
Nigeria	0.65	0.48	0.45	0.39	0.41	0.41
South Africa	0.80	0.84	0.80	0.72	0.85	0.85
Swaziland	----	----	1.00	----	1.00	0.92
Tunisia	0.52	0.51	0.48	0.45	0.44	0.45
Zambia	0.81	0.77	0.86	0.66	0.69	0.66
Zimbabwe	0.73	0.78	0.75	0.75	0.78	0.73

Source: Financial Structure Dataset (Fitch's BankScope database).

Table A3.7b: Banking Sector Concentration in Africa.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009
Botswana	0.93	0.91	0.84	0.78	0.78	0.81	0.78	0.74	0.70
Cote d'lvoire	0.77	0.79	0.72	0.75	0.63	0.64	0.94	1.00	1.00
Egypt	0.58	0.57	0.57	0.55	0.58	0.59	0.57	0.55	0.53
Ghana	0.88	0.86	0.82	0.79	0.77	0.64	0.62	0.61	0.59
Kenya	0.61	0.59	0.58	0.54	0.50	0.49	0.79	1.00	1.00
Malawi	0.89	0.86	0.81	0.90	0.88	0.88	0.97	1.00	1.00
Mauritius	0.90	0.82	0.73	0.72	0.58	0.62	0.66	0.71	0.75
Morocco	0.62	0.63	0.64	0.68	0.66	0.66	0.78	0.91	1.00
Namibia	----	----	----	0.91	0.78	0.93	1.00	1.00	1.00
Nigeria	0.39	0.39	0.39	0.39	0.44	0.40	0.40	0.39	0.39
South Africa	0.87	0.96	1.00	0.94	0.92	0.75	0.77	0.79	0.81
Swaziland	0.91	0.80	0.76	0.77	0.76	0.81	1.00	1.00	1.00
Tunisia	0.45	0.45	0.46	0.46	0.45	0.45	0.49	0.54	0.59
Zambia	0.62	0.60	0.58	0.60	0.59	0.55	0.60	0.66	0.74
Zimbabwe	0.60	0.50	0.78	0.85	0.97	1.00	----	----	----

Source: Financial Structure Dataset (Fitch's BankScope database).

Table A3.8: Indicators of stock market development, 1995-2001(annual average).

Country	No. of listed companies	Market Capitalization(% of GDP)	Value Traded(% of GDP)	Turnover ratio (%)
Botswana	14	13.89	0.93	8.01
Cote d'lvoire	36	10.71	0.27	3.59
Egypt	876	25.66	7.02	24.46
Ghana	21	16.29	0.41	2.42
Kenya	57	13.37	0.56	3.91
Malawi				
Mauritius	38	35.1	2.15	6.11
Morocco	51	29.34	3.86	15.53
Namibia	13	11.82	0.54	4.64
Nigeria	188	9.33	0.45	4.9
South Africa	629	157.96	39.37	24.62
Swaziland	5	11.86	0.14	1.62
Tunisia	37	15.19	2.04	13.61
Zambia	7	8.15	0.41	5.67
Zimbabwe	67	43.80	6.36	14.27

Source: World Development Indicators.

Table A3.9: Market Capitalization of listed companies (%GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
France	88	67	76	76	83	108	108	53	76	76	81
Germany	57	35	44	44	44	56	63	31	39	43	45
India	23	26	47	54	66	86	146	53	85	94	68
Indonesia	14	15	23	29	29	38	49	19	33	51	30
Japan	55	54	72	80	104	108	102	66	67	75	78
Korea Rep.	43	43	51	59	85	88	107	53	100	107	74
Malaysia	129	123	153	152	132	150	175	84	133	173	140
United Kingdom	147	116	132	128	134	155	137	70	129	138	129
USA	135	105	129	138	135	146	143	82	107	118	124

Source: World Development Indicators.

Table A3.10: Total value of stocks traded (a % of GDP).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
France	81	64	62	69	71	111	132	115	52	32	79
Germany	75	61	47	51	63	85	101	85	39	43	65
India	52	39	48	53	52	67	89	87	79	61	63
Indonesia	6	7	6	11	15	13	26	22	21	18	15
Japan	45	40	54	75	110	143	148	121	83	78	90
Korea Rep.	140	138	106	89	142	141	188	157	190	160	145
Malaysia	22	27	46	48	36	43	80	38	38	38	42
United Kingdom	127	119	119	168	183	174	367	244	157	134	179
USA	284	240	140	164	171	250	305	255	333	209	235

Source: World Development Indicators.

Table A3.11: Stocks traded, turnover ratio (%).

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
France	82	87	95	97	92	120	132	153	79	43	98
Germany	121	140	130	124	146	174	180	193	107	103	142
India	193	163	139	114	92	93	84	85	119	76	116
Indonesia	39	49	35	43	54	44	64	71	83	48	53
Japan	68	72	88	102	119	132	142	153	127	115	112
Korea Rep.	360	337	236	169	210	173	202	181	238	169	227
Malaysia	18	23	34	33	27	32	54	33	33	27	31
United Kingdom	79	95	102	141	142	124	270	227	146	102	143
USA	201	203	123	127	129	183	217	230	349	189	195

Source: World Development Indicators.

Table A3.12: Listed domestic companies, total.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Average
France	791	772	934	898	885	717	707	966	941	901	851
Germany	749	715	684	660	648	656	658	638	601	571	658
India	5795	5650	5644	4730	4763	4796	4887	4921	4955	4987	5113
Indonesia	316	331	333	331	335	344	383	396	398	420	359
Japan	2471	3058	3116	3220	3279	3362	3844	3299	4161	3553	3336
Korea Rep.	1409	1518	1563	1573	1620	1694	1767	1798	1778	1781	1650
Malaysia	809	865	897	962	1020	1027	1036	977	953	957	950
United Kingdom	1923	2405	2311	2486	2759	2913	2588	2415	2179	2056	2404
USA	6355	5685	5295	5231	5143	5133	5130	5603	4401	4279	5226

Source: World Development Indicators.

Table A3.13: Equities Portfolio Flows (2001-2009), in millions of U.S. $.

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009
France	389919	290936	416439	524160	608068	869388	956216	571728	741563
Germany	271926	196165	330897	424842	511430	690991	986087	526764	665382
India	13376	21043	45208	65288	105636	162046	326741	165875	281913
Indonesia	3590	7614	13279	17886	18182	26167	39683	22562	45701
Japan	332338	304352	498124	661893	970027	1101475	1058001	643472	702276
Korea Rep.	51869	61126	92896	127471	200743	217573	263551	110304	191071
Malaysia	12882	12662	16101	22853	23536	32530	53319	25297	37391
UK	712922	656317	896545	1044729	1217063	1542192	1672572	928053	1325612
USA	1026731	914053	1300264	1504775	1708617	2180648	2385499	1504598	2013655

Source: International Monetary Fund's Coordinated Portfolio Investment Survey (CPIS).

Table A3.14: Correlation matrix of Stock Market Indicators for sample countries.

Covariance Analysis: Kendall's tau
Date: 08/22/11 Time: 17:50
Sample (adjusted): 1 237
Included observations: 203 after adjustments
Balanced sample (listwise missing value deletion)

tau-a Probability	SMINDEX	MCAPG	VSTG	TOR
SMINDEX	1.000000 -----			
MCAPG	0.671365 0.0000	1.000000 -----		
VSTG	0.915037 0.0000	0.656636 0.0000	1.000000 -----	
TOR	0.755792 0.0000	0.428132 0.0000	0.754914 0.0000	0.999951 -----

Table A3.15: Correlation matrix of Stock Market Indicators for sample countries.

Covariance Analysis: Spearman rank-order
Date: 08/22/11 Time: 17:52
Sample (adjusted): 1 237
Included observations: 203 after adjustments
Balanced sample (listwise missing value deletion)

Correlation Probability	SMINDEX	MCAPG	VSTG	TOR
SMINDEX	1.000000 -----			
MCAPG	0.848458 0.0000	1.000000 -----		
VSTG	0.988517 0.0000	0.842920 0.0000	1.000000 -----	
TOR	0.916546 0.0000	0.601176 0.0000	0.915107 0.0000	1.000000 -----

Fig A3.1: African Inflation and Fiscal balance trends.

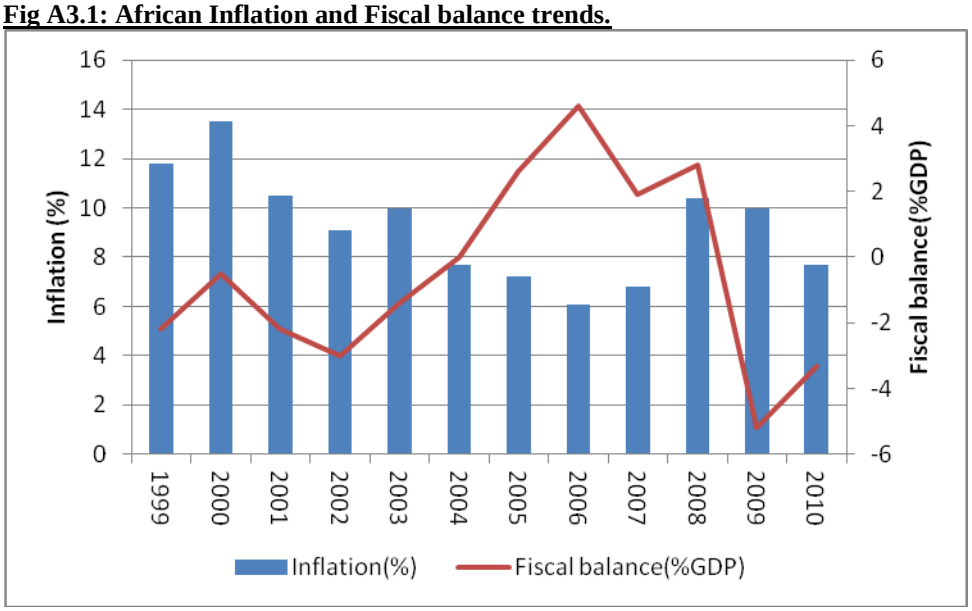


Fig A3.2: African Total External Debt/GDP ratio and Debt Service /Export ratio.

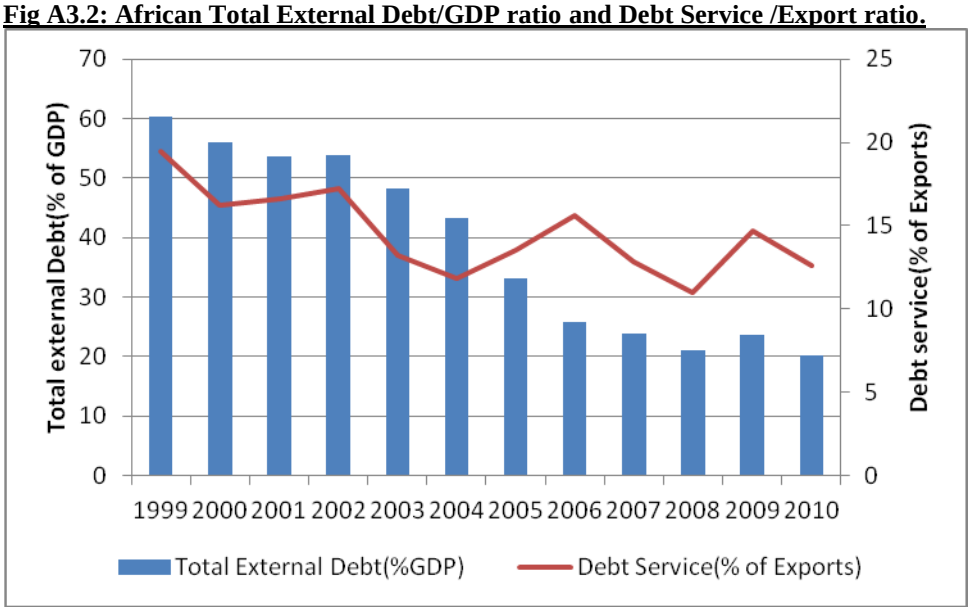


Fig A3.3: African GDP per capita (US$) and Real GDP growth rate(%) trends.

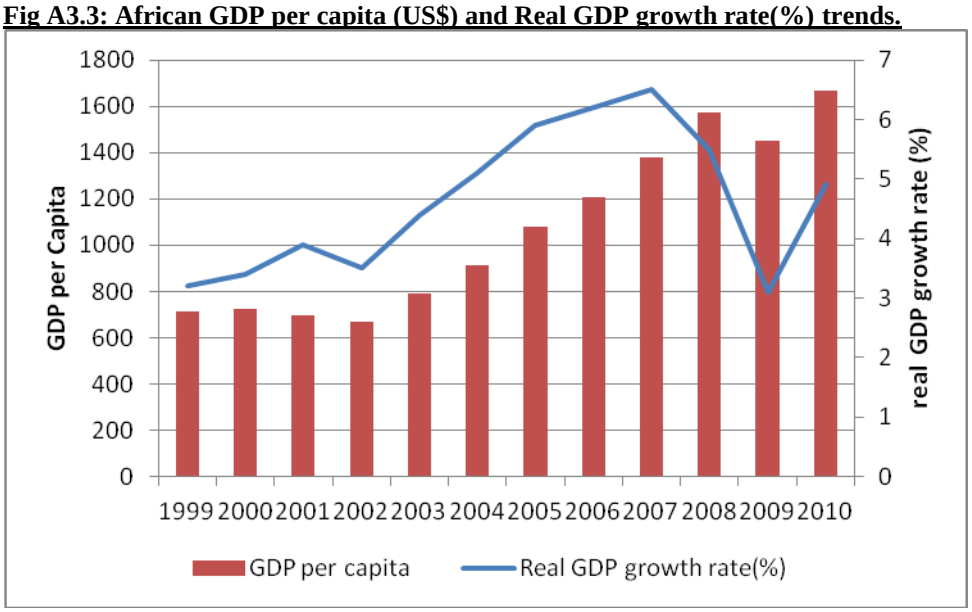
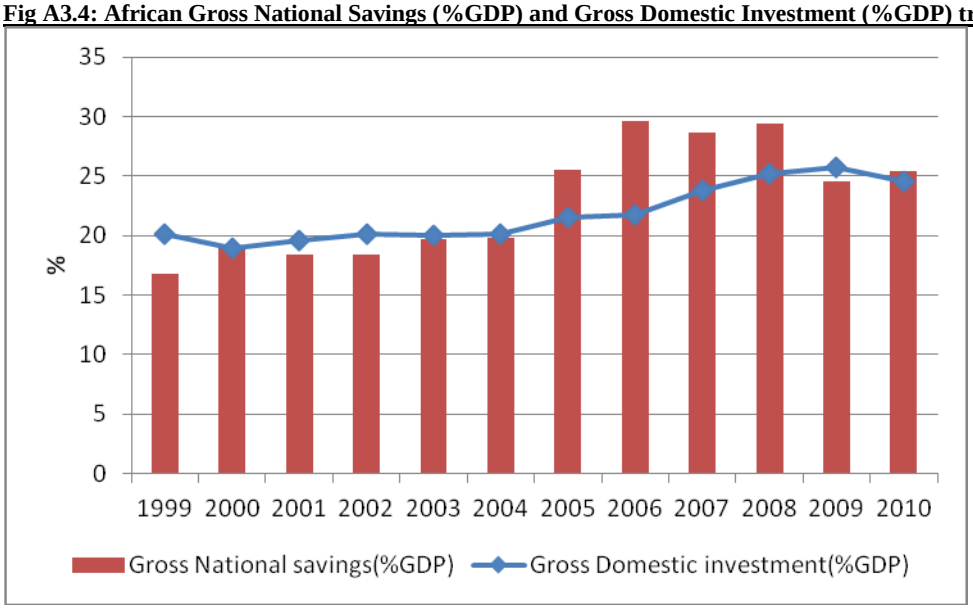


Fig A3.4: African Gross National Savings (%GDP) and Gross Domestic Investment (%GDP) trends.



CHAPTER 4: STOCK MARKET AND BANKING SECTOR DEVELOPMENT IN AFRICA

In Chapter 3 we showed that it is important to understand the origins of capital markets in our sample of African countries. Firstly, this chapter compiles and compares the various indicators of stock market and banking sector development. Then, it investigates the primary determinants of financial development with particular emphasis on both the stock market and the banking sector.

First, we establish the determinants of stock market development in Africa by using a comprehensive measure of stock market development we constructed. Then, we compare the determinants of banking sector development in Africa with the ones of stock market development. Lastly and importantly, we account for both macroeconomic factors and institutional factors in our analysis.

Annual growth rates of financial development indicators

Table 16: Indicators of Stock Market and Banking Development, 1995-2011 (annual average).

Country	Stock market depth	Rank	Stock value traded	Rank	Stock turnover ratio	Rank	Banking credit	Rank	Private sector credit	Rank
Botswana	23.40	7	0.86	9	5.02	9	-27.49	15	17.21	11
Cote d'Ivoire	18.02	9	0.42	13	2.35	14	22.32	11	15.9	12
Egypt	43.10	4	15.74	2	32.51	2	86.26	3	45.08	6
Ghana	15.06	11	0.42	12	2.94	13	27.93	10	12.25	13
Kenya	25.68	6	1.96	7	6.68	7	41.89	8	28.7	8
Malawi	20.10	8	0.62	10	3.21	12	17.53	13	8.86	15
Mauritius	42.91	5	2.64	5	6.33	8	89.31	2	67.3	2
Morocco	46.92	3	10.03	4	19.21	3	80.22	4	49.82	4
Namibia	9.54	15	0.34	14	3.33	11	49.08	7	46.53	5
Nigeria	16.67	10	2.24	6	10.78	6	19.88	12	17.6	10
South Africa	197.04	1	75.53	1	38.34	1	160.22	1	130.19	1
Swaziland	10.29	14	0.08	15	0.96	15	12.98	14	17.71	9
Tunisia	14.30	12	1.93	8	13.86	4	66.89	5	62.01	3
Zambia	12.13	13	0.44	11	4.26	10	39.12	9	9.27	14
Zimbabwe	101.98	2	11.29	3	12.82	5	66.57	6	38.43	7

Source: World Bank Development Indicators and Authors' own calculations.

The stylized facts in Table 16 show that South Africa, Egypt and Morocco have both well-developed stock markets and banks relative to the size of these same financial institutions in other African countries. Zimbabwe has relatively well-developed stock market but small banking sector whilst Mauritius and Tunisia have small stock markets but relatively developed banks. The rest of our sample countries have relatively small banks and stock

markets as well as illiquid stock markets. These results are consistent with Demirguc-Kunt and Levine (1996), where there is a role for both banking and equity markets as economies develop. This means that with increases in wealth and per capita income, stock market activities emerge to complement bank lending. The obvious question that comes up is whether the measures of stock market development are correlated with the indicators of financial intermediaries. To answer this question for our sample of countries we report the correlation test results in Table 17.

Table 17: Correlations between Indicators of Financial Intermediary and Stock Market Development, 1995-2011.

	SMINDEX1[34]	Market size	Value traded	Turnover ratio	Bank credit
SMINDEX	1				
Market size	0.24***	1			
Value traded	0.20**	0.79***	1		
Turnover ratio	0.35***	0.57***	0.78***	1	
Bank credit	0.06	0.66***	0.68***	0.63***	1
Private credit	0.08	0.71***	0.74***	0.61***	0.89***

* $p<0.1$; * *$p<0.05$*** $p<0.01$

In our sample of African countries stock market depth (size) and liquidity are positively associated with bank credit and credit extended by the financial system to the private sector. This suggestive evidence entails that countries with large and active stock markets are associated with large banks and high financial intermediation to the private sector.

Most African countries established their stock markets after 1989 as was discussed in Chapter 3 and reported in Table 18, the growth rates in financial sector development indicators show that stock markets have been growing at a higher rate than banks over the period of analysis. The higher growth rates in size and degree of trading in African stock markets signal some evidence of convergence in development of financial markets.

The equity markets in Africa have a diverse and contrasting nature. They vary in terms of their depth, number of market participants and level of trading activities. The markets do vary also in terms of the trading systems, financial instruments being traded and their restrictions on foreign investor's participation. See the stylized facts on the characteristics of stock markets in Africa in Chapter 3.

[34] The composite index of stock market development (SMINDEX) comprises of market capitalization, value of shares traded and turnover ratio. The description of the construction of this indicator is presented later in this chapter.

Table 18: Growth Rates of Indicators of Stock Market and Financial Intermediaries Development, 1995-2011.

Country	Stock market depth	Rank	Stock value traded	Rank	Stock turnover ratio	Rank	Banking credit	Rank	Private sector credit	Rank
Botswana	10.98	7	6.29	15	-0.66	15	-182.1	15	5.03	6
Cote d'Ivoire	11.15	6	30.19	9	14.26	11	-0.40	12	0.10	13
Egypt	8.07	10	40.31	6	18.13	8	0.15	10	0.08	14
Ghana	-2.38	15	21.18	10	27.94	6	4.03	6	8.41	2
Kenya	9.26	8	32.84	8	16.49	10	0.31	9	1.02	10
Malawi	30.43	3	34.81	7	37.14	4	6.96	4	8.03	3
Mauritius	6.99	11	14.48	12	9.81	12	3.64	7	4.49	8
Morocco	11.55	5	29.20	11	9.80	13	4.84	5	5.85	5
Namibia	11.47	6	139.44	2	70.69	3	-0.12	11	0.21	12
Nigeria	12.05	4	52.62	5	36.03	5	19.86	2	7.80	4
South Africa	4.11	13	16.86	13	14.85	9	-1.62	13	-1.71	15
Swaziland	0.44	14	462.3	1	363.43	1	28.05	1	4.50	7
Tunisia	4.42	12	10.01	14	7.16	14	1.08	8	0.81	11
Zambia	96.52	1	121.38	3	122.6	2	-5.70	14	3.53	9
Zimbabwe	97.75	2	74.31	4	27.08	7	14.50	3	25.03	1

It is possible that initial conditions may also matter for both stock market and banking sector development in our sample of African countries. The stylized facts in Table 18 show that small countries on average have higher growth rates in financial sector in our sample for period 1995-2011. Countries like Malawi, Namibia, Swaziland, Zambia and Zimbabwe exhibit faster growth (on average terms) than relatively better developed economies like Egypt, Morocco and South Africa in terms of financial sector development.

The rest of the chapter is structured as follows. In parts of section 4.1 we provide a discussion on the motivation of the study, and recall the research question; and we outline the objectives of the study. In section 4.2 we outline our theoretical model and its extension to the African context. In section 4.3 we outline our data and econometric methodology. In section 4.4 we present our findings and discuss their implications for the debate on financial systems development. Finally in section 4.5 we provide a summary and some concluding remarks.

4.1. The Role of the Financial Sector in an Economy

The study by Allen et al (2010) argues that financial development in Africa suffers from different underlying factors, in particular the case for the banking sector development. These factors are different from those influencing growth in the banking sector in other parts of the world. They provide evidence that there exists a financial gap in Africa, since the predicted levels of financial development exceed the actual levels experienced. The existence of a financial gap in the face of dominance of the banking sector in the past has resulted in new interests in the role of the stock market for African economies.

The shortage of resource mobilization, marginalization of African stock markets in the global financial capital, coupled with shrinking official aid are central to the tremendous financial gap facing the region. Understanding the key issues that matter most for the development of stock markets in Africa is a goal towards providing policy prescription that can help in filling the severe financial gap.

Stock markets have a multi-faceted role in stimulating growth in participating firms. In theory, stock markets can be used as a vehicle for capital mobilization and help also in providing key information on the firm growth prospects through compulsory information disclosure requirements for all listed firms. The stock exchange provides companies with the facility to raise capital for expansion through selling shares to the investing public.

The stock market also helps to facilitate company growth through acquisitions or merger agreements. Companies view acquisitions as an opportunity to expand product lines, increase distribution channels, hedge against volatility, increase market share or acquire other necessary business assets. By giving a wide spectrum of people a chance to buy shares and therefore become part owners (shareholders) of profitable enterprises, the stock market helps to reduce large income inequalities. Stock markets provide an extra source of income to small investors. It creates investment opportunities to small investors as individuals participating on stock exchange buy the number of shares they can afford as opposed to other businesses that require huge capital outlay.

Government and local municipalities may raise capital for developmental projects by selling another category of securities known as bonds through the stock exchange to members of the public. When government gets this alternative source of funds, it no longer has the need to overtax people in order to finance developmental projects like huge infrastructure projects such as sewage and water treatment works.

Stock markets help investors by pooling and trading risk through accommodating investors with different wealth portfolios and trading firm shares of different industrial categories. Stock markets act as a vehicle by which domestic and foreign investors interact and thereby help in increasing global integration of financial markets in Africa. The risk on rate of return can be reduced by diversifying wealth portfolios through securities markets. Well-developed stock markets may enhance corporate control by mitigating the principal-agent problem through aligning the interests of managers and owners, in which case managers would strive to maximise firm value (Diamond and Verrecchia, 1982; Jensen and Murphy, 1990).

The stock market can also act as a barometer of the economy. At the stock exchange, share prices can rise and fall depending largely on the market information and reaction of investors to news and the general behaviour of market participants. Share prices tend to rise or remain stable when companies or the economy in general shows signs of stability. Therefore, the movement of share prices can be an indicator of general trend in economic activities.

While the potential effects of financial development on growth have been analysed extensively, in most models the degree of financial development is assumed to be exogenous (Pagano, 1993). The understanding of what determines the emergence of financial markets or the degree of their development is at least as important as assessing their effects on growth. Indeed, if financial markets do influence the growth outcomes, one would like to know what gets financial markets off the ground, especially what explains their relative development? On the other hand, relative size of these markets differ significantly even in countries that have reached a comparably high level of economic development, see evidence in Chapter 3.

The level of stock market development, in terms of size, liquidity, volatility and integration with world markets in the regions of emerging markets, that is, Asia, Latin America, Eastern

Europe, Africa and the Middle East, are most likely to be different.[35] The regulatory environments in which stock markets in these regions operate are different. This is why this research will use selected African capital markets as a basis to establish the determinants of stock market and banking sector development.

Many African stock markets in the past had little impact on overall economic performance (Jefferis, 1995, Hearn and Piesse, 2010). The exception to this is Johannesburg Stock Exchange which has been performing well. The goal of this research is to provide possible measures that might make these stock markets function better by understanding key aspects that characterize their development**.** We further argue that if foreign investor's inflows were witnessed to be a source of fluctuations in macroeconomic activities in East Asia[36]; are the same mechanisms at work in African emerging and frontier stock markets? The main questions that this study seeks to answer are provided in the next section.

4.1.2. Research questions

The discussion in the introduction section of this chapter raises some interesting questions. Accordingly, this research seeks to answer the following questions:

I. What are the factors that matter for the development of African stock markets: size or liquidity?

II. What are the factors that matter for the development of banking sectors in Africa?

Responses to these questions are meant to ascertain the determinants of emerging and frontier capital[37] markets and banking sectors in Africa. Consequently, they will enable us to assess

[35] Studies by Bekaert and Harvey (1997), Bonser-Neal and Dewenter (1999), Hearn and Piesse (2005) suggests the same views.

[36] See Stiglitz, 2000, though Choe et al (1999) fails to find evidence on the destabilizing effect of foreign trades on the Korean stock market.

[37] Frontier markets are very small and less developed markets as defined by International Financial Corporation (IFC) and Standard and Poor's Emerging Market Indices, 2007.

the degree of integration[38] of local markets into global markets and their impact on stock markets' liquidity and size.

4.1.3. Research objectives

Specifically, this chapter will establish determinants of stock markets and banking sectors' development as well as establish the link between foreign investors' participation, capital market liquidity and size for selected African capital markets. The chapter will:

I. Establish the influence of macroeconomic and institutional factors on stock market liquidity and size for selected African countries.

II. Investigate the determinants of the banking sector development for selected African countries.

The empirical evidence on the impact of macroeconomic environment and institutional quality on overall development of emerging and frontier capital markets in Africa has several policy implications for evaluation of viable investment resource allocation.

4.1.4. The study hypotheses

Consistent with the literature on other emerging countries[39] and few individual country case studies in Africa[40], this research hypothesize that:

I. Institutional and macroeconomic indicators do influence the stock market liquidity and size.

II. Remittances, institutional factors and macroeconomic indicators do influence banking sector development.

[38] Financial market integration is defined as the degree of free access of foreigners to local capital markets (and access of local investors to foreign capital markets)

[39] Errunza (2001)) finds no evidence about liberalization influencing stock market volatility, but it helps in fostering the evidence on stock market development. See also Khambata (2000), Levine (1996).

[40] See Arowolo (1971), Jefferis (1995), Kenny and Moss (1998), Ngugi et al (2003), Marone (2003), Yartey (2008) and Kyereboah-Coleman and Agyire-Tettey (2008).

4.2. Theoretical framework for stock market and banking development

This section provides a conceptual framework to analyze how macroeconomic factors, institutional environment and foreign investors' participation affect stock market and banking sector developments. The review of theoretical models allows us to highlight pertinent empirical implications, as well as identify the potentially relevant institutional, macroeconomic and foreign investors' participation measures to be used in the econometric analysis.

4.2.1. Theoretical framework for stock market development

Calderon-Rossell (1991) presents a partial behavioural structural model of stock market growth. The model developed a link between stock market development and economic activity. It establishes that economic growth and market liquidity are major determinants of stock market growth. The model identifies two channels by which economic growth affects stock market capitalization. Economic growth can affect stock market size through its direct impact on the value of the listed companies. If the listed companies realise an increased income stream of revenue and profits, this will provide a positive signal to investors whose buying activity will eventually raise stock prices. The increase in stock prices might motivate these companies to issue additional shares to the public and help companies with more funds for investments. Economic growth has the tendency of providing investors with more resources, which in turn empower them to demand more shares.

The increase in stock market liquidity has two opposite effects on stock market development. On one hand, it can induce additional listings, which whilst holding all other things constant would lead additional listings to reduce average share prices, thereby reducing the value of companies. Alternatively, additional liquidity can increase the attractiveness of stock markets to outside investors and, therefore, facilitates market expansion. The Calderon-Rossell model is reproduced in section 4.2.2:

4.2.2. The Calderon-Rossell model (1991):

$$Y=PV, \quad (4.1)$$

Where: Y = measure of market capitalization in local currency, P = the number of listed companies, and V = average prices of listed companies. The number of listed companies and average prices depend on the level of economic development and turnover ratio, such that market capitalization can be expressed as:

$$Y=PV=Y(G,T), \quad (4.2)$$

$$\text{Where } P=P(T,V) \text{ and } V=V(G,P), \quad (4.3)$$

From equation (4.3) G = per capita gross domestic product (GDP), T = turnover ratio. The number of listed companies depend on the level of trading activities and average prices of all listed companies, whilst the average prices of all listed companies is a result of the influence of economic development and number of listed companies.

The structural form of equations (4.1), (4.2) and (4.3) can be transformed into overall reduced behavioural form as:

$$\begin{aligned} Y &= PV \\ &= P(T,V).V(G,P) \\ &= P[T,V(G,P)].V[G,P(T,V)] \\ &= P[T,G].V[T,G] \\ &= Y[T,G]. \end{aligned}$$

We introduce the natural logarithms to normalize the relationship and obtain:

$$\log Y = \varphi_1 \log G + \varphi_2 \log T \ , \quad (4.4)$$

The individual components of this reduced form equation are:

$$\log V = \eta_1 \log G + \eta_2 \log T \quad (2.5)$$
$$\log P = \vartheta_1 \log G + \vartheta_2 \log T$$

Equation (4.4) is a combination of model (4.5) such that:

$$\log Y = \log(PV) = \eta_1 \log G + \eta_2 \log T + \vartheta_1 \log G + \vartheta_2 \log T \quad (2.6)$$

$$\log Y = (\eta_1 + \vartheta_1) \log G + (\eta_2 + \vartheta_2) \log T$$

$$\text{therefore: } \varphi_1 = \eta_1 + \vartheta_1 \text{ and } \varphi_2 = \eta_2 + \vartheta_2$$

$$\log Y = \varphi_1 \log G + \varphi_2 \log T \quad (2.7)$$

From equation (4.4) the impact of per capita GDP, G, and additional market liquidity, T, on stock market capitalization, Y, is the result of their combined effect on average stock prices, V, and the number of listed companies, P. It is anticipated that the effect of economic development on stock prices is positive, while that of additional listings will be positive. Since additional stock market liquidity can facilitate market expansion, it is expected to have a positive effect on stock market development.

4.2.3. Extension of Calderon-Rossell model

The literature on the barriers facing stock markets in Africa shows that financial, economic, and institutional risks are major impediments to their development (Kenny and Moss, 1998; Allen et al., 2010; Cherif and Gazdar, 2010; Hearn and Piesse, 2010). In this study we modify the traditional model by incorporating a proxy for institutional factors such as the level of political stability. Political instability and social strife have the potential of affecting investor's confidence and thus lower market liquidity.

Errunza (2001) suggests that foreign portfolio investments can have a major impact on stock market growth. The increase in participation of foreign investors instils confidence among local investors and thus results in more active stock markets. The presence of foreign investors will increase market liquidity as a result of additional external funds.

Additionally, we incorporate private capital flows as a determinant of stock market development. Our methodology differs further from previous research by considering stock market development as a composite indicator rather than taking stock market size or liquidity on its own. Thus we modify the Calderon-Rossell model by removing turnover ratio as an independent variable since it is a measure of stock market development (market liquidity) too.

The inputs from previous discussions and the traditional Calderon-Rossell model can be expressed as:

$$y_{i,t} = \beta_0 m_{i,t-1} + \beta_1 i_{i,t} + \beta_2 p_{i,t-1} + \varepsilon_{it} \quad (2.8)$$

where:

y = stock market indicators, m = macroeconomic variables including for example per capita GDP growth; i = institutional variables such as political stability and p = private capital flows.

4.2.4. Theoretical framework for banking sector development

The banks in Africa are less efficient than most banking industries of the world, as demonstrated in Chapter 3 and highlighted by Andrianaivo and Yartey (2010). Further, the level of efficiency has little variation for the period of analysis. In theory, financial intermediaries emerged mainly due to informational and transaction costs problems. Many models have emphasized that well-functioning financial intermediaries and markets ameliorate information asymmetry and transaction costs thereby fostering resource allocation and faster long-run growth (Bencivenga and Smith, 1991; Bencivenga et al, 1995; King and Levine, 1993a). Based on the theoretical and empirical literature review, we estimate the following model:

$$y_{i,t} = \alpha_0 m_{i,t-1} + \alpha_1 t_{i,t-1} + \alpha_2 i_{i,t} + \varepsilon_{i,t}. \quad (2.9)$$

Where $y_{i,t}$ is the measure of banking sector development, i.e., bank credit to the private sector, $m_{i,t}$ is a vector of macroeconomic variables that are discussed in the literature (see Chapter 2), $t_{i,t}$ is a measure of trade openness and $i_{i,t}$ is a set of institutional variables namely corruption, regulatory quality and government effectiveness.

4.3 Econometric Methodology and Data

We utilise panel data technique to investigate the main determinants of stock market and banking sector developments in Africa. The estimation sample comprises 15 countries and

covers the recent period 1995-2011[41]. We start by running the standard Ordinary Least Squares (OLS) pooled regression model and correct for heteroskedasticity and autocorrelation. The next section briefly introduces the static and alternative econometric methods for checking the robustness of the baseline results.

Therefore the main approach used in this research is that of pooling data over a group of 15 African countries and for a period of 17 years to form a short-macro panel dataset. The basic panel data regression model, in line with Baltagi (2001), takes the following form:

$$y_{it} = \alpha_i + x_{it}'\beta + \varepsilon_{it} \quad (3.1)$$

$$\varepsilon_{it} = \mu_i + \nu_{it} \quad (3.2)$$

Here, $i = 1,....N$ (number of countries) and $t = 1.....T$ (number of years). There are K regressors in x_{it}, not including the constant term. α is a scalar, β is a $K \times 1$ vector of coefficients of regressors. μ_i is the unobservable individual-country specific effect which is time-invariant, whilst ν_{it} is the remaining disturbance term which varies with both individual countries and time; it can be thought of as the usual disturbance term in an OLS regression model.

If we substitute equation (4.11) into equation (4.10) we get the following one-way error component model;

$y_{it} = \alpha + \mu_i + x_{it}'\beta + \nu_{it}$.Note that $\alpha = 1/N \sum_{i=1}^{N} \alpha_i$ is the average of individual effect while μ_i is the individual deviation from the average: $\mu_i = \alpha_i - \alpha$ (3.3)

In a pooled regression model, we simply combine all the time series and cross section elements in sequential blocks and use the combined data to obtain OLS estimates. If it is assumed that $\alpha_i's$ are the same across all individual stock exchanges and banks, the OLS gives consistent and efficient estimates of α and β's. In light of the Calderon-Rossell (1991) model and its extensions, the main specification to be estimated is as follows;

[41] For the purpose of this study, our sample of African countries is comprised of 15 countries: Botswana, Cote d'lvoire, Egypt, Kenya, Ghana, Malawi, Mauritius, Morocco, Namibia, Nigeria, South Africa, Swaziland, Tunisia, Zambia and Zimbabwe.

$$y_{i,t} = \beta_0 m_{i,t-1} + \beta_1 i_{i,t} + \beta_2 p_{i,t-1} + \varepsilon_{i,t} \quad (4.13)$$

Where: $y_{i,t}$ = indicators of stock market development, $m_{i,t}$ = matrix of macroeconomic factors including a proxy for banking sector development, $i_{i,t}$ = matrix of institutional factors such as political stability, $p_{i,t}$ private capital flows, ε_{it} is a vector of individual country effects reflecting unobservable country heterogeneity.

Although, it is possible to estimate the pooled model by OLS with sufficient degrees of freedom as it produces consistent and efficient estimates of α and β's, the problem with pooled OLS is in the assumption that intercepts and the slope are the same for all cross section units; that is, all stock exchanges and banks in our case and they are also assumed not to vary over time. These somewhat unrealistic assumptions may lead to biased estimates of the coefficients. In summary, pooled OLS may be unacceptable because of problems with the underlying assumptions.

Improving on the pooled OLS model, econometricians often specify fixed effects models or their random effects counterparts. In case of the fixed effects model, the μ_i from equation (4.11) are assumed to be fixed parameters to be estimated and the remainder disturbances, ν_{it}, are stochastic, independent and identically distributed; that is, $\nu_{it} \sim IID(0, \sigma_\nu^2)$. The x_{it} set of observations of K explanatory variables, from equation (4.10), are assumed to be independent of ν_{it}, for all i and t. The fixed effects model specification is appropriate if we are focusing on a specific set of N firms or countries and the inference is restricted to the behaviour of these set of firms or countries like the case with our sample of analysis.

Re-considering equation (3.1), the model can be re-written in fixed effects format as follows:

$y_{it} = \alpha + x_{it}\beta + \varepsilon_{it}, i = 1,....., N$ and $t = 1,....., T$ and; (3.5)

$\varepsilon_{it} = \mu_i + \nu_{it}$ (one way error component) (3.6)

$\varepsilon_{it} = \mu_i + \lambda_t + \nu_{it}$ (two way error component), (3.7)

In both cases μ_i is a fixed parameter (by assumption) and ν_{it} is an interaction term which is stochastic. λ_t is the individual-invariant term which accounts for any time-specific effect that is not included in the regression analysis. The fixed effects least square estimation requires use of dummy variables to control for individual effects. It therefore, suffers from large loss of degrees of freedom; that is, we will be estimating N-1 extra parameters if we include the intercept. The inclusion of too many dummies may aggravate the problem of multicollinearity.

In addition, the fixed effect estimator cannot handle the effect of time-invariant variables such as historical factors or country characteristics: race, religion, climate and geography. When T is large the fixed effects estimator is consistent, however- if T is fixed as is typical in short macro panels, only the fixed estimator of β is consistent and ($\alpha+\mu_i$) are not consistent, since the number of these parameters increases as N increases. In our study we are not aware, from the literature, of any time-invariant variables that are important in determining stock market and banking sector developments. This research therefore utilises fixed effects method as a preferred regression method of analysis.

4.3.1 Data construction and variables used

This section details how Principal Component Analysis (PCA) based indices are used to construct a composite index of stock market development. The objective of using a PCA methodology is to aggregate three different ranges of traditional measures of stock market development to derive a uni-dimensional measure of stock market development. This is because each variable used individually, may not be sufficient to represent the attributes of stock markets[42] in Africa. The approach found in existing literature is the one of summing the

[42] Please see section 4.1 for the detailed account on attributes of stock market.

three measures of stock market development, for example Demirguc-Kunt and Levine (1996), but this assumes that these measures are of equal importance.[43]

The dependent variable, which measures the stock market development, is proxied by three indicators (i) Market size as measured by the stock market capitalization scaled by GDP (SM). The assumption underlying the use of this variable as an indicator of stock market development is that the size of the stock market is positively correlated with the ability to mobilize capital and diversify risk (Levine and Zervos, 1996). (ii) Market liquidity, which is measured by the total value traded scaled by GDP**,** is one for which Demirguc-Kunt and Levine (1996) argue that stock market liquidity or the ability to trade equity easily is very important for economic growth. This measure complements the measure of stock market size because markets may be large but inactive (iii) the other measure of relative activity of stock markets used in this study is the turnover ratio. Turnover ratio is defined as the total value of shares traded during the period divided by the average market capitalization for the period. The three variables are used to construct a composite indicator (index 1) named stock market index (SMINDEX). This indicator is useful for analysis since market capitalization, value of share traded and turn-over ratio variables do not reflect, when considered separately, the whole components of the development of stock markets.

The size of the stock market does not provide any indication of its liquidity since some markets can be large but have low levels of trading. The composite index of stock market development (SMINDEX) is obtained using a formula which is similar to the algorithm developed by Demirguc-Kunt and Levine (1996). The construction of the indicator follows a two step procedure. First for each country i and each time t, we compute the means removed market capitalization, total value traded/GDP and turnover ratios. The first step is to compute means-value of stock market capitalization, total value traded and turnover ratio as follows:

[43] The initial results of PCA show that value of share traded contributes **0.61** of variation in overall measure of stock market development. Turn-over ratio is **0.56** and market capitalization is **0.56**. Intuitively, the earlier evidence signals that two measures of liquidity are more important to variation of stock market development overtime than market depth for the selected African countries. In this paper our results are based on the PCA method approach which is different from the approach by Demirguc-Kunt and Levine (1996); i.e., the approach of equal weighting. We compare our results from our composite indexes to the one based on Demirguc-Kunt and Levine (1996) method. Levine, 2002 and King and Levine, 1992 and 1993 also used this methodology of aggregate indicator.

$SM_{it} = \frac{SM_{it} - \overline{SM}}{\left|\overline{SM}\right|}$, $\overline{SM}$ is the average value of variable SM for each individual country in a panel over the period for each one of these three components.

The second step, we compute the weighted average of the transformed values of market capitalization, total value traded and turnover ratios obtained by the expression above to provide the overall stock market index1, namely SMINDEX1.

We also compute additional two composite indexes for stock market development using the methodology described above and PCA approach. The index 2 (SMINDEX11) comprises of stock value traded, stock market capitalization, stock turnover ratio and number of listed companies. The number of listed companies is included as an additional measure of stock market size. The index 3 (SMINDEX111) comprises of stock value traded, stock market capitalization, and stock turnover ratio, a measure of number of listed companies relative to size of banking industry and relative size of stock market capitalization to banking credits provided to private sector.

Banking sector development (BSD) is measured by domestic credit to private sector which refers to financial resources provided to the private sector, such as through loans, purchases of non-equity securities, and trade credits and other accounts payable that establish a claim for repayment. For some countries these claims include credit to public enterprises.

Control variables

Our control variables include GDP per capita, private capital flows, FDI, remittances flows, foreign currency exchange rate, domestic investment and savings, economic openness, inflation rate and interest rate, regulatory quality, bureaucratic quality, corruption perception and government effectiveness.

(i) GDP per capita growth

It is used as a measure of economic development. High incomes are usually accompanied by better property rights, better education, good business environment and more investable

resources (Andrianaivo and Yartey, 2010). It is anticipated that GDP per capita will have positive impact on the measures of stock market and banking sector development.

(ii) Private capital flows

Participation of external investors in the domestic market will improve the appeal of the stock market to local investors and thus increases investable resources. Therefore, we expect a positive relationship between private capital flows and stock market development measure. Private capital flows consist of net foreign direct investment and portfolio investment.

(iii)Foreign Direct Investment (FDI) and remittance flows

This study also utilises FDI to proxy for importance of external funds in the process of financial sector development. We also utilises workers' remittances these are compensation of employees that comprises of current transfers by migrant workers and wages and salaries earned by non-resident workers. Remittance funds are supply of "loanable" funds to the banking sector and they can theoretically improve banks' liquidity position and hence its ability to extend credit to the productive sectors of the economy. We therefore expect a positive relationship between these measures of external finance with the banking sector development in Africa.

iv) Domestic Credit to Private Sector

Consistent with the literature (e.g., see Yartey 2008; and Cherif and Gazdar, 2010), we will incorporate domestic credit to private sector as a share of GDP to proxy for the role of financial intermediaries in promoting stock market development. Financial intermediaries can play a substitute or complementary role with stock markets in providing long-term finance. Therefore, the expected influence of financial intermediaries on stock market development can be either negative or positive.

v) Foreign currency exchange rate

The fluctuation (depreciation) has been found to have adverse impact on the performance of African stock markets (Senbet and Otchere, 2005). High currency volatility creates uncertainty to the real value of the stocks and thus creates an impediment to foreign investments. There is also expectation that stock market development with significant foreign business should be impacted by relative changes in the values of currencies of the foreign

countries in which business is undertaken. Consistent with literature, we expect foreign currency exchange rate to have negative impact on measures of stock market development.

vi) Domestic saving rate and investment

Savings is calculated as a ratio of gross saving to GDP. We expect it to have a positive effect on stock market development. Investment rate is considered as an important determinant of stock market development. We use the ratio of gross fixed capital formation to GDP as a measure of investment. To avoid causality problem, we simply use last year's domestic investment and savings and income per capita.

vii) Economic openness

The degree of openness is measured by total trade (imports plus exports) as a ratio of GDP. Openness can be linked to financial development because openness may influence the demand for external finance. Foreign markets' influence brings opportunities and competition to domestic markets. More openness increases the fraction of producers exposed to international competition and the share of imports in consumption. The implication is that a larger trade share (greater openness) means that the effect of an external shock will be broader and deeper.

viii) Inflation and real interest rate

Macroeconomic environment is important for stock market and banking sector development. In this study we use inflation and real interest rate as measures of macroeconomic stability. High real interest rate and inflation discourages investment by increasing the cost of doing business, so we expect a negative relationship between these variables and the overall measure of stock market development. We expect real interest rate to have a positive effect on the banking sector development and inflation is expected to discourage banking sector lending.

ix) Institutional quality measures

This study utilises individual political risk indexes, namely; regulatory quality, bureaucratic quality and corruption as a measure for the institutional quality of the environment in which the stock market is operating. Institutionally developed markets with strong information disclosure laws, international accounting standards, and unrestricted capital flows, are larger

and more liquid. Therefore, we expect these measures to have positive relationships with the index of stock market development.

Political risk rating provides means of assessing political stability of the countries covered by the International Country Risk Guide (ICRG) on a comparable basis. This is done by assigning risk points to a pre-set group of factors, termed political risk components. The minimum number of points that can be assigned to each component is zero, while the maximum number of points depends on the fixed weight that component is given in the overall political risk assessment. In every case the lower the risk point total, the higher the risk, and the higher the risk point total, the lower the risk.

4.3.2 The Data

Our data are extracted from various sources. The International Country Risk Guide (ICRG) database has the Political Risk Index, which in turn consists of 12 components measuring various dimensions of political and business environment facing firms operating in a country. The institutional quality indexes used in this study are government effectiveness, regulatory quality, and corruption. These variables provide various measures for political (in)-stability and other institutional quality (for instance, levels of corruption). These indexes are obtained from the International Country Risk Guide compiled by the Political Risk Services (PRS).

The stock market development variables such as stock market capitalization, value of stock traded, turnover ratio and number of domestic listed companies, other control variables such as GDP per capita growth, remittances flows, domestic savings and investment, private capital flows, economic openness, exchange rate, real interest rate, and inflation rate are obtained from the World Bank and Global Development Finance websites. Banking sector development proxies such as domestic credit to private sector, domestic credit provided by the banking sector, and liabilities to GDP ratio, are also obtained from the World Bank and Global Development Finance websites. The data are in annual frequency and cover the period 1995-2011 for 15 countries in Africa.

4.4 Evidence on Determinants of Stock Markets and Banking Sectors Developments

This section answers the following questions in the context of selected African countries: What factors matter for stock market and banking sector developments? Are factors that determine stock market development different from the ones that matter for banking sector development? Do the factors that affect both stock market and banking sector developments influence them similarly? Due to data availability, some countries are missing data either at the start of the sample or at the end of the sample. As a result, the panel is not balanced.

The results are grouped and presented in two sub-sections: (a) Pooled regressions results (b) Fixed effects regression results. The estimation of pooled OLS regression, and fixed effects panel regression was carried out using the econometric methodology presented in the previous section. The Pooled OLS and results from Demirguc-Kunt and Levine method are presented in the Appendix.

This section determines the relationship between macroeconomic fundamentals, institutional quality measures, and financial flows, with the composite index of stock market development. In addition, we examine the relationship between financial intermediation and stock market development. These two are major sources of corporate finance (debt and equity) for selected African countries.

We conduct a panel analysis on the pooled data from the 15 selected African countries for 1995-2011.We select these countries because they are the ones that have established stock markets on or before 1995. Furthermore, the study uses lagged variables in the regressions in order to avoid contemporaneous relationship problems.

4.4.1 Correlations of test variables

We present a correlation table of all variables used in the tests before discussing the estimated regression models. The correlation analysis flags variables that may cause multicollinearity problem. Second, it shows the extent to which SMINDEXs indexes are different.

The measures of stock market and banking sector development are very highly correlated as is evident in Table 19. The correlation coefficient is 0.76. Levine and Zervos (1998) have shown that measures of stock market development are positively correlated with measures of financial intermediary development. The correlations between the indicators of stock market development and other macroeconomic variables are not as strong. The real income has a significant association with stock market development. Inflation and economic openness have a negative association with stock market development. The correlation between three aggregate indexes of stock market development is very strong and is approximately 0.98 as shown in Table A4.2c and Table A4.2d. Both correlations are significant at 5%.

Table 19: Correlation analysis of stock market development (SMINDEX1).

Variables	SMINDEX1	Bank credit	GDP per capita	Savings	Investment	Inflation	Capital flows	Economic openness
SMINDEX1	1.00							
Bank credit	0.76	1.00						
GDP per capita	0.32	0.30	1.00					
Savings	0.10	-0.05	0.52	1.00				
Investment	0.14	0.07	0.48	0.54	1.00			
Inflation	-0.15	-0.25	-0.07	-0.30	-0.09	1.00		
Capital flows	0.07	0.01	-0.03	0.05	0.05	0.05	1.00	
Economic openness	-0.50	-0.46	0.22	0.18	0.25	0.14	-0.01	1.00

The banking sector development has a strong correlation with both stock market development and real income per capita (see Table 20). The correlation coefficient for banking sector development and GDP per capita and stock market development is 0.46 and 0.47, respectively. Banking sector development has a negative association with inflation, capital flows and economic openness. Domestic savings and investment are positively associated with banking sector development though the correlation is not so strong for savings. Both correlations are significant at 5%.

Table 20: Correlation analysis of banking sector development.

Variables	Banks	SMINDEX1	GDP per capita	Savings	Investment	Inflation	Capital flows	Economic openness
Banks	1.00							
SMINDEX1	0.16	1.00						
GDP per capita	0.22	0.34	1.00					
Savings	0.04	0.10	0.52	1.00				
Investment	0.13	0.14	0.48	0.54	1.00			
Inflation	-0.11	-0.15	-0.07	-0.30	-0.09	1.00		
Capital flows	0.10	0.07	-0.03	0.05	0.05	0.05	1.00	
Economic openness	-0.15	-0.50	0.22	0.18	0.25	0.14	-0.01	1.00

The measures of financial markets are positively correlated with corruption, regulatory quality and government effectiveness as shown in Table 21. This associative relationship entails that when the institutional environments[44] in African capital markets are good they are likely to be accompanied by well-developed stock markets and banks.

[44] In every case the lower the risk point total, the higher the risk, and the higher the risk point total, the lower the risk.

Table 21: Correlation of financial markets measures and institutional quality.

Variables	SMINDEX1	SMINDEX2	SMINDEX3	Bank
Corruption	0.10	0.02	0.12	0.13
Regulation	0.17	0.10	0.02	0.19
Government effectiveness	0.30	0.23	0.23	0.16
Institutions	0.20	0.12	0.12	0.18

The correlation between measures of stock market development and financial intermediaries' indicators is positive and highly significant. Thus, our study confirms the findings of Demirguc-Kunt and Levine (1996) that financial intermediary development and stock market development are complements rather than substitutes.

4.4.2 Empirical results

In order to cater for the potential problem of endogeneity in our regression model, all explanatory variables are lagged. The other potential econometric issue that can arise is collinearity among the explanatory variables such as Foreign Direct Investment (FDI), capital flows, remittance flows, inflation, interest rate, exchange rate, domestic investment and savings. To minimise and eradicate the problem of collineriaty, we run four separate regressions; including separately those variables that are highly correlated as shown in **Table 19 and 20**.

First, **Table 22** shows that the macroeconomic environment, in the form of GDP per capita growth, has a significant impact on stock market development for the 15 sample countries in Africa. The results in column (1) show that income, bank credit to private sector, regulatory quality and private capital flows have a positive and significant effect on stock market development. On the other hand, corruption has a negative and significant effect on stock market development. Further, a one unit increase in income per capita growth will result in stock market development increases by **at least 0.08** units, which means some of the increase in income in the economy is invested in the stock markets. Banking sector development also promotes stock market development. When banking sector development increases by one unit, stock market development increases **by at least 0.01** units.

Domestic investment and savings have a negative and significant impact on stock market development for our sample of African countries. The domestic investors and savers might be participating more in money market instruments that are not traded through the stock market. FDI has a positive and significant impact on stock market development. Since FDI and capital flows are significant determinants of stock market activities in our sample, it means the foreign investors (especially the role of multi-national companies) play an active and positive role on the stock market.

Most measures of institutional quality either have wrong signs or are insignificant. Corruption and government effectiveness are significant but have negative signs. This means the less risk of corruption perceived in the country coupled with quality of independent day-to-day government administration; the less attractive are the stock markets to investors, this result is counter-intuitive to economic theory. Regulatory quality has a positive and significant effect on stock market development. A unit increase in regulatory quality will lead to 1 unit increase in stock market development.

As expected interest rate in **column (4) of Table 22** has a negative and significant effect on stock market development. The impact of interest rate variables on stock market development is minimal; this might be a reflection of the lag effect of both monetary and fiscal policies on stock market activities. We also included inflation in a separate regression[45] ; it has a positive and significant effect on stock market development. The stock market asset has potential to hedge returns of investors against inflation compared to many money market instruments. We also included (see Table A4.3 and A4.4) the results from composite index 2 and 3 (SMINDEX11 and SMINDEX111). The inclusion of number of listed companies and relative size of stock markets to bank in the index 2 and 3 did not change significantly the results we discussed in this section. The correlation of around 0.98 among the 3 constructed composite indexes as shown on Table A4.2c and A4.2d in the Appendix section supports their similarity in the regression results.

[45] Inflation, interest rate and exchange rate are policy variables that are closely related, so to avert the problem of multicollinearity; they are placed in different regression model specifications.

Table 22: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEX1	SMINDEX1	SMINDEX1	SMINDEX1
Bank credit	0.02	0.02	0.02	0.01
	(4.99)***	(4.97)***	(3.95)***	(2.93)***
GDP per capita growth	0.08	0.078	0.075	0.085
	(3.82)***	(3.82)***	(3.34)***	(3.64)***
Domestic savings	0.30		-2.22	-3.21
	(0.20)		(1.37)	(1.90)*
Capital flows	0.05	0.04		
	(2.84)**	(1.98) **		
Corruption Perception	-0.90	-1.16		
	(2.51)**	(5.11)***		
Regulation Quality	1.00		-0.68	
	(2.52)*		(2.02)**	
Government effectiveness	-0.65			-2.81
	(1.29)			(5.78)***
Economic openness	0.33	0.05	0.60*	0.37
	(1.18)	(0.19)	(1.86)	(1.09)
Domestic investment		6.43	0.54	3.18
		(2.81)***	(0.23)	(1.18)
Inflation		0.04	-0.00	
		(2.31)**	(0.65)	
FDI			0.06	0.07
			(2.18)**	(2.24)**
Interest rate				-0.00
				(1.85)*
Exchange rate				-0.00
				(0.23)
Constant	-1.72	-2.89	-1.38	-1.34
	(4.41)** *	(5.88)***	(2.73)***	(2.25)* *
R^2	0.38	0.41	0.21	0.35
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The second empirical analysis we conducted is to examine the determinants of banking sector development for a selected sample countries in Africa. The results are presented in **Table 23**. In all sets of regressions, we use banking sectors' credit to the private sector as the dependant variable. The explanatory variables in our models are GDP per capita growth, domestic savings, remittances flows, economic openness, FDI, inflation and interest rate and the institutional variables in these models are corruption perception, regulatory quality and government effectiveness.

Table 23: Determinants of Banking Sector Development: Fixed Effect estimation.

Variables	BANKS	BANKS	BANKS	BANKS
GDP per capita growth	0.00	0.00	0.00	0.00
	(4.38)***	(3.53)***	(4.26)***	(2.50)**
Domestic savings	-0.944		-1.190	-0.982
	(3.00)***		(3.84)***	(2.86)**
Remittances flows	0.03	0.01	0.02	-0.00
	(1.84)*	(0.66)	(1.38)	(0.07)
Corruption Perception	-0.15	-0.14		
	(1.92)*	(2.50)**		
Regulation Quality	-0.19		-0.22	
	(2.14)**		(3.12)***	
Government effectiveness	0.09			-0.05
	(0.88)			(0.44)
Economic openness	0.01	-0.09	0.06	0.02
	(0.18)	(1.55)	(1.10)	(0.27)
Domestic investment		1.026	1.24	0.87
		(1.94)*	(2.46)**	(1.45)
Inflation		-0.00	-0.01	
		(1.10)	(2.24)**	
FDI			0.01	0.01
			(2.64)***	(2.04)**
Interest rate				-0.00
				(1.09)
Exchange rate				-0.00
				(1.68)*
Constant	3.74	3.55	3.54	3.76
	(47.31)**	(33.31)**	(35.25)**	(29.59)**
R^2	0.28	0.24	0.34	0.26
N	166	166	166	128

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The results show that GDP per capita growth, remittance flows, domestic investment and FDI have positive and significant effects on the banking sector development. Domestic savings, exchange rate, corruption and regulatory quality have negative and significant effects on the banking sector development. This entails that income flow; funds from external sources and level of productive investment in economic activities in a country have positive influence on the ability of the banking sector to extend credit to the private sector. Foreign direct investment has a positive effect on the ability of banks to provide funds to productive activities. Of the determinants of banking sector development, regulatory quality has a sign that is contrary to expectation. Its estimate's negative sign suggests that the nature of regulation in these African countries are perceived as a tax on banks' effectiveness instead of as prudential guides that spur increased financial intermediation.

4.4.3 Robustness Checks

There are some observed and unobserved heterogeneity across countries in our sample (as shown in **Table 16**) that may affect both stock market and banking sector developments. We

control for this by considering a sub-sample comprised of the 5 largest economies in our sample on its own.

Table 24: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEX1	SMINDEX1	SMINDEX1	SMINDEX1
Bank credit	0.03	0.03	0.03	0.04
	(5.58)***	(5.95)***	(6.19)***	(5.94)***
GDP per capita growth	0.077	0.061	0.069	0.061
	(3.00)**	(2.42)**	(2.55)**	(2.22)**
Domestic savings	-5.47		-3.00	-3.14
	(1.99) **		(1.08)	(1.03)
Capital flows	0.04	0.06		
	(1.51)	(2.07)**		
Corruption Perception	-0.31	-0.44		
	(0.73)	(1.19)		
Regulation Quality	0.26		-0.27	
	(0.59)		(0.61)	
Government effectiveness	-1.40			-1.42
	(1.98)*			(1.94)*
Economic openness	3.90	3.78	4.56	3.94
	(4.84)***	(4.11)***	(4.40)***	(3.42)***
Domestic investment		-0.63	-0.26	2.25
		(0.19)	(0.08)	(0.61)
Inflation		0.01	0.00	
		(0.54)	(0.00)	
FDI			0.05	0.03
			(1.55)	(0.69)
Interest rate				-0.02
				(0.80)
Exchange rate				-0.03
				(0.79)
Constant	-4.53	-6.07	-6.18	-5.86
	(4.27)***	(6.49)***	(7.70)***	(4.24)***
R^2	0.68	0.64	0.63	0.73
N	80	80	80	59

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The separate regressions for a sub-sample of South Africa, Egypt, Mauritius, Morocco and Tunisia are run, with the results presented in **Table 24**. The results in **Table 24** show that GDP per capita growth, banking sector credit, capital flows and economic openness have positive and significant effect on stock market development for the sub-sample of 5 countries. This result is qualitatively the same with the full-sample results in **Table 24**. However, corruption perception and regulatory quality have statistically insignificant effect on stock market development for the sub-sample countries. Government effectiveness still has negative but significant effect.

Table 25: Determinants of Banking Sector Development: Fixed Effect estimation.

Variables	BANKS	BANKS	BANKS	BANKS
GDP per capita growth	0.55	0.48	0.58	0.62
	(9.21)***	(10.05)***	(11.03)***	(5.61)***
Domestic savings	0.077		0.285	0.199
	(0.17)		(0.72)	(0.40)
Remittances flows	0.04	0.04	0.04	0.05
	(2.80)**	(3.44)**	(3.11)**	(2.53)*
Corruption Perception	-0.18	-0.14		
	(2.89)**	(2.78)**		
Regulation Quality	-0.07		-0.06	
	(0.99)		(0.99)	
Government effectiveness	0.04			-0.18
	(0.39)			(1.66)*
Economic openness	-0.55	-0.58	-0.59	-0.82
	(4.44)***	(4.77)***	(4.25)***	(4.87)***
Domestic investment		1.457	1.70	0.87
		(3.52)***	(4.05)***	(1.50)
Inflation		-0.01	-0.00	
		(1.57)	(0.97)	
FDI			-0.00	-0.00
			(0.92)	(0.80)
Interest rate				-0.00
				(0.18)
Exchange rate				-0.00
				(0.23)
Constant	-8.75	-7.39	-9.98	-10.57
	(5.97)**	(6.41)**	(7.97)**	(4.03)**
R^2	0.77	0.81	0.80	0.73
N	80	80	80	59

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The results contained in Table 25 shows that GDP per capita growth, remittance flows, domestic investment are important for banking sector development for a sub-sample of 5 countries. All institutional variables have negative effect on banking sector development; this means the worse the level of institutional development in these countries, the more developed are the banking sector. This is counter-intuitive to the main theory. All measures of macroeconomic stability, that is, inflation, interest rate and exchange rate are all insignificant. The results of the sub-sample and the full sample are qualitatively similar which means our sample has lesser degree of heterogeneity between countries.

4.4.4 Comparative analysis of Demirguc-Kunt and Levine (1996) and our new index results

We estimated the stock market development model using the Demirguc-Kunt and Levine (1996) index and the results are presented in the Appendix section (see Table A4.5 through to Table A4.10). The results show that for the three composite indexes (SMINDEXI,

SMINDEXII and SMINDEXIII)[46], income, capital flows, inflation and FDI has a positive and significant effect on stock market development. On the other hand, corruption perception, government effectiveness, regulatory quality has a negative and significant effect on stock market development.

The estimations using the 1st index constructed as per Demirguc-Kunt and Levine (1996) methodology show that domestic investment and savings, bank credit to private sector and interest rate are insignificant in determining stock market development for the case of selected African countries. Our 3rd index for stock market development using their methodology shows that banking sector has a complementary role to stock market activities. The overall observation of the results from their methodology and ours is that the magnitude of the impact of income per capita and capital flows on stock market development is low but qualitatively similar to our results. Domestic investment and savings are having a weak significant effect on stock market development for our sample countries.

Our methodology therefore is an improvement on the Demirguc-Kunt and Levine (1996) approach since it attaches correct weights to different components of stock market development and it gives results that are qualitatively similar with their methodology. The other observation is that our method gives strong evidence on complementary role of stock market and financial intermediaries.

4.5 Policy Implications and Conclusions

The main goal of this chapter was to empirically investigate the determinants of stock market and banking sector developments in Africa. To do so, **three** indicators of stock market development: stock market capitalization, value of shared traded and turnover ratio was combined to come up with a composite measure of overall stock market development following the algorithm of Demirguc-Kunt and Levine (1996). We used bank credits to the private sector as a proxy for the banking sector development.

[46] Please refer to section 4.3.1 on the construction of these three indices of stock market development.

We used panel data techniques to ascertain the determinants of stock market development for a sample of 15 African national stock markets. The empirical analysis found some interesting results. The evidence of this chapter suggests that banking sector development, GDP per capita, private capital flows; domestic investment, trade openness, FDI, interest rate and inflation are important determinants of stock market development. Institutional quality has a positive effect on stock market development, especially regulatory quality. Corruption and government effectiveness however have negative effects on stock market development, which is theoretically counter-intuitive.

As for banking sector development, GDP per capita growth, remittances flows, domestic investment, exchange rate and FDI are shown to be important determinants. We also confirm that the relationship between stock market development and the banking sector development for a sample of African countries is positive, indicating that financial intermediaries and stock markets are complements, not substitutes.

These findings might have important policy implications in that government policies could be used as an important tool for activating stock markets in Africa. Firstly, we observed that the banking sector has a complementary role to the stock market activity (financing particularly) and thus for the growth process in these selected African countries. Secondly, economic development plays a crucial role in stock market development. Policymakers in Africa may have to initiate policies to foster banking sector development and economic growth; both of which would in turn indirectly affect positively the developmental path of their stock markets.

Thirdly, economic policies that adjust and target certain levels of interest rate and inflation can influence the development outcomes of stock markets. Lastly, countries should improve their institutional environments because good institutions reduce political risk which is important factor in investment decision. The better regulatory capacity of a recipient government helps in encouraging participation by both domestic and foreign investors in their

stock markets. These results[47] are generally in agreement with the theoretical and empirical literature (e.g. Andrianaivo and Yartey, 2010, Cherif and Gazdar, 2010, El-Wassal, 2005).

Appendix 2

Table A4.1: Determinants of Stock Market Development: Pooled OLS Estimation.

Variables	SMINDEX1	SMINDEX1	SMINDEX1	SMINDEX1
Bank credit	0.03	0.02	0.03	0.03
	(14.38)***	(13.26)***	(13.81)***	(10.87)***
GDP per capita growth	0.047	0.076	0.043	0.043
	(1.51)	(2.23)**	(1.45)	(1.33)
Domestic saving	4.87		4.57	6.53
	(4.05)***		(3.77)***	(3.97)***
Capital flows	0.06	0.06		
	(2.59)**	(2.31)**		
Corruption Perception	-0.07	0.35		
	(0.23)	(2.14)**		
Regulation Quality	1.93		0.16	
	(4.92)***		(0.76)	
Government effectiveness	-1.58			-0.16
	(3.85)**			(0.50)
Economic openness	-0.21	-0.25	-0.05	-0.06
	(1.08)	(1.22)	(0.27)	(0.30)
Domestic investment		-4.51	-7.56	-10.96
		(2.12)**	(3.73)***	(3.54)***
Inflation		0.01	0.00	
		(0.58)	(1.35)	
FDI			0.04	0.07
			(1.28)	(1.85)*
Interest rate				0.00
				(0.44)
Exchange rate				-0.00
				(1.77)*
Constant	-2.61	-0.52	-0.93	-0.49
	(6.86)***	(1.01)	(1.88)	(0.66)
R^2	0.69	0.62	0.60	0.64
N	163	163	178	140

*p<0.1; ** p<0.05; *** p<0.01

[47] It should be noted that there are significant heterogeneities across countries and our regressions are about the average behaviour in the sample. We however provide some sensitive analysis by doing sub-sample analysis.

Table A4.2: Determinants of Banking Sector Development: Pooled OLS Estimation.

Variables	BANKS	BANKS	BANKS	BANKS
Bank credit	0.51	0.55	0.45	0.49
	(8.71)**	(8.97)**	(7.72)**	(6.00)**
GDP per capita growth	-1.309		-1.738	-2.144
	(4.38)**		(4.88)**	(5.05)**
Domestic saving	0.09	0.10	0.07	0.13
	(7.61)**	(6.67)**	(4.90)**	(7.16)**
Capital flows	-0.40	-0.36		
	(4.30)**	(4.39)**		
Corruption Perception	-0.06		-0.24	
	(0.52)		(2.12)*	
Regulation Quality	0.26			0.16
	(2.18)*			(1.15)
Government effectiveness	-0.48	-0.53	-0.56	-0.53
	(8.13)**	(10.48)**	(10.43)**	(7.80)**
Economic openness		0.295	2.03	0.46
		(0.44)	(2.67)**	(0.45)
Domestic investment		0.00	-0.00	
		(0.81)	(0.23)	
Inflation			-0.02	-0.02
			(2.05)*	(2.16)*
FDI				0.00
				(0.17)
Interest rate				0.00
				(3.83)**
Constant	0.51	-0.10	0.77	0.67
	(1.25)	(0.23)	(1.74)	(1.16)
R^2	0.70	0.66	0.69	0.69
N	166	166	166	128

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.3: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEX2	SMINDEX2	SMINDEX2	SMINDEX2
Bank credit	0.02	0.02	0.01	0.01
	(5.48)**	(5.36)**	(4.28)**	(3.32)**
GDP per capita growth	0.068	0.062	0.067	0.070
	(3.67)**	(3.60)**	(3.55)**	(3.50)**
Domestic saving	0.24		-1.83	-2.35
	(0.19)		(1.34)	(1.62)
Capital flows	0.04	0.02		
	(2.19)*	(1.42)		
Corruption Perception	-0.78	-0.89		
	(2.56)*	(4.67)**		
Regulation Quality	0.46		-0.76	
	(1.37)		(2.69)**	
Government effectiveness	-0.26			-2.14
	(0.62)			(5.12)**
Economic openness	0.17	-0.07	0.34	0.15
	(0.72)	(0.32)	(1.25)	(0.52) **
Domestic investment		6.08	1.13	2.68
		(3.17)**	(0.57)	(1.15)
Inflation		0.01	-0.00	
		(1.07)	(0.84)	
FDI			0.04	0.03
			(1.52)	(1.31)
Interest rate				-0.00
				(1.42)
Exchange rate				0.00
				(0.12)
Constant	-1.39	-2.36	-1.19	-1.03
	(4.20)**	(5.72)**	(2.80)**	(2.00)*
R^2	0.36	0.39	0.22	0.31
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.4: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEX3	SMINDEX3	SMINDEX3	SMINDEX3
Bank credit	0.02	0.02	0.02	0.01
	(5.59)**	(5.43)**	(4.42)**	(3.87)**
GDP per capita	0.068	0.062	0.076	0.076
	(3.71)**	(3.64)**	(3.81)**	(3.80)**
Domestic saving	0.36		-1.46	-1.68
	(0.29)		(1.06)	(1.15)
Capital flows	0.03	0.02		
	(2.14)*	(1.35)		
Corruption	-0.74	-0.87		
	(2.42)*	(4.58)**		
Regulation quality	0.49		-0.61	
	(1.45)		(2.01)*	
Government effectiveness	-0.31			-2.00
	(0.74)			(4.80)**
Economic openness	0.16	-0.07	0.33	0.11
	(0.68)	(0.35)	(1.21)	(0.38)
Domestic investment		6.21	1.19	3.26
		(3.24)**	(0.60)	(1.41)
Inflation		0.01	0.00	
		(1.05)	(0.95)	
FDI			0.04	0.03
			(1.48)	(1.00)
Interest rate				0.00
				(1.02)
Exchange rate				0.00
				(0.08)
Constant	-1.42	-2.39	-1.31	-1.42
	(4.29)**	(5.78)**	(3.03)**	(2.64)**
R^2	0.36	0.40	0.23	0.34
N	163	163	177	139

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Demirguc-Kunt and Levine (1996) estimates

Table A4.5: Determinants of Stock Market Development: Pooled OLS Estimation.

Variables	SMINDEXI	SMINDEXI	SMINDEXI	SMINDEXI
Bank credit	0.00	0.00	0.00	0.00
	(0.33)	(0.72)	(0.70)	(0.09)
GDP per capita	0.038	0.030	0.025	0.019
	(1.71) *	(1.37)	(1.31)	(0.94)
Domestic saving	-0.40		-0.64	-1.25
	(0.48)		(0.84)	(1.19)
Capital flows	0.03	0.03		
	(2.04)**	(1.51)		
Corruption	-0.17	-0.12		
	(0.79)	(1.18)		
Regulation quality	0.49		-0.09	
	(1.79) *		(0.69)	
Government effectiveness	-0.23			0.04
	(0.81)			(0.18)
Economic openness	-0.05	-0.03	-0.06	-0.06
	(0.37)	(0.27)	(0.44)	(0.44)
Domestic investment		1.13	0.36	-0.30
		(0.83)	(0.28)	(0.15)
Inflation		0.01	0.00	
		(1.00)	(0.01)	
FDI			0.05	0.06
			(2.24)**	(2.43)**
Interest rate				-0.00
				(0.18)
Exchange rate				-0.00
				(1.24)
Constant	-0.06	-0.44	-0.13	0.15
	(0.24)	(1.35)	(0.40)	(0.32)
R^2	0.06	0.05	0.05	0.06
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.6: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEXI	SMINDEXI	SMINDEXI	SMINDEXI
Bank credit	0.00	0.00	0.00	0.00
	(0.82)	(0.85)	(1.03)	(0.39)
GDP per capita	0.045	0.042	0.040	0.033
	(1.90)*	(1.93)*	(1.97)**	(1.46)
Domestic saving	-0.64		-1.96	-2.05
	(0.41)		(1.33)	(1.24)
Capital flows	0.06	0.05		
	(3.13)**	(2.67)**		
Corruption	-0.78	-0.85		
	(2.01)* *	(3.52)**		
Regulation quality	0.28		-0.55	
	(0.65)		(1.81)*	
Government effectiveness	-0.11			-1.03
	(0.20)			(2.17)**
Economic openness	-0.35	-0.55	-0.13	-0.31
	(1.17)	(2.07)**	(0.46)	(0.93)
Domestic investment		3.95	1.59	1.20
		(1.63)	(0.75)	(0.45)
Inflation		0.05	-0.00	
		(2.91)**	(0.71)	
FDI			0.06	0.06
			(2.36)*	(1.99)**
Interest rate				-0.00
				(1.29)
Exchange rate				0.00
				(0.50)
Constant	-0.05	-1.11	-0.34	0.00
	(0.11)	(2.13)*	(0.76)	(0.01)
R^2	0.15	0.20	0.10	0.11
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.7: Determinants of Stock Market Development: Pooled OLS Estimation.

Variables	SMINDEXII	SMINDEXII	SMINDEXII	SMINDEXII
Bank credit	0.00	0.00	0.00	-0.00
	(0.21)	(0.69)	(0.71)	(0.16)
GDP per capita	0.037	0.028	0.024	0.019
	(1.66)*	(1.27)	(1.26)	(0.92)
Domestic saving	-0.59		-0.74	-1.70
	(0.69)		(0.95)	(1.61)
Capital flows	0.04	0.03		
	(2.10)**	(1.64)		
Corruption	-0.15	-0.12		
	(0.69)	(1.12)		
Regulation quality	0.42		-0.09	
	(1.51)		(0.70)	
Government effectiveness	-0.17			0.13
	(0.59)			(0.66)
Economic openness	-0.05	-0.04	-0.06	-0.05
	(0.39)	(0.29)	(0.44)	(0.40)
Domestic investment		1.19	0.59	-0.29
		(0.87)	(0.45)	(0.15)
Inflation		0.01	0.00	
		(0.67)	(0.06)	
FDI			0.05	0.06
			(2.21)**	(2.38)**
Interest rate				-0.00
				(0.09)
Exchange rate				-0.00
				(1.05)
Constant	-0.01	-0.42	-0.16	0.25
	(0.05)	(1.29)	(0.49)	(0.52)
R^2	0.06	0.05	0.05	0.07
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.8: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEXII	SMINDEXII	SMINDEXII	SMINDEXII
Bank credit	0.00	0.00	0.00	0.00
	(1.03)	(1.09)	(1.15)	(0.57)
GDP per capita	0.045	0.041	0.041	0.032
	(1.92)*	(1.85) *	(2.03) *	(1.42)
Domestic saving	-1.11		-2.42	-2.37
	(0.70)		(1.65)*	(1.43)
Capital flows	0.06	0.05		
	(3.09)***	(2.66)**		
Corruption	-0.79	-0.78		
	(2.03)* *	(3.21)**		
Regulation quality	0.14		-0.59	
	(0.32)		(1.94)*	
Government effectiveness	0.05			-0.80
	(0.10)			(1.67)*
Economic openness	-0.31	-0.56	-0.12	-0.30
	(1.04)	(2.07)**	(0.41)	(0.88)
Domestic investment		4.22	2.01	0.90
		(1.71)*	(0.94)	(0.34)
Inflation		0.04	-0.00	
		(2.44)**	(0.77)	
FDI			0.06	0.05
			(2.36)**	(1.85)*
Interest rate				-0.00
				(1.15)
Exchange rate				0.00
				(0.83)
Constant	-0.04	-1.16	-0.39	0.06
	(0.10)	(2.18)*	(0.86)	(0.11)
R^2	0.15	0.19	0.11	0.10
N	163	163	178	140

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.9: Determinants of Stock Market Development: Pooled OLS Estimation.

Variables	SMINDEXIII	SMINDEXIII	SMINDEXIII	SMINDEXIII
Bank credit	0.01	0.00	0.01	0.01
	(0.88)	(0.44)	(0.76)	(0.69)
GDP per capita	0.217	0.155	0.146	0.139
	(1.47)	(1.05)	(1.12)	(0.97)
Domestic saving	1.78		-0.52	-2.64
	(0.31)		(0.10)	(0.37)
Capital flows	0.07	0.06		
	(0.66)	(0.52)		
Corruption	0.73	-0.32		
	(0.50)	(0.45)		
Regulation quality	2.04		-0.36	
	(1.10)		(0.40)	
Government effectiveness	-2.79			-0.38
	(1.44)			(0.28)
Economic openness	-0.60	-0.30	-0.28	-0.38
	(0.65)	(0.34)	(0.34)	(0.40)
Domestic investment		6.34	1.83	8.69
		(0.69)	(0.22)	(0.64)
Inflation		0.01	0.01	
		(0.20)	(0.80)	
FDI			0.31	0.38
			(2.20)**	(2.17)**
Interest rate				0.02
				(1.28)
Exchange rate				-0.00
				(1.02)
Constant	-0.96	-1.80	-1.58	-2.85
	(0.53)	(0.82)	(0.77)	(0.86)
R^2	0.03	0.02	0.04	0.06
N	163	163	177	139

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A4.10: Determinants of Stock Market Development: Fixed Effect Estimation.

Variables	SMINDEXIII	SMINDEXIII	SMINDEXIII	SMINDEXIII
Bank credit	0.05	0.04	0.03	0.04
	(1.81)*	(1.26)	(1.19)	(1.39)
GDP per capita	0.243	0.219	0.202	0.157
	(1.50)	(1.41)	(1.42)	(0.98)
Domestic saving	11.98		2.23	8.49
	(1.11)		(0.23)	(0.72)
Capital flows	0.15	0.06		
	(1.02)	(0.45)		
Corruption	2.40	-0.69		
	(0.89)	(0.40)		
Regulation quality	3.67		-1.23	
	(1.24)		(0.57)	
Government effectiveness	-5.99			-1.42
	(1.60)			(0.42)
Economic openness	-1.85	-2.15	-1.52	-2.93
	(0.89)	(1.12)	(0.79)	(1.25)
Domestic investment		31.08	9.11	13.95
		(1.79)*	(0.65)	(0.75)
Inflation		0.09	0.01	
		(0.78)	(0.88)	
FDI			0.37	0.28
			(2.13)**	(1.37)
Interest rate				0.04
				(1.43)
Exchange rate				0.00
				(0.42)
Constant	-4.60	-7.88	-4.18	-6.07
	(1.58)	(2.10)*	(1.36)	(1.41)
R^2	0.07	0.07	0.07	0.08
N	163	163	177	139

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table 4.2c: Correlations analysis for stock market development (SMINDEX2).

Variables	SMINDEX2	Bank credit	GDP per capita	Savings	Investment	Inflation	Capital flows	Economic openness
SMINDEX2	1.00							
Bank credit	0.78	1.00						
GDP per capita	0.31	-0.02	1.00					
Savings	-0.03	-0.26	0.50	1.00				
Investment	-0.08	-0.02	0.51	0.44	1.00			
Inflation	-0.10	-0.16	-0.37	-0.27	-0.10	1.00		
Capital flows	0.14	0.06	-0.08	-0.004	0.04	0.19	1.00	
Economic openness	-0.37	-0.35	0.11	-0.04	0.06	0.04	-0.03	1.00
SMINDEX1	0.98	0.76	0.32	0.002	-0.04	-0.10	0.15	-0.32
SMINDEX3	0.99	0.78	0.31	-0.03	-0.08	-0.10	0.14	-0.37

Table A4.22d: Correlations for stock market development (SMINDEX3).

Variables	SMINDEX3	Bank credit	GDP per capita	Savings	Investment	Inflation	Capital flows	Economic openness
SMINDEX3	1.00							
Bank credit	0.78	1.00						
GDP per capita	0.31	-0.02	1.00					
Savings	-0.03	-0.26	0.50	1.00				
Investment	-0.08	-0.02	0.51	0.44	1.00			
Inflation	-0.10	-0.16	-0.37	-0.27	-0.10	1.00		
Capital flows	0.14	0.06	-0.08	-0.004	0.04	0.19	1.00	
Economic openness	-0.37	-0.35	0.11	-0.04	0.06	0.04	-0.03	1.00
SMINDEX1	0.98	0.76	0.32	0.002	-0.04	-0.10	0.15	-0.32

CHAPTER 5: FINANCIAL STRUCTURE AND ECONOMIC DEVELOPMENT IN AFRICA

A well-developed financial market and effective financial intermediation are a key component for an economy, as it mobilizes savings, helps in allocating resources, and diversifying risks. There is a growing body of literature that affirms the key role of financial development to economic growth (Goldsmith, 1969, McKinnon, 1973; Shaw, 1973). The key question that remains unanswered is how to measure financial development? In Chapter 4 we provided the measure of stock market development using principal component analysis. In the same vein, it would be helpful to identify the key aspects of financial development that are important for economic development for selected African countries. Empirical research on the comparative merits of bank-based and market based financial systems has focused on Germany and Japan as bank-based systems and the United States and United Kingdom as market based systems (Levine, 2002).

The study by Allen et al (2010) argues that financial development in Africa suffers from different underlying factors, in particular the case for banking sector development. These factors are different from those influencing growth in banking sector in other parts of the world. They provide evidence that there exists a financial gap in Africa, because the predicted levels of financial development exceed the actual levels experienced. The existence of a financial gap due to dominance of the banking sector in the past has resulted in new interests in the role of the stock market in African economies. The next section looks at the financial structure of the countries in our sample.

5.1 Overview of market structures for sample countries

Most of countries in our sample have relatively big stock markets as compared to the size of their banking system size. Botswana, Cote d'lvoire, Egypt, Kenya, Malawi, Nigeria, South Africa and Zimbabwe have relatively bigger stock markets as compared to their banking sector's as shown in Table 26. The banking sectors of our sample countries have higher liquidity compared to the stock markets' activities. The exceptions are South Africa, Egypt,

Morocco, Nigeria and Zimbabwe that have relatively better liquidity, but these are still less than 50% of their banking system liquidity as shown in Table 24.

Table 26: Financial Structure[48] for Sample Countries in Africa (1995-2011, averages).

Country	Financial Activity1	Rank	Financial Activity2	Rank	Financial size1	Rank	Financial size2	Rank
Botswana	0.02	8	0.12	10	1.69	1	1.67	5
Cote d'lvoire	0.02	8	0.11	11	0.83	6	1.70	4
Egypt	0.19	2	0.39	2	0.50	11	7.95	2
Ghana	0.02	8	0.11	11	0.58	9	1.0	8
Kenya	0.05	6	0.16	7	0.62	8	1.31	6
Malawi	0.03	7	0.17	6	0.80	7	0.53	13
Mauritius	0.03	7	0.07	12	0.48	12	0.59	12
Morocco	0.12	5	0.24	3	0.57	10	0.75	9
Namibia	0.01	9	0.07	12	0.19	14	0.23	15
Nigeria	0.13	4	0.71	1	1.10	4	13.23	1
South Africa	0.44	1	0.23	4	1.18	3	3.08	3
Swaziland	0.01	9	0.09	13	0.85	5	0.64	11
Tunisia	0.03	7	0.21	5	0.21	13	0.67	10
Zambia	0.02	8	0.13	8	0.48	12	0.50	14
Zimbabwe	0.15	3	0.21	5	1.34	2	1.24	7

The results in Table 26 show that African countries have extreme levels of illiquidity in their stock markets compared to their banking sectors. Many countries in our sample have large stock market capitalization with little trading. Thus, Botswana, Cote d'lvoire, Egypt, Kenya, Nigeria, South Africa and Zimbabwe are market-based systems according to financial size measure. This measure has some anomalies. Countries like Zimbabwe, Botswana and Cote d'lvoire are regarded as having highly market-based financial systems but this is because they have small banks, not particularly that their stock markets are well developed. Egypt, Nigeria and South Africa have market-based financial system (as shown by financial size 2 in Table 1) because they have high number of listed companies but relatively low level of trading on

[48] In Table 1, the degree to which countries are market based or bank-based is measured by financial activity1 which is the ratio of value traded to bank credit, financial activity 2 which is the ratio of turnover ratio to bank credit, financial size1 which is the ratio of stock market capitalization to bank credit and financial size2 which is the ratio of number of listed companies on the stock exchange to bank credit.

those listed companies as shown by the measures of financial structure of the liquidity dimension (Financial activity1 and Financial activity 2 on Table 26).

5.2 Empirical evidence on key functions of the stock markets

The purpose of this section is to give the observed key functions of stock markets in the world whilst making special reference to sample countries of our study. The shortage of resource mobilization, marginalization of African stock markets in the global financial capital market, coupled with shrinking official aid are central parts of the tremendous financial gap facing the region. The value of stock markets to Africa can be appreciated by understanding the multiple functions that the stock market performs.

At a deep level, stock markets help to improve corporate governance, since management can be disciplined through a threat of raid from an arbitrageur motivated by the potential value creation that would arise from taking over and changing management of a badly managed firm; thus, markets for corporate control are enhanced through stock markets (Bizjak et al, 1993). Fama and Miller (1972) provide some insights on the notion that managers are motivated to maximise current stock price because such a provision has a ripple effect of producing optimal investment incentives in perfect markets with homogeneous expectations.

Stock markets have a major role in allocation of resources (Michie, 1987). In the nineteenth century, the stock market played a significant role in financing capital needs of United Kingdom. Many models have emphasized that well-functioning financial intermediaries and markets ameliorate information and transaction costs, thereby fostering resource allocation and hence faster long-run growth (Bencivenga and Smith, 1991; Benvivenga et al, 1995; King and Levine, 1993a). Stock markets act as a vehicle for successive mergers and acquisition transactions (e.g. Borg et al. 1989; Croci and Petmezas, 2010 and, Shleifer and Vinshy, 1997).

Stock markets have a multi-faceted role in propelling growth in participating firms. In theory, stock markets can be used as a vehicle for capital mobilization and help in providing key information on the firms' growth prospects through compulsory information disclosure requirement for all listed firms. The stock exchange provides companies with the facility to raise capital for expansion through selling shares to the investing public.

Stock market also helps to facilitate company growth through acquisition or merger agreement. Companies view acquisitions as an opportunity to expand product lines, increase distribution channels, hedge against volatility, increase their market share or acquire other necessary business assets. By giving a wide spectrum of people a chance to buy shares and therefore become part owners (shareholders) of profitable enterprises, the stock market helps to reduce income inequalities. Stock markets provide an extra source of income to small investors. They create investment opportunities to small investors as individuals participating in the stock exchange, buy the number of shares they can afford instead of participating in other businesses that require huge investment outlay.

Government and local municipalities may raise capital for developmental projects by selling to the public another category of securities known as bonds through the stock exchange. When government gets this alternative source of funds, it has less need to overtax people for financing these developmental projects, such as huge infrastructure projects of sewage and water treatment works.

Stock markets help investors to pool and trade risk by accommodating investors with different wealth portfolios and trading firm shares of different industrial categories. Stock markets act as a platform where domestic and foreign investors interact which helps in increasing global integration of financial markets in Africa. The rate of return risk can be reduced by diversifying wealth portfolios holdings through securities markets. Well-developed stock markets can enhance corporate control by mitigating the principal-agent problem through aligning the interests of managers and owners, in which case managers would strive to maximise firm value (Diamond and Verrecchia, 1982; Jensen and Murphy, 1990).

The stock markets can also act as a barometer of the economy. At stock exchanges, share prices can rise and fall depending largely on the market information and reaction of investors to news and to the general behaviour of market participants. Share prices tend to rise or remain stable when companies or the economy in general shows signs of stability. Therefore, the movement of share prices can be an indicator of general trend in the economic activities.

5.2.4 Stock markets versus bank-based finance: theory and empirics

There are four theories recognized in literature about the financial aspect of economic development. First is that financial structure is an in-determinant feature of economic development (Luintel et al, 2008). The second theory states that either bank-based finance matter for economic development or market-based finance is superior in promoting economic development. Thirdly, provision of quality and quantity financial services matters for economic development (financial services view). This theory suggests that the distinction between bank-based or market-based finance is immaterial, rather what matters is the financial services themselves not the form of their delivery. Lastly, La Porta et al. (1997, 1998) and Levine, (1999), added law and finance view to the literature of the financial aspect of economic development. They argue that the role of the legal system in creating growth-promoting financial sector, with legal rights and good enforcement standards facilitate the role of both equity markets and banks.

Allen (1993) provides a synthesis of different roles that stock markets and banks provide to the investing public. The banks act as delegated monitors of firms which are in contrast with the market-based finance that allows for long-term relationship with and commitments from investing public. Diamond (1984) supports the view that management of firms should be closely monitored for the interests of the shareholders.

Banks have an advantage in monitoring investors because one party with the requisite expertise can do the job of monitoring the use of borrowed finance by firms and other individual economic agents. Stock markets however, provide finance that result in diverse ownership of resources that means security-holders may waste resources by costly repetition

of monitoring. The other desirable characteristic of a bank loan is that it is usually issued on an individual basis and it can be renegotiated more easily than securities sold in stock markets to a dispersed atomistic owner.

Diamond (1984) provides support for market based finance that allows investors to share risk. In most cases if the listed firms cover all key sectors in the economy, the stock market can be a vehicle for risk sharing if the investors hold a diversified portfolio of stocks from firms belonging to different sectors. Jefferies (1995) highlighted that Botswana Share Market has limited representatives of the manufacturing sector firms. He argues that the absence of agricultural firms and other primary sector firms inhibits the ability of stock markets to spread risk. Market-based finance also provides incentives to gather information about traded firms, which is then normally reflected in stock prices. This information in stock prices spurs effective managerial schemes within firms.

The literature by Mayer and Vives (1992) suggests that in industries where management decisions are widely agreed, the role of bank-based finance is profound. On the other hand, the industries where there is a disagreement on optimal policies, stock markets have been found to be important. The financial function view suggests that both banks and stock markets provide complementary services that can propel economic growth. It is the overall level and quality of financial services that are provided to the economy that influences productive allocation and economic growth.

5.3 Theoretical framework for financial development factors and economic development

The relation between capital market deepening and economic development model framework was formulated by Pagano (1993) from the endogenous growth literature. The fundamental underpinnings of the model lie in a “two factor model” of production comprising capital and

technology. The model can be extended by incorporating labour with an assumption that population growth is constant.

Pagano's (1993) model reveals that financial development can affect growth, as it can raise the proportion of savings channelled to investments as well as improve allocation of capital to those projects with the highest level of marginal product. The presence of financial intermediaries, therefore, is important in financing the industrial need to procure more capital and invest in more advanced technology that will enhance chances of fostering higher growth outcomes. In order to capture the potential effects of financial development on economic growth, Pagano (1993) deployed the simplest endogenous growth model, where output is a linear function of aggregate capital stock as:

$$Y_t = AK_t \tag{5.1}$$

where: Y = economic growth, A = technology and K = capital stock.

This production function can be viewed as a reduced form resulting from a competitive economy framework. Production in this case is an increasing function of aggregate capital stock with constant returns to scale technology. To derive the model, he assumes that population is stationary in an economy which produces a single goods. The goods can be either consumed or invested and if invested it will depreciate at the rate of δ per period. The gross investment will be expressed as:

$$I_t = K_{t+1} - (1-\delta)K_t \tag{5.2}$$

In a closed economy with no government, capital market equilibrium requires that gross saving, S_t, equals gross investment, I_t. Assuming an imperfect financial market, there will be some proportion of savings, 1-ϕ, that will be lost in the process of financial intermediation. The new relationship between investment and savings can be written as:

$$\phi S_t = I_t \tag{5.3}$$

The amount of savings in an economy can be expressed as a proportion of national output as follows;

$$S_t = sY_t \tag{5.3}$$

The growth rate of both output and capital at time, t+1, can be expressed as a transformation of equation (5.1) and reported as;

$$g_{t+1} = (Y_{t+1}/Y_t) - 1 = (K_{t+1}/K_t) - 1,$$
$$I_t/K_t = (K_{t+1}/K_t) - 1 + \delta, \text{ where } (K_{t+1}/K_t) - 1 = g_k = g_y = g, \quad (5.4)$$

The expression shown by equation (2.16) entails that the growth in income is directly proportional to the growth in capital stock. The growth rate equation (2.16) can be further decomposed to;

$g = (I_t/K_t) - \delta$, for which from equation (2.12), $K_t = Y_t/A$; substituting K_t in g, we get:

$$g = A(I/Y) - \delta = A\phi s - \delta; \text{ where } g = g_k = g_y, \phi S = I \text{ and } s = S/Y \quad (5.5)$$

Equation (5.5) therefore reveals how financial development can affect growth; it can raise ϕ, the proportion of savings channelled to investment; it may increase A, the social marginal productivity of capital; and it can influence s, the private savings rate.

In theory, stock markets spur economic growth by increasing both the level and productivity of investment. They increase the savings rate and enhance the efficient allocation of savings. As a result, more savings go to the corporate sector, accelerating economic growth. The extensive evidence favours a positive relationship between stock market development and economic growth. The purpose of this study is to explore the channel that links stock market development and economic growth, recognizing the role of institutions, macroeconomic policies and financial market structure. The extension to Pagano's (1993) model incorporates the empirical literature results, and the insights and techniques of the endogenous growth model. The endogenous growth models have shown that there can be self-sustaining growth without exogenous technological progress, e.g. Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Saint-Paul, 1992 and Pagano, 1993.

5.3.1 Extension of Pagano's model

The extensive empirical literature on the linkages between stock market and economic development by McKinnon (1973), Shaw (1973), Goldsmith (1969), Levine and Zervos (1996), Rajan and Zingales (1998) and others, suggests that a well functioning stock market with good institutions can augment technological innovation and capital accumulation. The study by Wurgler (2000) provides further evidence that even if in some cases financial development does not lead to higher investments; it helps in allocating existing investments better and therefore, indirectly improves economic development.

Along the lines of the model presented in the previous section, the one developed by Pagano (1993), combined with the major empirical evidence, the link between change in savings and financial development becomes:

$\partial s = f(FD_t) = \upsilon_0 + \upsilon_1(FD_t) + \gamma_t$, where: FD = financial development, ∂s = change in savings.

In addition, financial development helps in augmenting the social marginal productivity of capital and this can be expressed as stated below:

$g_{at} = f(FD) = \beta_0 + \beta_1(FD_t) + \eta_t$; where: g_{at} = social marginal productivity of capital. The per capita economic development is a combination of increased savings and the social marginal productivity of capital and therefore becomes;

$$g_y = f(FD) = \upsilon_0 + \upsilon_1(FD) + \beta_0 + \beta_1(FD) + \varepsilon_t \quad (5.6)$$

$$g_y = (\upsilon_0 + \beta_0) + (\upsilon_1 + \beta_1)FD_t + \varepsilon_t$$

$$g_y = \lambda_0 + \lambda_1 FD_t + \varepsilon_t \quad (5.7)$$

$$\text{where: } \lambda_0 = \upsilon_0 + \beta_0 \text{ and } \lambda_1 = \upsilon_1 + \beta_1$$

Recall that one of the aims of this research is to explore mechanisms through which stock market development can affect economic development for emerging and frontier markets. The model that will therefore be tested takes the form of:

$G_{it} = f(SD, C)$, where: G = GDP per capita growth (proxy change in economic development), SD = stock market development which replaces financial development, C = control variable

for other factors that determine economic growth such as human capital development (education), inflation, private investment and savings.

5.4 Econometric Approach

We incorporate initial level of income and initial level of education to measure conditional convergence and the importance of human capital as was done by Levine (2002). In terms of econometric method, we use the Pooled OLS and Fixed Effects methods that were detailed in Chapter 4. In this chapter we essentially state the econometric specification that is estimated. In this study we consider cross-country growth specifications in order to investigate the competing views about financial structure. The main discussions from previous sections yield the following empirical model:

$$\mathbf{G} = a'\mathbf{X} + b\mathbf{S} + \varepsilon \quad (5.8)$$

$$\mathbf{G} = c'\mathbf{X} + d\mathbf{F} + \varepsilon \quad (5.9)$$

$$\mathbf{G} = e'\mathbf{X} + f\mathbf{S} + h\mathbf{F} + \varepsilon \quad (5.10)$$

The variable G is real GDP per capita growth, X is a set of standard growth determinants such as economic openness, FDI, human capital, private investment, savings and inflation. S measures financial structure. Larger values of S signify a more market-based system, while smaller values signify more bank-based system. F measures overall financial development (i.e., the level of development of banks and stock markets). Larger values of F signify a greater level of financial services in the economy. ε is the error term in the equation ι=1, 2 and 3 respectively, and the small letters a,b,c,d,e and f are coefficients.

The econometric specification stated immediately above entails:

Bank-based view: Bank-based systems are good for economic development and banks contribute to overall financial development. Thus, the bank-based view predicts that $b < 0$, $d < 0$, $f < 0$ and $h < 0$. This is the definition of bank-based view used in this study.

Market-based view: Market-based systems are particularly good for economic development and markets contribute to overall financial development. Thus, the market-based view predicts that $b > 0$, $d > 0$, $f > 0$ and $h > 0$.

Financial service view: Financial services - whether provided by banks or markets - positively influence economic development. Thus, the financial services view predicts that $d > 0$ and $h > 0$.

Hybrid views: there are views that bank-based and market-based financial systems are important for economic development and overall financial development under certain conditions. These views argue that the bank-based system is good under certain conditions whilst the market-based system is good under alternative conditions.

Boyd and Smith (1998) suggest that banks are particularly important at low levels of economic development. As income rises, however, countries will benefit from becoming more market-based. This view suggests that the regression should be specified as follows, in equation 4, where Y is real GDP per capita, while other variables remain as defined in equation 3.

$$G = a'X + bS + kS^*Y + \varepsilon \quad (5.11)$$

This view predicts that $b < 0$ and $k > 0$.

Further, according to Rajan and Zingales (1998) bank-based systems have a comparative advantage in economies with weak institutions. They suggest that a well functioning stock market with good institutions can augment technological innovation and capital accumulation. According to this view, economies will benefit from being more market-based only when their legal systems strengthen. Levine (2002) tested this view and suggested the model below in equation 5; the additional variable L is an index of legal system development:

$$G = a'X + bS + kS^*L + \varepsilon \quad (5.12)$$

This view predicts that $b < 0$ and $k > 0$.

The model considered in this study is the following:

$$G_{it} = \alpha_0 + \alpha_1 S_{it} + \alpha_2 F_{it} + \alpha_3 X_{it} + \alpha_4 Y_{1995i} + \alpha_5 SCHOOL_{1995i} + \varepsilon_{it} \quad (5.13)$$

Where G_{it} is real GDP per capita, S_{it} measures financial structure, F_{it} measures overall financial development, (i.e., the level of development of banks and stock markets), X_{it} is the set of standard growth determinants such as economic openness, FDI, private investment and savings and inflation, Y_{1995i} is the initial real GPD per capita and $SCHOOL_{1995i}$ is the initial amount of human capital, proxied by secondary enrolment rates in 1995.

This study tested the models stated above in order to answer the question of whether financial structure matters for economic development in our sample of African countries. The next section discusses the data and construction of the financial structure variables we adopted from Levine (2002).

5.4.1 Data

To examine the relationship between financial development and economic development, this study used the array of measures of relative size of banks and stock market and those that measure financial activities. The other aspect of interest is the relationship between financial structure and economic development and to test this we use the measures of financial structure-activity and financial structure-size which we constructed following the approach by Levine (2002).

Financial structure-activity is a measure of activities of stock markets relative to the activities of the banking sector. To measure the stock market activities this study uses total value trade ratio, which equals the value of domestic equities traded on the domestic exchanges divided by GDP. This measure is frequently used to gauge the market's liquidity because it measures market trading relative to economic activity. To measure the activity of the banks, this study

uses bank credit ratio, computed as the ratio of value of deposit money bank lends to the private sector to GDP. Domestic credit provided by the banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government. Thus, the measure of financial structure-activity equals the total value traded ratio divided by bank credit ratio. The other measure of relative activity of stock markets to banks used in this study is the turnover ratio divided by bank credit ratio. Turnover ratio is defined as the total value of shares traded during the period divided by the average market capitalization for the period. Larger values of financial structure-activity imply a more market-based financial system. Recall that the average values of structure-activity are ranked and listed in Table 1.

Financial structure-size is a measure of the size of the stock market relative to that of banks. To measure the size of the domestic stock markets, this study uses market capitalization ratio, which is computed as the value of domestic equities listed on domestic exchanges divided by GDP. To measure size of banks, this study use bank credit ratio. Thus, financial structure-size equals the market capitalization ratio divided by bank credit ratio. The other measure of stock market size we used in the study is the number of listed companies on the stock exchange. We computed another measure of structure-size by dividing number of listed companies by number of banks. Larger values of financial structure-size imply a more market-based financial system. The average values of structure-size are ranked and also listed in Table 1.

Financial structure-aggregate is a conglomerate measure of financial structure based on financial structure-activity and size described above. Specifically, structure-aggregate is the first principal component of financial structure-activity and financial structure-size. Thus this variable can best explain the two financial structure indicators. We measure overall financial development with the view that quality and quantity of financial services is particularly important for enhancing growth and neither bank-based nor market-based categorizations are particularly important in identifying financial aspects of economic development.

Other variables

To assess the independent relationship between economic development, and financial structure and financial development, we control for other potential economic development determinants. We use logarithm of initial real per capita GDP, which for the present study is the value in 1995, and the logarithm of the number of years of schooling in the working age population. Initial income captures the convergence effect predicted by many growth models and schooling is included to capture the potential role of human capital in growth processes. A higher literacy rate improves the efficiency of an economy by providing a more productive labour force.

The augmented Pagano model comprises of four key determinants of economic development; human capital development, inflation, private domestic savings and investments. These variables and key determinants of financial structure referred in Chapter 2 are discussed below.

(i) Inflation

A stable macroeconomic environment characterized by low and predictable inflation encourages private sector activities and has higher potential to impact growth positively. Higher and volatile inflationary environments discourage productive activities of the private sector and hence hurt economic development. We expect a negative relationship between inflation and growth in economic development.

(ii) Domestic savings

Savings is calculated as a ratio of gross saving to GDP. We expect it to have a positive effect on economic development. The mobilized resources will help to finance the private sector's productive projects and hence propel economic development.

(iii) Domestic investment and FDI

Foreign Direct Investment (FDI) can play an important role in developing countries. FDI helps by bringing new capital for investment, contributing to the balance of payment by raising potential exports and integrating an economy into global economic networks. Capital formation has a potential to influence positively the growth processes. Investment rate is considered as an important determinant of economic development. We use the ratio of gross fixed capital formation to GDP as a measure of investment.

(iv) Economic openness

There is a strong and positive link between openness and economic development. Economic openness enables the exploitation of comparative advantage, technology transfer and diffusion of knowledge, increasing scale economies and exposure to competition.

(v) Institutional factors

The role of institutions in growth process has been a source of considerable research. La Porta et al (1997, 1998) and Levine (1999) maintain that the role of legal system in creating growth-promoting financial sector, with legal rights and good enforcement standards facilitate the role of both equity markets and banks. Better maintenance of rule of law, higher quality of government business and low perception of corruption encourage economic development by stimulating investment. In this research, we incorporate corruption perception, regulatory quality and government effectiveness to proxy for quality of legal system and governance. We expect a positive relationship between institutional quality measures and economic development.

5.5 Empirical results on nexus of Financial Structure, Financial Development and Economic Development

We present a correlation table of all variables used in the tests before discussing the estimated regression models. The correlation analysis flags variables that may cause multicollinearity problem. Second, it shows the extent to which constructed measures of financial structure, financial development and financial services indexes are different and thus capture appropriately these relatively disparate factors. The correlation results are presented in Table 24 and 25. All correlated variables are significant at 10% or less.

5.5.1 Correlations of test variables

All measures of financial structure are highly correlated with each other. The level of association between test varies from 13% to as high as 97%. Measures of financial structure and level of financial development are positively correlated. The results show that the

financial system size has a positive influence on the financial system liquidity which is measured by liquidity of stock markets relative to liquidity of banks.

The correlation between measures of financial activity-structure[49] for both banks and stock markets in our sample of countries are high. There is low correlation between economic development growth and measures of financial structure. This suggests that financial structure has little association with change in economic development. The association of financial activities with growth in economic development ranges from 38% up to 56% as shown in Table 25. This suggestive evidence shows that financial services have higher degree of association with economic development as compared to structure of financial system. The negative association of financial structure size and activity with economic development shows that bank-based system favours economic development for our sample countries as compared to market-based system.

[49] Definition of the measures of financial structure by size and level of activities-and measures of financial services in both quality and quantity dimension are provided on section 5.4.1 of this chapter.

Table 23: Correlation of Economic Development and Financial Structure.

Variables	GDP per capita	Financial Structure-size1	Financial Structure-size2	Financial Structure-activity1	Financial Structure-activity2	Finance-size1	Finance-size2	Finance-activity1	Finance-activity2
GDP per capita	1.00								
Financial Structure-size1	-0.18	1.00							
Financial Structure-size2	-0.22	0.58	1.00						
Financial Structure-activity1	0.07	0.66	0.67	1.00					
Financial Structure-activity2	-0.13	0.46	0.67	0.84	1.00				
Finance-size1	0.48	0.26	0.25	0.68	0.33	1.00			
Finance-size2	0.49	0.14	0.60	0.74	0.54	0.80	1.00		
Finance-activity1	0.56	0.32	0.35	0.79	0.53	0.93	0.87	1.00	
Finance-activity2	0.38	0.25	0.33	0.75	0.59	0.85	0.87	0.96	1.00

The correlation of economic development and measures of economic environment is relatively high. The measures of economic environment have positive association with growth in economic development with the exception of inflation that has a negative sign. This result means that higher initial human capital, initial income per capita, sizeable domestic savings and investments and good institutional quality encourage growth in income per capita. The level of association between economic development, human capital and institutional quality is relatively higher than other measures as shown in Table 26. The institutional quality measures are highly correlated, which means good regulations and low perception of corruption is highly associated with effective running of day-to-day government operations. The correlation between measures of institutional quality is very high and therefore, in our main regressions analysis we include these variables in separate models.

Table 24: Economic Development and Economic Environment.

Variables	GDP per capita	Human Capital	Savings	Investment	Inflation	Economic openness	Regulatory quality	Corruption	Government effectiveness
GDP per capita	1.00								
Human Capital	0.78	1.00							
Savings	0.53	0.26	1.00						
Investment	0.39	0.14	0.59	1.00					
Inflation	-0.03	-0.04	-0.30	-0.17	1.00				
Economic openness	0.61	0.24	0.61	0.19	-0.06	1.00			
Regulatory quality	0.82	0.61	0.47	0.40	0.48	0.48	1.00		
Corruption	0.76	0.47	0.49	0.43	0.04	0.55	0.84	1.00	
Government effectiveness	0.82	0.73	0.50	0.44	0.47	0.47	0.87	0.81	1.00

5.5.2 Empirical results

This section presents results from Pooled OLS and Fixed effects regressions. Our dependent variable is economic development growth (growth in GDP per capita) and our variable of interest are financial structure measures and measures of financial activities that proxy overall financial development. Other control variables include measures of initial conditions, economic environment measures and institutional quality variables.

The results from OLS regressions shown in Table 27 support the importance of economic openness, human capital, low corruption level, human capital development, domestic investment, regulatory quality, and quality of government operations have on economic development.

In our results from OLS regression, financial structure does not significantly impact economic development for our sample of countries. This means bank-based or market based financial system have a neutral effect on economic development. Table 6 and table A5.1 (in

appendix) shows a significant and positive role of financial services on economic development. The results show that overall financial development is robustly linked to positive economic development and there is no support for bank-based or market-based financial system. Both financial structure for size (depth) dimension and liquidity (activities) do not matter for economic development in our sample of African countries. This result is in agreement with Levine's (2002) main results that neither bank-based nor market based view matter for economic development.

Table 25: OLS Results of Financial Structure and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Financial Structure (size)	-0.00	-0.01		
	(0.43)	(1.12)		
Economic openness	1.46	2.31	2.51	2.93
	(3.44)***	(6.23)***	(5.58)***	(9.11)***
Savings	-0.01		-0.10	
	(0.16)		(1.40)	
FDI	0.03	0.02	0.01	0.00
	(1.08)	(0.83)	(0.50)	(0.01)
Human capital	1.06	1.17	1.02	1.34
	(9.94)***	(9.22)***	(6.66)***	(13.10)***
Corruption	0.56			
	(7.63)**			
Domestic investment		0.32		0.66
		(2.17)**		(4.20)***
Regulation		0.30		
		(2.78)**		
Structure activity			0.10	-0.02
			(0.34)	(0.39)
Structure Aggregate			-0.013	
			(0.46)	
Government effectiveness			0.48	
			(4.20)***	
Constant	4.21	3.42	5.38	2.19
	(9.18)***	(5.45)***	(8.11)***	(3.77)***
R^2	0.84	0.79	0.79	0.78
N	115	118	114	115

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The aggregate measure of financial structure does not significantly play any role in economic development processes in our sample countries. Our measures of institutional environment have all positive and significant effect on economic development. This means that better control of corruption, good regulatory quality, and effective and efficient government operations impact positively on economic development.

In Table 26, a unit change in economic openness will result in economic development increasing by at least 1.46 units. Further, a one unit increase in school enrollment rate (human capital development) will result in at least one unit increase in economic development. A unit

increase in physical capital accumulation (domestic investment) will result in at least 0.3 units increase in economic development for our sample of African countries. The increase in corruption control by one unit will result in economic development increasing by at least 0.56 units. A one unit increase in regulation quality will result in at least 0.3 units increase in economic development. Finally, a one unit increase in effectiveness of government in its operations will result in at least 0.48 units in economic development. The sources of economic development in our sample of countries are accumulation of physical capital, economic openness, and quality of institutions.

Table 26: FE Results Financial Structure and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Financial Structure (size)	0.00	-1.03		
	(0.16)	(0.24)		
Economic openness	0.183	1.09	0.06	0.31
	(1.09)	(0.93)	(0.82)	(1.83)*
Savings	0.02		-1.12	
	(0.66)		(0.20)	
FDI	0.02	5.49	1.37	0.02
	(2.95)**	(2.10)* *	(1.93)*	(2.61)**
Human capital	0.76	6.64	4.44	0.77
	(9.27)***	(7.71)***	(7.19)***	(9.29)***
Corruption	-0.02			
	(0.36)			
Domestic investment		2.60		0.08
		(0.10)		(0.95)
Regulation		7.14		
		(2.51)**		
Structure activity			8.86	0.01
			(1.09)	(0.74)
Government effectiveness			7.91	
			(1.84)*	
Constant	4.45	-7.01	-0.37	4.33
	(12.24)***	(4.43)***	(4.61)***	(10.88)***
R^2	0.59	0.48	0.47	0.59
N	115	118	114	115

* $p<0.1$; * *$p<0.05$*** $p<0.01$

In Table 27, financial structure is not significantly related to economic development. None of our financial structure indicators enters any economic development regressions significantly at the 10% level. In our Fixed Effect results fewer variables are significant determinants of economic development. Economic openness, FDI, human capital, regulatory quality and government effectiveness do influence economic development for our sample of countries

In Table 27, quality of institutions, economic openness, FDI flows and human capital development are the sources of economic development for our sample of African countries.

The interesting result from our study is that financial services as proxied by financial activity are positive and significant determinant of economic development. The result that shows importance of financial services for economic development is shown by Table 29 and Table A5.2 (in the appendix section). The impact of financial services on economic development for our sample of countries is still minimal (about 0.001 to 0.05 increase in economic development per a unit increase in financial services/size).

Table 29: FE Results for Financial Services and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Finance activity	0.00			
	(3.10)**			
Economic openness	0.44	0.21	0.30	0.17
	(2.38)**	(1.26)	(1.85)*	(0.98)
Savings	0.00	0.01		0.02
	(0.18)	(0.54)		(0.84)
FDI	0.02	0.03	0.02	0.03
	(2.62)**	(3.23)***	(2.83)**	(3.05)**
Human capital	0.76	0.66	0.81	0.77
	(9.40)**	(7.43)**	(8.77)**	(9.19)**
Corruption	0.02			
	(0.40)			
Investment			0.04	
			(0.63)	
Regulation				0.06
				(1.12)
Finance size		0.05	-0.02	
		(2.62)**	(0.70)	
Government ffectiveness		-0.02		
		(0.26)		
Structure Aggregate				0.00
				(0.34)
Constant	4.69	4.62	4.44	4.43
	(12.85)***	(12.94)***	(11.18)***	(12.04)***
R^2	0.63	0.62	0.60	0.60
N	114	115	118	114

* $p<0.1$; * *$p<0.05$*** $p<0.01$

5.6 Robustness Checks

This section presents the analysis of independent relationship between financial structure and growth in economic development, conditional on level of income and institutional variables. This part looks at the impact of initial conditions on growth in economic development after controlling for all other factors. Similar to the result from our main regression, the sources of economic development are human capital development, economic openness, FDI flows, low corruption, quality regulation and efficient government operations. Inflation as expected has a negative impact on economic development.

Table 27: OLS Results of Financial Structure (conditional on income) and Economic Development.

Variable	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Financial Structure (size)*income	-0.00	-0.00		
	(0.42)	(1.25)		
Economic openness	1.48	1.99	2.60	2.77
	(3.93)**	(5.59)**	(6.19)**	(8.83)**
Savings	-0.08		-0.16	
	(1.56)		(2.33)*	
Inflation	-0.19	-0.17	-0.17	-0.14
	(5.48)**	(4.13)**	(3.94)**	(3.24)**
FDI	0.05	0.05	0.03	0.02
	(2.07)*	(1.97)	(1.11)	(0.81)
Human capital	1.12	1.17	1.10	1.38
	(11.77)**	(9.87)**	(7.60)**	(13.95)**
Corruption	0.58			
	(8.83)**			
Structure activity*income			0.02	-0.00
			(0.67)	(0.40)
Investment		0.21		0.58
		(1.49)		(3.83)**
Regulation		0.37		
		(3.63)**		
Structure aggregate*income			-0.002	
			(0.79)	
Government effectiveness			0.45	
			(4.19)**	
Constant	4.48	3.79	5.53	2.35
	(10.93)**	(6.39)**	(8.90)**	(4.20)**
R^2	0.87	0.81	0.82	0.80
N	115	118	114	115

* $p<0.1$; * *$p<0.05$*** $p<0.01$

The measures of structure of the financial system conditional on the level of income in our sample of countries, does not have any significant impact on the processes of economic development as shown in both Table 30 and 31. In Table 30 the results show that economic openness and human capital development have a positive impact on economic development. The institutional quality measures of corruption perception, regulatory quality and level of government effectiveness have positive and significant impact on economic development.

The result for this section yields the same conclusion: that the structure of financial system does not have any significant impact on economic development for the sample of African countries.

Table 31: FE of Financial Structure (conditional on income) and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Financial Structure (size)*government	0.00 (0.19)	0.00 (0.29)		
Economic openness	0.181 (1.08)	0.176 (1.05)	0.313 (1.89)	0.166 (1.00)
Savings	0.01 (0.58)	0.02 (0.68)		0.02 (0.92)
Inflation	-0.02 (1.11)	-0.02 (1.10)	-0.02 (1.13)	-0.02 (1.21)
FDI	0.03 (3.09)**	0.03 (3.14)**	0.02 (2.76)**	0.02 (3.07)**
Human capital	0.76 (9.17)**	0.76 (9.32)**	0.77 (9.54)**	0.77 (9.55)**
Corruption	-0.02 (0.38)			
Investment			0.07 (0.87)	
Regulation				0.06 (1.10)
Government effectiveness		0.00 (0.01)		
Structure size *Corruption			0.00 (0.19)	0.00 (0.22)
Constant	4.51 (12.27)**	4.48 (12.25)**	4.39 (10.94)**	4.40 (12.28)**
R^2	0.60	0.59	0.59	0.60
N	115	115	116	115

* $p<0.1$; * *$p<0.05$*** $p<0.01$

5.7 Policy Implications and Conclusion

This aspect of the study explores the relationship between economic development and financial structure; that is, whether the degree to which the financial system structure (bank-based or market based finance) matters for economic development for our sample of African countries. None of the financial structure indicators enters any of the economic development regressions significantly at 10% level. The result is inconsistent with bank-based and market-based system view of financial system. Financial structure does not matter for economic development in selected African countries. The policy implication that emerges from this result is that authorities should focus on advancing both market-based and bank-based financial system to improve their economic development.

Financial services quality is a significant determinant of economic development for our sample of African countries. This means the level of financial development is important for

economic development goals than the mode of the financing system. The policy implication that emerges from our study is that relevant authorities should invest in accumulating both quantity and quality financial services in order to impact economic development in Africa.

Further notable sources of economic development in our study are quality institutions such as low corruption in the economy, good regulatory quality and effective government. In order to achieve economic development goals, there should be efforts to reduce corruption and improve the quality of day-to-day government business in our sample of African countries. Furthermore, the accumulation of both physical capital and attraction of FDI flows are important sources of economic development. These results in this paragraph are interesting because good institutional quality is also known to encourage increase capital accumulation and pull FDI flows. Finally, a policy that aims at opening the economy to global markets has the potential to increase economic development for our sample of African countries.

Appendix 3

OLS Results for Financial Services and Economic Development

Table A5.1: OLS Results for Financial Services and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Finance activity	0.00			
	(2.06)*			
Economic openness	2.220	3.49	3.08	3.01
	(4.45)**	(7.00)**	(6.11)**	(6.34)**
Savings	-0.10	-0.20	-0.14	-0.14
	(1.53)	(2.73)**	(1.90)	(2.06)*
Investment	0.50	0.69	0.65	0.70
	(2.82)**	(3.48)**	(3.55)**	(4.19)**
FDI	0.01	-0.01	-0.01	-0.01
	(0.30)	(0.32)	(0.39)	(0.24)
Human capital	1.04	1.16	1.22	1.17
	(9.68)**	(7.70)**	(8.07)**	(9.37)**
Corruption	0.44			
	(5.19)**			
Regulation			0.29	0.33
			(2.80)**	(3.12)**
Finance size		0.03	-0.01	
		(1.04)	(0.22)	
Government effectiveness		0.19		
		(1.49)		
				-0.00
				(0.09)
Constant	3.58	3.54	3.23	3.18
	(6.73)**	(4.40)**	(5.19)**	(5.27)**
R^2	0.85	0.81	0.81	0.82
N	114	115	115	114

* $p<0.1$; * *$p<0.05$*** $p<0.01$

Table A5.3: OLS Results on Financial Structure (conditional on income) and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Structure size*government	-0.00	0.00			
	(0.49)	(0.14)			
Economic openness	1.48	1.98	2.68	2.04	2.33
	(3.93)***	(5.53)***	(6.49)***	(5.85)***	(5.54)***
Savings	-0.08		-0.16		-0.10
	(1.54)		(2.40)*		(1.63)
Inflation	-0.19	-0.17	-0.16	-0.16	-0.20
	(5.49)***	(4.04)***	(3.89)***	(4.00)* *	(4.82)***
FDI	0.05	0.05	0.03	0.04	0.04
	(2.07)*	(1.99)*	(0.97)	(1.76)	(1.45)
Human capital	1.12	1.14	1.15	1.11	1.20
	(11.78)***	(9.74)* *	(8.10)***	(9.68)***	(9.96)***
Corruption	0.58				
	(8.84)**				
Investment		0.23		0.37	
		(1.63)		(2.51)*	
Regulation		0.38		0.41	0.48
		(3.63)***		(4.04)***	(4.87)***
Structure size*regulation			-0.00		
			(0.10)		
Government effectiveness			0.42		
			(4.14)***		
Structure size *corruption				-0.00	0.00
				(0.33)	(0.16)
Constant	4.47	3.82	5.45	3.58	4.85
	(10.93)***	(6.39)***	(8.89)***	(6.10)***	(9.39)***
R^2	0.87	0.81	0.81	0.83	0.82
N	115	118	115	116	115

* p<0.1; * *p<0.05*** p<0.01

Table A5.4: FE Financial Structure (conditional on income) and Economic Development.

Variables	GDP per capita	GDP per capita	GDP per capita	GDP per capita
Structure size*income	0.00			
	(0.14)			
Economic openness	0.182	460.4	410.5	0.30
	(1.08)	(0.89)	(0.75)	(1.78)
Savings	0.01		-18.44	
	(0.58)		(0.24)	
Inflation	-0.02	-64.26	-49.68	-0.02
	(1.12)	(1.26)	(0.95)	(1.16)
FDI	0.03	60.70	59.16	0.02
	(3.09)**	(2.28)**	(2.25)**	(2.78)**
Human capital	0.75	1,932.80	1,932.54	0.76
	(9.17)***	(7.61)***	(7.29)***	(9.16)***
Corruption	-0.02			
	(0.38)			
Structure activity*income		-0.15		0.00
		(0.29)		(0.73)
Investment		17.54		0.08
		(0.08)		(0.94)
Regulation		461.03		
		(2.64)**		
Structure size*regulation			1.78	
			(0.36)	
Government effectiveness			409.68	
			(1.72)	
Constant	4.52	-5,383.95	-5,352.76	4.40
	(12.28)***	(4.24)***	(4.52)***	(10.95)***
R^2	0.60	0.49	0.47	0.59
N	115	118	115	115

* $p<0.1$; * *$p<0.05$*** $p<0.01$

CHAPTER 6: CONCLUSION AND POLICY IMPLICATIONS

6.1 Overview of the study

The purpose of the thesis was to understand the evolution of capital markets, processes behind the development of capital markets, and the consequences of financial structure on economic development, in selected African countries. To address these issues we divide the work into three chapters. Chapter 3 focuses on the evolution in African stock markets, banking sectors and bond markets, from 1995 to 2011. Chapter 4 looked at the determinants of stock market and banking sector development, and chapter 5 explored the impact of financial structure on economic development in our sample countries.

The purpose of chapter 3 was to sketch an account of developments in Africa's financial markets since 1995 and provide a comparative analysis of these developments with financial market developments in select emerging and developed countries. We especially focused the trends in development of financial intermediaries and stock markets in the sample countries. In addition, the chapter provided an overview of trends in portfolio investment flows and the privatization experience of the sample countries since 1990. Overall, chapter 3 accounts for key features of Africa's financial markets, with particular reference to banks and stock markets. The last aspect of chapter 3 is an account of the nature of institutional and macroeconomic environment in which these mapped financial markets operate.

The essence of chapter 4 was to answer the following questions in the context of selected African countries: What factors matter for stock market and banking sector developments? Are factors that determine stock market development different from the ones that matter for banking sector development? Do the factors that affect both stock market and banking sector developments influence them similarly? The main goal of chapter 4 was to empirically investigate the determinants of stock market and banking sector developments in Africa. To do so, **three** indicators of stock market development: stock market capitalizations, value of shared traded and turnover ratio, were combined to come up with a composite measure of overall stock market development, following the algorithm of Demirguc-Kunt and Levine (1996). We used the measure of bank credits to the private sector as a proxy for the banking sector development. To answer these questions, we conducted a panel analysis on the pooled

data from the 15 selected African countries for 1995-2011.We selected these countries because they are the ones that have established stock markets on or before 1995. Furthermore, the study uses lagged variables in the regressions in order to avoid contemporaneous relationship problems.

A well-developed financial market and financial intermediation is a key component of an economy because it mobilizes savings, helps in allocating resource, and diversifying risks. There is a growing body of literature that affirms the key role of financial development in economic growth (Goldsmith, 1969, McKinnon, 1973, Shaw, 1973, King and Levine, 1993, Rajan and Zingales, 1998, and others). The key question that remains unanswered is how to measure financial development?

In Chapter 4 we provided a measure of stock market development using principal component analysis. In the same vein, it would be helpful to identify the key aspects of financial development that are important for economic development for countries in the African environment. Empirical research on the comparative merits of bank-based and market based financial systems has focused on Germany and Japan as bank-based systems and the United States and United Kingdom as market based systems (Levine, 2002).

Chapter 5, examined the relationship between financial development and economic development, and it used an array of measures of relative size of banks and stock markets, and those that measure financial activities. The other key aspect of chapter 5 was to look at the relationship between financial structure and economic development; and to test this we used measures of financial structure-activity and financial structure-size which we constructed following the approach by Levine (2002).

6.2 Evolution of African Capital Markets

Chapter 3 used evidence from Africa's economies to analyse the development, evolution and performance of African countries' financial systems. A special attention was given to stock markets and banking sectors which are predominant in Africa as sources of financial capital

funds. In our sample of countries, most economies witnessed an emergence of stock markets in the 1990s. Though these capital markets are still thin and illiquid, their early growth potential shows that a positive trend can be sustained into the future. The study by Beck and Demirguc-Kunt (2009) shows that whilst stock markets have become larger throughout the world, they have not become more liquid outside the high-income world; this applies to our sample of African countries as well.

We find a trend towards market-based financial systems in most African economies. Though both markets and banks have been deepening in the last decade, the deepening is stronger for markets than banks. There is still however large domination of traditional banking finance, since the trend in Africa towards markets is mostly driven by a rise in market capitalization but less in terms of trading activities in these markets. There is a wide cross-country variation in financial system depth, and the banking sector and stock market development in Africa, with South Africa and North African countries in our sample, having relatively large markets.

Further, we used a number of economic performance indicators to assess the evolution of macroeconomic and institutional environments in which the African capital markets operate. The economic indicators of the sample countries show a positive pace of development in terms of the growing income levels and a reduction in debt service burden, coupled with a continual decline in total external debt holdings. Corruption levels, however, are still perceived to be high by institutional and foreign investors in our sample countries. The level of diversification in these economies is still poor and is due to persistent erratic movements in terms of trade of products that African countries produce, this trend might continue to have a deterrent effect on sustainable development path for both financial markets and economic performance in Africa.

6.3 Determinants of Stock Market and Banking Sector Development in Africa

The empirical analysis found some interesting results in respect of capital markets growth determinants. The evidence of chapter 4 suggests that banking sector development, GDP per

capita, private capital flows, domestic investment, trade openness, FDI, interest rate and inflation, are important determinants of stock market development. Institutional quality has a positive effect on stock market development, especially regulatory quality. Corruption and government effectiveness however have negative effects on stock market development, which in the case of the latter is theoretically counter-intuitive.

As for banking sector development, GDP per capita growth, remittances flows, domestic investment, exchange rate and FDI are shown to be important determinants. We also confirm that the relationship between stock market development and the banking sector development for a sample of African countries is positive, indicating that financial intermediaries and stock markets are complements, not substitutes. These results on the determinants of stock market and banking sector development in selected African countries are discussed in chapter 4.

6.4 Financial Structure and Economic Development in Africa

This aspect of the study explored the relationship between economic development and financial structure; that is, whether the degree to which the financing mix is slanted (bank-based or market based finance) matters for economic development for our sample of African countries. None of the financial structure indicators enters any of the economic development regressions significantly at the 10% level. The result is inconsistent with bank-based and market-based system view of financial system. Financial structure does not matter for economic development in these selected African countries. Instead, financial services quality is a significant determinant of economic development for our sample of African countries. This means that the level of financial development is important for economic development goals than the mode of the financing system.

6.5 Policy Implications

The findings of chapter 4 appears to have the most obvious policy implications in that government policies could be used as an important tool for activating stock markets in Africa. Firstly, we observed that the banking sector has a complementary role to the stock market activity (financing particularly) and thus for the growth process in these selected African countries. Secondly, economic development plays a crucial role in stock market development.

Policymakers in Africa may have to initiate policies to foster banking sector development and economic growth; both of which would in turn indirectly affect positively the developmental path of their stock markets.

Thirdly, economic policies that adjust and target certain levels of interest rate and inflation can influence the development outcomes of stock markets. Lastly, countries should improve their institutional environments because good institutions reduce political risk which is an important factor in investment decision. A good regulatory capacity of a recipient government helps in encouraging participation by both domestic and foreign investors in their stock markets. These documented results[50] are generally in agreement with the theoretical and empirical literature (e.g. Andrianaivo and Yartey, 2010, Cherif and Gazdar, 2010, El-Wassal, 2005).

The result from chapter 5 shows that financial structure does not matter for economic development, but rather it is the quality of financial services that has positive and significant role in determining economic development in African countries. The policy implication that emerges from this result is that authorities should focus on advancing the effectiveness of both market-based and bank-based financial systems to improve their economic development. In other words, the overarching policy implication that emerges from our study is that relevant authorities should invest in accumulating both quantity and quality financial services in order to impact economic development in Africa.

Further notable sources of economic development in our study are quality institutions such as low corruption in the economy, good regulatory quality and effective government. In order to achieve economic development goals, there should be efforts to reduce corruption and improve the quality of day-to-day government business in African countries. Furthermore, the accumulation of both physical capital and attraction of FDI flows and remittances are important sources of economic development support. These results are interesting because good institutional quality is also known to encourage increased capital accumulation as well

[50] It should be noted that there are significant heterogeneities across countries and our regressions are about the average behaviour in the sample. We however provide some sensitivity analyses by conducting sub-sample analysis.

as pull cross-border capital flows. Finally, a policy that aims at opening the economy to global markets has the potential to increase economic development in African countries.

6.6 Questions for further research

The debate on the role of capital markets in underdeveloped and/or developing countries is yet to be settled. One of the key questions that remain unanswered is at what stage of economic development the country should establish a stock market or a bond market to realise more growth? The other key issue related to this point is whether economic structure of a country is related to the evolution of its capital market, especially for the case of developing countries like many African countries? The other key aspect of future research concerning development of African capital markets is whether financial education has a role to play in capital markets development? To our knowledge there is no research that has attempted to answer this key question for African countries.

Another less researched important matter relates to the legal infrastructure, sustained growth of capital markets and private sector in Africa. The key issue is to what extent do the country-specific legal structures in Africa safeguard the property rights, rights of appeal and arbitration in financial transactions? This nexus between law and finance poses a potential serious challenge to capital market development in Africa as discussed in Chapter 3.

A seemingly salient observation concerning African stock exchanges is that they generally feature few listed firms. This is puzzling given that one of the critical constraints pointed out by Allen (2010) is lack of developmental finance in most African countries. To our knowledge no research has been done to understand why African stock exchanges tend to have few firms. What are the factors that affect decision to list on the stock exchanges in Africa? What can be done to facilitate listing by firms on African stock exchanges? The study by Hearn and Piesse (2010) only looked at barriers to development of Swaziland and Mozambique stock exchanges but neglected other African stock exchanges that are believed to have peculiar barriers to their development.

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