

UNIVERSITY OF BERGEN

Faculty of Social Science

Department of Comparative Politics

Magnus Opheim

Master Thesis

Title

The relationship between financial development and economic growth

May 2011

Word count:

25774

Candidate number:

179261

ACKNOWLEDGEMENTS

I would like to thank Einar Berntzen, my dissertation advisor, for his support, guidance and encouragement throughout this process. I would also like to thank Eirik Hauger for valuable comments and suggestions at every stage of the writing process. Finally I would like to thank my fellow students for critical feedback on my chapters and for pointing me in the right direction.

ABSTRACT

Developing countries in Asia and Africa have economically often been lagging behind the economies of the West. One reason can be found by looking at the executive capacities and the necessary financial structures. Global financial crisis has made the situation worse for many of the developing countries. What can be done to make developing countries in Asia and Africa stronger participants in the growing global economy? Will an improved financial sector reflected by an expansion of the insurance and banking industries and the stock market lead to economic growth? I will investigate this question by looking at the financial structures in selected developing countries in Asia and Africa. I have chosen panel data methods, GLS, GMM, Unit root tests and time series cointegration. My results show a causal relationship between financial development and economic growth. The economic structures in Asia enhance economic growth more than the African economies are able to.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	1
ABSTRACT.....	1
LIST OF TABLES	2
1. INTRODUCTION.....	6
1.1 The Problem.....	8
1.2 The Objective.....	8
1.3 Scope of the Study	9
1.4 Significance of the Study	9
1.5 Limitations of the Study.....	10
1.6 Organization of the Study	10
2. ANALYSIS OF GLOBAL FINANCIAL MARKETS IN ASIA AND AFRICA.....	11
2.1 Analysis of Global Financial Markets.....	11
2.1.1 Recent Global Financial Crisis	13
2.2 Asian Financial Markets	15
2.2.1 Asian Markets Overview.....	17
2.3 African Financial Markets	20
2.3.1 African Markets Overview.....	24
2.4 Asian and African Markets in a global perspective	27
3. LITERATURE REVIEW	28
3.1 Existing Studies on Financial Development and Economic Growth.....	28
3.2 Existing Research Critique.....	39
3.3 Research Questions.....	40
4. THEORETICAL METHODOLOGY	41
4.1 Theoretical Methodology	41
4.2 King and Levine	42

4.3	Financial Intermediaries	43
4.3.1	Intermediaries	44
4.4	Theoretical Framework	45
4.5	The Random Walk Theory	48
5.	MODEL, METHODOLOGY AND HYPOTHESES	50
5.1	Model	50
5.2	Methodology	55
5.3	Hypotheses	59
5.3.1	Hypothesis 1	59
5.3.2	Hypothesis 2a	59
5.3.3	Hypothesis 2b	60
5.3.4	Hypothesis 3	60
6.	DATA ANALYSIS AND RESULTS	61
6.1	Data and Results	62
6.1.1	Generalized Least Squares Estimate	64
6.1.2	Generalized Method of Moments Estimation	77
6.2	Causality and Cointegration	84
6.2.1	Test for Causality	85
6.2.2	Unit Root Tests	88
6.2.3	Cointegration Tests	89
6.3	Efficiency Tests	90
6.4	Summary	93
7.	CONCLUSION	95
7.1	Conclusion	95
7.2	Policy Recommendations	97
	BIBLIOGRAPHY	101

LIST OF TABLES

Table 2.1: Economic Overview Asia	19
Table 2.2: Economic Overview Africa	26
Table 6.1: Variable Overview	62
Table 6.2: Expected Results.....	63
Table 6.3: Stock Market Effect on Economic Growth (GLS).....	64
Table 6.4: Liquid Liability within the Bank Sector Effect on Economic Growth (GLS).....	66
Table 6.5: Insurance Effect on Economic Growth (GLS)	67
Table 6.6: Domestic Credit to the Private Sector Effect on Economic Growth (GLS).....	67
Table 6.7: Market Capitalization Effect on Economic Growth (GLS).....	68
Table 6.8: Liquid Liability and Market Capitalization Effect on Economic Growth (GLS).....	69
Table 6.9: Liquid Liability, Stock Value Traded and Insurance Effect on Economic Growth (GLS).....	70
Table 6.10: Liquid Liability (Trade Openness and Productivity as control) Effect on Economic Growth (GLS).....	71
Table 6.11: Domestic Credit to the Private Sector (Productivity as control) Effect on Economic Growth (GLS).....	71
Table 6.12: Stock Value Traded Effect on Economic Growth in Africa (GLS).....	72
Table 6.13: Liquid Liability and Stock Value Traded Effect on Economic Growth in Africa (GLS).....	73
Table 6.14: Stock Value Traded Effect on Economic Growth in Asia (GLS).....	74
Table 6.15: Liquid Liabilities and Stock Value Traded Effect on Economic Growth in Asia (GLS).....	74
Table 6.16: Fixed Effects Regression Method.....	75
Table 6.17: Test for Granger Causality.....	76

Table 6.18: Liquid Liability, Market Capitalization and Insurance Effect on Economic Growth (GMM).....	78
Table 6.19: Liquid Liabilities, Market Capitalization and Insurance Effect on Economic Growth (with Presence of More Controls) (GMM)	79
Table 6.20: Domestic Credit, Stock Value Traded and Insurance Effect on Economic Growth (GMM).....	80
Table 6.21: Liquid Liabilities, Market Capitalization and Insurance Effect on Economic Growth (by using Dummy Variables) (GMM).....	81
Table 6.22: Unit Root Test.	83
Table 6.23: Cointegration Analysis	84
Table 6.24: Granger-Causality between Economic Growth and Financial Development	85
Table 6.25: Granger-Causality between Financial Development and Economic Growth	86
Table 6.26: World Bank Country Classification.....	87
Table 6.27: Unit Root Tests for Countries.....	88
Table 6.28: Cointegration Tests.....	89
Table 6.29: Unit Root Tests and Autocorrelation Function (on Dividend Yields)	91
Table 6.30: Unit Root Tests and Autocorrelation Function (on Stock Market Indices)	92

CHAPTER 1. INTRODUCTION

Economies in developing countries in Asia and Africa often suffer by a number of problems. Lack of technologically equipment, skilled labor and financial effects the overall development. According to Goldsmith (1969) the financial structure in a country plays an important role in a country`s effort towards economic expansion and entrepreneurship.

¹ It has also been suggested that financial development consists of two dimensions: –financial deepening and –financial widening. Financial deepening involves increased availability and use of financial instruments, such as securities and capital. The financial assets accumulate at a pace that is faster than that of the accumulation of non-financial wealth (Shaw, 1973). On the other hand, financial widening implies the increased use of financial markets viewed in terms of the number of available industries.

The issue of financial development serving as a catalyst for economic growth in these countries has been widely examined by scholars. The Policy Division working paper of the United Kingdom`s Department for International Development (UK DFID, 2004) suggested that the financial sector could be developed by improving the efficiency and competitiveness of the sector, increasing the range of financial services, increasing the diversity of institutions of operation, increasing the amount of money and capital allocation, and through better regulation and more stability (U.K. Department for International Development, 2004).

The issue of the causal relationship between financial development and economic growth of a nation has been subject to extensive debate but the specific nature of the causality is still

¹ A change in financial structure can be observed in flows of financial transactions over continuous periods of time. It also involves the extent to which private sector financial institutions allocate capital to private sector enterprises as well as the ability of a country to respond adequately to market signals (Goldsmith, 1969).

unresolved. However, there is a general consensus that financial development plays a pivotal role in economic growth.

Financial development necessitates and facilitates savings and investment. For Sub-Saharan Africa, for example, a U.S. Treasury report (2003) stated that in order to provide its growing population with enough food and employment opportunities, the economy must grow by at least 4-5% per year. Therefore, the region must improve productivity, and increase investment and domestic savings. However, over the last two decades savings have remained at a dismally low level of about 12% of GDP. In addition, state governments have been repeatedly urged to reform property ownership laws, create business incentives, promote private sector development, improve the investment climate, and open up access to credit (U.S. Treasury, 2003).

The U.S. Treasury report (2003) also states that banking sector penetration in a typical Sub-Saharan Africa country is around 1% of GDP, and banks are still heavily controlled and owned by the governments. The external shocks from the fluctuation in oil prices experienced in the 1980s as well as lending to weak borrowers such as government institutions led to widespread bank failures. These weak borrowers put pressure on the banking institutions not to recover debts. In addition, the governance of financial institutions in African developing countries suffers from inadequate enforcement tools and low management standards; financial markets are inefficient and dominated by a highly concentrated banking industry, loan portfolios are not diversified, and insurance and pension systems are not well developed. As a result, the U.S. Treasury report called for reform, and better regulation and supervision of the financial industry in Africa, as well as for improved bankruptcy and contract-enforcement laws to create a more protected economic environment. The report further urged the development of a financial

sector which is more open to foreign direct investments. Finally, the authors emphasized the importance of small business enterprises that have limited access to financial services, even though they comprise the vast majority of businesses (U.S. Treasury, 2003).

1.1 The Problem

While the banking industry has been the backbone of the financial world for several decades, it may not be sufficient to meet the needs of entrepreneurs seeking financing. In Africa, in particular, the stock market is largely underutilized as a source of capital, a fact that seriously limits entrepreneurship and therefore employment opportunities, and is also responsible for lower levels of income and growth. In addition, Africa has a low level of foreign direct investments (FDI), even though, compared to other continents, it needs this financing the most.

By contrast, Asian developing countries have more sophisticated financial structures and offer a wide range of financial services. For instance, the stock exchanges of Asia include more products, such as a wide variety of derivatives and exchange-traded funds which are comparable to products in developed countries. Asian financial markets also have a technological advantage over African financial markets. In addition, more companies are listed on Asian exchanges, including a large number of foreign corporations. As a result, Asian financial markets have earned a greater level of both domestic and foreign investor confidence than African countries and have become competitive with other global markets.

1.2 The Objective

The objective of this study is to determine whether a well-developed financial sector, as reflected in an expansion of the bank and insurance industries as well as stock markets in their role as financial intermediaries, could address these issues and thereby enhance economic growth. To this end, this study compares how financial development has contributed to economic

growth in African countries and Asian countries to examine whether African countries could benefit from expanding their financial sector as some Asian countries have done. In particular, the study investigates the efficiency of the African and Asian stock markets to determine whether these markets have the capacity to manage information asymmetry and stability and whether they can promote technological progress for an economy's overall long run growth. Efficient markets imply better financial stability which, in turn, would attract more domestic and foreign investments, thus stimulating economic growth. Finally, based on the analysis carried out, the study makes policy recommendations that would enhance economic growth.

1.3 Scope of the Study

This study covers selected African and Asia countries: Bangladesh, Botswana, Egypt, Ghana, India, Kenya, Nigeria, Malaysia, Mauritius, Morocco, Pakistan, Philippines, South Africa, Singapore, Sri Lanka, and Thailand. The time period of the study is from 1988 to 2007.

1.4 Significance of the Study

A better understanding of the relationship between financial development and economic growth is of particular importance as it can help developing countries target their policies effectively to achieve economic growth. These policy recommendations need to be specifically suited to the situation of developing countries, since policies from developed countries are not easily applicable there. Asian and African developing countries share a number of similarities but also exhibit some differences and a comparison of the relationship between financial development and economic growth in these countries will therefore yield valuable insights into this investigation.

1.5 Limitations of the Study

Data availability is the most important limiting factor for this study. Most stock markets in Africa and Asia were formed in the late 1980s or early 1990s, but some were created even later. This significantly reduced the number of suitable countries for this study.

Another limitation is the fact that certain financial activities in developing countries have not been effectively captured by available statistical methods. For instance, informal methods of lending through friends and families as well as activities of informal credit unions or market organizations do not pass through conventional channels and are thus not measured.

Nevertheless, these obstacles have been overcome by using the variable –domestic credit to the private sector which covers a wide range of the smaller savings and loan systems. Also, the research selects countries that have sufficient data within the study period.

1.6 Organization of the Study

The study is divided into 7 chapters. Chapter 1 introduces the concepts of Financial Development and Economic Growth. It also presents the scope and significance of the study. Chapter 2 discusses Global, Asian, and African financial markets. Chapter 3 reviews the existing literature on financial development and economic growth and presents the research questions that will be the focus of this study. Chapter 4 provides the theoretical framework, while Chapter 5 introduces the model specification, hypotheses, methodology, as well as the data sources. Chapter 6 presents the empirical analysis and results. Finally, Chapter 7 provides conclusions and policy recommendations.

CHAPTER 2.

ANALYSIS OF GLOBAL FINANCIAL MARKETS IN ASIA AND AFRICA

2.1 Analysis of Global Financial Markets

This section presents an overview of the state of global financial markets. The key global players in the global financial markets are the countries of the G-7, including the United States, Japan, and the United Kingdom. In the past, the United States set the pace for financial mobilization. However, more recently, budget deficits, the declining dollar, the presence of a stronger European Union, and the introduction of the Euro currency, have challenged the leadership position of the United States (International Monetary Fund, 2007). China in particular is fast rising in its role as a global player and significant partner for both developing and developed nations alike (Soros, 2008).

The recent banking crises in 2008 and 2009, which originated from the housing crises in the United States, show that banks are unable to absorb losses indefinitely. During that period, banks had insufficient capital, and some small banks collapsed completely whereas larger banks were bailed out, arguably to avoid a possible breakdown of the economy. The recent crises is however different from other past economic crises because it had a wider impact on several sectors of the economy. For instance, the technological crisis of 2000 (dotcom bubble) did not have such a drastic impact on the overall economy and was limited to specific sectors. In addition, most banks then had sufficient capital to absorb losses. As a result, there were fewer bank failures, and banks were still able to function effectively as intermediaries (Soros, 2008).

Also, banks as financial intermediaries have drastically restricted their lending, and the resultant tight financial and monetary conditions around the world may lead to a further reduction in economic activity. In the U.S., for instance, reducing the credit supply to household borrowers may worsen the downturn in the housing market. In addition, falling equity prices

could reduce consumer confidence and therefore consumer spending. Also, in the corporate sector, a higher cost of capital could reduce capital spending. Furthermore, disturbances in the credit and funding markets could reduce the overall provision and channeling of credit. A weaker aggregate domestic demand due to changes in financial risks, market conditions as well as increased global inflation could invariably lower the economy's potential for growth, even more so, if foreign investors' preferences for U.S. assets were to decrease. On the other hand, a slower growth of the U.S. economy and the depreciation of the dollar would help reduce the current U.S. budget deficit and thus reduce the amount of financing needed (International Monetary Fund, 2007).

Although global financial markets are currently facing serious challenges, it is important to remember that in the past, these markets have demonstrated the ability to recover and regain strength and momentum. From the Great Depression to the recessions experienced in the 1980s and 1990s, global economies in industrialized countries have never been permanently weakened by such decreases in economic activity. Business cycles, which are short-term fluctuations in output and employment, occur naturally in all economies and are characterized by periods of growth and recessions. The challenge lies in a nation's ability to properly manage such business cycles and steer its economy quickly back to growth during a recession period.

During challenging economic times, stable national economic institutions, dedicated controls as well as corrective mechanisms have made it possible for certain countries to continue to forge ahead. For instance, the United States established the Federal Deposit Insurance Corporation after the great depression to reduce incidences of bank failures. In addition, the Federal Reserve Bank has been very vigilant in its monetary policies to avoid over-contracting the money supply, which – in the presence of deflation – would complicate a depression.

Similarly, the Japanese government passed large tax cuts to encourage consumer spending during the economic downturn in the 1990s. The Japanese government also expanded the money supply rapidly to increase expected inflation, lower real interest rate, and stimulate investment spending to enhance growth (Mankiw, 2007).

2.1.1 Recent Global Financial Crisis

The recent global financial downturn has made clear that it is important to re-examine the nature of financial development and economic growth. With stock prices decreasing and home values declining rapidly, governments and consumers alike are seeing their wealth diminish rapidly. The global economy is looking to governments across the globe to prevent the unsettling possibility of a global depression, and the concept of a free market system without government intervention needs to be questioned. When a market has proven to be incapable of correcting itself, due to the prevalence of players in the market system who distort the operating mechanism, it is necessary for the government as a regulator to intervene (International Monetary Fund, 2007).

The nature of the current global crises has also further called for an overall reassessment of the generally accepted theories or the fundamentals of the economies worldwide. Classical economists like Adam Smith propagated the Invisible Hands Theory in which markets were viewed to be generally correct and tend towards equilibrium. Keynes challenged this view by proposing reasonable and timely government interventions to guide the economy appropriately. However, since the 1970s nations have been tending towards the classical economists' view of little intervention and implementing policies only after problems have occurred. Keynes further introduced the concept of –animal spirits in which individuals do not make decisions based on

rational economic motives. The notion of Animal spirits suggests that individuals in the market place will factor in their subjective opinions of confidence in the economy, fairness, corruption levels and money illusions into their decision making process, causing further distortions in the functioning of markets (Akerlof and Shiller, 2009).

Soros (2008) also introduced the concept of Reflexivity in financial markets as a new paradigm contrary to the belief that markets will always tend towards equilibrium. Reflexive processes involve lack of correspondence between the participants' views and the actual state of affairs. As such, people are participants in the environments that they are trying to understand and thus cannot have perfect knowledge since they can manipulate whatever knowledge they acquire. Reflexivity thus introduces a high level of indeterminacy and uncertainty into financial markets (Soros, 2008). The conventional fiscal and monetary policies implemented by nations to guide the economies do not take these principles into consideration and thus results may not have their desired effects.

These issues are particularly crucial for African and Asian markets that seek to balance outright government control and effective regulation in an uncertain/unpredictable environment. In African countries, there is a significant level of distrust of governments who have been associated with corrupt practices and a lack of accountability and transparency. Also, many African countries have been affected by political instability, wars and civil unrest; this has made it difficult to apply consistent policies. By contrast, the political stability in Asian countries coupled with improved economic conditions, due to increased exports of manufactured goods, has provided an enabling environment for consistent monetary and fiscal policies that encourage innovation while providing adequate oversight.

The current financial crisis is a reminder not to take for granted that financial markets regulate the economy. Careful monitoring without over-regulation is essential to ensure a proper functioning of the financial systems. Financial markets around the world are interconnected and distortions in one area of the global economy will affect all financial markets. Asian and African nations who are still in their early developmental stages will be particularly affected by a global financial crisis and impaired financial market stability. These countries will have to strike a delicate balance between establishing financial markets as an avenue to foster growth and becoming over-dependent on this sector which, due to its susceptibility to reliance on foreign demand, can change the direction of the economy.

2.2 Asian Financial Markets

This section provides an overview of Asian financial markets in the selected countries analyzed in this study. Stiglitz (2000) reviewed the Asian financial crisis of 1997-98 which resulted in a shortage of foreign exchange that caused the value of currencies and equities in Thailand, Indonesia, South Korea, and other Asian countries to fall drastically (Nanto, 1998). Thailand, Malaysia and Indonesia were running trade deficits in the early 1990s financed by capital inflows from the United States and Japan. A reduction in the inflow of capital followed by the reduction of foreign reserves led to the devaluation of the Thai Baht. This set off panic among investors to other Asian countries and further region-wide devaluations occurred (Krugman, 1999).

Stiglitz argued that the crisis was caused by a premature financial and capital market liberalization that did not have an effective regulatory framework. However, the Asian countries had good economic policies and financial institutions, high growth rates for extended periods, and a low inflation rate. They also did not have any fiscal deficits. These countries also appeared

to have reasonable banking regulations and supervision. In sum, they had, or appeared to have, strong macroeconomic fundamentals. In spite of all these favorable conditions, Asian countries experienced a financial crisis. Krugman (1999) indicated that a warning sign for potential problems is the fact that Asia overall achieved high rates of economic growth without corresponding increases in productivity. As such, Asia's growth was due to resource mobilization rather than efficiency. Stiglitz thus advised against full liberalization which promotes instability and not growth. Due to differences between financial and capital markets on the one hand, and markets for ordinary goods and services on the other hand, policies which work well for the goods market may not necessarily apply to the financial markets (Goodhart, 2004). Stiglitz further indicated that capital and financial markets are information-gathering markets implying that the standard guidelines for competitive markets that are derived from models with a perfect information flow would not work. According to Stiglitz, the argument that opening capital markets would allow diversification and enhance stability is deficient because capital flows are procyclical. In an earlier work, Stiglitz had reviewed weaknesses in the financial architecture; in particular, he focused on the role of tight monetary policies the IMF recommended to Asian countries affected by the crisis and that should stabilize the exchange rates, but had the opposite effect (Stiglitz, 1999). At that time, the high interest rates increased the likelihood of corporate bankruptcies, which in turn made international lenders more reluctant to renew or rollover the loans to the already high leveraged East Asian businesses. Stiglitz (2000) conceded that it is difficult to anticipate the effects of tightening policy, but also advised that developing countries in Asia learn lessons from the recent financial crisis to better structure their financial infrastructures and policies to avoid similar pitfalls in the future (Goodhart, 2004).

2.2.1 Asian Markets Overview

This section highlights key economic and financial facts about the various Asian countries in this study. Asian countries have an advantage over African countries in that they have stronger institutions and economic structures. Also, Asia's financial markets are subject to greater levels of monitoring and control and the individual governments have been more successful in tackling general development issues, such as poverty reduction, crime and corruption control and government transparency. Other issues, such as macroeconomic stability, inflation control, exchange rate fluctuations etc. are also being addressed in a timely manner (Court & Yanagihara, 1998). Bangladesh has been making notable progress towards alleviating poverty and hunger with help of the Grameen Bank which has championed the microfinance in that region. The financial markets are also better structured and offer more products compared to those of African countries. In addition, Asian countries have enjoyed more political stability with an effective leadership which built strong financial institution. This has resulted in more robust financial markets which offer more products to the populace and in stock exchanges that have more companies listed than African countries. Asian stock markets offer the following products: equities, bonds, derivatives, exchange traded funds, real estate investment trusts (reit), global depository receipts, business trusts, company and structured warrants.

Asia is an important emerging market because the continent provides higher rates of return compared to mature markets. In addition, emerging markets offer opportunities for investors to diversify risks as well as a high GDP-growth which makes investors seek out these markets. The growth prospects are based on technological catch-up, significant output gaps, and a young population as well as faster population growth. India, for example, has a fast-growing middle class and is progressing in technological knowledge, and advanced countries have been outsourcing their technological and telecommunication sectors to India; this has stimulated the

growth of other industries in India and improved the overall economy. Their overall stability makes Asian countries more attractive to foreign investors and it comes as no surprise that, although some African economies were originally positioned and projected to grow faster than most Asian countries, the economies of Asian countries have surpassed those of African countries in many respects. Table 2.2 shows economic overview of Asia

Table 2.1**Economic Overview Asia**

Country	Population	GDP	Per-Capita GDP	Major Exports	Market Capitalization	Listed Companies	Stock Market Formed
Bangladesh	150 million	\$79 billion	\$554	Garments, knitwear, Gas	1,865,262 Taka	412	1960
India	1.17 billion	\$1.21 trillion	\$2,900	Engineering goods, petroleum products	53,745.92 billion Rupees	4,951	1875
Malaysia	27.5 million	\$211.1 billion	\$7,355	Electronic and manufactured products	664 billion RM	1,165	1930
Pakistan	167.6 million	\$466 billion	\$2,600	Textiles, rice, leather Goods	\$26.48 billion*	651	1947
Philippines	92.2 million	\$166.6 billion	\$1,841	Textiles, pharmaceuticals	7,978.54 billion Php	244	1927
Singapore	4.84 million	\$179 billion	\$37,597	Petroleum products, electronics	\$637,042,517*	774	1999
Sri Lanka	20.2 million	\$40.7 billion	\$2,000	Garments, tea	\$938.6 billion*	235	1982
Thailand	66.32 million	\$274 billion	\$4,125	Machines, automobiles	3,590,376 million Thai Bhat	525	1962

Note. *Market capitalization in Pakistan, Singapore, and Sri Lanka in US Dollars.

Data Sources: Stock Exchange websites for Bangladesh, India, Malaysia, Pakistan, Philippines, Singapore, Sri Lanka, Thailand and the US State department.

2.3 African Financial Markets

In this section, African financial markets are reviewed with a focus on their current state and on existing challenges. Nellor (2008) argued that the private sector is the main driver of growth in Sub-Saharan Africa. Financial markets in this region have opened up as a result of private sector companies seeking a yield in financial investments. Since the emerging markets are part of the global environment, private sector companies have the option of foreign financing. In the past, institutional investors had access to these markets mainly through equity and foreign currency debt issues, but now a wide range of financial activities, including domestic bond and foreign exchange market instruments exist (Nellor, 2008).

A possible concern, however is that African financial markets rely heavily on foreign investment through multinational corporations and the employment opportunities they provide. This may lead growing indigenous industries that are unable to compete with these larger organizations to go out of business. Also, the countries lack solid infrastructures. In a country like Nigeria, power and water supply is limited and the general public relies on personal generators. This increases the cost of doing business and causes serious inefficiencies. During the past year, a number of multinational corporations have left Nigeria and moved to Ghana because of the erratic electricity supply in Nigeria. Ghana has also provided attractive tax breaks to encourage these companies to relocate their operations. Furthermore, transportation and communication structures are seriously lacking in most African countries which has led to increased prices and affected the overall economy negatively.

African countries initially had a higher level of economic stability when compared to the ASEAN² member countries. In the 1970s, they had lower inflation rates, high international reserves, and low debt-to-GDP ratios. Currently, African countries face similar macroeconomic

challenges as Asian countries, but are using monetary aggregates as the basis for achieving inflation goals with a managed floating exchange rate policy. However, some central banks in Africa target only a reduction of inflation as opposed to attempting to meet the dual goal of achieving stable money and reducing inflation. The stability of money demand and relationships between monetary aggregates and inflation is difficult as a result of financial liberalization and structural changes. Although some central banks in Africa target inflation, this did not result in African countries making more significant progress toward economic growth, compared to ASEAN nations (Nellor, 2008).

In addition, most African and Asian countries gained independence between the 1940s and 1960s and also discovered and exploited natural resources around that time. Also, in the 1960s, the average levels of GDP in Southeast Asian countries like Indonesia, Malaysia, and Thailand were similar to the GDP in most African countries. In addition, to similarities in economic structures, African and Asian countries had similar social structures during this time period, in particular with respect to a lack of human resource potential. Finally, both groups of countries experienced similar post-independence ethnic conflicts and political instability (Court and Yanagihara, 1998).

In spite of these similarities, Africa has fallen behind in maintaining economic growth due to its inability to manage internal crises, wars, corruption, as well as its lack of infrastructure. African financial markets also lack the organization and stability necessary to make them more attractive to global investors. Since investors will switch their investments to areas or countries where they will benefit the most, African countries need to offer competitive interest rates and stabilize their exchange rates. Elbadawi (1996) contended that macroeconomic stability in Africa has worsened since the mid 1970s. Most countries have a high fiscal deficit which further exposes their economies. Easterly (2006) questions the role of International Organizations like

² ASEAN – Association of Southeast Asian Nations.

the World Bank and the IMF in implementing successful programs to achieve macroeconomic growth. Easterly (2006) pointed out that both the World Bank and IMF gave Cote D'Ivoire 26 structural adjustment loans in total between in the 1980s and the 1990s. However, per capita GDP in Cote D'Ivoire was drastically diminished during that period, resulting in a severe depression. Similarly other African countries who received structural adjustment loans from the IMF and the World Bank had negative or zero growth (Easterly, 2006).

Nellor also noted that Africa's resource-rich countries have a weak record of long run macroeconomic performance, mostly because the governments tend to spend more than their economies can absorb. These countries have strong exchange rates when prices for commodities such as oil are high causing a false higher growth rate and these exchange rates then block their non-resource sectors. Eventually, when oil prices fall, the already stifled non-resource sectors are unable to perform adequately and the growth rate deteriorates the resource curse. Oil-producing nations like Nigeria and Angola are thus susceptible to oil shocks and fluctuating demand and currency prices which impact overall GDP levels. However, Nigeria has established a growth-sustaining fiscal policy that enables the economy to absorb the domestic demand generated through oil revenues. Part of it is the budget oil price rule which allows spending oil revenues in accordance with absorptive capacity. Saving oil revenues above the budget price succeeded in breaking the link between high oil prices and budgetary outlays that has caused booms and busts in the past. On the other hand, African countries with scarce natural resources who experience macroeconomic stress due to the higher commodity prices they pay and negative terms of trade (lower export prices relative to imports) still showed solid economic growth. These countries had better policy frameworks that helped them adjust to higher import prices; they also had higher international reserves (Nellor, 2008). It is therefore essential for African governments and International Organizations to implement policies that are feasible for African economies and at the same time attract investors.

Even though investment in Africa is gradually improving, it has to be channeled to the appropriate areas to produce goods and increase efficiency. In Robert Solow's growth model, investment did not lead to growth due to the existence of diminishing returns. Savings also did not sustain growth, as savings reduce present consumption. High savings will result in high income, but would not sustain long term growth. The key to growth is technological change, because it increases efficiency and eliminates diminishing returns to capital. Therefore African countries need to be aware of this interplay to obtain the benefits of investment (Easterly 2002).

At this point in time it appears that African countries lack the institutional foundations necessary to sustain financial development. The banking industry in Africa has been relatively volatile with a considerable number of bank failures across the continent. Also, some countries such as Zimbabwe have recently been plagued with sky-rocketing levels of inflation. Oil-rich countries which rely heavily on oil exports have experienced macroeconomic vulnerability due to demand and supply fluctuations. The absence of strong institutions combined with a lack of transparency and accountability in government and management as well as corruption and political instability deprive the continent of the resources necessary to sustain the growth Asian countries have experienced. Other factors that threaten financial development and economic growth in African countries are contract enforcement, risk of loss due to sabotage, appropriation, theft as well as power and water supply issues. In addition, African countries are often in denial about this state of their affairs which further reduces their ability to change. In order for African countries to ensure sustained growth, Nellor (2008) recommended that African central banks should pay equal attention to financial sector stability and financial sector development. Furthermore, bank capital and risk management practices should be monitored. Also, countries should assess the links between banks and stock markets as well as the foreign exchange market implications of macroeconomic shifts in bank balance sheets.

Macroeconomic policy and capital account prudential policies should be crafted so that they prevent volatile short-term flows and ensure that supervision of the financial sector guarantees stability and effective intermediation.

2.3.1 African Markets Overview

This section reviews the economic and political structure of the African countries examined in this study. Currently, the financial sector of Africa is dominated by banking industry which mostly consists of savings and loans institutions. Entrepreneurs primarily rely on self-acquired funds from savings, as financing through banks is difficult. Many small starters do not have adequate collateral, and the prospects that they are able to pay back loans are slim. Similarly, established businesses have difficulties raising capital for expanding operations and instead have to utilize retained earnings or borrow from families and friends for this purpose. If they are able to obtain funds from banks, these are often much less than what they need. This lack of capital access has slowed down development and has prevented African economies from reaching their full potential. The securities market as a means of raising capital is also not yet fully developed. Few companies have the capacity to list on stock exchanges which are small and dominated by a few large organizations. These exchanges offer products including: equities, bonds, commercial paper, derivatives and mutual funds. Furthermore, the modes of operation of stock exchanges in Africa are not yet at par with Asia and the rest of the world.

The African stock markets are dominated by individuals who own the majority of shares in several companies and thus exert disproportional influence on market performance. This situation exposes the banking industry and stock markets to a higher level of risk, because these shareholders obtain loans from banks to purchase stock, but in a case of poor stock performance, they may not be able to pay back these loans which will ultimately lead to a market collapse.

Also, the insurance industry in Africa is not well utilized, and business risks are not mitigated. Furthermore, African countries have been plagued with issues such as a weak legal structure and showing an uninterested attitude towards law and contract enforcement operations. Multinational companies operating in Africa face the ethical dilemmas that actions such as bribery, which are prohibited in their home countries and for which they may be sanctioned back home, are expected as part of business transactions. Table 2.1 shows economic overview of Africa.

Table 2.2.**Economic Overview Africa**

Country	Population	GDP	Per-Capita GDP	Major Exports	Market Capitalization	Listed Companies	Stock Market Formed
Nigeria	148 million	\$166 billion	\$1,149	Petroleum, natural gas	7.82 trillion Naira	282	1961
Egypt	80.3 million	\$120 billion	\$5,400	Petroleum, clothing	565 billion LE	323	1885
Ghana	23 million	\$16.124 billion	\$716	Gold, cocoa	17.9 billion GC	35	1991
South Africa	47.9 million	\$277 billion	\$5,684	Merchandise, minerals	5,796.5 billion Rand	412	1887
Kenya	37.9 million	\$30 billion	\$770	Tea, coffee	851 billion KSH	47	1954
Mauritius	1.2 million	\$8.128 billion	\$12,100	Textiles, sugar	175.17 billion Rs	101	1989
Morocco	34.3 million	\$88.3 billion	\$4,309	Minerals, agricultural products	586.36 billion MAD	80	1929
Botswana	1.84 million	\$14.025 billion	\$7,343	Diamonds, nickel	313,966.31 million Pula	31	1995

Data Sources: Stock Exchange Websites for Nigeria, Egypt, Ghana, South Africa, Kenya, Mauritius, Morocco, Botswana and the US State Department.

2.4 Asian and African Markets in a global perspective

The developing markets in Asia and Africa are not yet at par with other global markets, such as the ones in the United States, Europe, Japan, and Hong Kong, and there is still a higher level of risk associated with investing in these emerging markets. While industrialized nations enjoy the confidence consumers and investors have in their political and financial stability, the market buoyancy in the developing regions of the world is still wanting. Nevertheless, Asia has propelled itself ahead of Africa by establishing infrastructures and institutions which serve as the backbone of development (Court & Yanagihara, 1998). They have also reduced dependence on primary products and on oil revenues as the drivers of economic activity and are shifting to manufactured products and services, e.g., in India and the Philippines. Asian countries have expanded their financial markets to include banking, stock exchanges, and the insurance industry. As a result, Asian countries are more attractive to investors as they present lower risks.

In order to stimulate their economies through growth, it will be crucial for African countries to emphasize export-led growth in the non-resource sector, as evidenced by the experience of some Asian countries (Nellor, 2008). There is a possibility that the export-led model may not be sufficiently effective due to the prevalence of primary commodities in Africa that have high-demand elasticities and are very sensitive to foreign exchange fluctuations; also export-led growth has lower bargaining power compared to other regions. Yet, Nellor (2008) asserted that Africa still has a growth potential via import substitution, intraregional trade, and export markets.

CHAPTER 3. LITERATURE REVIEW

The relationship between financial development and economic growth has been studied extensively and has been subject to much debate. This chapter reviews the literature on financial development and economic growth and discusses their causal relationship. It also discusses existing statistical analyses for the relationship between financial development and economic growth across and within countries. This review helps us in identifying gaps in research based on which the specific research questions for this study are developed.

3.1 Existing Studies on Financial Development and Economic growth

The causal relationship between financial development and economic growth was examined initially by economists like Joseph Schumpeter (1911), who argues that well-functioning banks stimulate technological innovation by identifying and funding entrepreneurs with the best chances of successfully implementing innovative products and production processes. Joan Robinson (1952) believed that finance follows the leadership of enterprise because economic development itself creates demand for particular types of financial arrangements to which the financial system responds automatically.

Patrick (1966) contended that financial development furthers economic growth in the early stages of development, but that this causality is reversed in the later stages. Goldsmith conducted a seminal study in 1969 in which he examined the financial superstructure which consists of both primary and secondary securities of various countries over time. His findings help to understand the overall function of the financial system.

Goldsmith (1969) argued that financial superstructure in the form of primary and secondary securities will accelerate economic growth and improve economic performance by

facilitating the migration of funds to the best user, allowing the funds to yield the highest social return. Goldsmith conceded that the impact of a financial superstructure will vary significantly from country to country and also change considerably over time. It will therefore be essential to perform a case-by-case study of the role of financial superstructures in economic development and to determine the causal direction of this relationship.

Shaw (1973) examined the roles played by financial deepening and financial liberalization in the economy of a nation. He suggested that financial deepening would enhance diversified menu of assets, increase financial stock, reduce the burden of taxation as well as the demand for foreign savings. Financial deepening also increases the size of the monetary system and produces opportunities for institutions other than the banking sector, including insurance companies. Financial liberalization on the other hand could influence growth and currency rate stability as well as equalization of income distribution in a nation.

Shaw (1973) also argued that Asian countries have progressed further along the path of financial deepening by offering a diversified range of financial assets than African countries. McKinnon (1973) also suggests that financial development is determined by legislation and government regulation which implies the degree of financial repression. Shaw and McKinnon (1973) stated that government interventions like interest rate ceilings, high reserve requirements, and credit programs are the main sources of financial underdevelopment. McKinnon and Shaw further suggested that deposit ceilings, or lending rates, and high inflation rates have usually resulted in negative real interest rates and discouraged savings, and have also created excess demand for funds for investment. As a result, the volume of investment and the productivity of capital decreased when real interest rates were too low.

King and Levine (1993), expanding on Goldsmith's analysis, studied 80 countries from 1960 until 1989 using cross country regressions to determine whether the level of financial development predicts long run economic growth, capital accumulation, and productivity growth. Controlling for other factors that affect long run growth, they measured financial development using the following indicators: 1) Depth: the size of financial intermediaries which is equal to the liabilities of the financial system; 2) Bank: degree to which a country's central bank allocates credit, compared to commercial banks; 3) Private: the ratio of credit allocated to private enterprises to total domestic credit; 4) Privy: credit to private enterprises divided by GDP.

King and Levine's (1993b) underlying assumption was that financial systems that allocate more credit to private firms research and mobilize savings more effectively. Therefore, the ability of financial systems to allocate more credit to mobilize savings shows that the financial structure is more versatile. They concluded that financial development is a good predictor of economic growth, physical capital accumulation, and economic efficiency improvements. In effect, as countries get richer, they expand traditional savings and loan banks but also the use of other financial intermediaries such as insurance companies, investment banks, and stock markets (King and Levine, 1993b). However, their analysis which utilized cross-country regressions did not provide a robust analysis compared to time-series methodologies. Also, the research did not assess other areas of the financial superstructure such as the insurance and pension fund sectors.

In another cross-country study, Levine (1997) found that stock market liquidity also translates to higher level of per-capita GDP growth. There was also empirical evidence that showed that financial structure, which encompasses all financial intermediaries, varies across countries and changes as countries get richer or develop their financial intermediaries. For

example, banks allocation of credit grows compared to the central bank's allocation. In addition, non-financial institutions, insurance companies, investment banks become more important as the stock market grows. Levine (1997) indicated that financial markets mobilize and pool savings across diverse number of investors. If there is better savings mobilization, capital accumulation would be enhanced as well as resource allocation and technological innovation. Financial development also affects economic growth through its influence on technological progress by reallocating savings to different capital-producing technology or by changing the rate of technology innovation, or by identifying potentially successful entrepreneurs in this sector. Levine (1997) argued that the reason stock markets affect economic growth is because their liquidity makes investments less risky. Similarly, Levine (1991) and Bencivenga and Smith (1991) indicated that trading financial assets in stock markets seems safer because these markets allow savers to change their portfolios to buy and sell quickly. In addition, companies have easy access to capital through the issue of equity.

Current research on the topic of financial development and economic growth, however, displays certain weaknesses. For example, Levine (1997) found that the structure of financial systems or the overall function of different financial systems is not sufficiently quantified. Also, it is difficult to attribute differences in growth rate to certain differences in the financial sector. Although in his cross-country studies, Levine (1997) provided an insight into the relationship between financial development and economic growth, he recognized that it is difficult to compare financial structures across countries, as there are significant differences in legal systems and natural resource endowments which ultimately produce diverse political and institutional structures. Levine also indicated that there are differences in cost and assumptions of models which make such an analysis difficult. It becomes clear that existing studies provide a

thorough overview of the role of the financial sector and financial development; however, they contain little advice with regards to risk mitigation which would be especially relevant for developing countries.

With regard to the general question of the relationship between financial development and economic growth, it is important to consider the obstacles to financial development. Demetriades and Andrianova (2003) stated that these obstacles include government ownership of banks, legal hindrances, as well as political economy constraints. They also stated that in reality, households face borrowing constraints and have several interest rates as opposed to a single interest rate assumed by the neoclassical economists. In addition, the authors argued that an economy with a well-functioning financial system that addresses the issues of moral hazard and adverse selection effectively is likely to have high investment rates as well as a highly productive capital stock. Demetriades and Andrianova (2003) also indicate that since information about a transaction is a major factor in financial decision-making, the relationship between financial development and economic growth is likely to depend on how the financial system manages the information problems.

In light of the above, we note that developing countries, especially in Africa, have experienced difficulties maintaining macroeconomic stability. Villanueva and Mirakhor (1990) indicate that existing conditions such as large budget deficits and high inflation combined with moral hazards and insufficient bank supervision were at the root of the crisis in the 1980s and therefore need to be closely monitored. McKinnon (1991) argued that real sector reforms should precede financial liberalization, e.g., the privatization of state-owned businesses. He also contended that deficits and inflation should be reduced before reforms can be implemented to

remove any inflation-related price distortions. Furthermore, McKinnon recommended an adequate regulatory system and supervision of the financial systems and advocates that domestic financial liberalization like interest-rate deregulation and reduction of the reserve requirements should be done prior to liberalizing capital flows; specifically he recommended that restrictions on long run flows like FDIs should be taken off first and restrictions on volatile short-term flows last.

When Demirguc-Kunt and Detragiache (1999) analyzed the 1996/97 banking crisis for 53 countries, they found, after controlling for other determinants, that financial liberalization had a statistically significant positive effect on the likelihood of a banking crisis. However, the increase in the likelihood is lower in developed countries or countries with better developed and functioning institutions, such as legal systems, bureaucracies, etc. Overall, the authors contended that there is no clear-cut evidence that financial liberalization promotes economic growth, but these findings point to the fact that countries should protect investors through enhanced mechanisms for contract enforcement as well as through a sufficiently developed insurance industry to mitigate risks. Atje and Jovanovic (1993) found a similarly significant correlation between economic growth and the value of stock market trading relative to GDP for 40 countries. However, they did not find significant correlation between economic growth and bank lending. Levine, Loayza, and Beck (2000) have shown that regulatory changes that strengthen creditor rights, contract enforcement, and accounting practices boost financial intermediary development and economic growth.

The entire picture becomes even more complex when one takes into consideration studies that examine whether government ownership of banks promotes economic growth. La Porta, Lopez de Silanes, Shleifer and Vishny (2000) reported a negative correlation between

government ownership of banks, financial development, and economic growth, while Demetriades and Andrianova (2003) concluded that privatization of state banks is unnecessary. La Porta et al. (1997, 1998) also argued that civil law countries (France and former colonies) tend to offer less protection to their minority shareholders and creditors compared to common law countries (England and former colonies), which underlines the importance of monitoring the financial sector.

In sum, it is of essence for developing countries in Africa and Asia to address the obstacles to financial development stated in the preceding section, if they want to strengthen and grow their economies. Facing a number of institutional and socio-economic challenges, they are placed at a disadvantage, and a thorough assessment of their positions is needed in order to provide them with realistic and effective solutions.

In the existing research literature, the most common methodology utilized to determine the relationship between financial development and economic growth is the cross-country regressions. Although cross-country studies are very helpful in order to understand the general aspects of financial development and economic growth, they have some deficiencies with respect to their quantitative analyses, which, according to Evans (1995), arise from the heterogeneity of slope coefficients across countries. For example, cross-country studies only estimate the average effects of financial development on economic growth across countries, but do not specify the individual country-specific result. Also, it is possible to have different causality patterns across countries (Arestis & Demetriades, 1997). These problems have led some researchers to implement time-series analysis. In their time series study, Arestis and Demetriades (1997) examined whether, how, and to what extent the financial system can have an impact on

economic growth. Specifically, they assessed how financial deepening, investment, and capital efficiency in the financial system will influence this process.

Arestis and Demetriades (1997) also examined whether financial liberalization can stimulate investment and growth. The authors found substantial variation across countries even with the same variables and estimation methods. For example, they found important differences in the relationship between financial development and economic growth between the United States and Germany. They therefore recommended employing the time-series methods and taking individual country characteristics into account when approaching this subject. However, the authors only focused on two countries the United States and Germany and did not consider African and Asian countries, which are emerging economies, so their research results are not directly transferable. Another study by the same authors performed a year earlier examined data for several (twelve) countries and found that the causal link between finance and growth is determined by the nature and operation of the financial institutions and economic policies of any given country (Arestis & Demetriades, 1996).

Demetriades and Hussein (1996) as well as Odedokun (1996), used time series analysis and found that the nature of the relationship between financial development and economic growth varies between countries. Odedokun used an extensive sample of 71 countries and found that in about 85% of the countries, financial development contributes to economic growth. His research included a large number of African and Asian countries and therefore has special relevance for this study; however, one weakness of his study is that he only utilized banking sector indicators to assess the impact of financial development on economic growth.

Demetriades and Hussein (1996) performed causality tests for 16 developing countries and found that the causal relationship between financial development and economic growth

varies across countries. Half of the countries show a bi-directional causality between the two factors, while the rest show an impact of economic growth on finance and not vice versa. However, while Asian countries were well represented, South Africa and Mauritius were the only African countries that were included in this research, which therefore only has limited relevance for this study. In addition, Odedokun (1996), as well as Demetriades and Hussein only used banking sector indicators, thus omitting other important aspects of the financial superstructure on economic development.

Calderon and Liu (2001) also performed an econometric time series analysis of data from 109 countries, covering the time period from 1960 until 1994 and confirmed that there is a bi-directional causal relationship between financial development and economic growth. More importantly, they also discovered that in developing countries the impact of financial development on economic growth is more important than the impact of economic growth on financial development. This finding explains 84% of the overall relationship between financial development and economic growth over a 10-year period in developing countries. In addition, the authors found that the longer the period examined in developing countries, the more substantial was the impact of financial sector development on economic growth. Over long periods of time, the impact of economic growth on financial sector development becomes almost insignificant in both developed and developing countries.

Other factors that positively affect economic growth have been revealed by Zingales (2003) and include institutional characteristics, such as the legal structure, respect for property rights, a low degree of corruption, as well as the extent of financial sector development. Zingales acknowledged that all these factors are highly inter-correlated, which makes it difficult to determine the effects of each individual factor.

Demirguc-Kunt and Levine's (1996) time series analysis confirmed that stock markets as financial intermediaries are important to economic growth. In addition, they indicated that the attention of developing countries has shifted from concentrating solely on the banking industry to expanding the stock market. World stock market capitalization grew from \$4.7 to \$15.2 trillion between the mid 1980s and mid 1990s (Demirguc-Kunt & Levine, 1996, p. 223). Levine and Zervos (1996) indicated that well-developed stock markets can offer different kinds of financial services than banking systems, providing a different avenue to investment and growth. Utilizing cross-country regression studies for 47 countries, they showed that increased stock market capitalization, measured either by the ratio of the stock market value to GDP or by the number of listed companies, could improve an economy's ability to mobilize capital and diversify risk. Levine and Zervos (1996) concluded that after controlling for initial conditions and several economic and political factors banking and stock market development are strongly linked to current and future rates of economic growth, capital accumulation, and productivity improvements and affirmed that stock markets provide different financial services than banks.

According to Singh (1997), the success of stock markets hinges on whether stock prices actually reflect the expected future profitability of companies. Resources will go to the most efficient and productive companies that are able to carry out their investment strategies. However, if stock prices are very volatile and subject to speculation, bubbles, and price manipulations, this limits the ability of stock markets to contribute to economic growth and can even affect it negatively. Furthermore, efficient stock markets just like well-functioning banking systems complements bank financing and also exercise corporate control via mergers

and acquisitions. Therefore, stock markets have to be efficient in order to have an impact on economic growth.

In their research on the relationship of the stock market's effect on economic growth, Arestis, Demetriades, and Luintel (2001) noticed that stock markets encourage specialization as well as acquisition and dissemination of information, and reduce the cost of mobilizing savings, thus facilitating investment. Well-developed stock markets could enhance corporate control by reducing the principal agent problem through aligning the interests of managers and owners where managers aim to maximize firm value. A shortfall of their study, with regards to the research presented here, is that their data was limited to five developed economies and that it focused on the stock market and did not include other areas of the financial superstructure, such as banks and insurance industries. Beck and Levine (2004) used panel-data methods to determine the role of stock markets and banks for economic growth using data for 40 countries from 1975-98. They found that stock market liquidity, i.e., the total value of shares traded relatively to market capitalization, is positively related to GDP growth. In addition, they found that, along with stock markets, a credit-based banking measure had a significantly positive influence on GDP growth (U.K. Department for International Development, 2004).

Stock markets, however, also underlie varying degrees of volatility; and high degrees of volatility will, according to Federer (1993) result in an inefficient allocation of resources and in higher interest rates which, in turn, infringes on the volume and productivity of investment and reduces growth (Arestis & Demetriades, 2001).

Current stock markets in Africa are challenged by low liquidity (Yartey & Adjasi, 2007), measured by the turnover ratio. Because of the low business volume in individual African

countries, Yartey and Adjasi argued, it will be hard to support a local market with its own trading system. They utilized Arellano and Bond's (1991) dynamic instrumental variable modeling approach of the difference generalized method of moments using lagged values of the dependent variable (growth) and differences of the independent variables. The authors contended that in spite of this shortcoming, African stock markets perform well, with markets in Ghana, Uganda, Kenya, Egypt, Mauritius, and Nigeria performing best of all African countries in 2004. The premise of their study was that an increase in stock market activity i.e., an increase in market capitalization ratio or turnover ratio or value of shares traded ratio will boost economic growth through liquidity injection, savings mobilization, and firm equity financing. Yartey and Adjasi found that stock market development (total value of shares traded relative to GDP-liquidity) along with investment and past growth levels plays a significant role in economic development.

3.2 Existing Research Critique

While existing research has examined the issue of the impact of financial development on economic growth in developed countries, few researchers has focused specifically on the situation of developing countries, especially in Africa and Asia; the research that has targeted these continents has only included a few countries or focused on just one of these continents at a time. Yet, a more concentrated and comprehensive analysis of African and Asian countries could yield interesting results, as some of the countries in these two continents were considered to be at similar stages of development and showed similar potential in the 1960s, but have since progressed differently.

In addition, much of the research focuses either on the banking industry or on the stock market, but not on both, with the notable exception of Levine and Zervos (1996) as well as Beck

and Levine (2004). These authors, however, made little attempt to explain the specific impact of the stock market and the banking industry on economic growth in individual developing countries.

Furthermore, existing studies have not integrated the concept of market efficiency to determine the role it plays in financial market stability and consequently in economic development. Also, none of these studies examined the interplay between the insurance industry and financial sector development. In addition, as already mentioned, cross-country regressions were the most common methodology used, but this method does not consider changes over time. Also, previous studies did not address the need to utilize panel data methods for data that are both cross-sectional and cover a period of time to study the significance of banking and stock market development in Africa and Asia.

3.3 Research Questions

The above review of the existing research indicates that the following questions have not been addressed. They will therefore serve as the focus for this study:

1. Does financial development have an effect on economic growth, as measured by per-capita growth, for the selected countries in the time period of 1988-2007?
2. Does market efficiency promote economic growth and to what extent are the markets in the selected countries efficient?

CHAPTER 4.

THEORETICAL METHODOLOGY

4.1 Theoretical Methodology

This chapter discusses the two theoretical methodologies. King and Levine (1993a) provide the basic theoretical foundations for the two research questions, as they link the neoclassical economic theory with financial intermediaries and thus provide a starting point for further examining the role of financial development. However, in order to apply this theory to the research questions, further research as carried out by Odedokun (1996), Favara (2001) and Trew (2006) is utilized in this study for development of a composite framework. Specifically, the first research question investigating the relationship between financial development and per-capita income growth utilizes a composite theory derived from Favara (2001) and Odedokun (1996), both of which, in turn, are based on King and Levine (1993). Economic growth, as in Favara (2001), is measured in terms of per-capita GDP growth, because it represents a better measure of income levels compared to GDP growth.³

The theoretical framework for the second research question to examine the significance of market efficiency in relation to financial development and economic growth is based on the random walk theory as in Fama (1970); the linkage of market efficiency with financial development was first determined by King and Levine (1993a) and further examined by Trew (2006).

³ For instance, Nigeria's GDP in 2007 at \$166 billion was comparable or even higher than that of most developing countries, but with a population 148 million, the per-capita GDP was only \$1,149. Even though the total GDP in Botswana was lower at \$14,025 billion, a lower population of 1.84 million resulted in a higher per capita GDP of \$7,343.

The chapter opens with a discussion of King and Levine's analysis, followed by a review of the relationship between financial intermediaries and market efficiency as proposed by Trew. Next, a composite theoretical framework for an examination of the relationship between financial development and economic growth is presented that is based on King and Levine's foundational concept as well as Favara (2000) and Odedokun (1996). The chapter concludes by elaborating on aspects of the random walk theory by Fama as they apply to the study of market efficiency.

4.2 King and Levine

King and Levine (1993a) combined Schumpeter's (1912) and Knight's (1951) concepts of innovation and entrepreneurship and formed a model which describes how financial intermediaries arise from the need to finance the innovations or projects of the most suitable entrepreneur. In such a setting, financial intermediaries will rise endogenously as part of a market mechanism for the screening of entrepreneurs and for the financing of intangible, productivity-enhancing investment by credit-worthy entrepreneurs. In the model of King and Levine, countries with better-functioning financial systems will be more successful in evaluating innovations and entrepreneurs. They also will *ceteris paribus* allocate savings to more efficient and productive endeavors than countries with less-effective financial systems. More efficient resource allocation, in turn, translates into increased productivity and growth through physical capital accumulation, improvements in the types of intangible capital, as described previously, and human capital development.

The financial intermediation model as proposed by King and Levine (1993a) indicated that greater financial efficiency (either by providing insurance, pooling resources, screening

entrepreneurs, or monitoring borrowers) reduces the disincentive to entrepreneurship or the accumulation of human capital, thus increasing the rate of technological progress and as such the long-term growth rate of the economy. This study utilizes the conceptual framework of the financial intermediation process as postulated by King and Levine to investigate the impact of financial development on economic growth.

4.3 Financial Intermediaries

Trew (2006) expanded on King and Levine's analysis and proposed a model in which financial intermediaries are based on a firms' demand for physical capital and human capital. Trew's study also emphasized the importance of market efficiency for stimulating economic growth. The present study hinges on this very aspect, therefore the theoretical foundations of the interplay as postulated by Trew will be briefly discussed here.

Trew demonstrated that there is a continuum of agents in each household which add up to one, and a random distribution within each. Trew assumed a large number of households and calculated in aggregate the average distribution of type within a given household. On average, a proportion ρ_1 has no ability to acquire human capital whatsoever, a proportion ρ_2 has low ability Λ' , and the remaining proportion $\rho_3 = 1 - \rho_1 - \rho_2$ has high ability $\Lambda > \Lambda'$. It is crucial that able agents do not know their own level of ability to acquire human capital.

Agents that have no ability to acquire human capital are responsible for selling physical capital to firms. Only agents with high ability have the potential to develop human capital. All agents with non-zero ability apply to a financial intermediary to be screened. The rejected ones do not contribute to household income. The accepted agents are funded by the intermediary to acquire education or to conduct research and become human capital with fixed probability β . For

the purpose of education, this may reflect the possibility of not finishing an educational program, in the case of research it may reflect a possible useful innovation. Trew's model assumes that agents that do not develop human capital do not contribute to household income, while those that do develop human capital are employed by firms and enter the production function as human capital. If an agent succeeds in obtaining human capital, it is the researcher who owns the human capital and pays a proportion τ of income or a fee from human capital to intermediaries. Therefore, the financial intermediary sets income received τ such that expected profits are maximized. (Trew, 2006).

After agents who have been selected by intermediaries finish their training successfully, they proceed to work in firms. Firms use human capital H and physical capital K as inputs to the production process, $Y_t = AK_t^\alpha H_t^{1-\alpha}$. Each firm maximizes profits, $\pi_t = Y_t - rK_t - hH_t$, where each obtains the rates of return on physical capital $r = \alpha(Y_t/K_t)$ and human capital $h = (1 - \alpha)(Y_t/H_t)$. Using the equation for h to obtain the firm's demand for human capital, $H_t = ((1 - \alpha)Y_t)/h$, and substituting the above equation into the production function, we obtain a form of the familiar endogenous growth model (also AK model). Output Y_t is given as

$$Y_t = \left[\frac{A(1-\alpha)^{1-\alpha}}{h} \right]^{1/\alpha} K_t \quad (1)$$

4.3.1 Intermediaries

The intermediary incurs the cost $f(H) > 0$ to screen agents for ability and to fund successful agents to acquire human capital at cost $x(H) > 0$. The costs are not invariant to the level of human capital. Trew assumes $f' > 0$ and $x' > 0$, where the costs of intermediation are proportional to the size of the demand for human capital. Thus, the higher the level of human

capital, the more costly it is to fund and identify suitable agents. As a result, the costs of intermediation become insignificant over time as a proportion to the size of the economy.

Trew (2006) indicated that the financial condition of the economy must be dynamic for both the balanced growth rate and the level of financial depth to change endogenously over a period of industrial take-off in the economy. Also, households should not fund the amount x (H) from their own resources. For a given agent, expected intermediary profits will be the difference between weighted incomes and expenditures. As a result, the probability that an agent who applies will have low ability is $\rho_2 / (1 - \rho_1)$, which only expends the screening cost. The probability of successfully developing human capital from agents with high ability and obtaining rents from them is $\beta(1 - \rho_1 - \rho_2) / (1 - \rho_2)$. If we assume that there is competition in the economy, i.e., that the agent can go to other intermediaries, then the expected intermediary profit is zero.

Trew's analysis has shown how financial intermediaries arise in the economy and it mathematically proved that efficient financial intermediaries contribute to economic growth. Trew's research thus expanded on the importance of financial intermediation efficiency by assessing the relationship of financial development and intermediary efficiency on the one hand and economic growth on the other hand. As such, Trew proved that financial intermediaries need to be efficient in order for them to contribute to economic growth. Based on Trew's work, this study assesses the efficiency of financial intermediaries in individual countries. Specifically, the study uses the production model provided by Trew to derive a composite model.

4.4 Theoretical Framework

This section provides the composite theoretical framework for the investigation of the

relationship between financial development and economic growth. The basis for estimating the impact of financial development on economic growth used in this study is the principle of conditional convergence as found in Favara (2003). Conditional convergence implies that the lower the starting level of real per-capita GDP, relative to the long-term or steady-state position, the faster the growth rate. Therefore, the convergence is conditional because the steady-state levels of capital and output per worker depend on the savings rate, the population growth rate as well as the position of the production function, all of which are country-specific characteristics.

Empirical results have also shown that cross-country differences like different government policies and initial stock of human capital are important (Barro R. & Salai-i-Martin X, 2001). Barro and Salai-i-Martin showed an illustration of countries in Africa and Asia that started out at similar stages of development and possessed about the same level of human and natural resources; however their movements to steady state levels were affected by country-specific characteristics.

This study, similar to Odedokun (1996) uses presents Financial development and growth models according to the following production function: $Y_{it} = F(X_{it}, Fin_{it})$. (8)

In this framework, economic growth is a function of X_{it} (vector of fundamental growth determinants) and Fin_{it} (financial development indicators). In addition to financial development indicators, this study controls for other factors that affect economic growth, such as government spending and gross fixed capital formation. Totally differentiating equation (8) and re-arranging, gives $Y_{it} = \beta'X_{it} + \gamma Fin_{it}$. (9)

Finding the growth rate of per-capita GDP and adding the intercept and error terms gives the following: $Y_{it} - Y_{it-1} = \lambda Y_{1, t-1} + \beta'x_{it} + \gamma Fin_{it} + V_{it}$. (10)

Per Favara (2003) V_{it} is given as $V_{it} = \mu_t + Vt + \epsilon_{it}$. (11)

According to Favara, this is an estimation around the steady state of the standard neoclassical regression growth model. In equation 1, Y_{it} is the logarithm of income per capita in country i in period T , X_{it} is a vector of fundamental determinants of growth, Fin_{it} is an indicator of financial development, and V_{it} is a general disturbance which includes a country-specific observable effect, μ_t , and a time-specific factor, V_t , as well as an idiosyncratic disturbance ϵ_{it} . The fixed effects, μ_t , act as a proxy for other determinants of a country's steady state not already included in x , and the time-specific factor V controls for turbulences common to all domestic economies.

In the neoclassical growth model, diminishing returns to factor accumulation imply that the economy's growth rate $Y_{it} - Y_{it-1}$ decreases with the level of income represented by Y_{it-1} . For a given Y_{it-1} , a permanent increase in X_{it} or Fin_{it} initially raises the growth rate and over time the level of income per capita. Thus, in the long run, an increase in the amount of bank credit has an impact on the level of per-capita output, not on the growth rate of per capita output (Favara, 2003).

Specifically, this study uses the following variables in the vector Fin_{it} : $Stktrd1$ – value of stock traded; $MktCap1$ – Market Capitalization as a percentage of GDP; $Liqli$ – Liquid Liabilities (M3 as a percentage of GDP) ; $Domcred2$ – Domestic Credit to private sector as a percentage of GDP and $Ins1$ – Insurance and Financial Services as a percentage of commercial exports.

This study further uses a measure of productivity of labor to capture the efficiency or technological channel for economic growth. Productivity is calculated as GDP/labor force based on the guidelines of the OECD Manual (2001) for measuring productivity. The Vector X_{it} here includes: $Prod$ – productivity measure of GDP/Labor force; $Extdebt$ - External Debt; $Open1$ – Trade Openness ratio of imports and exports over GDP; $Infl1$ – Inflation; $Grsfcap$ – Gross Fixed Capital Formation and $Gov1$ – Government Spending.

The above discussions show that there are several country-specific effects which have to be taken into consideration when determining the impact of financial development on economic growth. Therefore, the panel-data approach used in this study controls for individual influences or effects of the countries including insurance, stock market, and banking development variables in the vector of financial development variables, Fin_{it} . These variables are representative of the overall financial superstructure and allow for a more complete description of the relationship between financial development and economic growth.

This theoretical framework shows how financial intermediaries arise in an economy and how efficient financial intermediaries contribute to economic growth and will be applied to determine the relationship between financial development and economic growth, using a panel-data framework for the selected countries.

4.5 The Random Walk Theory

Financial market efficiency is an important factor in the context of this study, because greater financial efficiency (which includes better and increased provision of insurance, pooling of resources, screening of entrepreneurs, and monitoring of borrowers) reduces the disincentive to entrepreneurship and the accumulation of human capital, and therefore increases the rate of technological progress and ultimately the long run growth of a country's economy.

Based on Trew's (2006) finding that confirmed the importance of financial intermediary efficiency in economic growth, this study also investigates financial market efficiency in selected countries, using the random walk theory, as presented by Fama (1970), which has been used extensively in several research studies to determine market efficiency. The random walk theory states that in an efficient market, prices fully reflect available information. This implies that successive changes or returns are independent and identically

distributed. There are three types of tests of market efficiency which include weak form tests, semistrong form tests as well as strong form tests. Weak form efficient markets reflect historical information. Semistrong form tests are concerned with the speed of price adjustment to other publicly available information, and strong form tests focus on whether any investors or groups have monopolistic access to information relevant to the formation of prices. This study will apply weak form tests to determine if markets are efficient, as this study is based on historical information. Also, other forms of efficiency tests cannot be readily applied to the stock prices of developing countries which may limit the number of countries tested. Several studies including Khaled and Islam (2005) and Hassan and Sultan (2003) have successfully applied weak form tests in developing countries.

The random walk model is stated as $F(r_{j, t+1}/\phi_t) = F(r_{j, t+1})$. Where r_j is the return on security J, ϕ_t is the set of information assumed to be fully reflect in the price at t . This means that the conditional and marginal probability distributions of an independent random variable are identical. Also, the density function f is the same for all t. Assuming the expected return on security J is constant over time, gives $E(r_{j, t+1}/\phi_t) = E(r_{j, t+1})$. The mean of the distribution of $r_{j, t+1}$ is independent of the information available at t, ϕ_t . The random walk model indicates that the entire distribution is independent of ϕ_t . The serial covariances of a random walk are zero (Fama, 1970). The Random Walk test will determine which of the markets in this study are efficient. If the series representing the markets follow a random walk, then the market is said to be weak form efficient. Specifically, autocorrelation function and unit root tests will be performed to determine if the series follow a random walk. In the event that there is no relationship between financial development and economic growth in a particular country, the respective market will be inefficient. Similarly, countries may have a sound financial superstructure such as sophisticated stock markets and banking systems, but may still lack the necessary human resources or managerial and corporate accountability, which are necessary for markets to be efficient.

CHAPTER 5.

MODEL, METHODOLOGY AND HYPOTHESES

5.1 Model

Based on the theoretical framework described in the previous chapter, this chapter specifies the model that will be used based on the theoretical foundations discussed previously, it also presents the hypotheses which will be tested in the empirical analysis. The second research question regarding the role of market efficiency in relation to financial development and economic growth does not require any model specification, because tests for efficiency based on the random walk theory are done in terms of Unit Root tests and Autocorrelation Function tests. To answer the first research question, the following equation is estimated, based on Favara's (2003) model and the work of Odedokun (1996), and King and Levine (1993a), as discussed earlier.

$$Y_{it} - Y_{it-1} = \alpha Y_{1,t-1} + \beta_1 X_{it} + \beta_2 \text{Ins}_{it} + \beta_3 \text{St}_{it} + \beta_4 \text{Bnk}_{it} + V_{it} \quad (\text{a})$$

$$V_{it} = \mu_t + V_t + \epsilon_{it} \quad (\text{b})$$

Where Ins_{it} represents the insurance sector, St_{it} is a vector of stock market variables which include Stktrd1 (value of stock traded) and Mktcap1 (market capitalization over GDP). Bnk_{it} is a vector of banking sector variables – which include Liqli (Liquid Liabilities – M3 as a percentage of GDP) and Domcred2 (Domestic Credit to Private Sector), X_{it} is a vector of control variables which include Prod productivity measure of GDP/Labor force; Extdebt - External Debt; Open1 – Trade Openness ratio of imports and exports over GDP; Infl1 – Inflation; Grsfcap – Gross Fixed Capital Formation and Gov1 – Government Spending. and Y_{it} is the logarithm of real per capita GDP growth.

However, the model used in this study is different from the models of Favara (2003), King and Levine (1993a) and Odedokun (1996) in the following manner:

The financial development indicators represented by the vector Fin_{it} in Favara's (2003) analysis included: 1) LLY (Liqui here), which is the level of liquid liabilities to the banking system and which captures the overall size of the financial sector and its ability to provide broad transaction services, and 2) PCY (Domcred2 here), which is the amount of credit issued to the private sector by banks and other financial institutions. According to Favara (and based on the International Finance Statistics opinion), it is a better indicator of financial development because it only accounts for credit granted to the private sector rather than the government and non-private sector. Therefore, Favara measured financial development using only banking sector indicators.

In Favara's analysis, the variable X_{it} is a vector of the control variables which include level of real per-capita GDP, average years of attainment in secondary and higher education, external openness measured by the ratio of export and import over GDP, macroeconomic stability measured by the ratio of government consumption to GDP, inflation, ratio of gross domestic investment (GDI) to GDP. This study uses the vector X_{it} to control for macroeconomic stability indicators such as government spending (Gov1), investment (Grsfcap), trade openness (Open1), inflation (Infl1), productivity (prod) and external debt levels (Extdebt). Like Favara, the study uses the investment variable (Grsfcap gross fixed capital formation) to capture the effect of finance on growth through investment. This study further introduces the productivity variable capture the technological or efficiency channel through which growth occurs. This was not used by Favara. Levine and Zervos (1996) used a similar measure called Output which in their case captured both capital stock growth and productivity growth. Favara's study includes both developed and developing countries. However, this study includes only developing countries, and therefore controls for additional factors that are relevant to economic growth in developing countries such as the level of external debt and inflation which Favara also did not use.

Odedokun's (1996) model on the other hand used variables such as labor force growth, real export growth, and investment-GDP ratio. The only measure of financial development was F/Y, which is the average of the nominal value of stock of liquid liabilities to the nominal annual GDP. Furthermore, the research presented here differs from previous studies as it includes indicators of the stock market, the banking sector, and the insurance industry to account for financial development which results in a more complete description of the relationship between financial development and economic growth. The study evaluates stock market development using the ratio of value of traded shares to GDP and the market capitalization ratio. According to Arestis, Demetriades and Luintel (2001), cross-sector studies indicate that liquid-based measures like the value of traded shares to GDP are more closely linked with economic growth than market capitalization indicators, an issue which will be assessed in various regressions.

In this study, the banking system development is measured using Domcred2, the ratio of domestic credit to the private sector (the same as Favara's PCY), and Liqli, the level of liquid liabilities (M3 as a percentage of GDP). INS is added as a measure of the presence of the insurance industry for robustness. The insurance industry is a financial intermediary that manages the occurrence of unanticipated events, and its existence signifies a certain level of financial development. Including the insurance sector as a financial development indicator in the regression will determine if mitigating business risks will impact economic growth. Availability of several kinds of insurance products to pool inherent risks associated with entrepreneurship will mitigate disincentive to entrepreneurship. For instance, loss of business, capital goods, inventory as well as liability from worker or consumer injuries, lawsuits, fraud, natural disasters, or foreign government appropriation are examples of some major risks to entrepreneurs.

The study then performs time series analyses as well as Unit Root and Cointegration tests of the financial development variables for the individual countries. Furthermore, the financial superstructure is observed over time, using the banking and stock market indicators to determine if there are similarities or differences between countries with better established stock markets, as there has been extensive debate over enhancing the function of the stock markets in developing countries.

Testing market efficiency is necessary because, according to the growth theory, greater efficiency increases the rate of technological progress and as such long run growth. Market efficiency will be investigated using the random walk theory as a test for weak form efficiency in order to determine which of the developing countries are found to be efficient in this respect.

The study estimates the following equations to determine the impact of financial development on economic growth using various measures of financial development and control variables:

$$GDP7 = C + \beta_1 Gov1 + \beta_2 Open1 + \beta_3 Infl + \beta_4 Stktrd1 + \beta_5 Extdebt + \beta_6 Grsfcap + V_{it}. \quad (1)$$

$$GDP7 = C + \beta_1 Open1 + \beta_2 Infl + \beta_3 Liqli + \beta_4 Extdebt + \beta_5 Grsfcap + V_{it}. \quad (2)$$

$$GDP7 = C + \beta_1 Grsfcap + \beta_2 Ins1 + V_{it}. \quad (3)$$

$$GDP7 = C + \beta_1 Open1 + \beta_2 Domcred2 + V_{it}. \quad (4)$$

$$GDP7 = C + \beta_1 Mktcap1 + \beta_2 Grsfcap + V_{it}. \quad (5)$$

$$GDP7 = C + \beta_1 Mktcap1 + \beta_2 Liqli + \beta_3 Infl + V_{it}. \quad (6)$$

$$GDP7 = C + \beta_1 Stktrd1 + \beta_2 Liqli + \beta_3 Ins1 + \beta_4 Open1 + \beta_5 Grsfcap + \beta_6 Extdebt + V_{it}. \quad (7)$$

$$GDP7 = C + \beta_1 Liqli + \beta_2 Prod + \beta_3 Open1 + V_{it}. \quad (8)$$

$$GDP7 = C + \beta_1 Domcred2 + \beta_2 Prod + V_{it}. \quad (9)$$

$$\text{GDP7} = C + \beta_1 \text{Stktrd1} + \beta_2 \text{Open1} + V_{it}. \quad (10)$$

$$\text{GDP7} = C + \beta_1 \text{Stktrd1} + \beta_2 \text{Liqli} + \beta_3 \text{Infl1} + V_{it}. \quad (11)$$

$$\text{GDP7} = C + \beta_1 \text{Stktrd1} + \beta_2 \text{Open1} + V_{it}. \quad (12)$$

$$\text{GDP7} = C + \beta_1 \text{Stktrd1} + \beta_2 \text{liqli} + \beta_3 \text{Grsfcap} + V_{it}. \quad (13)$$

$$\text{GDP7} = C + \beta_1 \text{Mktcap1} + \beta_2 \text{Liqli} + \beta_3 \text{Ins1} + \beta_4 \text{Open1} + V_{it}. \quad (14)$$

$$\text{GDP7} = C + \beta_1 \text{Mktcap1} + \beta_2 \text{Liqli} + \beta_3 \text{Ins1} + \beta_4 \text{Open1} + \beta_5 \text{Infl1} + V_{it}. \quad (15)$$

$$\text{GDP7} = C + \beta_1 \text{Stktrd1} + \beta_2 \text{Domcred2} + \beta_3 \text{Ins1} + \beta_5 \text{Open1} + V_{it}. \quad (16)$$

$$\text{GDP7} = D1 + \beta_1 \text{Mktcap1} + \beta_2 \text{Liqli} + \beta_3 \text{Ins1} + \beta_4 \text{Infl1} + \beta_5 \text{Open1} + V_{it}. \quad (17)$$

5.2 Methodology

The first research question about the relationship between financial development and economic growth is examined by using panel-data methods including generalized least squares (GLS), generalized method of moments (GMM), and vector auto regression. The GMM panel estimator is more precise than cross-section estimators because it directly controls for any potential distortion of data that could be caused by the exclusion of country-specific effects and the endogeneity of all regressors (Favara, 2003). The second research question about market efficiency is answered by conducting efficiency tests using Unit Root and Autocorrelation Function tests to determine if the variables follow a random walk and are thus efficient.

This analysis of the relationship between financial development and economic growth also includes an assessment of random and fixed effects, implying that the effect does not vary over time, not that it is non-stochastic. The assessment of fixed effects determines whether the unobserved individual effect contains elements that are correlated with the regressors in the model. This distinction is important because the unobserved effects (other variables apart from the financial development and economic growth indicators used in the regressions), which may not be captured because they cannot be measured, may actually either be correlated with the variables used or uncorrelated. If the uncaptured or unobserved variables are correlated with the variables used in the model, the results obtained by using the ordinary least squares method are biased. Regressions cannot capture all variables, thus uncaptured variables are included in the error term. The following demonstrates the fixed effects model: If Z_i is unobserved, but correlated with X_i , the least-squares estimator of β is biased and inconsistent as a result of the omitted variable. Thus, the model is :

$$Y_{it} = X'_{it} \beta + \alpha_i + \varepsilon_{it}$$

$\alpha_i = Z'_i \alpha$ has all the observable effects and specifies an estimable conditional mean. This

approach takes α_i to be a group-specific constant term in the regression model. $Y_{it} = X'_{it} \beta + \alpha_i + \varepsilon_{it}$

$\alpha_i = Z'_i \alpha$ has all the observable effects and specifies an estimable conditional mean. This approach takes α_i to be a group-specific constant term in the regression model.

With regard to random effects, if the unobserved individual heterogeneity is assumed to be uncorrelated with the included variables, then the model could be given as

$$Y_{it} = X'_{it} \beta + E[Z'_i \alpha] + \{ Z'_i \alpha - E[Z'_i \alpha] \} + \varepsilon_{it} = X'_{it} \beta + \alpha + u_i + \varepsilon_{it}.$$

This is a linear regression model with a compound disturbance that could consistently, albeit inefficiently, be estimated by least squares. The random effects approach indicates that U_i is a group-specific random element which is similar to ε_{it} except for the fact that for each group all draws except a single one enter the regression identically in each period. While both approaches focus on the unobserved effects, the main difference between them is that in the fixed-effects approach, the unobserved individual effect contains elements that are correlated with the regressors in the model (Greene, 2006).

An advantage of the fixed-effects approach is that there is limited justification for treating the individual effects as uncorrelated with the other regressors, which is assumed in the random effects model. As a result, the random effects approach may be inconsistent because of the correlation between the included variables and the random effect. The main advantage of the random effects approach is that it can be estimated by the ordinary least squares method. Most uncaptured data are actually correlated with the variables used in the regression. For instance, this study does not capture factors such as the location of the financial intermediaries or number of employees in organizations which will be correlated with the financial variables used.

This study applies the Hausman Specification test to assess orthogonality of the random effects and regressors, which is critical, as the dummy-variable approach results in losing degrees of freedom. Hausman's Specification test, developed in 1978, was based on the idea that

in the hypothesis of no correlation, both ordinary least squares (OLS) in the least squares dummy variable model and generalized least squares (GLS) are consistent, but OLS is inefficient. Under the alternative, OLS is consistent, while GLS is not. Thus, under the null hypothesis, the two estimates would not be systematically different, and a test is derived from this minor difference. The Hausman test requires the covariance matrix of the difference vector which is given as follows:

$[b - \hat{\beta}]$:

$$\text{Var}[b - \hat{\beta}] = \text{Var}[b] + \text{Var}[\hat{\beta}] - \text{Cov}[b\hat{\beta}] - \text{Cov}[b - \hat{\beta}] \quad (1a)$$

Hausman's result is that the covariance of an efficient estimator with its difference from an inefficient estimator is zero, so that

$$\text{Cov}[(b - \hat{\beta}), \hat{\beta}] = \text{Cov}[b \hat{\beta}] - \text{Var}[\hat{\beta}] = 0, \text{ or}$$

$$\text{Cov}[b \hat{\beta}] = \text{Var}[\hat{\beta}].$$

fixed-effects approach, the unobserved individual effect contains elements that are correlated with the regressors in the model (Greene, 2006).

An advantage of the fixed-effects approach is that there is limited justification for treating the individual effects as uncorrelated with the other regressors, which is assumed in the random effects model. As a result, the random effects approach may be inconsistent because of the correlation between the included variables and the random effect. The main advantage of the random effects approach is that it can be estimated by the ordinary least squares method. Most uncaptured data are actually correlated with the variables used in the regression. For instance, this study does not capture factors such as the location of the financial intermediaries or number of employees in organizations which will be correlated with the financial variables used.

This study applies the Hausman Specification test to assess orthogonality of the random effects and regressors, which is critical, as the dummy-variable approach results in losing degrees of freedom. Hausman's Specification test, developed in 1978, was based on the idea that in the hypothesis of no correlation, both ordinary least squares (OLS) in the least squares dummy variable model and generalized least squares (GLS) are consistent, but OLS is inefficient. Under the alternative, OLS is consistent, while GLS is not. Thus, under the null hypothesis, the two estimates would not be systematically different, and a test is derived from this minor difference. The Hausman test requires the covariance matrix of the difference vector which is given as follows:

$$[b - \hat{\beta}] :$$

$$\text{Var} [b - \hat{\beta}] = \text{Var}[b] + \text{Var}[\hat{\beta}] - \text{Cov}[b\hat{\beta}] - \text{Cov} [b - \hat{\beta}] \quad (1a)$$

Hausman's result is that the covariance of an efficient estimator with its difference from an inefficient estimator is zero, so that

$$\text{Cov}[(b - \hat{\beta}), \hat{\beta}] = \text{Cov}[b \hat{\beta}] - \text{Var}[\hat{\beta}] = 0, \text{ or}$$

$$\text{Cov}[b \hat{\beta}] = \text{Var}[\hat{\beta}].$$

Putting the above equation in 1 gives the required covariance matrix for the test,

$$\text{Var}[b - \hat{\beta}] = \text{Var}[b] + \text{Var}[\hat{\beta}] = \psi. \quad (1b) \text{ We have the Chi-squared test based on the Wald Criterion as}$$

$$W = \chi^2 [K - 1] = [b - \hat{\beta}]' \psi^{-1} [b - \hat{\beta}].$$

The estimated covariance matrices of the slope estimator of the least squares dummy variable model (LSDV) and the estimated covariance matrix in the random effects model for ψ are used. Under the null hypothesis, W has a limiting chi-squared distribution with $K - 1$ degrees of freedom (Greene, 2006).

5.3 Hypotheses

5.3.1 Hypothesis 1

The null hypothesis states that financial development has no effect on per-capita GDP growth.

$$H_0: \beta_2, \beta_3, \beta_4 = 0$$

The alternative hypothesis states that financial development has an effect on per-capita GDP growth.

$$H_1: \beta_2, \beta_3, \beta_4 \neq 0.$$

Where β_2 is the coefficient of Ins_{it} the measure for insurance, β_3 is the coefficient of St_{it} the stock market indicators and β_4 is the coefficient of Bnk_{it} – banking sector indicators. In this case, the null hypothesis is rejected, if financial development is found to have an effect on economic growth which is measured by per-capita GDP growth.

5.3.2 Hypothesis 2a

The null hypothesis states that the effect of financial development on economic growth is lower in Asian countries with more advanced financial superstructures compared to African countries.

$$H_0: E(GDP7/D1 = 1, X_t) < E(GDP7/D1 = 0, X_t)$$

Where $D1 = 1$ for Asian countries and $D1 = 0$ for African countries. The alternative hypothesis states that the effect of financial development on economic growth is higher in Asian countries with more advanced financial superstructures compared to African countries.

$$H_1: E(GDP7/D1 = 1, X_t) > E(GDP7/D1 = 0, X_t)$$

In this case, we will reject the null hypothesis, if we find that the effect of financial development is higher in Asian countries with more advanced financial superstructures.

5.3.3 Hypothesis 2b

The null hypothesis states that insurance as part of financial development has no impact on per-capita GDP growth.

$$H_0: \beta_2 = 0$$

The alternate hypothesis states that insurance as part of financial development has an impact on per-capita GDP growth.

$$H_1: \beta_2 \neq 0$$

In this case, we reject the null hypothesis, if we find that insurance has an impact on per-capita GDP growth.

5.3.4 Hypothesis 3

The null hypothesis states that the financial markets of developing countries are inefficient.

$$H_0: E(r_j, t+1) \neq 0$$

Where r_j is the expected return of security J

The alternate hypothesis states that the financial markets of developing countries are efficient.

$$H_1: E(r_j, t+1) = 0$$

In this case, we reject the null hypothesis, if we find that the financial markets of developing countries are efficient.

CHAPTER 6.

DATA ANALYSIS AND RESULTS

This chapter presents the data analysis for the relationship between financial development and economic growth. Variables overview, chart of expected signs, then the various estimations using Generalized Least Squares Methods (GLS), Generalized Methods of Moments (GMM) which is followed by a presentation of the results of the individual countries for causality, as well as tests for cointegration and efficiency. Tables 6.3 to 6.11 show GLS results of the effect of financial development on economic growth in the panel of African and Asian countries. Tables 6.12 to 6.15 show the GLS results in African and Asian countries separately. Tables 6.16 to 6.17 show panel results using Fixed Effects methods and granger causality tests. Tables 6.18 to 6.21 show GMM results for the panel of African and Asian countries. Tables 6.22 to 6.30 show individual country unit root tests, causality, cointegration and efficiency tests. The Chapter concludes with a Summary of Findings.

6.1 Data and Results

Table 6.1 shows the data sources ⁵.

Table 6.1

Variable Overview

Variable (Abbreviated Name)	Variable (Meaning)	Source
Domcred1	Domestic credit provided by banking sector % GDP	WDI
Domcred2	Domestic credit to private sector	WDI
Open1	Trade openness (sum of exports and imports relative to GDP)	WDI
Netexp	Export of goods and service – imports of goods and Services	WDI
Infl1	Inflation	WDI
GDP6L	Per-capita GDP growth	WDI
GDP7	Lagged value of per-capita GDP growth	WDI
Ins1	Insurance and financial services as % of commercial exports	WDI
Liqli	Liquid liabilities M3 as % of GDP	WDI
Mktcap 1	Market capitalization of listed companies as % of GDP	WDI
Stktrd1	Stock-traded value, total value (% of GDP)	WDI
Gov1	Government spending	IFS
Extdebt	External debt total (% of GINI)	WDI
Grsfcap	Gross fixed capital	IFS
Prod	Productivity – GDP/Labor Force	WDI
Daily Stock Prices		GFD

⁵ : WDI = World Development Indicators, IFS = International Financial Statistics, and GFD = Global Financial Database. The data obtained covered the time period of 1988 - 2007.

Table 6.2**Expected Results**

Shows the expected signs for the estimations used in this study. The signs of the various variables used including the control and financial development variables are highlighted.

Variable	Expected Sign	Theoretical Implication
Extdebt	-	External debt is expected to be negatively correlated with per-capita GDP growth
Infl1	-	Inflation is expected to be negatively correlated with per-capita GDP
Grsfcap	+	Investment in physical is expected to be positively correlated with per-capita GDP growth
Open1	+	Trade openness is expected to be positively correlated with per-capita GDP growth
Gov1	+	Government spending is expected to be positively correlated with per-capita GDP growth
Prod	+	Productivity is expected to be positively correlated with per -capita GDP growth
Stktrd1	+	The value of stock traded is expected to be positively correlated with per-capita GDP growth
Mktcap1	+	Market capitalization of the stock market is expected to be positively correlated with per-capita GDP growth
Domcred2	+	Domestic credit to the private sector is expected to be positively correlated with per- capita GDP growth
Liqli	+	Liquid liability M3 as a percentage of GDP is expected to be positively correlated with per-capita GDP growth
Ins1	+	Insurance and financial services as a % of GDP are expected to be positively correlated with per-capita GDP growth

6.1.1 Generalized Least Squares Estimate

The first estimate used is a SUR GLS panel-data regression of 17 African and Asian countries for the time period between 1988 and 2007. The SUR GLS provides a better estimate of the panel data compared with the OLS. This is a departure from Favara's analysis and other empirical work in the growth/financial development; the reason for this is that the panel data regression is estimated by GLS rather than the use of cross-section weights over time where each country has one observation. The measures of stock market development, insurance, and banking sector development enter the regressions separately at first and subsequently together.

The results obtained from estimating the effect of the value of stock traded on per capita GDP growth in the presence of controls like government spending, trade openness, gross fixed capital formation, external debt and inflation from Equation (1) are in Table 6.3:

Table 6.3

Stock Market Effect on Economic Growth (GLS)

	Coefficients	p value
Stktrd1	0.000187	0.77
<i>Controls</i>		
Infl	-0.000207	0.0000
Extdebt	-0.000234	0.0000
Grsfcap	1.56E-08	0.0000
Gov 1	1.29E-14	0.0000
Open1	568636.7	0.0000
R Squared	0.819421	
Adjusted R2	0.815523	
Durbin Watson	1.939734	
F Statistic	210.2484	

As expected, government spending, trade openness, and investment in fixed capital are positively correlated with economic growth. Trade openness and fixed capital investment are significant. If a variable has a p value of less than 0.05, it is significant and has an effect on economic growth. If it has a positive sign in addition to being significant, then it means that it has a positive effect on economic growth. By contrast, if it is significant and has a negative sign, it has a negative effect on economic growth. Debt levels and inflation are expected to have a negative effect on economic growth. On the other hand, an insignificant variable has no effect on economic growth. Also, inflation and external debt levels are significant and negatively correlated with per-capita GDP growth. In this regression, stock market development $stktrd1$ is also positively correlated with per-capita GDP growth and significant. The R squared is high 0.819421, suggesting that the model fits the data.

The results for estimating the effect of liquid liabilities which is a banking sector indicator on economic growth in the presence of controls such as trade openness, inflation, external debt and gross fixed capital, Equation (2) are in the Table 6.4:

Table 6.4**Liquid Liability within the Bank Sector Effect on Economic Growth (GLS)**

	Coefficients	p value
Liqui	4.13E05	0.0414
<i>Controls</i>		
Infl	-0.000231	0.0000
Extdebt	-0.000284	0.0000
Grsfcap	2.136-08	0.00000
Open1	382465.3	0.0000
R Squared	0.773786	
Adjusted R2	0.769732	
Durbin Watson	1.867649	
F Statistic	190.8693	

The above table shows that when liquid liabilities (proxy for banking sector development) are included in the regression, the result summarized in the second equation is obtained. Again, the signs are as expected: Trade openness and gross fixed capital both have a positive and significant influence on per-capita GDP growth, while inflation and external debt have the expected negative effect on GDP growth. Liquid liabilities (a measure of financial development), has the expected positive and significant effect on GDP growth. Again, a high R squared of 0.773786 suggests that the model fits the data. Next, other financial development variables are tested in the presence of one or more control variables.

The results for estimating the effect of insurance on economic growth in the presence of gross fixed capital formation as a control, from Equation (3) are shown in the Table 6.5:

Table 6.5**Insurance Effect on Economic Growth (GLS)**

	Coefficients	p value
Ins1	0.040600	0.0000
<i>Controls</i>		
Grscap	8.71E-07	0.0000
R Squared	0.956086	
Adjusted R2	0.980749	
Durbin Watson	1.586753	
F Statistic	3255.899	

Using the cross-section weight GLS for better precision, insurance, as a percentage of commercial service exports, is found to have a positive and significant, effect on economic growth.

The results obtained from estimating the effect of domestic credit (banking sector variable) on economic growth in the presence of trade openness as a control from Equation (4) are shown in the Table 6.6:

Table 6.6**Domestic Credit to the Private Sector Effect on Economic Growth (GLS)**

	Coefficients	p value
Domcred2	0.015597	0.0000
<i>Controls</i>		
Open1	34705407	0.0000
R Squared	0.997277	
Adjusted R2	0.997258	
Durbin Watson	1.697762	
F Statistic	54382.93	

Using Domcred2 as a proxy for financial development shows that domestic credit has a positive and significant effect on economic growth. The control variable trade openness has the expected positive coefficient and significant influence.

The results obtained from estimating the effect of market capitalization (stock market variable) on economic growth in the presence of gross fixed capital as a control from Equation (5) are shown in Table 6.7:

Table 6.7

Market Capitalization Effect on Economic Growth (GLS)

	Coefficients	p value
Mktcap1	0.007881	0.0000
<i>Controls</i>		
Grsrcap	1.04E-07	0.0000
R Squared	0.880606	
Adjusted R2	0.879802	
Durbin Watson	1.523940	
F Statistic	1095.284	

Equation (5) shows Mktcap1 as a proxy for financial development (stock market). Market capitalization is found to have a positive and significant influence on economic growth. Again, the control variable has the expected sign and significant influence.

The results obtained from estimating the effect of liquid liabilities and market capitalization on economic growth in the presence of inflation as a control Equation (6) is shown in Table 6.8:

Table 6.8

Liquid Liability and Market Capitalization Effect on Economic Growth (GLS)

	Coefficients	p value
Mktcap1	0.005100	0.0000
Liqli	0.012379	0.0000
<i>Controls</i>		
Inf1	-0.011260	0.0000
R Squared	0.974019	
Adjusted R2	0.973756	
Durbin Watson	1.682931	
F Statistic	3699.007	

Equation (6) shows that both the financial development indicators for the banking sector (Liqli) and for the stock market (Mktcap1) have a positive and significant influence on economic growth. Similarly, the control variable inflation has the expected negative and significant influence.

The results obtained from estimating the effect of liquid liability, stock value traded and insurance on economic growth in the presence of gross fixed capital, trade openness and external debt as controls, Equation (7) are shown in Table 6.9:

Table 6.9**Liquid Liability, Stock Value Traded and Insurance Effect on Economic Growth (GLS)**

	Coefficients	p value
Stktrd1	0.000127	0.0000
Liqli	0.018973	0.00000
Ins1	0.049189	0.00000
<i>Controls</i>		
Open1	25257638	0.0000
Grsfcap	5.46E-07	0.0000
Extdebt	-0.008053	0.0000
R Squared	0.979006	
Adjusted R2	0.978577	
Durbin Watson	1.608128	
F Statistic	2277.282	

Equation (7) shows the combined effect of financial development on per-capita GDP growth using banking sector, stock markets, and insurance as indicators. Liqli (banking sector indicator) is positive and significant, Stktrd1 (measure of stock market development) is positive and significant. Ins1, the measure of insurance is also positive and significant, in the presence of controls openness, gross fixed capital, and external debt which all have the correct signs. Most importantly for this analysis, these regression results show that overall financial development has a positive and significant influence on per-capita GDP growth. Also, the high R squared of 0.979006 and Adjusted R squared of 0.978577 show that the regression fits the data.

The results obtained from estimating the effect of liquid liabilities on economic growth in the presence of trade openness and productivity as control Equation (8) are shown in Table 6.10:

Table 6.10**Liquid Liability (Trade Openness and Productivity as control) Effect on Economic Growth (GLS)**

	Coefficients	p value
Liqli	8.83E-05	0.0005
<i>Controls</i>		
Open1	315248.5	0.0000
Prod	4.18E-07	0.0000
R Squared	0.522807	
Adjusted R2	0.517712	
Durbin Watson	1.786167	
F Statistic	102.6201	

The above results show that liquid liabilities have a positive and significant effect on economic growth in the presence of trade openness and productivity as controls. The coefficients of both trade openness and productivity are positive and significant.

The results obtained from estimating the effect of domestic credit to the private sector on economic growth in the presence of productivity as a control Equation (9) are shown in Table 6.11

Table 6.11**Domestic Credit to the Private Sector (Productivity as control) Effect on Economic Growth (GLS)**

	Coefficients	p value
Domcred2	0.004039	0.0000
<i>Controls</i>		
Prod	0.000189	0.0000
R Squared	0.970785	
Adjusted R2	0.970413	
Durbin Watson	0.980015	
F Statistic	2608.507	

Table 6,11 shows that domestic credit to the private sector has a positive and significant effect on economic growth in the presence of productivity as a control which also has a positive and significant effect.

Next, the panel of African and Asian countries is isolated to determine if differences in developmental stages affect the impact of financial development on economic growth, since African countries have less access to capital flows, and their financial markets and overall infrastructures do not have the same quality as their counterparts in Asian countries. This will reveal if continent-specific differences have an effect on economic growth.

The results obtained from estimating the effect of stock value traded on economic growth in the presence of trade openness as a control in African countries only, Equation (10) are shown in Table 6.12:

Table 6.12

Stock Value Traded Effect on Economic Growth in Africa

	Coefficients	p value
Stktrd1	0.017130	0.0000
<i>Controls</i>		
Open1	26920688	0.0000
R Squared	0.978625	
Adjusted R2	0.978353	
Durbin Watson	0.969035	
F Statistic	3593.980	

Equation (10) shows that trade openness is positively correlated with economic growth and significant. The stock market indicator Stktrd1 is also positively correlated and significant.

The results obtained from estimating the effect of liquid liability and stock value traded on economic growth in the presence of inflation as a control in Africa, Equation (11) are shown in the Table 6.13:

Table 6.13

Liquid Liability and Stock Value Traded Effect on Economic Growth in Africa (GLS)

	Coefficients	<i>p</i> value
Stktrd1	0.002591	0.0185
Liqli	0.012617	0.0000
<i>Controls</i>		
Infl1	-0.012504	0.0000
R Squared	0.932692	
Adjusted R2	0.930955	
Durbin Watson	0.885511	
F Statistic	536.9581	

Equation (11) shows a positive and significant relationship between Stktrd, and Liqli (financial development) and per-capita GDP growth, while controlling for inflation. A high R squared of 0.932692 suggests that the regression fits the data.

The results obtained from estimating the effect of stock value traded on economic growth in the presence of trade openness as a control in Asia, Equation (12) are shown in Table 6.14:

Table 6.14**Stock Value Traded Effect on Economic Growth in Asia (GLS)**

	Coefficients	p value
Stktrd1	0.006268	0.0000
<i>Controls</i>		
Open1	66160200	0.0000
R Squared	0.636381	
Adjusted R2	0.630165	
Durbin Watson	0.591569	
F Statistic	102.3827	

Equation (12) shows that in Asian countries, trade openness is found to be positively correlated with GDP growth. Stock traded is again positively correlated with per-capita GDP growth and significant.

The results obtained from estimating the effect of liquid liability and stock value traded on economic growth using gross fixed capital as a control in Asia, Equation (13) are shown in Table 6.15:

Table 6.15**Liquid Liabilities and Stock Value Traded Effect on Economic Growth in Asia (GLS)**

	Coefficients	p value
Stktrd1	0.000245	0.0000
Liqli	9.23E-06	0.8834
<i>Controls</i>		
Grsfcap	3.30E-08	0.0000
R Squared	0.449621	
Adjusted R2	0.436821	
Durbin Watson	1.446526	
F Statistic	35.12791	

Equation (13) shows that stock value traded and liquid liability have a positive influence on economic growth, although the effect of liquid liability was not significant while the impact of the stock value traded was significant.

Fixed-effects methods. As in Favara (2003), the fixed-effects modeling used here is applied to the panel data which means that although the intercept may differ across the individual countries, each individual intercept does not vary over time; i.e., it is time invariant. Table 6.16 which assumes fixed effects, gives a negative Akaike criterion value as well as R squared of 0.437.

Table 6.16

Fixed Effects Regression Method

Variables	Gov1	Open1	Extdebt	Grsfcap	Stktrd1	Infl1
Coefficient	2.64E-13	514355.8	-0.000382	3.09E-08	0.000234	-0.000296
Std Error	1.93E-13	478260.3	0.000132	1.73E-08	8.11E-05	0.000226
T Statistic	1.368355	1.075473	-2.895943	1.788161	2.884817	-1.309286
Prob	0.1724	0.2832	0.0041	0.0750	0.0043	0.1917
R Squared	0.437473					
Adj R Squared	0.350579					
F Statistic	5.034542					
Akaike Criterion	-4.511536					
Schwartz Criterion	-4.011722					
Hanan Quinion Crit.	-4.311173					
Durbin Watson	1.975411					

Granger Causality Test. As a next step, the panel of African and Asian countries is stacked and Granger Causality tests are applied to determine the relationship between the measures of financial development and economic growth for the two regions. Table 6.17 shows the granger causality tests.

Table 6.17

Test for Granger Causality

Does not Granger Cause	Variable	F Statistic	Prob	Action
Stktrd1	GDP6L	1.22425	0.2955	Do not reject
GDP6L	Stktrd1	4.22517	0.0156	Reject
Liqli	GDP6L	1.10804	0.3316	Do not reject
GDP6L	Liqli	1.32095	0.2685	Do not reject
Ins1	GDP6L	0.65684	0.5193	Do not reject
GDP6L	Ins1	3.19674	0.0424	Reject
Mktcap1	GDP6L	24.2437	2.E-10	Do not reject
GDP6L	Mktcap1	4.56639	0.0112	Reject
Domcred2	GDP6L	0.47015	0.6254	Do not reject
GDP6L	Domcred2	6.81151	0.0013	Reject

In this test, the null hypothesis is that one variable does not granger cause the other variable. Therefore, if the F statistic is high enough or the p value of obtaining that statistic is less than 0.05, we can reject the null hypothesis of no causality. In this case, we can reject the null hypothesis that per-capita GDP growth does not granger cause stock market development, as the probability is less than 0.05. However, we do not reject the null hypothesis that stock market development does not granger cause per-capita GDP growth. We also do not reject the null hypothesis that liquid liability (measure of bank development) does not granger cause per-capita

GDP growth as well as that per-capita GDP growth does not granger cause bank development. Furthermore, we do not reject the null hypothesis that insurance development does not granger cause per-capita GDP growth. On the other hand, we reject the null hypothesis that per-capita GDP growth does not granger cause insurance development as well as the null hypothesis that per-capita GDP growth does not granger cause market capitalization. Similarly, we reject the null hypothesis that per-capita GDP growth does not granger cause domestic credit to private sector.

6.1.2 Generalized Method of Moments Estimation

As in Favara (2003), this study runs GMM estimates in panel data using lagged values of the variables as instruments. In a few aspects, however, this study departs from Favara's methodology. This study focuses on Africa and Asian countries, while Favara used 85 countries from all over the world. Also Favara, uses financial development variables such as liquid liabilities of the financial system and value of loans made by deposit money banks only. In addition to these variables, this study uses stock market development variables, such as market capitalization and the value of stock traded. Furthermore, this study adds a measure for insurance services as a percentage of commercial service exports to determine if it has any significant effect on per-capita growth. Finally, while Favara uses period averages for both her cross-country regressions and panel regressions, this study relies on the actual data from 1988-2007.

The results obtained from estimating the effect of liquid liability, market capitalization and insurance in the unbalanced panel data for African and Asian countries using trade openness as a control, Equation (14) are shown in Table 6.18:

Table 6.18

Liquid Liability, Market Capitalization and Insurance Effect on Economic Growth (GMM)

	Coefficients	<i>p</i> value
Mktcap1	0.004381	0.0000
Liqli	0.018562	0.0000
Ins1	0.118775	0.0000
<i>Controls</i>		
Open1	40569294	0.0000
R Squared	0.969564	
Adjusted R2	0.969095	
Durbin Watson	1.437374	
J Statistic	2.683996	

In the above unbalanced panel of African and Asia countries, the control variable trade openness is, as expected, positively correlated with per-capita GDP growth and significant.

Liquid liability (measure of financial sector development), market capitalization, and insurance services as a percentage of commercial service exports are also positively correlated with per-capita GDP growth and significant. A high R squared of 0.96564 suggests that the regression model fits the data.

The results obtained from estimating the effect of liquid liabilities, market capitalization and insurance in the presence of trade openness and inflation as controls, Equation (15) are shown in Table 6.19:

Table 6.19

Liquid Liabilities, Market Capitalization and Insurance Effect on Economic Growth (Presence of More Controls) (GMM)

	Coefficients	p value
Mktcap1	0.004671	0.0000
Liqli	0.016280	0.0000
Ins1	0.108441	0.0000
<i>Controls</i>		
Open1	43912116	0.0000
Infl1	-0.017900	
R Squared	0.964598	
Adjusted R2	0.963914	
Durbin Watson	1.623087	
J Statistic	3.015562	

The above results are still consistent and significant even after controlling for inflation as seen above which, as expected, should have a negative effect on economic growth. This is an important finding that not only corresponds to previous empirical research, but also reveals that insurance services are another key component of financial stability and play a pivotal role in economic growth.

This study also assess the argument by Yartey that the stock market value traded is a better indicator of stock market development, and Favara's argument that domestic credit is a better proxy of financial development in the generalized method of moments estimate.

The results obtained from estimating the effect of domestic credit, stock value traded and insurance on economic growth in the presence of external debt and inflation as controls Equation (16) are shown in Table 6.20:

Table 6.20

Domestic Credit, Stock Value Traded and Insurance Effect on Economic Growth (GMM)

	Coefficients	<i>p</i> value
Stktrd1	0.000516	0.8019
Domcred2	0.013803	0.0000
Ins1	0.063894	0.0044
<i>Controls</i>		
Open	36664191	0.0044
R Squared	0.566671	
Adjusted R2	0.560481	
Durbin Watson	0.132488	
J Statistic	9.685670	

The above regression shows that the control variable trade openness, as expected, is positive and significant. The variables domcred2 and ins1 are positive and significant. Stktrd1 is positive though insignificant.

When, in a GMM analysis of Asian and African countries, a dummy value of 1 is assigned for Asian countries with African countries taking the value of 0, the following results shown in Table 6.21 are obtained from Equation (17):

Table 6.21

Liquid Liabilities, Market Capitalization and Insurance Effect on Economic Growth (by using Dummy Variables) (GMM)

	Coefficients	p value
Mktcap1	0.006140	0.0000
Liqli	0.021902	0.0000
Ins1	0.085872	0.0000
D1	0.284461	0.1790
<i>Controls</i>		
Infl1	-0.014786	00.0000
Open1	66905010	
R Squared	0.915179	
Adjusted R2	0.913207	
Durbin Watson	0.802018	
J Statistic	3.11E-22	

In this regression, introducing the dummy variable produces the same consistent and significant result. Further, it shows that in the Asian countries, the mean contribution of overall financial development (as measured by the financial sector, stock market, and insurance variables) to economic growth is **higher** than in the African countries by **0.284461**.

In this context, it is important to consider the different stages of development of the two continents. While Asian countries are still considered to be developing nations, they are in fact significantly ahead of their African counterparts in various spheres of overall economic development. The World Bank Global Monitoring Report (2006) stated that as of 1990 most areas in Asia have significantly reduced their poverty rates. On the other hand, Africa still has the highest number of people living at poverty levels. Similarly, the report indicated that African countries lag behind other regions in most infrastructure services. The number of households

with phones, for example, is below 5 percent; and although the average rate of electricity availability improved to 27 percent, it is still the lowest compared rate around the world. By contrast, Asian countries, particularly those in East and South Asia, have recorded the most rapid progress in infrastructure improvement of all developing countries in the world. These results also corroborate the finding that finance influences growth up to a certain stage of development, but then growth begins to influence financial development, as countries become more advanced and seek more sophisticated financial instruments to serve the growing needs of the various economic sectors.

VAR Approach. For a more robust analysis, this study utilizes the vector autoregression (VAR) approach for the stacked panel as in Arestis, Demetriades and Luintel (2001). In their analysis, the authors start by carrying out Unit Root tests on the variables. A series is described as stationary, if the mean and auto-covariances of the series do not depend on time, which is confirmed by a Unit Root test as formal test. This test is carried out on the variables for all countries (stacked data). Individual country tests will be performed in the coming sections. The results of all Unit Root test are shown in Table 6.22.

Table 6.22**Unit Root Test**

Method	Domcred2			Mktcap1			Ins1		
	Statistic	Prob	Unit Root?	Statistic	Prob	Unit Root?	Statistic	Prob	Unit Root?
Levin, Lin & Chu	2.40702	0.9920	Yes	6.21598	1.0000	Yes	-4.36986	0.0000	No
Im, Pesaran and Shin W-Stat	3.25969	0.9994	Yes	5.22960	1.0000	Yes	-4.10897	0.0000	No
ADF Fisher Chi Square	17.0460	0.9859	Yes	25.0302	0.8048	Yes	77.5431	0.0000	No
PP – Fisher Chi Square	17.9359	0.9786	Yes	24.9347	0.8087	Yes	76.4408	0.0000	No

Note. ** Probabilities for Fisher tests are computed using an asymptotic Chi.

Method	Stktrd1			Liqli		
	Statistic	Prob	Unit Root?	Statistic	Prob	Unit Root?
Levin, Lin & Chu	4.05137	1.0000	Yes	-0.05810	0.4768	Yes
Im, Pesaran and Shin W-Stat	3.77865	0.9999	Yes	0.67687	0.7508	Yes
ADF Fisher Chi Square	34.3160	0.3573	Yes	30.2461	0.5555	Yes
PP – Fisher Chi Square	33.7641	0.3822	Yes	30.2828	0.5536	Yes

We do not reject the null hypothesis that there is a unit root, because the p value is not less than 0.05 for the variables Domcred1, Domcred2, Mktcap1, Stktrd1 and Liqli. However, we reject the null hypothesis that there is a unit root for Ins1, as the probability is less than 0.05.

The analysis proceeds by determining the presence or absence of a cointegrating vector between per-capita income growth and the financial development variables for all countries together. The presence of a cointegrating vector shows a long run relationship between financial development and economic growth. The results are shown in Table 6.23:

Table 6.23

Cointegration Analysis

Variables	Cointegration
Domcred1	Yes
Domcred2	Yes
Liqli	Yes
Stktrd	Yes
Mktcap1	Yes
Ins1	Yes

As seen above, these tests detect the presence of a long run relationship between financial development and economic growth when all countries are considered. The coming sections will test this relationship for specific countries.

6.2 Causality and Cointegration

This section examines whether there is causality and cointegration between the financial development variables and economic growth and vice versa. The presence of cointegration

implies that a long run relationship among the variables exists, after which country-specific differences in terms of impact on GDP growth will be determined.

6.2.1 Test for Causality

This analysis first tests for granger causality in the individual countries. The null hypothesis in this case is that GDP6L does not granger cause the financial variable in question. The results are shown in Table 6.24:

Table 6.24

Granger-Causality between Economic Growth and Financial Development

Country	Stktrd	Mktcap	Domcred2	Liqli	Ins
Botswana	Don't reject	Don't reject	Reject	Don't Reject	Don't Reject
Egypt	Reject	Don't reject	Don't reject	Don't reject	Don't reject
Ghana	Don't reject	Don't reject	Reject	Don't reject	Don't reject
Mauritius	Don't reject	Don't reject	Reject	Don't reject	Don't reject
Morocco	Reject	Don't reject	Reject	Reject	Don't reject
Nigeria	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
South Africa	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Kenya	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Bangladesh	Don't reject	Don't reject	Reject	Don't reject	Reject
India	Reject	Don't reject	Reject	Don't reject	Don't reject
Pakistan	Don't reject	Don't reject	Don't reject	Reject	Reject
Philippines	Don't reject	Don't reject	Don't reject	Don't reject	Reject
Sri Lanka	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Thailand	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Malaysia	Don't reject	Don't reject	Don't reject	Reject	Don't reject

The results of the null hypothesis that the financial development variables do not granger cause economic growth are shown in Table 6.25:

Table 6.25

Granger -Causality between Financial Development and Economic Growth

Country	Stktrd	Mktcap	Domcred2	Liqli	Ins
Botswana	Reject	Don't reject	Don't reject	Don't reject	Don't reject
Egypt	Don't reject	Reject	Don't reject	Don't reject	Don't reject
Ghana	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Mauritius	Don't reject	Don't reject	Don't reject	Don't reject	Don't reject
Morocco	Don't reject	Don't reject	Don't reject	Don't reject	Reject
Nigeria	Reject	Don't reject	Reject	Don't reject	Don't reject
South Africa	Reject	Don't reject	Reject	Don't reject	Don't reject
Kenya	Reject	Reject	Don't reject	Don't reject	Don't reject
Bangladesh	Don't reject	Don't reject	Don't reject	Reject	Reject
India	Reject	Don't reject	Don't reject	Don't reject	Don't reject
Pakistan	Reject	Don't reject	Don't reject	Don't reject	Don't reject
Philippines	Don't reject	Reject	Don't reject	Don't reject	Don't reject
Sri Lanka	Don't reject	Reject	Don't reject	Don't reject	Don't reject
Thailand	Don't reject	Reject	Don't reject	Reject	Don't reject
Malaysia	Don't reject	Reject	Don't reject	Don't reject	Don't reject

World Bank Country Classifications

Table 6.26 shows the World Bank Country Classifications for the countries in this study. Based on this classification, the study will analyze whether financial development causes economic growth in early stages of growth and whether this causation is reversed in the later stages of growth.

Table 6.26

World Bank Country Classification⁶

Country	Category
Botswana	UMIC
Egypt	LMIC
Ghana	LIC
Mauritius	UMIC
Morocco	LMIC
Nigeria	LMIC
South Africa	UMIC
Kenya	LIC
Bangladesh	LIC
India	LMIC
Pakistan	LMIC
Philippines	LMIC
Sri Lanka	LMIC
Thailand	LMIC
Malaysia	UMIC

Financial Development causes economic growth in Nigeria, Morocco, South Africa, Kenya, Bangladesh, India, Pakistan, Philippines, Sri Lanka, Thailand and Malaysia. These are all either low or lower middle income countries with the exception of South Africa and Malaysia which are upper middle income countries. Economic growth causes financial development in Botswana, Egypt, Ghana, Mauritius, Morocco, Bangladesh, India, Pakistan, Philippines and Malaysia thus showing bi-directional causality. However, specifically Botswana which is an upper middle income country only shows causality from economic growth to finance which corroborates the view that financial development causes economic growth in early stages of development and the causality is reversed in the later stages of development.

⁶ LIC = Low Income Country, LMIC = Lower Middle Income Country, UMIC = Upper Middle Income Country

6.2.2 Unit Root Tests

This section seeks to determine if the financial development variables have a unit root. The weak form efficiency test presents a non-stationary series I(1). If the financial variables follow an I(1) series, random walk theory implies efficiency in the financial markets. A more specific analysis on the stock market would need to be carried out to determine, if this aspect of the financial market is efficient. Table 6.27 indicates the presence or absence of a unit root:

Table 6.27

Unit Root Tests for Countries

Country	Stktrd	Mktcap	Domcred2	Liqli	Ins
Botswana	Yes	Yes	Yes	Yes	Yes
Egypt	Yes	Yes	Yes	Yes	Yes*
Ghana	Yes*	Yes	Yes	Yes	Yes
Mauritius	Yes**	Yes**	Yes**	Yes**	Yes**
Morocco	Yes	Yes	Yes	Yes	Yes
Nigeria	Yes	Yes	Yes	Yes	No***
South Africa	Yes	Yes#	Yes	Yes	Yes
Kenya	Yes	Yes	Yes	Yes	Yes
Bangladesh	Yes	Yes	Yes	Yes	Yes
India	Yes	Yes	Yes	Yes	Yes
Pakistan	Yes	Yes	Yes	Yes	Yes
Philippines	Yes	Yes	Yes	Yes	Yes
Sri Lanka	Yes	Yes	Yes	Yes	Yes*
Thailand	Yes	Yes	Yes	Yes	Yes
Malaysia	Yes**	Yes**	Yes	Yes**	Yes

Note. *Two out of four tests indicate the presence of a unit root, per Levin, Lin and Chu as well as Im Pesaran and Shin W Statistic. However, the ADF and PP – Fisher and Chi- square tests indicate that there is no unit root. ** Levin, Lin and Chu test does not detect the presence of a unit root. Other tests indicate the presence of a unit root. *** None of the tests find a unit root except for Levin, Lin and Chu. # Only the ADF test does not detect a unit root.

6.2.3 Cointegration Tests

This section tests for cointegration between GDP6L and the financial development variables using Johansen's Cointegration test, which detects the presence of cointegrating vectors at the 0.05 level. Table 6.28 indicates the number of cointegrating vectors for each financial development variable. Cointegration shows that there is predictability between financial development and economic growth in the countries.

Table 6.28

Cointegration Tests

Country	Stktrd	Mkcap	Domcred2	Liqli	Ins
Botswana	1	None	1	None	None
Egypt	None	None	None	1	1
Ghana	2	2	2	1	2
Mauritius	None	None	None	None	None
Morocco	None	None	None	None	2
Nigeria	2	None	None	None	None
South Africa	2	None	None	None	None
Kenya	None	None	None	None	None
Bangladesh	1	2	2	2	1
India	2	None	None	None	None
Pakistan	None	None	None	1	1
Philippines	None	None	1	None	None
Sri Lanka	None	None	None	None	None
Thailand	None	None	None	2	None
Malaysia	None	None	None	1	None

6.3 Efficiency Tests

This section carries out efficiency tests of stock markets in selected developing countries using returns on dividend yields, price earnings, and stock indices. Fama (1970) defined weak form efficiency tests, in which future prices cannot be predicted from historical prices, have been most widely used for emerging markets. In the semi-strong form efficient markets, the prices adjust to public information quickly, which makes it impossible to obtain excess returns by trading based on this information. The strong form efficient markets prices reflect both private and public information so that it is not possible to earn excess returns.

The weak form efficiency tests applied here, the Autocorrelation Function test and the Unit Root test are widely used in the research literature. The Autocorrelation Function test examines efficiency by looking at the level of autocorrelation in a time series, measuring the correlation between current and lagged values. If the autocorrelation coefficient is significant, the returns are predictable and the market is not efficient. If the Box Pierce Q Statistic is significant, the series is not stationary, and we can reject the null of the absence of autocorrelation, so the returns are auto-correlated and the market is efficient. The Q test determines if there is white noise in the series. A white noise process has a zero value mean and no serial correlation. The Unit Root test determines whether or not a series follows a random walk and is not stationary. The presence of a unit root shows a random walk and thus implies efficiency.

This analysis performs Autocorrelation and Unit Root tests using returns on dividend yields and stock indices. The return on dividend yields for the developing countries is calculated as $R_t = \ln P_1 - \ln P_2$.

The Unit Root test shows different results at different lag lengths depending on the data size. Therefore, the Akaike information criterion is used to find the optimal lag length. Gujarati

(2003) indicates that, according to –the rule of thumb, the optimal lag length is about a third of the series, thus the lag of 36 is chosen. It is a joint hypothesis test that all ρ_k up to a certain lag length are simultaneously zero (Gujarati, 2003). Table 6.29 shows market efficiency tests on dividend yields

Table 6.29

Unit Root Tests and Autocorrelation Function (on Dividend Yields)

Country	Q Stat at Lag 36 1st Difference	Q Stat at 36 Level	Unit Root Test Augmented Dickey Fuller Test	Efficiency Implication Unit Root	Efficiency Implication Autocorrelation
Egypt	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*
India	Not significant	Not significant	No unit root	No weak form efficiency	No weak form efficiency
Kenya	Significant	Significant	No unit root	No weak form efficiency	Weak form efficient
Malaysia	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*
Mauritius	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*
Morocco	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*
Nigeria	Significant	Significant	No unit root	No weak form efficiency	Weak form efficient*
Pakistan	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*
South Africa	Not significant	Not significant	No unit root	No weak form efficiency	No weak form efficiency
Singapore	Significant	Significant	No unit root	No weak form efficiency	Weak form efficient
Thailand	Significant	Not significant	No unit root	No weak form efficiency	Weak form efficient*

Note. *Series found to be efficient using the Q statistic at Level and not at the first difference.

Market efficiency tests using returns on stock indices from 1996 -2008 yield the following in Table 6.30:

Table 6.30

Unit Root Tests and Autocorrelation Function (on Stock Market Indices)

Country	Q Statistic Level	Q Statistic First Difference	Unit Root	Efficiency Implication Autocorrelation	Efficiency Implication Random Walk
Kenya	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Ghana	Significant	Significant	Unit root	Weak form efficient	Random walk weak, form efficient
Egypt*	Not significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Malaysia	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Morocco	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
India**	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Nigeria	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Pakistan	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Philippines	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
South Africa	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Singapore	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient
Thailand	Significant	Significant	No unit root	Weak form efficient	No random walk, not weak form efficient

Note. * Based on daily stock index for the Cairo Stock Exchange. ** Based on Mumbai stock index.

6.4 Summary

1. Using panel data methods of SUR generalized least squares (GLS) and generalized method of moments (GMM), this study shows that financial development, as measured by banking and stock market indicators, has a positive and significant relationship with economic growth.

2. Using the same panel data methods, SUR generalized least squares (GLS) and generalized method of moments (GMM), the study also shows that insurance has a positive and significant effect on economic growth.

3. Granger causality tests of all African and Asian countries show causality between economic growth and financial development.

4. Both banking and stock market variables were found to have positive influences on economic growth in Asia and Africa when the continents were assessed separately. Interestingly, the stock market indicator was found to have a significant impact in Asia, while the banking sector variable was not significant in Asia. On the other hand, both the banking and stock market variables were found to be significant in Africa.

5. When dummy variables were assigned to identify African and Asian countries in the GMM estimate, financial variables in the Asian countries were found to have a higher contribution to per-capita GDP growth compared to African countries. This corroborates the argument that Asian countries are at a further advanced stage of development and have superior financial superstructures.

6. Unit Root tests in the panel of all African and Asian countries reveal that all the financial development variables except insurance have unit roots $I(1)$ series. Therefore the series are not stationary.

7. Cointegration tests between the financial development variables and economic growth reveal the presence of one or more cointegrating vectors in all the variables. This suggests the presence of a long run relationship between the financial development variables and economic growth.

8. Individual country Granger Causality tests reveal bi-directional causality between financial development and economic growth in Bangladesh, Botswana, Egypt, Morocco, Malaysia, Pakistan, Philippines, and India. The causality is between at least one or more financial development indicator and economic growth.

9. Individual country cointegration tests between financial development and economic growth revealed the presence of at least one cointegrating vector in most of the countries, namely Botswana, Egypt, Ghana, Morocco, South Africa, India, Bangladesh, Pakistan, Philippines, Thailand, and Malaysia.

10. Unit Root tests for individual country show that in all countries all financial development variables have a unit root; only in Nigeria, the variable insurance does not have a unit root.

11. When dividend yields were used to test for weak form efficiency, the following stock markets were found to be weak form efficient: Egypt, Kenya, Malaysia, Mauritius, Morocco, Nigeria, Pakistan, Singapore, and Thailand.

12. When daily stock prices were used to test for weak form efficiency, the following stock markets were found to be weak form efficient: Egypt, Kenya, Ghana, Malaysia, Morocco, India, Nigeria, Pakistan, Philippines, South Africa, Singapore, and Thailand. Differences in efficiency test results may be attributable to institutional and country specific characteristics.

CHAPTER 7.

CONCLUSION

The recent global financial crisis has demonstrated the need to free up credit markets in order to foster economic activity, and developing countries cannot afford to be left behind. This study investigated the role of financial development in this context and has shown that financial sector development, as measured by the banking industry, stock market, and insurance variables, plays a pivotal role for economic growth in developing countries. In particular, efficient allocation of resources and operation of markets are essential to maintain overall financial stability. Also, there has to be a balance between internal policies and external influence for emerging market economies which are not resilient enough to withstand large shocks from exposure to fluctuations or instability in global markets. The Asian financial crises showed the susceptibility of developing countries to market volatility.

7.1 Conclusion

The study assesses country specific effects by applying time series methods – Generalized Method of Moments and Generalized Least Squares and also by performing granger causality tests and cointegration tests in individual countries. The time series methods resolve the problem of heterogeneity of slope coefficients across countries. Further, this study has shown that the impact of the financial development differs according to the stage of development as noted in other empirical research and that in the Asian countries included here, financial development has an overall higher impact on economic growth than in the African countries included in this study. Also, the study shows that in Botswana, a higher middle income country, causation flows from economic growth to financial development only, while in most low income and lower middle income countries, there is bi-directional causality between financial

development and economic growth. Also, cointegration tests in the individual countries reveal the presence of at least cointegrating vector in most of the countries studied here thus signifying the presence of a long - run relationship between financial development and economic growth in those countries.

Also, the study shows that most of the markets in both Africa and Asia are weak form efficient, namely; Egypt, Kenya, Ghana, Malaysia, Mauritius, Morocco, India, Nigeria, Pakistan, Philippines, South Africa, Singapore and Thailand based on at least one of the weak form efficiency tests – the autocorrelation function and unit root tests on dividend yields and stock prices. However, this was not consistent as only 8 countries were found to be weak form efficient using both dividend yields and stock prices namely; Egypt, Kenya, Malaysia, Morocco, Nigeria, Pakistan, Singapore and Thailand. This fluctuation in efficiency has the implication of limiting technical progress and long run economic growth. As a result, when resources are not allocated efficiently, it reduces the impact of financial development on economic growth. Also, shocks in financial markets in developed countries are likely to negatively impact developing countries' markets, if they are in a fragile state.

The global economy is an interdependent system where emerging markets serve as potential investment outlets for saturated domestic markets. It is essential that financial industries (banking, stock markets, insurance) of developing countries be assisted to improve to ensure the continuity of market outlet availability worldwide and therefore overall stability of the global economy. In addition, this study shows that the insurance industry which plays an important role in mitigating risks also facilitates economic growth. Hence, business efforts in developing countries should be geared towards improving the insurance industries in all its

ramifications. A solid insurance industry, in turn, will support financial security and business transactions and therefore contribute to the overall objective of economic growth.

Since the study finds bi-directional causality between financial development and economic growth as in other empirical studies such as Demetriades and Hussein (1996), economic policies should be geared towards both improving the financial structure and promoting overall economic development.

7.2 Policy Recommendations

This study finds that financial development as represented by the banking sector, stock market, and insurance industry has an impact on economic growth. It also shows that the financial variables in Asian countries have a higher contribution to economic growth compared to African countries. The study further has demonstrated that it is important for financial markets to be efficient in order to be able to contribute to economic growth. These findings clearly show that Africa lags behind Asia and the rest of the world and thus has to take important steps in order to experience sustainable economic growth. Asia as well has to ensure that it maintains an environment that continues to foster economic growth.

The fact remains that Africa is still a relatively young continent; most countries achieved independence only about 50 years ago. Since development implies significant political, social, and economic changes, it requires time, and all developing countries need to go through various phases and steps of development before they can achieve economic stability and growth. In order for this to happen, the political, legal, and economic structures of a country need to be considered as they are all interconnected. The legal structure should facilitate contract enforcement for the development policies proposed and utilized in the Western world need to be adapted to the African context and institutions need to be in place to support these policies to position the continent as an investment magnet that is poised to make significant progress towards growth

and development. In order to stimulate the economy via investments, government policies should also encourage the development of technology and the utilization of the current pool of underemployed skilled labor in this process. This study has also shown that technological change/efficiency as measured by the Productivity variable has a positive and significant impact on economic growth in Africa and Asia. Technology is and has been the driving force of industrialization across the world and over the centuries, and developing countries cannot afford to ignore this fact. For instance, if foreign investors are unable to view market data and reports of developing countries on the internet due to inadequate technology, they are less likely to invest there. Although developing countries are relatively behind industrialized countries in this respect, they still stand a good chance to learn technological methods thereby expanding productivity to sustain their population and reduce poverty levels.

In addition, the environment itself has to be conducive to attaining and retaining economic growth. This implies the presence of incentives from the government of developing countries to foster growth and development which, in turn, will guarantee that the quest for economic growth in developing countries continues. To create such an environment in African and Asian countries, as this study has shown, the following policies should be pursued:

1. Expand the insurance sector to reduce business risk. This research study shows the importance of the insurance industry in facilitating economic growth. Insurance was found to have a positive and significant influence on economic growth in both Africa and Asia. Insurance institutions reduce business risk by indemnifying or making the insured party whole in the event of a loss which is particularly important in developing countries where businesses are exposed to a high level of potential political, legal, socioeconomic, environmental, and social hazards. Examples of such risks include: political instability, which lends itself to the risk of expropriation of assets; lack of basic infrastructure, such as electricity and water supply;

environmental hazards, such as famine, drought, pest infestation, pollution; social problems, including collective ownership and assertion of rights especially for land use and tribalism. The presence of a stable and effective insurance industry would serve to ameliorate these risks and encourage business development.

2. Ensure adequate financial market oversight and regulation to promote efficiency.

This study shows that market efficiency is an important catalyst of economic growth. Lack of market efficiency enables speculative trading and leads to market volatility which has adverse macroeconomic effects. Market efficiency and confidence in the markets, in turn, are furthered by effective financial market oversight and regulation. Although stock markets and banking sectors in Africa and Asia have regulating bodies, the effectiveness of these agencies is in need of improvement. Confidence in the banking sector could be facilitated by monitoring banks and establishing prudent financial policies. In addition, the regulating bodies should monitor companies to ensure compliance with established rules, such as producing public annual reports and audited financial statements.

The legislative branch of governments provides an additional avenue for financial sector oversight and regulation. However, inadequate and inefficient legal infrastructure hinders investment in developing countries, as there is fear of violation of property rights. Developing countries also tend to have informal enterprise systems which lend themselves to loopholes and manipulation and contracts may therefore not be enforced appropriately. In addition, formalized processes and stable political institutions provide a great level of sophistication. By contrast, political instability, unrest, and war reduce the development of financial enterprises which is why investors have often steered away from Africa.

3. *Expand financial markets in Africa.* This study has shown that the contribution of financial development to economic growth is higher in Asian countries than in African countries, showing the need for African countries to expand their financial markets and offer more competitive products to attract investors. In addition, financial markets need to be expanded to support the new wave of industrialization. Inflation rates need to be monitored, and realistic interest rates need to be offered to the banking sector.

These requirements necessitate a re-engineering of the existing financial systems. There is a need for a reliable banking industry and for security markets to support initial public offerings and the buying and selling of stock, futures, forwards-commodities, and options. There is also a demand for expanded insurance markets. African and Asian developing countries should also aim to increase the number of companies in their stock markets to fuel development in these countries which have large populations.

The economies of the developing countries of Asia and Africa are still evolving although still largely influenced by the vagaries of development. Tremendous difficulties beset all developing economies alike including lack of finance, political instability and corruption. African and Asian countries have to understand the complexity of financial markets in order to introduce effective policies. There are indications that infusion of capital from stable economies are beginning to make a difference. This study sought to compare the developing Asian and African economies. Asia has a more robust economy backed by more stable commodity prices and relative stable political environment and macroeconomic policies. However, there is an ongoing consciousness in African countries as well as global institutions such as the World Bank and IMF on the need to implement change based on lessons learned from failed policies. Future studies should thus investigate the long term impact of these proposed policy changes on the African economy.

BIBLIOGRAPHY

- Akerlof, G. & Shiller R. (2009). *Animal Spirits, How Human Psychology Drives the Economy and Why It Matters for Global Capitalism*. Princeton, NJ: Princeton University Press.
- Arestis, P., & Demetriades, P. (1997). *Financial development and economic growth: Assessing the evidence*. *The Economic Journal*, 107(442), 783-799.
- Arestis, P., Demetriades, P., & Luintel, K. (2001). *Financial development and economic growth: The role of stock markets*. *Journal of Money, Credit and Banking*, 33(1), 16-41.
- Atje, R., & Jovanovic, B. (1993). *Stock markets and development*. *European Economic Review*, 37(2-3), 632-640.
- Arellano, M., & Bond, S. (1991). *Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations*. *Review of Economic Studies*, 58(2), 277-97.
- Baro R., & Sala-i-Martin, X. *Economic growth*. Cambridge, MA: MIT Press.
- Beck, T., & Levine, R. (2004). *Stock markets, banks and growth: Panel evidence*. *Journal of Banking and Finance*, 28(3), 423-442.
- Bencivenga & Smith (1991). *Financial Intermediation and Endogenous Growth*. *Review of Economic Studies*, 58(2), pp. 195-209.
- Calderon, C., & Lin, L. (2002). *The direction of causality between financial development and economic growth* (Working Paper No. 184). Santiago, Chile: Central Bank of Chile.
- Yanagihara, T. (1998, August). *Asia and Africa into the global economy*. Paper presented at the UNU-AERC Conference on Asia and Africa in the Global Economy of United Nations University, Tokyo.
- Demetriades, P., & Andrianova, S. (2003). *What we know and what we need to know* (Discussion Paper in Economics 315). Department of Economics, University of Leicester.
- Demetriades, P., & Hussein, K. (1995). *Does financial development cause economic growth? Time-series evidence from 16 countries*. *Journal of Development Economics*, 51(2), 387-411.

- Demirguc-Kunt, A., & Detragiache, E. (1999). *Financial liberalization and financial fragility*. (World Bank Policy Research Working Paper No. 1917). Washington, DC: World Bank.
- Demirguc-Kunt, A. & Levine, R. (1996). *Financial structure and economic growth*. Cambridge, MA: MIT Press.
- Diamond, D., & Dybvig, P. (1983). *Bank runs, deposit insurance, and liquidity*. Journal of Political Economy, 91(3), 401-19. Reprinted (2000). Federal Reserve Bank Minnesota Quarterly Review, 24(1), 14-23.
- Elbadawi, I. (1996). *Consolidating Macroeconomic Stabilization and Restoring Growth in Africa*. Agenda for Africa's Economic Renewal. New Brunswick, NJ: Transaction Publishers.
- Easterly, W. (2002). *The elusive quest for growth: Economists' adventures and misadventures*. Cambridge, MA: MIT Press.
- Easterly, W. (2006). *The White Man's Burden: Why the West's effort to aid the rest have done so much ill and so little good*. New York, NY: The Penguin Press.
- Evans, P. (1995). *How to Estimate Growth Equations Consistently*. Mimeo, Ohio State University; presented at the 7th World Congress of the Econometric Society.
- Favara, G. (2003). *An empirical reassessment of the relationship between finance and growth* (IMF Working Paper WP/03/123). Washington, DC: International Monetary Fund.
- Fama, E. (1970). *Efficient capital markets: A review of theory and empirical work*. The Journal of Finance, 25(2), 383-417.
- Federer, J. (1993). *The Impact of Uncertainty on Aggregate Investment Spending*. Journal of Money, Credit and Banking 25 pp. 30 -45.
- Greene, W. (2006). *Econometric analysis* (Fifth edition). New York, NY: New York University.
- Greenwood, J., & Jovanovic, B. (1991). *Financial development, growth and the distribution of income*. Journal of Political Economy, 98, 1076-1107.
- Goldsmith, R. (1969). *Financial structure and development*. New Haven, CT: Yale University Press.
- Goodhart, C. (Ed.). (2004). *Financial development and economic growth*. New York, NY: Palgrave Macmillan.
- Gujarati. (2003). *Basic Econometrics*. New York, NY: John Wiley.

- Hassan K, & Sultan W. (2003). *Stock Market Efficiency in the Gulf Cooperation Council Countries (GCC): The Case of Kuwait*. Scientific Journal of Administrative Development. Vol.1. No. 1. IAD.
- International Monetary Fund. (2007). *IMF Global Financial Stability Report. Financial Market Turbulence, Causes and Consequences*.
- Islam A. & Khaled M. (2005). *Tests of Weak Form Efficiency of the Dhaka Stock Exchange*. Journal of Business, Finance and Accounting. 32(7) & 8.
- Jeffrey, R. (2003). *Global Financial Markets and the US Response. Remarks to the British American Business Council*. <http://2001-2009.state.gov/e/rm/2008/105006.htm>
- Keynes, J. (1936). *The General Theory of Employment, Interest and Money*. New York: Macmillan.
- King, R., & Levine, R. (1993a), *Financial Intermediation and Economic Development*. In *Financial Intermediation in the Construction of Europe*. Edited by Colin Mayer and Xavier Vives. London Center for Economic Policy Research, pp. 717 -37.
- King, R., & Levine, R. (1993b). *Finance and growth: Schumpeter might be right*. The Quarterly Journal of Economics, 108(3), 717-737.
- Knight, F. (1951). *Economic Organization*. New York, NY: Harper and Row.
- Krugman, P. (1999). *The Return of Depression Economics*. New York, NY: W.W. Norton & Company Inc.
- La Porta, R., Lopez-de-Silanes F., Shleifer, A., & Vishny, R. (1997). *Legal determinants of external finance*, Journal of Finance 52(2), 1131-1150 in: R. Roll, & M. Brennan (Eds.). (2000). *Empirical corporate finance: The international library of critical writings in financial economics*.
- La Porta R., Lopez de Silanes, F, Shleifer, A. & Vishny, R (1998). *Law and Finance*. Journal of Political Economy, Vol. 106, No. 6.
- La Porta R., Lopez de Silanes, F, Shleifer, A. & Vishny, R (2000). *Investor Protection and Corporate Governance*. Journal of Financial Economics, 58, pp 3-27.
- Lensik, R., & Hermes, N. (1996). *Financial development and economic growth: Theory and experiences from developing countries*. London, UK: Routledge.

- Levine, R. (1997). *Financial development and economic growth: Views and agenda*. Journal of Economic Literature 35(2), 688-726.
- Levine, R. (1991). *Stock Markets, Growth and Tax Policy*. Journal of Finance, 46, September 1991, p. 1445-65.
- Levine, R., Loayza N., & Beck, T. (2000). *Financial intermediation and growth: Causality and causes*. Journal of Monetary Economics 46, 31-77.
- Levine, R., & Zervos, S. (1993). *What have we learned about policy and growth from cross-country regressions?* The American Economic Review 83(2), 426-430.
- Levine, R., & Zervos, S. (1998). *Stock markets, banks and economic growth*. The American Economic Review 88(3), 537-558.
- Levine, R (2004) *Finance and Growth: Theory and Evidence*, Retrieved from http://www.econ.brown.edu/fac/Ross_Levine/Publication/Forthcoming/Forth_Book_Durlauf_FinNGrowth.pdf March 2011
- Lucas, R. (1988). *On the mechanics of economic development*. Journal of Monetary Economics, 22, 3-42.
- Mankiw, G. (2007). *Macroeconomics*. New York, NY: Worth Publishers.
- Mayer, C., & Vives, X. (1993). *Capital markets and financial intermediation*. Cambridge, UK: Cambridge University Press.
- McKinnon, R. (1973). *Money and Capital in Economic Development*. Washington, DC: Brookings Institute.
- McKinnon, R. (1991). *The order of Economic Liberalization*. Journal of Development Economics, Elsevier, Vol. 42 (1), pp. 205 -208.
- Nanto, D. (1998). CRS report for congress: *The 1997-98 Asian financial crisis*. Retrieved from <http://www.fas.org/man/crs/crs-asia2.htm> Feb 2011
- Nellor, D. (2008). *The rise of Africa's -frontier markets*. Finance and Development 45(3). Retrieved from <http://www.imf.org/external/pubs/ft/fandd/2008/09/nellor.htm> (08.10)
- Odedokun, M. (1996). *Alternative econometric approaches for analyzing the role of the financial sector in economic growth: Time-series evidence from LDCs*. Journal of Development Economics 50(1), 119-46.
- OECD Manual (2001). *Measuring Productivity*. Retrieved from <http://www.SourceOECD.org> (Jan 2011)

- Patrick, H. T. (1966). *Financial development and economic growth in underdeveloped countries*. *Economic Development and Cultural Change* 14(2), 174-187.
- Prescott E., & Boyd J. (1987). *Dynamic coalitions: Engines of growth*: *American Economic Review* 77(2), 63-67. Reprinted in: E. C. Prescott, & N. Wallace (Eds.). (1987). *Contractual arrangements for intertemporal trade* (pp. 146-160). Minneapolis, MN: University of Minnesota Press: Minneapolis.
- Rebelo, S. (1991). *Long run policy analysis and long run growth*. *Journal of Political Economy*, 99(3), 500-521.
- Robinson, J. (1952). The generalization of the general theory. In J. Robinson (Ed.), *The rate of interest and other essays* (pp. 67-146). London, UK: Macmillan.
- Romer, P. (1990). *Endogenous technological change*. *The Journal of Political Economy*, 98(5), S71-S102.
- Schumpeter, J.A. (1911). *The Theory of Economic Development*. Cambridge, MA: Harvard University Press.
- Shaw, E. (1973). *Financial deepening in economic development*. London, UK: Oxford University Press.
- Singh, A. (1997). *Financial liberalization, stock markets and economic development*. *The Economic Journal*, 107(442), 771-782.
- Smith, A. (1776). *An Inquiry into the Nature and Causes of the Wealth of Nations*. London: Ward, Lock, Bowen & Co.
- Solow, R. (1956). *A Contribution to the Theory of Economic Growth*, *Quarterly Journal of Economics*. 70(1), pp. 65 - 94.
- Soros, G. (2008). *The New Paradigm for Financial Markets. The Credit Crisis of 2008 and what it means*. New York, NY: Public Affairs.
- Stiglitz, J.. (1999). Lessons from East Asia, *Journal of Policy Modeling*, 21(3), Winter 1999, pp. 35-38.
- Stiglitz, J. (2000). Lessons from the Global Financial Crisis, in *Global Financial Crises: Lessons from Recent Events*, Joseph R. Bisignano, William C. Hunter, George G. Kaufman. Boston, Kluwer Academic Publishers, 2000, pp. 89-109.

Trew, A. W. (2006). *Finance and growth: A critical survey*. Economic Record 82(259), 481-490.

U.K. Department for International Development, Financial Sector Team, Policy Division. (2004). *The Importance of Financial Sector Development for Growth and Poverty Reduction*. (Policy Division Working Paper PD 030). Retrieved from <http://www.dfid.gov.uk> (Jan 2011)

U.S. Department of State. <http://www.state.gov/r/pa/ei/bgn/2860.htm> (Des 2010)

Villanueva D., & Mirakhor, A. (1990). *Strategies for financial reform* (IMF Staff Paper Vol. 37 No. 3). Washington, DC: International Monetary Fund.

World Bank. (2005).Kritzinger L. – Regional Integration – Concepts, Advantages, Disadvantages and Lessons.

World Bank Global Monitoring Report. (2006). *Millennium Development Goals; Strengthening Mutual Accountability, Aid, Trade and Governance*. DOI: 10.1596/978-0-8213-6477-2
The World Bank

Yartey, C. A., & Adjasi, C. K. (2007). *Stock market development in Sub-Saharan Africa: Critical issues and challenges* (IMF Working Paper No. 07/209). Washington, DC: International Monetary Fund.

Zingales, L. (2003). *The great reversals: The politics of financial development in the twentieth century*. Journal of Financial Economics, 69(1), 5-50.