

8-2012

The Impact of Financial and Trade Openness on Economic Growth and Stock Returns: The Case of Africa

Tibebe Abebe Assefa
University of Texas-Pan American

Follow this and additional works at: https://scholarworks.utrgv.edu/leg_etd



Part of the [Finance and Financial Management Commons](#)

Recommended Citation

Assefa, Tibebe Abebe, "The Impact of Financial and Trade Openness on Economic Growth and Stock Returns: The Case of Africa" (2012). *Theses and Dissertations - UTB/UTPA*. 549.
https://scholarworks.utrgv.edu/leg_etd/549

This Dissertation is brought to you for free and open access by ScholarWorks @ UTRGV. It has been accepted for inclusion in Theses and Dissertations - UTB/UTPA by an authorized administrator of ScholarWorks @ UTRGV. For more information, please contact justin.white@utrgv.edu, william.flores01@utrgv.edu.

THE IMPACT OF FINANCIAL AND TRADE OPENNESS ON ECONOMIC GROWTH AND
STOCK RETURNS: THE CASE OF AFRICA

A Dissertation
by
TIBEBE ABEBE ASSEFA

Submitted to the Graduate School of
The University of Texas-Pan American
In partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2012

Major Subject: Business Administration -Finance

THE IMPACT OF FINANCIAL AND TRADE OPENNESS ON ECONOMIC GROWTH AND
STOCK RETURNS: THE CASE OF AFRICA

A Dissertation
by
TIBEBE ABEBE ASSEFA

COMMITTEE MEMBERS

Dr. Andre V. Mollick
Chair of Committee

Dr. Michael A. Abebe
Committee Member

Dr. Damian S. Damianov
Committee Member

Dr. Diego Escobari
Committee Member

August 2012

Copyright 2012 Tibebe Abebe Assefa

All Rights Reserved

ABSTRACT

Assefa, Tibebe Abebe, The Impact of Financial and Trade Openness on Economic Growth and Stock Returns: The Case of Africa. Doctor of Philosophy (PhD), August, 2012, 102 pp., 30 tables, 9 illustrations, references, 104 titles.

The debate on whether financial development and stock market help growth is ongoing. In the context of Africa where there exists a strong need and potential for growth, it is important to revisit the topic in order to address the problem of economic underdevelopment. In this dissertation, we focus on seventeen African countries with two main objectives: First, to investigate the relationship between financial and trade openness, and economic growth. Second, we investigate the association of African real stock index returns with financial and trade openness. For all analysis, we use Fixed Effect Models (FEM) and System Generalized Method of Moments (SGMM). The fixed effect model results indicate a significant positive relationship between economic growth and stock market capitalization. We also find a significant relationship between economic growth and financial and trade openness, though weak. On the other hand, system GMM results indicate the financial openness measure GEQY is consistently positive and significantly associated with economic growth.

The stock returns and financial and trade openness analysis fixed effect model results indicate there is a significant positive relationship between stock market returns and real GDP growth. System GMM results are different from the fixed effect model. Importantly, in the

system GMM model there is some evidence, although not strong, that real stock returns is negatively related to trade and financial openness. Trade openness measure (*XM Open*) and financial openness measure (*GEQY*) are negatively and significantly related to stock returns. Similar to the fixed effect models, real GDP growth is largely positively related with stock market returns, supporting the direct relation between stock return and economic growth.

In almost all specifications, the financial openness measure *GEQY* is positively associated with economic growth and negatively related with stock returns, indicating the importance of the financial openness measure *GEQY* (Portfolio of stocks and FDI) for African economic growth. An important implication of this dissertation is that policy makers of these African countries could stimulate economic growth and decrease cost of capital by opening their equity markets to international investors and encouraging Foreign Direct Investment (FDI).

DEDICATION

To my beloved wife, Mimi, and our boys, Rafi and Aman

ACKNOWLEDGMENTS

I will always be grateful to Dr. Andre V. Mollick, chair of my dissertation committee, for all his mentoring and advice. From the beginning, research design, data processing, and to manuscript editing, he encouraged me to complete this process through his infinite patience and guidance. My thanks go to my dissertation committee members: Dr. Michael A. Abebe, Dr. Damian S. Damianov, and Dr. Diego Escobari. Their advice, input, and comments on my dissertation helped to ensure the quality of my intellectual work.

I would like to thank my uncle, Dr. Zewdineh Assefa, for his support and encouragement to pursue advanced degrees. I would also like to thank Cristina Perdomo and Richard Salinas who helped me by reading and editing the manuscript.

TABLE OF CONTENTS

	Page
ABSTRACT.....	iii
DEDICATION.....	v
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	ix
LIST OF FIGURES.....	ix
CHAPTER I. INTRODUCTION.....	1
CHAPTER II. LITERATURE REVIEW.....	8
CHAPTER III. DATA	16
CHAPTER IV. AFRICAN STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH.....	24
4.1 Current Research	24
4.2 Research Questions.....	26
4.3 Methodology.....	29
4.4 Fixed Effect Models Result.....	31
4.5 System GMM Models Result.....	34
4.6 Conclusion.....	36

CHAPTER V. AFRICAN STOCK MARKET RETURN AND FINANCIAL AND TRADE	
OPENNESS.....	38
5.1 Current Research	38
5.2 Research Questions.....	39
5.3 Methodology.....	42
5.4 Fixed Effect Models Result.....	44
5.5 System GMM Models Result.....	45
5.6 Conclusion.....	47
CHAPTER VI. DISCUSSION AND CONCLUSION.....	50
REFERENCES.....	56
BIOGRAPHICAL SKETCH.....	102

LIST OF TABLES

	Page
Table 1: Descriptive statistics	64
Table 2A: Correlations Economic Growth model variables	65
Table 2B: Correlations Stock Return variables	66
Table 3: Fixed Effect real GDP growth dependent variable: Investment model- all countries	67
Table 4: Fixed Effect real GDP growth dependent variable: Investment model- excluding South Africa	68
Table 5: Fixed Effect real GDP growth dependent variable: Primary enrollment and beta model – all countries	69
Table 6: Fixed Effect real GDP growth dependent variable: Primary enrollment and beta model –excluding South Africa	70
Table 7: Fixed Effect real GDP growth dependent variable: Primary enrollment SD model – all countries	71
Table 8: Fixed Effect real GDP growth dependent variable: Primary enrollment SD model – excluding South Africa	72
Table 9: System GMM real GDP growth dependent variable: Primary enrollment and beta Model all countries	73
Table 10: System GMM real GDP growth dependent variable: Primary enrollment and beta	

model – excluding South Africa	74
Table 11: System GMM real GDP growth dependent variable: Investment and beta model – all countries	75
Table 12: System GMM real GDP growth dependent variable: Investment and beta model – excluding South Africa	76
Table 13: System GMM real GDP growth dependent variable: Primary enrollment and SD model – all countries	77
Table 14: System GMM Model real GDP growth dependent variable: Primary enrollment and SD model- excluding South Africa	78
Table 15: Fixed Effect Model: Stock returns dependent variable Beta - size model: Size all countries	79
Table 16: Fixed Effect Model: Stock returns dependent variable Beta-turnover model: Turnover all countries	80
Table 17: Fixed Effect Model: Stock return dependent variable Beta-size model: Size excluding South Africa	81
Table 18: Fixed Effect Model: Stock return dependent variable Beta - turnover model: excluding South Africa	82
Table 19: Fixed Effect Model: Stock returns dependent variable SD model: Size all countries	83
Table 20: Fixed Effect Model: Stock return dependent variable SD model: Turnover all countries	84
Table 21: Fixed Effect Model: Stock returns dependent variable SD model: Size excluding	

South Africa	85
Table 22: Fixed Effect Model: Stock returns dependent variable SD model: Turnover excluding South Africa	86
Table 23: System GMM Model: Stock return dependent variable: Beta and Size all countries	87
Table 24: System GMM Model: Stock return dependent variable: Beta and Turnover all country	88
Table 25: System GMM Model: Stock return dependent variable: Beta and Size excluding South Africa	89
Table 26: System GMM Model: Stock return dependent variable: Beta and Turnover excluding South Africa	90
Table 27 System GMM Model: Stock return dependent variable: Standard deviation and Size all country	91
Table 28: System GMM Model: Stock return dependent variable: Standard deviation and Turnover all country	92
Table 29: System GMM Model: Stock return dependent variable: Standard deviation and Size excluding South Africa	93
Table 30: System GMM Model: Stock return dependent variable: Standard deviation and Turnover excluding South Africa	94

LIST OF FIGURES

	Page
Figure 1: Market Capitalization of listed companies as a percentage of GDP	95
Figure 2: Capital account openness measure by country	96
Figure 3: GEQY financial openness measure by country	96
Figure 4: Trade openness measure by country	97
Figure 5: IFI financial openness measure by country	97
Figure 6: Real GDP growth with and without Zimbabwe	98
Figure 7: Real stock returns with and without Zimbabwe	99
Figure 8: Beta with and without Zimbabwe	100
Figure 9: SD with and without Zimbabwe	101

CHAPTER I

INTRODUCTION

The relationship between financial openness and economic growth has been extensively debated in the economics literature. A number of arguments have been put forth as to why developments in the banking system play an important role for economic growth. Schumpeter (1912), for instance, explains how banks actively stimulate economic growth by identifying profitable investments. Similarly, other studies [e.g. Levine (1997); Levine and Zervos (1998); Levine, Loayza and Beck (2000); and Beck and Levine (2004)] provide evidence consistent with the view that financial and stock markets are important engines of economic growth. On the other hand, Krugman (1993) argues that international financial integration is unlikely to be a major engine of economic development. Krugman drew such conclusions after noting that capital is relatively unimportant for economic development and large flows of capital from rich to poor countries have never occurred. Similarly, Lucas (1988) states economists “badly over stress” the role of financial systems, and Robinson (1952) argues banks respond passively to economic growth.

Several studies have been conducted on economic growth and financial openness in emerging markets. For example, Demirguc-Kent and Levine (1996) compares liquidity, concentration, volatility, institutional development, and international integration across forty-four industrial and developing countries from 1976 to 1993. They suggest countries benefit from easy access to well-functioning stock markets where residents and domestic firms can buy, sell

and issue securities. Bekaert and Harvey (2001) also analyze real economic growth and financial openness in emerging markets, and find average real economic growth increases between 1 percent and 2 percent per annum after increasing financial openness. Their results are robust across a number of different economic specifications. Other studies, such as Yartey and Adjasi (2007) and Enisan and Olufisayo (2009) show the positive relationship between economic growth and financial market development. On the other hand, Singh (1997) investigates the link between stock market development and financial openness in developing countries in the 1980's and 1990's and concludes stock market developments are unlikely to help in achieving quicker industrialization and faster long term growth in most developing countries¹.

The debate on whether financial development and stock market help growth is ongoing; more importantly, in the context of Africa where there exists strong need and potential for growth, it is important to revisit the topic in order to address the problem of economic underdevelopment. In addition, there are very limited empirical studies on Africa's economic growth and financial market development. Furthermore, due to the convergence hypothesis, these emerging markets are expected to grow faster than the developed markets [e.g. Barro (1991), Barro and Sala-i-Martin (1991, 1992), Baumol (1986), Mankiw, Romer and Weil (1992)]. For example, the Ghana Stock Exchange was considered as the world's best performing market at the end of 2004's first quarter, with a year return of 144 percent in US dollar terms, compared to 30 percent return by Morgan Stanley Capital Global Index, 26 percent return by Standard & Poor's in the USA and 32 percent return in Europe according to Databank Group (2004). In addition, the total value of stocks traded (in current US dollars) of the African stock

¹Singh (1999) states: "For the typical African economy, even if no harm is done to the real economy, a stock market will be at best a costly irrelevance, in the sense that it would only benefit a small number of urban corporations, if any one at all" (p. 361).

markets on average has increased over 1,700 percentage from 1995 to 2010². The market capitalization of listed companies as a percentage of GDP has also increased dramatically since 2001 (see Figure 1). Recently, documented evidence further indicates flourishing African capital markets. For instance, Allen et al. (2011) provides facts about the investment potential of African stock markets by pointing at the historical records. Despite the challenges associated with liquidity, African stock markets performed remarkably well, both in terms of absolute returns and on a risk adjusted basis. According to Allen et al. (2011) the average annual return for these markets over the past 10 years was 25 percent. With the exception of 2008, the performance of these markets has been increasing significantly, with the returns on the markets in Egypt and Malawi exceeding 100 percent at times. When converted into dollar terms, the results remain impressive: an average annual return of 21.8 percent. Despite Africa's impressive returns, Senbet and Otchere (2005) indicate Africa is under represented, not only in the global portfolio, but also in the emerging market portfolios, indicating the tremendous potential for further financial openness to attract capital flows to this region.

The link among output growth, stock return and stock volatility has been examined by several researchers. For instance, Schwert (1989b) investigated stock market volatility using historical data. His major finding is volatility moves counter cyclically, exhibiting spikes during recessions. Also, stock market volatility tends to increase dramatically during financial crisis and periods of uncertainty. Moreover, volatility, once raised, shows some inertia in that it reverts only slowly to its previous low level. Some authors propose high stock market volatility might reduce future economic activity. Schwert (1989a) argues that stock market volatility, by reflecting uncertainty about the future cash flows and discount rates, provides important information about future economic activity. Campbell et al. (2001) suggests stock market

²Data Source: World Bank percentage change calculated by the author.

volatility is related to structural changes in the economy. Structural change consumes resources, which depresses gross domestic product (GDP) growth. Another link between stock market volatility and output rests on a cost of capital channel. An increase in stock market volatility raises the compensation shareholders demand for bearing systematic risk. Higher expected return leads to the higher cost of equity capital, which reduces investment and capital. Campbell et al. (2001) and Guo (2002) show that stock market volatility has significant predictive power for real GDP growth, consistent with the hypothesis of high volatility reducing investment and output.

Despite some previous emphasis on the predictability of African stock markets, with specific countries and in short time periods [e.g. Olowe (1999), Magnusson and Wydick (2002), Appiah-Kusi and Menyah (2003), Hassen et al. (2003), and Jefferis and Thupayagale (2008)], there is still a lack of systematic empirical work on the volatility of African stock market indices with financial and trade openness. In general, the African stock market and economic growth are under-studied. First, previous studies mainly focus on a limited number of countries, making it difficult to generalize conclusions for other African countries. Second, the existing literature has a limited study period, making investigating long term relations between economic variables and financial development extremely difficult. Third, to the best of our knowledge, none of the previous studies address endogeneity of variables in the study, such as the stock market capitalization and GDP growth that are simultaneously determined. Fourth, there is no consensus on the relation between stock market development and economic growth.

Aryeetey et al. (1997) suggest the key for a well-functioning economy is the survival of well-functioning markets paying a vital role in efficiently allocating the scarce resources of Africa, so that capital stock is fully utilized. In addition, there is a growing support for a strong relationship between the functioning of financial systems and economic growth.

There is a substantial gap in the literature for African markets. In this dissertation we attempt to fill this gap by empirically analyzing economic growth and financial market development in Africa. Using a comprehensive set of African countries that have stock market exchanges as well as a much broader study period, this dissertation seeks to provide broad findings for all African markets under consideration. In addition, in this dissertation we will address endogeneity of variables that are determined simultaneously, including stock market capitalization and economic growth, stock market volatility and turnover, and stock market returns and GDP growth.

In this dissertation we focus on seventeen African countries—Botswana, Cote d’Ivoire, Egypt, Ghana, Kenya, Malawi, Mauritius, Morocco, Namibia, Nigeria, South Africa, Swaziland, Tanzania, Tunisia, Uganda, Zambia and Zimbabwe—with active stock markets. The methodologies used are Fixed Effect Model (FEM) and System Generalized Method of Moments (SGMM) proposed by Blundell and Bond (1998).

This dissertation has two main objectives. First, to investigate the relationship between trade and financial openness and economic growth (i.e., real Gross Domestic Product growth), controlling for inflation, interest rates, stock market capitalization, human capital and stock market volatility. Different types of financial openness measures are employed, such as the international financial integration measures IFI, GEQY of Lane and Milesi-Ferretti (2007) and capital account openness measure of Chinn and Ito (2008). Second, we investigate the association of (real) African stock index returns with financial and trade openness, controlling for real GDP growth, MSCI world index stock return, discount rate and country level stock return volatility (beta). For all models, we address endogeneity of certain economic and financial forces happening simultaneously in the models.

We investigate economic growth and financial and trade openness using fixed effect and system GMM models. The fixed effect model results indicate a positive relationship between economic growth and stock market capitalization is largely significant. We also find a significant relationship between economic growth and financial and trade openness, although weak. On the other hand, system GMM results indicate the financial openness measure *GEQY* is consistently positive and significantly associated with economic growth. The key result of this dissertation is the positive relationship between financial openness and economic growth. In particular, the financial openness channel affecting growth is portfolio equity and FDI stocks (i.e., *GEQY*).

Furthermore, we investigate how stock returns behave with financial and trade openness and economic growth using fixed effect and system GMM models. The fixed effect model results indicate a positive and significant relationship between stock market returns and real GDP growth. On the other hand, system GMM results are different from the fixed effect model in that, in the system GMM model there is some evidence, although not strong, that real stock return is negatively related to trade and financial openness. Trade openness measure *XM Open* and financial openness measure *GEQY* are negatively and significantly related to stock returns. Similar to the fixed effect models, real GDP growth is largely positively related with stock market returns, supporting the direct relation between stock return and economic growth.

In almost all specifications, the financial openness measure *GEQY* is positively associated with economic growth, indicating the importance of the financial openness measure *GEQY* (portfolio of stocks and FDI) for African economic growth. As a country opens, its financial economic growth also increases through the channel of portfolio of stocks and FDI. Furthermore, in the stock return analysis, we find a significant negative relationship between stock returns and financial openness measure *GEQY*. Financial openness decreases stock returns

due to reduced risk after liberalization and a decline in the cost of capital. This result is similar with the findings of Henry (2000), Edison and Warnock (2003), Bekaert and Harvey (2003), and Henry (2007).

This dissertation is organized as follows: Chapter two covers the literature reviews; Chapter three describes the data; and Chapter four presents the research question, methodology and findings of African stock market development and economic growth. Finally, Chapter five presents the research questions, methodology and findings of African stock market returns, and financial and trade openness.

CHAPTER II

LITERATURE REVIEW

Several works have addressed the issue of financial development and economic growth in developed countries. Barro (1991), for example, investigated the source of growth rate of real per capita GDP for 98 countries during the period of 1960 to 1985. His findings led to four notable following observations. First, given the level of initial per capital GDP, the growth rate has a strong positive relationship to the starting amounts of human capital (proxied by school-enrollment rate). In addition, poor countries tend to catch up with rich countries if poor countries have high human capital per person (in relation to their level of per capita GDP), but not otherwise. The data support the convergence hypothesis of the neoclassical growth model. Second, per capita growth and ratio of private investment to GDP are negatively related to the ratio of government consumption expenditure to GDP. Third, political instability (proxied by figures on revolutions and political assassinations) are inversely related to growth and investment. Fourth, a proxy for price distortions (based on purchasing power parity numbers for investment deflators) is negatively related to growth. Finally, the results did not explain the relative weak growth performance of countries in sub-Saharan Africa and Latin America.

Similarly, Levine and Zervos (1998) empirically investigate whether measures of stock market liquidity, size, volatility, and integration with world capital markets are robustly associated with current and future rates of economic growth, capital accumulation, productivity

improvements, and saving rates using data for 47 countries from 1976 to 1993. They find stock market liquidity—as measured both by the value of stock trading relative to the size of the market and by the value of trading relative to the size of the economy— positively and significantly correlates with current and future rates of economic growth, capital accumulation, and productivity growth. Furthermore, they find stock market liquidity is a robust predictor of real per capita gross domestic product growth, physical capital growth, and productivity growth after controlling for initial income, initial investment in education, political stability, fiscal policy, openness to trade, macroeconomic stability, and the forward looking nature of stock prices.

About the quantitative importance of the financial system in economic growth, Levine (1997) uses existing theory to organize an analytical framework of the finance-growth nexus. He concludes the development of financial markets and institutions is a crucial and inseparable part of the growth process, away from the view that the financial system is an inconsequential “side show,” thus responding passively to economic growth and industrialization. Furthermore, the author describes the existence of ample evidence that the level of financial development is a good predictor of future rates of economic growth, capital accumulation, and technological changes. Moreover, Levine et al. (2000) examine the effect of financial intermediary development on economic growth. They use both panel and cross-sectional instrumental variable estimators. Their results from the two methods tell the same story: the exogenous component of financial intermediary development is positively associated with economic growth. Specifically, the large positive link between financial intermediary development and economic growth is not due to potential biases induced by omitted variables, simultaneity or reverse causation. As Beck et al. (2000), explain the finance growth nexus runs primarily through total factor productivity growth and not through savings and physical capital accumulation. Levine (2001), in his

subsequent work, also asserts the importance of international financial integration to promote economic growth, and gathers existing theory and evidence to assess whether, by improving the operation of domestic financial markets and banks, international financial liberalization accelerates economic growth. The basic conclusions in Levine (2001) are twofold. First, liberalizations on international portfolio flows tend to enhance stock market liquidity with improvements in stock market liquidity, in turn accelerating economic growth primarily by boosting productivity growth. Second, allowing greater foreign bank presence tends to enhance the efficiency of the domestic banking system. Since better banks prompt economic growth, primarily by accelerating productivity growth, international financial integration can promote economic development by encouraging improvements in the domestic financial systems, with positive ramifications for long-run productivity growth. Following these researches, in this dissertation we investigate in the context of Africa whether financial development helps economic growth.

In examine the relationship between stock market development and economic growth; Arestis et al. (2001) utilize time series methods and a sample from five developed countries. They employed quarterly data on output and indicators of banking system development, stock market development and stock market volatility for the period from 1972 to 1998. Their results show, that, although both banks and stock markets promote economic growth, the effects of the former are more powerful, after controlling for the effects of the banking system and stock market volatility. They also suggest the contribution of stock markets on economic growth may have been exaggerated by studies utilizing cross-country growth regressions.

Some studies have found a positive association of stock market development with economic growth in the African context; however, the empirical evidence is not strong enough to

support the link. For instance, Yartey and Adjasi (2007) examine the importance and development of stock markets in Africa. Their analysis of an unbalanced panel data from 14 African countries, using Generalized Method of Moments (GMM), indicates stock markets have indeed contributed to the financing and growth of large corporations in certain African countries. However, they did not find conclusive empirical evidence on the impact of stock markets on economic growth in these African countries. This is contrary to some evidence suggesting stock market value traded is positively and significantly associated with growth; however, their study does not control for endogeneity of variables that are determined simultaneously.

Similarly, Enisan and Olufisayo (2009) examine the long run and causal relationship between stock market and economic growth for seven countries in sub-Saharan Africa for the period of 1980 to 2004. Using Auto Regressive Distributed Lag (ARDL) bounds test and the Granger causality test, their results indicate the long-run co-integration relationship between the series detected only two countries, Egypt and South Africa. Moreover, their analysis of these countries suggests stock market development has a significant positive long run impact on economic growth. The Granger causality tests based on the Vector Error Correction Model (VECM) further show that the stock market development Granger causes economic growth in Egypt and South Africa. However, Granger causality in the context of Vector Autoregression (VAR), they found evidence of a bidirectional relationship between stock market development and economic growth for Cote D'Ivoire, Kenya, Morocco and Zimbabwe. In Nigeria, the authors found weak evidence of growth-led finance, using market size as an indicator of stock market development. Only seven countries were considered in their study. In this dissertation we will consider a comprehensive seventeen African countries that have stock market exchange.

Moreover, the long run causal link between the level of financial development and economic growth in 13 sub-Saharan African countries empirically examine by Ghirmay (2004). The frequency of the data is annual and the time span ranges from 1965 to 2000. Using VAR models, his results indicate, for most countries, financial development and economic growth are co-integrated over the sample period. Furthermore, the VECMs yield evidence of financial development causing economic growth in eight countries, economic growth causing financial development in nine countries, and bidirectional causal relationships in six countries.

In addition, Adjasi and Biekpe (2006) study the effect of stock market development on economic growth in 14 African countries in a dynamic panel data model setting, using unbalanced data from 1975 to 2001. Their key results show a positive relationship between stock market development and economic growth. They also performed subsample analysis based on the level of economic development/income and stock market capitalization. The results for the income grouping indicate none of the stock market indicators are significant in influencing economic growth in low income and low-middle income countries. However, for upper middle income countries, the stock market indicators become significant in affecting economic growth. With results based on market size, stock markets significantly affect growth only in the case of moderately capitalized markets. Their study does not reflect the current scenarios of the African Market, where there is stock market capitalization growth of 4000% since 2001³.

On the contrary, Singh (1999) considers the pros and cons of establishing stock markets in sub-Saharan African countries at their current stage of development. He offers theoretical and empirical evidence from both developed and developing countries perspectives. The author argues that for many African countries, stock market development would be expensive due to the population most of these African countries living in rural areas with marginal income. He

³Source: Stock market capitalization from World Bank, and the percentage change are calculated by the author.

concludes African countries would do better to use their scarce resources (human, material and institutional) to improve their banking systems than promote stock exchange market.

Other papers investigate the financial deepening, growth shortfall, source of investment and economic growth in the African context. For instance, Nzotta and Okereke (2009) empirically examine financial deepening and economic development in Nigeria for the period of 1986 to 2007. The authors used two stage least square analysis frameworks. Their results indicate the level of financial deepening in Nigeria has remained relatively low in spite of the various reforms and institutional changes. They also find the low level of monetization of the economy, the high rate of inflation, and the level of private sector credits have negatively affected the level of financial deepening in Nigeria. Their study is, however, limited to one country.

About African growth shortfall Collier and Gunning (1999) raise a question: to what extent do the factors included in the growth regressions account for the African growth shortfalls? The evidence they found is the lack of openness to trade, the low level of social capital, the effect of high policy volatility, and poor public services have had larger damaging effects on the growth rate, in addition to geography, primarily through high transportation cost, poor soils, disease, and climatic risk.

On source of financing and economic growth in African, Most and Van Den Berg (1996) examines empirical evidence for 11 sub-Saharan African countries on the relationship between economic growth and three principal sources of investment funds: foreign aid, foreign direct investment, and domestic saving. Countries were included in the analysis in accordance with two selection criteria: first, there should be a minimum of 15 consecutive annual observations for all variables in the specification; and second, FDI should average at least 0.5% of GDP. Their

results indicate domestic saving seems to play a somewhat more important role in generating economic growth than foreign direct investment or foreign aid. However, the results for the 11 sub-Saharan African economies are mixed, confirming the complex problems faced by African economies.

African markets integration and vulnerability to contagion with emerging market is investigate by Collins and Biekpe (2003), they empirically investigate whether any of the African stock markets are globally integrated enough with emerging markets to be vulnerable to contagion. They used the Hong Kong financial crash on October 17, 1997 to measure contagion in African markets. Daily data on market indices for eight African countries are used. Using two different methods for measuring contagion, their findings indicate the larger and more integrated markets in Africa, namely Egypt and South Africa, suffered from contagion during the Hong Kong crisis of 1997, while the other six African markets—Kenya, Mauritius, Morocco, Namibia, Nigeria and Zimbabwe—did not suffer from contagion during the crisis. Similarly, Wang et al. (2003) also examine long-run relationships and short-run dynamic causal linkages among the five largest emerging African stock markets and the U.S. market, with particular attention to the 1997–1999 global emerging market crisis. The authors used daily stock index closing prices of South Africa, Egypt, Morocco, Nigeria and Zimbabwe, as well as the U.S. market. The in sample period is from January 1st, 1996 to May 31st, 2002. The long-run relationships among the stock markets under consideration are measured by the number of co-integrating vectors. The short-run dynamic linkage is analyzed under VAR framework. In general, interdependence between the African markets was limited. Results on both short-run relations and short-run casual linkages show regional integration in most African stock markets was weakened after 1997-1999 crisis. The U.S. exerted noticeable influence on a very few African markets, and such influence is likely

only evident on the South African market. The U.S. was significantly affected only by the South African market and not by other African markets.

In summary, several of the works reviewed above hold no consensus on how economic growth and financial development are linked. Some authors suggest there is a positive relationship (Levine, 2001), while others suggest either there is no relation (Lucas, 1988) or have negative impact for long term growth (Singh, 1997). In this dissertation, we will examine these relationships in the context of African countries using a panel data set of 17 countries from 1995 to 2010.

CHAPTER III

DATA

In this dissertation, the data sources are International Financial Statistics (IFS) of the International Monetary Fund (IMF), the World Bank (www.worldbank.org), and *DataStream*. Stock indices (year end close) are collected from *DataStream*. Within the data, wide varieties of openness measures exist, starting with the traditional trade openness measures, capital account openness measures of Chinn and Ito (2008), and Lane and Milesi-Ferretti (2007) measures of international financial openness measure IFI and GEQY. The capital account openness (KAOPEN) measure of Chinn and Ito (2008) is based on the binary dummy variables that codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). International Financial Integration (IFI) measures constitute stock of external asset and liabilities per GDP. GEQY constitutes stock of portfolio equity assets and FDI per GDP. The data were collected annually for the period of 1995 to 2010. This study period is selected for several reasons. First, we chose this period because most of the African countries started stock markets in the mid 1990's (Yartey and Adjasi, 2007). Second, capital flows increased by 122.5% using Chinn and Ito (2008) capital account openness measure from 1995 to 2007. Capital flows also increased by 80.7 % using GEQY Lane and Milesi-Ferretti (2007) measure of financial openness for the same time period. Trade openness also increases for the same time period for these African

countries by 17%. The IFI Lane and Milesi-Ferretti (2007) measure of financial openness, however, declined by 9.2% in the same period (see Figures 2 to 5 for trade and financial openness measures for the sample countries over the study period). Third, these African countries' trade and financial openness measures on average are still lower than the average developing countries measures reported, for example, by Esqueda et al. (2012), indicating there is still untapped potential for more trade and financial openness.

Real Gross Domestic Product (GDP) growth, Consumer Price Index (CPI), turnover, size, and market capitalization of listed countries are all collected from the World Bank (<http://data.worldbank.org>). The turnover ratio, which is a proxy for liquidity, is the total value of shares traded during the period divided by the average market capitalization for the period. Average market capitalization is calculated as the average of the end-of-period values for the current and previous periods. Discount rates, import, export, exchange rates and Real Effective Exchange Rate (REER) are collected from IFS. Capital account openness is collected from the website discussed in Chinn and Ito (2008). Financial openness measures (IFI and GEQY) are calculated using Lane and Milesi-Ferretti (2007) data from their website. Gross capital formation as a percentage of GDP, which is a proxy for investment, is collected from the World Bank.

Gross capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. General government final consumption expenditure as a percentage of GDP data is also collected from the World Bank. General government final consumption includes all government current expenditures for purchases of goods and services, including expenditures on national defense and security, but excluding government military expenditures that are part of government capital formation.

Primary enrollment rate data are collected from the World Bank, which is defined by the World Bank: *adjusted net primary enrollment rate* is the total number of pupils of the official primary school age group, who are enrolled at primary or secondary education levels, expressed as a percentage of the corresponding population. Adjusted Net Enrollment Rate (ANER) extends the measure to those of the official primary school age range, who have reached secondary education, because they might access primary education earlier than the official entrance age or skip grades due to their performance. Economic Freedom Index data is obtained from The Heritage Foundation (<http://www.heritage.org>). Data on civil war are obtained from Sarkees and Wayman (2010) “Correlates of War”.

Private credit by deposit money bank as a percentage of GDP is obtained from Beck and Demirgüç-Kunt (2009). *Size* is the total market capitalization of the Index used to calculate returns divided by the country’s GDP that measures the level of stock market development for a given country compared to its output. *Turnover* is a proxy of liquidity, equal to the total value of the shares traded in the market during a given year, divided by the average market capitalization during the same year.

Index of economic freedom is collected from The Heritage Foundation, and the website defines economic freedom as follows:

“A comprehensive definition of economic freedom should encompass all liberties and rights of production, distribution, or consumption of goods and services. The highest form of economic freedom should provide an absolute right of property ownership; fully realized freedoms of movement for labor, capital, and goods; and an absolute absence of coercion or constraint of economic liberty beyond the extent necessary for citizens to protect and maintain liberty itself. In other words, individuals in an economically free society would be free and entitled to work, produce, consume, and invest in any way they choose under a rule of law, with their freedom at once both protected and respected by the state.”

Total risk captures the total volatility of each country's monthly returns. Derived from the single index model, total risk is expressed as σ^2 and is calculated as follows:

Total Risk = Systematic Risk + Country Specific Risk

$$\sigma_{it}^2 = \beta_{it}^2 [\sigma_{Mt}^2] + \sigma_{eit}^2 \quad (1),$$

Where: σ_{it}^2 represents the total variance, β_{it} is the market (non-diversifiable) risk on country i , σ_{Mt}^2 is the market variance and σ_{eit}^2 is the random component of total risk that does not vary systematically with the economy. We use monthly stock market returns in order to calculate the time-varying betas and standard deviation. The window for calculating the betas and unconditional volatility is a 24 months period, as has been done previously in Fung and Hsieh (2004), Cohen et al. (2005), Petkova and Zhang (2005) and Esqueda et al. (2012).

Table 1 presents the descriptive statistics of the data in the unbalanced panel setup⁴. The average annual real stock return is 8.23 percent for the sample countries from 1995 until 2010. The minimum real stock return of -83.54 percent is due to Ghana for the year 2001 and the maximum 174.59 is due to Kenya for the year 2004. Meanwhile, the real stock return for the world index (MSCI) average is 1.90 percent with the minimum of -43.37 percent for the year 2009 (due to the world financial crisis) and the maximum is 26.79 percent for the year 2000. Stock market volatility measured by standard deviation (monthly return volatility) averages 0.06 for the study period, with a minimum of 0.02 for Ghana for the year 2007 and a maximum of 0.16 for Nigeria for the year 2009. Stock market volatility measured by beta (monthly return volatility) averages 0.35 with a minimum of -1.08 for Ghana for the year 2004 and a maximum of 2.59 for South African for the year 2006. Stock market capitalization as a percentage of GDP on average is 34.04 percent for the study period for all countries in our study. The minimum

⁴Zimbabwe is largely excluded from the descriptive statistics. Because of the country's very high inflation (2125.9 % in 2007) real stock return is largely negative, which make the whole sample real stock return negative.

stock market capitalization is 0.55 percent for Zambia in 1995, while the maximum is 291.28 percent for South Africa for the year 2007. The average turnover (proxy for liquidity) is 11 percent; the minimum is 0 for Uganda and Swaziland, and the maximum is 62 percent for Egypt for the year 2008, which is very low compared to Esqueda et al. (2012) values of 57 and 77 percent for the developing and developed countries respectively of their samples, indicating the very low level of liquidity for African stock markets. See also Senbet (2001) and Senbet (1997) about the low level of African stock market liquidity. The average size of stocks traded, total values (% of GDP) is 8.1 percent; the minimum is 0 for Swaziland and Uganda, and maximum is 148.8 percent for South Africa for the year 2007, which is also very low compared to the Esqueda et al. (2012) of 59 and 68 for the developing and developed countries respectively.

Table 1 presents the financial and trade openness measures descriptive statistics. The average of trade openness is 0.62 with minimum of 0.18 due to Egypt for the year 2001 and maximum of 1.75 due to Swaziland for the year 2003. The average of capital account openness measure is -0.08 with the minimum of -1.84 due to Botswana for the year 1996 and maximum of 2.48 due to Mauritius for the year 2003. The average of International Financial Integration (IFI) is 1.37 with minimum of 0.45 due to Malawi for the year 2007 and the maximum of 3.21 due to Zambia for the year 2000. The average of financial openness measure GEQY is .57 with the minimum of .10 due to Tanzania for the year 1995 and maximum of 1.48 due to Botswana for the year 2000.

Table 1 also presents the macro variables descriptive statistics. The average real GDP growth for African countries is 4.53 percent per year for the period 1995 until 2010. The minimum of GDP growth is -6.58 percent due to Morocco for the year 1995 and the maximum is 16.73 percent due to Malawi for the year 1995. The primary enrollment average is 81.91 percent

with the minimum at 48.67 percent for Tanzania and the maximum at 99.79 percent for Tunisia. Private credit per GDP average is 27.4 percent with a minimum of 3.1 percent for Zambia and a maximum of 86.9 percent for South Africa. Gross capital formation as a percentage of GDP (GCFPERGDP) average is 20.98 percent, with the minimum at 8.69 for Cote d'Ivoire and the maximum at 38.12 percent for Morocco. The average of gross capital formation is almost the same as Gyimah-Brempong et al. (2006), though our sample minimum and maximum are different from theirs, mainly due to a sample size difference. General government consumption average is 15.87 percent with the minimum at 6.48 percent for Cote d'Ivoire and maximum at 30.32 percent for Namibia. The average discount rate is 13.88 percent from 1995 to 2010 for all countries in the study. The minimum is 1.33 percent due to Mauritius for the year 2004 while the maximum is 50.23 percent due to Malawi for the year 2000. Economic Freedom Index average for our sample of countries is 59.32 with a minimum of 45.7 for Egypt and maximum of 76.3 for Mauritius. Civil war is a dummy variable, "1" showing war has occurred in the country in the year and "0" meaning war has not occurred. The average 0.07 indicates that frequency of civil war in the sample period for the sample countries is low.

Table 2 presents the correlation of variables considered in the estimation. Since private credit per GDP (PCRDBOFGDP) is highly correlated with many variables in the equation (such as: primary enrollment, Economic Freedom index, inflation, discount rate, stock market capitalization, and GEQY), it is not used in the estimations. Similarly, since the Economic Freedom index is correlated with many variables, it is also excluded from the estimation. Discount rate and inflation are highly correlated (0.74) in Table 2A; therefore, only discount rate will be used in the estimation. Two estimations will be done using one variable at a time with other variables when they are highly correlated. For instance, turnover and size are highly

correlated (0.78) in Table 2B when the return and volatility equations are estimated; one model with turnover and another model with size are estimated.

Figures 2 to 5 present the trade and financial openness measures. Figure 2 illustrates the capital account openness measure of Chinn and Ito (2008), indicating some countries show improvement while others show decline in capital account openness over the study period. Botswana, Egypt, Kenya, Mauritius, Uganda and Zambia specifically show increases in openness while Cote d'Ivoire, Ghana, Malawi, Morocco, Namibia, South Africa, Swaziland, Tanzania, Tunisia, and Zimbabwe show a decline in capital account openness.

Figure 3 illustrates portfolio equity and FDI (GEQY) measure of the financial openness measure of Lane and Milesi-Ferretti (2007). Countries that show a significant increase in openness of GEQY are Morocco, Namibia, South Africa, Tanzania, Tunisia, Uganda and Zambia. Botswana, on the other hand, shows a significant decline in GEQY openness, while Nigeria and Swaziland financial openness GEQY seems to be unchanged over the study period.

Figure 4 illustrates the traditional trade openness measure and almost all countries are flat, except Botswana and Zimbabwe, which show decline in trade openness and Swaziland show slight upward trend. Figure 5 illustrates IFI measure of financial openness of Lane and Milesi-Ferretti (2007) and most of the countries in the sample—Botswana, Ghana, Malawi, Nigeria, Tanzania, Zambia, and Zimbabwe—show a decline in IFI openness measure while only Namibia and South Africa show improvement of IFI openness measure.

Figure 6 presents real GDP growth by country, with and without Zimbabwe. Noticeable volatility in real GDP is observed in Botswana, Malawi, Morocco and Namibia. Figure 7 presents the real stock returns with and without Zimbabwe. Zimbabwe clearly shows sharp declines in real stock returns starting in 2005. In almost the whole sample, real stock return

seems to be volatile, except Morocco and Swaziland. Figures 8 and 9 present the volatility of stock index returns in each country in our sample. The beta volatility measure indicates Botswana, Tunisia and Zambia are the least volatile countries. The standard deviation (SD) measure of volatility indicates Morocco and Tunisia are less volatile. Compared to Esqueda et al. (2012), the volatility of African stock market is closer on average to the developed market volatility using the standard deviation measure of volatility. Using the beta measure of volatility, the African stock market is less volatile than the samples of developing countries, as well as the developed market volatility used by Esqueda et al. (2012), which could be due to the illiquidity of African stock markets.

CHAPTER IV

AFRICAN STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH

4.1 Current Research

As mentioned earlier in the review, Barro (1991) investigates the source of growth rate of real per capita GDP, focusing on 98 countries during the period of 1960 to 1985. His results do not explain the relative weak growth performance of countries in sub-Saharan Africa and Latin America. Other studies, such as Mankiw, Romer and Weil (1992), also examine whether the Solow growth model is consistent with the international variation in the standard of living. Their data include all countries in the world, except the centrally planned economies, using annual data from 1960 to 1985. In general, their results indicate, if one acknowledges the importance of human as well as physical capital, the Solow model is consistent with the international evidence. In our study, we will also test the importance of human and physical capital in our generalized method of moments model for our sample countries. Gregorio and Guidotti (1995) find different results based on the group of countries in the sample. When they empirically examine the long-run growth and financial development, they find financial development is positively correlated with growth in a large cross-country sample, but its impact changes across countries and is negative in a panel data for Latin America. Their findings further strengthen the need for more research, particularly in the developing markets including African countries that may have different results than the developed countries where there is abundant literature. More recently,

Choong (2012) also finds positive relations between financial openness (particularly FDI) and economic growth using a panel of 95 developed and developing countries from 1983 to 2006. However, he also finds domestic financial system is a significant prerequisite for the financial openness to have a positive impact on economic growth. Bangake and Eggoh (2011) also conclude there is strong evidence of a bidirectional long-run causality between financial development and economic growth in 71 developed and developing countries over the period of 1960 to 2004. However, their results indicate a marked difference based on the country's income level in the short-run. For low and middle income countries, there is no evidence of short-run effect, while in high income countries economic growth significantly affects finance.

Previous works on African markets include Yartey and Adjasi (2007), who examine the importance and development of stock markets in Africa. Their analysis of unbalanced panel data from 14 African countries using Generalized Method of Moments (GMM) indicates that stock markets have indeed contributed to the financing and growth of large corporations in certain African countries. However, they did not find conclusive empirical evidence on the impact of stock markets on economic growth in these 14 African countries. Other studies on the African stock market, such as Adjasi and Biekpe (2006) find a positive relationship between stock market development and economic growth. Their key results show a positive relationship between stock market development and economic growth. Another positive relationship between economic development and stock market development is documented by N'Zue (2006). N'Zue also documents the unidirectional causality running from stock market development to economic growth, but his results are limited to the Cote d'Ivoire. Enisan and Olufisayo (2009) examine the long run and causal relationship between stock market and economic growth for seven countries in sub-Saharan Africa for the period of 1980 to 2004. Their analysis of these countries suggests

stock market development has a significant positive long run impact on economic growth. Granger causality tests based on Vector Error Correction Model (VECM), however, do not show clear pattern of stock market development “Granger causing” economic growth. Having examined seven African Countries, Enisan and Olufisayo (2009) report mixed results, with bidirectional “Granger Causality” of economic growth and stock market development.

Esqueda et al. (2012) examine the trends in financial openness over the period of 1995 to 2007. They observe more visible improvement in financial development (at least for IFI, GEQY, and trade measures) for developed countries than for emerging markets. However, controlling for several controls and allowing for simultaneity between stock market volatility and turnover, none of this change towards a more global financial system has any impact on stock market volatility in developed countries. On the other hand, in emerging markets, when “beta-volatility” is used, there are some negative effects. When standard deviation is used, negative effects are smaller.

This dissertation reexamines the relationship between stock market development and economic growth using a comprehensive set of African countries and attempts to fill the gap in the literature by controlling for endogeneity.

4.2 Research Questions

In this study, we will investigate the link between stock market development and economic growth for seventeen African countries that currently have stock market exchanges, using data from 1995 to 2010 in a panel setup. The expected results based on the literature are the following: economic growth should be positively related to financial development, and economic growth is positively related to stock market capitalization. More formally, economic

growth being measured by real GDP growth, the hypothesis can be stated as follows for our panel of African countries:

Hypothesis I: Economic growth is positively related with financial and trade openness.

An extensive literature has been written on financial liberalization and economic growth; however, there is no consensus as to how financial liberalization affects economic growth (Henry (2007), Eichengreen and Leblang (2003), Stiglitz (2000)). The argument has two sides. First, Quinn (1997), Arteta et al. (2001) and Gregorio and Guidotti (1995), among others, document financial openness increases the capital accumulation of the country, which in turn increases economic growth. However, this positive relationship between openness and economic growth may be a conditional one that depends on the strength of country's financial institutions as pointed out by Klein and Olivei (2008). On the other hand, Rodrik (1998) and Prasad et al. (2003), among others, suggest financial liberalization causes crisis (capital flight) or has no impact on growth. Yartey and Adjasi (2007) found inconclusive empirical evidence in the case of Africa. Although N'Zue (2006) and Enisan and Olufisayo (2009) document a positive relationship between financial liberalization and economic growth in Africa. The other possible channel could be the reduced cost of capital due to liberalization. Several papers address the relations between cost of capital and financial liberalization for emerging markets, among them are Edison and Warnock (2003), Bekaert and Harvey (2003), and Henry (2007); all of them conclude financial liberalization is negatively related with cost of capital. Due to the reduction in the cost of capital projects having negative net present value will have a positive net present values, which increases economic growth. Similarly, we expect to find a positive relationship

between economic growth and financial and trade openness even though the low level of financial institutions development could weaken the expected result in these African countries.

Hypothesis II: Economic growth is positively related with stock market capitalization.

Levine and Zervos (1998) find stock market liquidity is positively and significantly correlated with current and future rates of economic growth, capital accumulation, and productivity growth. Furthermore, they find stock market liquidity is a robust predictor of real per capita gross domestic product growth, physical capital growth, and productivity growth. Greenwood and Smith (1997) show that large stock markets can lower the cost of mobilizing savings and thereby facilitate investment in the most productive sector of the economy. Arestis et al. (2001) find that the effects of banks are more powerful, although both banks and stock markets may be able to promote economic growth. They also suggest the contribution of stock markets on economic growth may have been exaggerated by studies utilizing cross-country growth regressions. As Levine (1996) puts it, stock markets may affect economic growth through liquidity. Investment requires a long term commitment of capital and investors may not be willing to give up control of their savings for long periods. Liquid equity markets make investment less risky and more attractive because it allows investors to acquire an asset (equity), and to sell it quickly without lose of value if they need access to their investments. Levine and Zervos (1996) find a strong correlation between overall stock market development and long-run economic growth. Besides evaluating the general importance of financial system, Levine and Zervos, provides theoretical suggestion that the functioning of equity markets affects liquidity, risk diversification, acquisition of information about firms, corporate control, and savings

mobilization. By altering the quality of these services, the functioning of stock markets can alter the rate of economic growth. Following these studies, we expect the stock market capitalization, though it is less liquid in Africa as reported by Senbet (2001), to have a positive impact on economic growth.

4.3 Methodology

We use dynamic panels developed by the Blundell and Bond (1998) System Generalized Method of Moments (SGMM) methodology, because it is well known serious problems arise when estimating growth equations using the Ordinary Least Square (OLS) model. These problems include: (1) endogeneity; (2) time-invariant country specific characteristics may be correlated; (3) the presence of lagged dependent variable gives rise to autocorrelation; and (4) the panel dataset with short time dimension and a larger country dimension. Arellano and Bond (1991) developed a Generalized Method of the Moments (GMM) estimator to solve these problems. Their method addresses the following, in addition to being asymptotic for small T and large N Panels: (1) using exogenous instruments and lagged levels of endogenous regressors (this makes the endogenous variables pre-determined, and therefore, not correlated with the error terms); (2) the differenced GMM uses first-differences to transform the equation; and (3) the first differenced lagged dependent variable is also instrumented with its past levels.

GMM estimations are said to be consistent if there is no second order autocorrelation in the residuals, and when the instruments employed are valid. The most common test employed to verify the validity of instruments in this GMM setup is the Sargan (1958) test of over-identifying restrictions. We employ the system GMM (SGMM) model proposed by Blundell and Bond

(1998) to estimate dynamic panel versions of the models below while observing the correct identification of our model.

The model employed for real GDP growth is of the following form:

$$z_{it} = \gamma_i + \beta z_{it-1} + \delta (\text{open}_{it}) + \lambda (\text{SMC}_{it}) + \mu (\text{Vol}_{it}) + \sum_{k=1}^n \alpha_k x_{it}^k + \varepsilon_{it} \quad (2)$$

Where: real GDP growth (z), γ_i are country fixed effects and ε_{it} is an idiosyncratic error term.

Equation (2) contains one lag of the dependent variable but is flexible enough to accommodate longer lags such that no misspecification problems arise. Convergence exists if β is larger than zero and smaller than unity. The variables open_{it} contains the four openness measures: IFI, GEQ, KA, and TO. SMC is stock market capitalization and Vol_{it} is volatility measure (beta / standard deviation). The variable x_{it} is the group of k control variables: human capital, Economic Freedom Index, discount rate, Investment/Gross Capital formation, civil war, and inflation rate.

In order to address endogeneity between the GDP growth and stock market capitalization, we will make stock market capitalization endogenous and all other independent variables exogenous in our model. The endogeneity of GDP growth and stock market capitalization could be explained by the simultaneity of both stock market capitalization and GDP growth. When stock market capitalization increases, due to wealth effect, consumption could also increase, implying a higher GDP growth. The converse is also possible: as economic growth increases due to wealth effect, it may lead to increases in investment in the stock market, which in turn leads to increase in the stock market capitalization.

Roodman (2009) suggests the use of too much instrumentation could lead to undetected model misspecification due to Sargan, test of over-identifying restrictions, would not reject if we use too many instruments.

As a preliminary analysis, fixed effect models will be estimated with a modified version of equation (2) restated below as (2a). In contrast to the random effect model, fixed effect model consider the constant varying by country to be correlated with the regressors. We use trade and financial openness, stock market capitalization, human capital (measured by the percentage of the people 15 years of age or more who can read and write), economic freedom index, discount rate, private credit per GDP, Investment/Gross Capital formation, civil war, stock market volatility measure beta/standard deviation and inflation rate as independent variables. The definition of terms of equation (2a) is the same as terms in equation (2).

$$z_{it} = \gamma_i + \delta (\text{open}_{it}) + \lambda (\text{SMC}_{it}) + \mu (\text{Vol}_{it}) + \sum_{k=1}^n \alpha_k x_{it}^k + \varepsilon_{it} \quad (2a)$$

Economic freedom index will be positively correlated with growth, since with the higher scores indicating the conduciveness of the environment for business which in turn stimulate economic growth. Barro (1991) was not able to explain weak growth performance of countries in sub-Saharan African countries. In this study we include variables such as financial openness, trade openness and economic freedom which will capture the difference in growth in African countries.

4.4 Fixed Effect Models Result

The fixed effect models using equation (2a) are estimated for the economic growth models. The results are presented in Tables 3 to 8. Table 3 reports the results for all countries with the volatility measure of beta as one of the independent variables. Generally, Table 3 results indicate the lagged real GDP growth has a value varying from -0.34 to -0.22 in Columns 10 and 5 respectively, and is statistically significant, indicating about—on average—28% correction in the next year. Investment is largely positively correlated with economic growth with coefficient

varying from 0.19 to 0.21 in Columns 11 and 2, respectively, and is statistically significant at 5 percent level of significant, similar to the findings of Gyimah-Brempong et al. (2006).

The fixed effect model in Table 3 shows a very weak support of Hypothesis I, which Column 9 is showing a positive and significant coefficient of market cap interacted with capital account openness. Stock market capitalization has a positive coefficient and is significant in ten of the eleven models, indicating a strong positive relationship between economic growth and stock market capitalization as proposed in Hypothesis II. Table 4 presents the results when South Africa is excluded from the sample in the analysis, and the result is very similar, except that Hypothesis I is better supported—Table 4, Columns 7 and 8, show a strong positive significance of GEQY and XM Openness respectively.

Human capital measure primary enrollment is highly correlated with investment and so primary enrollment is not included in these models with investment. Thus, Tables 5 and 6 are similar to Tables 3 and 4, except that primary enrollment is used in Tables 5 and 6 instead of investment. The results in Tables 5 and 6 support a positive relationship between economic growth and human capital as expected. Tables 5 and 6 do not show a significant relation between financial and trade openness with economic growth⁵. Tables 5 and 6 show the negative relationship between discount rate and economic growth, though not strong.

Tables 7 and 8 present the results of economic growth model when the volatility measure is standard deviation of stock market returns instead of beta measure volatilities as in Tables 5 and 6. Table 7 includes all countries in the study while Table 8 excludes South Africa. The results indicate standard deviation of volatilities are negative but have never been significantly correlated with economic growth. Stock market capitalization is largely positively associated with economic growth, similar to the findings in the beta models (i.e., Tables 3 to 6) indicating

⁵ Discount rate not included in Tables 3 and 4 models due to its high correlation with investment (see Table 2A).

strong support for Hypothesis II. Capital account openness is negatively associated with economic growth for the sample countries (See Tables 3 to 8, Columns 5 and 9). This result is unexpected; as countries open their capital accounts, it should have a positive impact on economic growth as Klein and Olivei (2008) report among other. However, capital account openness variable is based on the binary dummy as defined by Chinn and Ito (2008) and when Henry (2007) explains why financial liberalizations impact is small or none, he attribute one of the probable cause to be the binary nature the data. Henry (2007) put forward three problems that could potentially explain the relatively small valuation effects. First, stock price effects at the date of liberalization may be small if liberalization were expected. Second, investors may perceive that the liberalization will be reversed (Malaysia in 1997 has actually reversed). Third, countries seldom move from having a completely closed stock market to one that is fully open. Most countries undergo several stock market liberalizations subsequent to the first. Therefore, the result of capital account being away from the expectation could be due to the binary nature of the variable.

Generally, the fixed effect result indicates very weak support for Hypothesis I: there is a significant positive relationship between economic growth and financial and trade openness, however weakly. In almost all cases; Hypothesis II holds true in the fixed effect model: there is a positive and significant relationship between economic growth and stock market capitalization.

4.5 System GMM Models Result

System GMM models results are presented in Tables 9 to 14. Tables 9 to 12 present system GMM results when beta is used as a measure of stock market volatility while Tables 13 and 14 present results when standard deviation of stock returns is used as a volatility measure. Due to its high correlation with standard deviation (0.84), discount rate is not included in the SD models. The model specifications of all the system GMM models are good. There is no second order auto correlation (none of the m2 are significant) and, also, over-identifying restrictions are valid (i.e., Sargan test do not reject the null).

Generally, results for Tables 9 to 14 indicate the financial openness measure GEQY is consistently positive and significantly associated with economic growth. That is strong support for Hypothesis I; there is a positive relationship between financial openness and economic growth. The financial openness channel affecting growth is portfolio equity and FDI stocks (i.e., GEQY), see Column 3 of Tables 9, 10, 11, 12, and 13. This finding strengthens the suggestion that foreign direct investment is the most stable form of foreign capital as pointed out by Chari et al. (2012). Furthermore, there is some additional evidence that marginal trade openness and capital account openness are positively and significantly associated with economic growth (See Tables 9 and 13 columns 8 and 9). Trade openness is positively and significantly associated with economic growth when volatility measures in the equation is standard deviation of stock returns (see Column 10 of Table 13). The results are similar to the findings of Henry (2003), Eichengreen and Leblang (2003), Henry (2007), and Choong (2012).

Stock market capitalization does not show any significant association with economic growth in the system GMM models. Stock market capitalization evidence is conflicting, since in the fixed effects model, market capitalization shows significant association with economic

growth. Given that system GMM addresses endogeneity of stock market capitalization with economic growth and reduces bias and standard error [Bun and Kiviet (2006) and Judson and Owen (1999)], the system GMM model results are more acceptable for the sample of African countries for the period 1995 to 2010: there is no empirical relationship between economic growth and stock market capitalization, implying Hypothesis II does not hold true despite the previous findings of positive relationship by Adjasi and Biekpe (2006) using dynamic panel model, Enisan and Olufisayo (2009) using Auto Regressive Distributed Lag (ARDL), and N'Zue (2006) using cointegration. The result is different from the previous findings could be due to poor institutions in these African countries. As Henry (2007) put it, many factors may influence the general level of efficiency of a country, for instance, weak institutions and inappropriate government regulation can distort economic decision making and reduce productivity.

The findings of system GMM on economic growth and volatility show a positive relationship, though weakly (see Tables 11, 12 and 14), as the volatility of stock return increases the economic growth also increases. However, the inverse relation between stock volatility and economic growth is documented by Schwert (1989b), Campbell et al. (2001) and Guo (2002). The counter cyclical relationship between volatility and economic growth is well documented.

From the control variables, human capital is positively associated with economic growth and this result in system GMM is stronger in magnitude and significance than the fixed effect models. Human capital coefficient is about (0.09) in this study, which is very similar to the findings of Gyimah-Brempong et al. (2006) who find the coefficient to be (0.081). Another control variable, the discount rate, is inversely related with economic growth as expected.

We report the results excluding South Africa; as pointed out by Allen et al. (2010), South Africa's economic development level is higher than other African countries—we expect the

results to be different. The results are somewhat different; for example, comparing Tables 9 and 10 shows discount rate lost its significance when South Africa is excluded from the sample. Moreover, in these two Tables the interaction of Market cap and trade openness, and Market cap and capital account lost their significance when South Africa is excluded from the sample. The other contrasting result when South Africa is excluded from the sample appears in Tables 13 and 14. Stock market volatility measured by the standard deviation of the stock returns becomes significantly positively associated with economic growth. In addition, in these Tables financial and trade openness lose their significance when South Africa is excluded from the sample (see Tables 13 and 14).

4.6 Conclusion

We investigate economic growth and financial and trade openness using fixed effect and system GMM models. The fixed effect model results indicate Hypothesis II holds true in almost all cases: there is a positive and significant relationship between economic growth and stock market capitalization. Hypothesis I holds true weakly in the fixed effect model: there is a significant relationship between economic growth and financial and trade openness, however weakly. No particular variable shows persistent results. There is no empirical relationship between stock market volatility and economic growth in the fixed effect models. However, Schwert (1989b), Campbell et al. (2001) and Guo (2002) empirically demonstrate the negative relationship between GDP growth and stock market volatility.

On the other hand, system GMM results indicate financial openness measure GEQY is consistently positive and significantly associated with economic growth. Thus, there is a strong support for Hypothesis I: a positive and significant relationship between financial openness and

economic growth. The financial openness channel affecting growth is portfolio equity and FDI stocks (i.e., GEQY). This finding strengthens the suggestion that foreign direct investment is the most stable form of foreign capital as pointed out by Chari et al. (2012). System GMM shows conflicting result on economic growth and financial and trade openness. Stock market capitalization does not show any significant association with economic growth in the system GMM models; however, in the fixed effect model, market capitalization shows significant positive association with economic growth. Since system GMM addresses endogeneity of stock market capitalization with economic growth and reduces bias and standard error [Bun and Kiviet (2006) and Judson and Owen (1999)], for the sample of African countries for the period of 1995 to 2010 there is no empirical relationship between economic growth and stock market capitalization, implying Hypothesis II does not hold true. This finding is similar to Naceur and Ghazouani (2007) with results for eleven Middle East and North Africa (MENA) countries showing no significant relationship between stock market development and economic growth using dynamic panel model with GMM.

The result is different from the previous findings could be due to poor institutions in these African countries. As Henry (2007) put it, many factors may influence the general level of efficiency of a country, for instance, weak institutions and inappropriate government regulation can distort economic decision making and reduce productivity.

CHAPTER V

AFRICAN STOCK MARKET RETURN AND FINANCIAL AND TRADE OPENNESS

5.1. Current Research

Finance theory suggests stock market returns rather than volatility have predictive power for investment and output because stock market returns are a forward-looking variable incorporating expectations about future cash flows and discount rates. Several studies have confirmed the predictive power of stock market returns for investment and output, among them are Fama (1981), Fisher and Merton (1984) and Barro (1990). There is no study, to the best of our knowledge, which investigates the stock returns with output or investment in African context, which is a gap this dissertation intends to fill. Bilson et al. (2001) examines the relationship between macroeconomic variables and equity market returns within the context of emerging markets. They proposed a multifactor model incorporating both global and local factors. Global factors are proxied by the world market return and local factors by a set of macroeconomic variables. The variables they employ are money supply, price of goods and services, real activity and exchange rates. Similar to Bilson et al. (2001), we are going to use the MSCI world index as one of the explanatory variables which will be a measure of African stock market integration into the world market. Rouwenhorst (1999) examines the source of returns variation in emerging stock markets. In a sample of 1,705 firms from 20 emerging markets, he finds the return factors in emerging markets are quantitatively similar to those documented for

many developed markets. Across all emerging markets, stocks exhibit momentum, small stocks outperform large stocks, and value stocks outperform growth stocks. There is no evidence that high beta stocks neither outperform low beta stocks, nor do average returns relate to liquidity, as measured by share turnover. Following Rouwenhorst (1999), we will test the significance of turnover in predicting returns in the context of African stock market. In the case of Africa, there is limited or no literature on the relationship between stock return and financial and trade openness, which this study attempts to fill.

5.2 Research Questions

In this study we will investigate, in the context of African stock markets in the panel setup, the relationship between real stock market return and financial and trade openness. The expected results based on the existing literature are the following: stock market returns are to be positively related to economic growth; and stock market returns are to be negatively correlated with financial and trade openness.

Hypothesis III: Real stock market return is negatively related with trade and financial openness.

Chen et al. (1986) provide a model to current stock returns responding to a future stream of expected earnings, discounted appropriately by interest rates. Our basic models follow Chen et al. (1986) and incorporate financial and trade openness variables one at a time. They explore a set of economic variables as a systematic influence on stock market returns and examine their influence on asset pricing. The variables found to be significant in explaining expected returns are: industrial production, changes in the risk premium, twists in the yield curve and somewhat

weakly changes in expected inflation. Several papers address the relations between stock return and financial liberalization for emerging markets. Among them are Edison and Warnock (2003), Bekaert and Harvey (2003), and Errunza and Miller (1998); all of them conclude financial liberalization is negatively related with stock returns. The reduced cost of capital is the channel through which financial liberalization affects return. As Henry (2000, p. 529) puts it, “International Asset Pricing Models predict that stock market liberalization may reduce the liberalizing countries cost of equity capital by allowing for risk sharing between domestic and foreign agents.” However, Henry empirically demonstrated that, if stock market liberalization reduces the aggregate cost of capital then, holding the expected future cash flows constant, one should observe an increase in a country’s equity price index when the market discovers that a stock market liberalization is going to occur. However, his assumption of expected cash flows remains constant after liberalization seems to be unrealistic because of the country’s liberalization; there could be more competition from imported goods and domestic manufacturers that reduce profit margin.

On other hand, there is a general consensus (see Bekaert and Harvey (2000), Errunza and Miller (1998), Stulz (1999), and Tesar and Werner (1998)) that the local price of risk (the country’s price index variance) exceeds the global price of risk (the country’s price index covariance). Therefore, we expect the equity premium to fall when a completely or mildly segmented emerging country, such as the African countries in our sample, liberalizes its stock market. In particular, Stulz (1999) attribute the decline in return after liberalization for the following two reasons: First, segmented markets have higher risk premia because domestic investors have to hold more domestic equity than they would in the absence of segmentation. Second, liberalization boosts equity price as the cost of capital falls, consequently return

declines. Following these findings, we conjecture stock market return to be negatively related to trade and financial openness measures.

The last hypothesis:

Hypothesis IV: Real stock market return is positively related with economic growth.

Levine and Zervos (1998) find stock market liquidity—as measured both by the value of stock trading relative to the size of the market and by the value of trading relative to the size of the economy— positively and significantly correlates with current and future rates of economic growth, capital accumulation, and productivity growth. Moreover, they find stock market liquidity is a robust predictor of real per capita gross domestic product growth, physical capital growth, and productivity growth after controlling for many other factors associated with economic growth.

As Demirguc-Kunt and Levine (1996) put it, risk diversification through international integrated stock markets is also a vehicle through which stock markets can affect economic growth. Because high –return projects also tend to be comparatively risky, stock markets that facilitate risk diversification encourage a shift to higher-return projects. Thus, better functioning, more internationally integrated stock markets boost economic growth by shifting society’s savings into higher-return investments, all else being equal.

When examining a set of 30 emerging stock markets, De Jong and De Roon (2005) find a significant decrease in market segmentation on expected returns. The average annual decrease in segmentation has led to a decrease in the cost capital of 11 basis points, and a decrease in stock returns of 4.5% per year. Their conclusions do not change very much when controlling other

determinants of expected returns, such as a country's risk rating (beta) or its openness as measured by trade openness (i.e., the ratio of imports and exports over GDP). In our model we also include country's beta as a control variable following the De Jong and De Roon (2005). Adam and Tweneboah (2008) examine the role of macroeconomic variables in stock market movement in Ghana for the period 1991:1 to 2006:12. They include stock index, interest rate, inflation, net foreign direct investment and exchange rate. They explore the relationship using Johansen's multivariate cointegration tests and find inflation to be positively related to the stock index- implying the stock market partially or fully provide a hedge against inflation; as stock return is forward looking variable that incorporates expectations about future cash flows and discount rates. Studies by Fama (1981), Fisher and Merton (1984), Kaul (1987), and Barro (1990) among others confirm the predictive power of stock market returns for investment and output. As Harvey (1989) put it recession means lower earnings and dividends for most equities. If investors make a downward revision in their forecast of a firm's earning or dividend because they expect recession, stock price (expected future cash flow discounted at cost of capital) will drop. Following these studies linking stock returns with output growth through higher consumption, we hypothesize a positive relationship between stock returns and economic growth.

5.3 Methodology

Our basic model follows Chen et al. (1986) and incorporates financial and trade openness variables one at a time. The model for the real stock return is of the following form:

$$r_{it} = \gamma_i + \beta r_{it-1} + \delta (\text{open}_{it}) + \lambda (\text{RGDP}_{it}) + \sum_{k=1}^n \alpha_k x_{it}^k + \varepsilon_{it} \quad (3)$$

Where: r_{it-1} is the real stock market return of country i in period $t-1$, γ_i are country fixed effects and ε_{it} is an idiosyncratic error term. Equation (3) contains one lag of the dependent variable but is flexible enough to accommodate longer lags such that no misspecification problems arise. The variables $open$ and $RGDP$ are financial and trade openness (IFI, GEQY, KA and TO) and real GDP growth respectively. The variables x_{it} is the group of k control variables that is: MSCI world index stock return, turnover, size, discount rate, stock market capitalization and country level beta and standard deviation of returns. We use $RGDP$ growth as a macrostructure variable, MSCI world index of stock returns as a global equity market, discount rate, and country level beta in addition to trade and financial openness. In this model we will not include inflation since the stock returns are in real terms and inflation is highly correlated with discount rate (see Table 2B).

In this model, we address the endogeneity between stock returns and GDP growth. The $RGDP$ growth is included as an endogenous variable while all other independent variables are considered exogenous. The endogeneity of stock return and GDP growth is explained by simultaneity of both happening at the same time. As stock returns increase due to wealth effect, consumption increases, leading to higher GDP growth. As a preliminary analysis, before estimating system GMM, fixed effect model will be estimated using equation (3a). The definition of terms of equation (3a) is the same as terms in equation (3). In contrast to the random effect model, fixed effect model consider the constant varying by country to be correlated with the regressors.

$$r_{it} = \gamma_i + \delta (open_{it}) + \lambda (RGDP_{it}) + \sum_{k=1}^n \alpha_k x_{it}^k + \varepsilon_{it} \quad (3a)$$

5.4 Fixed Effect Models Result

The results of fixed effect models of stock market return as dependent variable are presented from Tables 15 to 22. The results in Table 15 to Table 18 include beta-volatility measure, while Tables 19 to 22 use standard deviation- volatility measure, as one of the independent variables in their respective models. The result also presented for all country in the sample and excluding South Africa (for instance, Tables 15 and 16 present with all countries and Tables 17 and 18 present excluding South Africa). South Africa is excluded from the models since the country's stock market development and economic activities are much different from other African countries following Allen et al. (2010).

Hypothesis III does not hold true in the fixed effect models. There is no significant relationship between stock market return and financial and trade openness. Since *turnover* and *size* are highly correlated, we have two models using one at a time in the models (For instance, Table 15 includes *size* as independent variable while Table 16 includes *turnover* as independent variable while putting all other variables unchanged). Stock market capitalization is also highly correlated with *size* and *turnover*, for this reason whenever stock market capitalization is in the model *size* and/or *turnover* are excluded from the models. The results show stock market capitalization is positively correlated with stock market return (see Tables 15 to 19). As expected, discount rates are negatively and significantly related with stock market returns. *Size* and stock *turnover* are positively related with stock returns (see Tables 15 to 22). Generally, the results indicate that stock market returns are explained by MSCI world index return, RGDP growth, discount rate, and stock turnover.

Hypothesis IV largely holds true: there is significant positive relationship between stock market return and output growth. Particularly, Tables 19 and 20 models with all countries and sensitive with respect to volatility measure included in the models show strong positive relationship between real stock return and real GDP growth. When real GDP growth increases by one point, the stock return increases by about 2.7 points. When South Africa is excluded from the model—Tables 21 and 22—real GDP growth is still positively associated with stock market return, but the significance is weaker (ten percent level of significance).

The results presented from Table 19 to Table 22 uses standard deviations as one of the independent variables instead of using beta as in Tables 15 to 18. The results presented in Table 19 to Table 22 indicate standard deviation of stock returns are positively related to stock returns; that is not a surprise since investors require higher return for taking higher risk.

5.5 System GMM Models Result

The results of system GMM models of stock market return as dependent variables are presented in Tables 23 to 30. The results in Tables 23 to 26 include beta volatility measures as one of the independent variables while Tables 27 to 30 use standard deviation volatility measure as one of the independent variables in the models.

Model specifications in all system GMM models indicate there is no second order autocorrelation and Sargan test shows over-identifying restrictions are valid. System GMM result is different from fixed effect model in that there is some support of Hypothesis III in the system GMM models. However not so strong, there is some evidence that real stock return is negatively related to trade and financial openness (see Tables 23, 25, 27, and 29; Column. 8). Trade

openness measure *XM Open* and financial openness measure *GEQY* are negatively and significantly related to stock returns. The more the country's trade and financials are open the more stock return declines; this could be due to the reduction in profit of margin, because of the competition from imported goods (due to trade openness) and domestic manufacturer (due to capital inflow). Furthermore, country's stock index risk (variance) is higher than the global risk (covariance) that makes the equity premium to fall as the country liberalizes. Conflicting evidence on openness and return in system GMM result but the cost of capital does indeed consistently have a negative impact on return.

The weak significance of openness for these African countries could be due to poor institutions. As Henry (2007) put it weak institutions and inappropriate government regulations can distort economic decision making, reduce total factor productivity, and lead to lower rates of return. Unless the institutions are in place financial and trade openness may not have the intended impact in the economy. The other factor, for the weak significance of financial and trade openness for these African countries, could be the presence of capital market imperfection, such as agency problems, asymmetric information, and poor investor protection, leads to persistent return differential between rich and poor countries (Stulz 2005).

The other unexpected result is the significant positive correlation of Chinn and Ito's measure of capital account openness with stock market return (see Tables 23 to 30). This could be due to the binary nature of the capital account openness. When Henry (2007) explains why financial liberalizations impact is small or none, he attributes one of the probable cause to be the binary nature the data. The result of capital account openness being away from the expectation could be due to the binary nature of the variable.

Similar to the fixed effect models, real GDP growth is largely positively related with stock market returns, supporting Hypothesis IV—similar to Beck and Levine (2004) and Henry et al. (2004). Real GDP growth is largely significant when beta and size are in the model (Tables 23 to 26) than when standard deviation and turnover are in the model (Tables 27 to 30). Stock market capitalization is strongly and positively related to stock market returns. As expected, discount rate is consistently inversely related with stock market returns. The result shows a strong positive relationship between stock turnover and stock market return. Size is positively significant with stock market return when South Africa is excluded from the model (see Tables 25 and 29). Generally, the results indicate stock market returns are explained by MSCI world index return, real GDP growth, discount rate, stock turnover, and stock market capitalization.

Results presented from Table 27 to Table 30 use standard deviations as one of the independent variables instead of using beta, as in Table 23 to Table 26. The results indicate standard deviation of stock returns are strongly and positively related to stock returns; that is not a surprise since investors require a higher return for taking higher risk. Indicating the results are sensitive to the definition of volatility measure, since beta, measure of volatility, never show significance relation to stock returns.

5.6 Conclusion

We investigate the effects of openness (financial and trade) and economic growth on stock returns using fixed effect and system GMM models. Hypothesis III does not hold true in the fixed effect models: there is no significant relationship between stock market return and financial and trade openness in the fixed effect models. Hypothesis IV largely holds true: there is a significant positive relationship between stock returns and real GDP growth. Particularly in the

fixed effect model we find strong positive relationship between real stock return and real GDP growth. The fixed effect model results indicate stock market returns are explained by MSCI world index return, real GDP growth, discount rate, and turnover.

On the other hand, system GMM results differ from fixed effect model in the sense that system GMM model shows some support for Hypothesis III. There is some evidence, however not so strong, that real stock return is negatively related to trade and financial openness. Trade openness measure *XM Open* and financial openness measure *GEQY* are negatively and significantly related to stock returns. The more a country increases its trade and financial openness, the more the stock returns decline. Possible explanation could be due to reduction in profit margin because of competition from imported goods and domestic manufacturers. Other explanation could be due to the local risk (variance) of the country's stock index being higher than the global risk (covariance) of the country's stock index with the world, which makes the equity premium to fall as the country liberalizes. Similar to the fixed effect models, real GDP growth is largely positively related with stock market returns, supporting Hypothesis IV—similar to Beck and Levine (2004) and Henry et al. (2004).

The key result of this dissertation is financial openness measure *GEQY* (portfolio of stocks and FDI) is an important channel because *GEQY* significantly and consistently affects economic growth. The mechanism of how financial openness affects growth and reduces stock market volatilities is as follows: as a country increases financial openness, economic growth increases through a channel of portfolio of stocks and FDI. Furthermore, in the stock return analysis, we find a significant negative relationship between stock return and financial openness measure *GEQY*. Financial openness decreases stock returns due to competition from imported goods, domestic producers and/or due to higher local risk compared to the global risk. Due to the

reduction in the cost of capital projects having negative net present value will have a positive net present values, which increases economic growth—similar to Errunza (2001), Edison and Warnock (2003), Bekaert and Harvey (2003), and Henry (2007) findings.

The weak significance of openness for these African countries could be due to poor institutions. As Henry (2007) put it weak institutions and inappropriate government regulations can distort economic decision making, reduce total factor productivity, and lead to lower rates of return. Unless the institutions are in place financial and trade openness may not have the intended impact in the economy. The other factor, for the weak significance of financial and trade openness for these African countries, could be the presence of capital market imperfection, such as agency problems, asymmetric information, and poor investor protection, leads to persistent return differential between rich and poor countries (Stulz 2005). Finally, the other unexpected result is the significant positive correlation of Chinn and Ito's measure of capital account openness with stock market return. This could be due to the binary nature of the capital account openness. When Henry (2007) explains why financial liberalizations impact is small or none, he attributes one of the probable cause to be the binary nature the data. The result of capital account openness being away from the expectation could be due to the binary nature of the variable.

CHAPTER VI

DISCUSSION AND CONCLUSION

The debate on whether financial development and stock market help growth is ongoing. In the context of Africa, where there exists a strong need and potential for growth, it is important to revisit the topic in order to address the problem of economic underdevelopment. In addition, there are very limited empirical studies on Africa's economic growth and financial market development.

In this dissertation, we focus on seventeen African countries with two main objectives. First, to investigate the relationship between financial and trade openness, and real Gross Domestic Product (GDP) growth, controlling for interest rates, stock market capitalization, human capital and stock market volatility. Different types of financial openness measures, such as International Financial Integration (IFI), portfolio of equity and foreign direct investment (GEQY) of Lane and Milesi-Ferretti (2007), and capital account openness measure (KA) of Chinn and Ito (2008), are employed. Second, we investigate the association of African real stock index returns with financial and trade openness, controlling for real GDP growth, MSCI world index stock return, discount rate and country level stock return volatility. For all analysis, we use Fixed Effect Models (FEM) and System Generalized Method of Moments (SGMM). As proposed by Blundell and Bond (1998) in a panel setup, the SGMM model addresses endogeneity of variables that happen simultaneously.

First, we investigate economic growth and financial and trade openness using fixed effect and system GMM models. The fixed effect model results indicate a positive relationship between economic growth and stock market capitalization is largely significant. We also find a significant relationship between economic growth and financial and trade openness, although weak. On the other hand, system GMM results indicate the financial openness measure *GEQY* is consistently positive and significantly associated with economic growth. The key result of this dissertation is the positive relationship between financial openness and economic growth. In particular, the financial openness channel affecting growth is portfolio equity and FDI stocks (i.e., *GEQY*).

Second, we investigate how real stock returns behave with financial and trade openness, and economic growth using fixed effect and system GMM models. The fixed effect model results indicate there is a significant positive relationship between stock market returns and real GDP growth. On the other hand, system GMM results are different from the fixed effect model in that, in the system GMM model there is some evidence, although not strong, real stock return is negatively related to trade and financial openness. Trade openness measure *XM Open* and financial openness measure *GEQY* are negatively and significantly related to stock returns. Similar to the fixed effect models, real GDP growth is largely positively related with stock market returns, supporting the direct relation between stock return and economic growth.

In almost all specifications, the financial openness measure *GEQY* is positively associated with economic growth, indicating the importance of the financial openness measure *GEQY* (Portfolio of stocks and FDI) for African economic growth. As a country increases its financial openness, economic growth also increases through the channel of portfolio of stocks and FDI. Furthermore, in the stock return analysis, we find a significant negative relationship between stock return and financial openness measure *GEQY*. Financial openness decreases stock

returns due to competition from imported goods, domestic producers and decline in the cost of capital.

We mentioned at the beginning the two opposing arguments of economic growth and financial development. On the one hand, Schumpeter (1912), Levine and Zervos (1998), Loayza and Beck (2000), and Beck and Levine (2004), among others, provide evidence consistent with the view that financial and stock markets are important engines of economic growth. On the other hand, Krugman (1993), Lucas (1988) and Robinson (1952), among others, argue that financial development is unlikely to be the major engine of economic development. Our results indicate that financial openness measures, particularly portfolio of equity and FDI (GEQY), could help economic growth for African countries - consistent with the view that financial development is important engine of economic growth. However, the result is not robust for other measures of financial and trade openness, which could be due to poor institutions in the African countries.

The results of the economic growth and stock returns with respect to openness could be linked as integrated one through, particularly, the financial openness portfolio of stocks and FDI (GEQY) as the variable shows significance in both models. The mechanism by which the financial openness affects economic growth and stock returns could be demonstrated as follows: As a country financially liberalizes inflow of capital increases, consequently, cost of capital declines. As the cost of capital declines, some investment projects that had negative net present value (NPV) before liberalization will transform into positive NPV after liberalization whereby increasing investment and economic growth. Specifically, as a country financially liberalizes a firm's access to capital increases with reduced cost of capital as capital accumulation increase from private investor around the world, thus, spurring growth through higher investment. Our

result indicates that financial openness not only spurs economic growth but also reduces stock returns. As a country financially liberalizes, investors diversify their portfolios there by reducing risk. Financially open markets have lower risk premia because domestic investors can diversify their portfolios than would in the absence of openness. Moreover, liberalization boosts equity valuation as the cost of capital falls. Thus, the combination of risk reduction and equity revaluation, as a country liberalizes, reduces stock returns in the country. In brief, capital accumulation is subject to diminishing returns.

An important implication of this dissertation is that the policy makers of these African countries could stimulate economic growth and decrease stock market volatilities by opening their equity markets to international investors and encouraging Foreign Direct Investment (FDI). In finding factors that affects FDI in Sub-Saharan Africa, Naude and Krugell (2007) investigate determinates of FDI in Africa and identified a number of robust determinates of FDI: government consumption, inflation rate, investment, political stability, accountability, regulatory burden, rule of law and initial literacy. They emphasize that both policy and institutional factors are determinates of FDI flows to Africa. Similarly, Suliman and Mollick (2009) find that FDI inflow positively respond to human capital and to improvements in political rights and civil liberties, while war events exert strong negative effects on FDI. After pointing out the need to increase FDI for African economic growth, Owusu-Antwi (2012), also gave a long list of determinants of FDI flows to Africa: market size, labor cost, infrastructure, openness, resources, political risk, institutional factors, macroeconomic stability, incentives and operating conditions, existing investors, and privatizations.

It is important to point out some of the limitations of this study. The main limitation is availability of data in the sample countries or African countries in general. Furthermore, the

development of stock markets in African countries is relatively new and some of the sample countries have very short span of data for some of the variables (for example, the stock index start for Uganda on the year 2005, Namibia on the year 2002 and Malawi on the year 2000). Due to these unbalanced nature of the data, some countries could have more influence than other countries in the overall result. In addition, Malawi, Swaziland, Tanzania and Uganda monthly stock index data are not available. For this reason, they are excluded from some of the regressions that require monthly stock returns to calculate volatility of stock returns. Finally, there could be measurement error in some of the variables in the study.

An important question for future research lies in assessing whether African countries' economic integration to rest of the world or the slow economic progress towards the emerging market is moving ahead. In order to assess Africa's economic integration with the rest of the world the future research could investigate: Stock market volatility and economic growth in Africa; African stock market integration with the emerging market or the rest of the world; and assessing the level of institutional development in African countries would help better understand the economic integration of Africa with rest of the world.

Volatility of these African stock markets association with the financial and trade openness particularly would be an important question since some authors [Rodrik (1998) and Prasad et al. (2003)] attribute high volatility and financial crisis as a drawback of liberalization. Furthermore, the effect of financial and trade openness on wages in Africa would be interesting similar to Chari et al. (2012) who find an increase in wages after liberalization for 25 emerging markets. It would also be interesting to investigate factors that increase FDI for African countries, since it is a key finding in this dissertation that stimulate growth in African countries.

Finally, an extension that addresses the endogeneity of openness with growth would be interesting. Since the reverse causation would also be possible, i.e. economic growth could lead to openness to accommodate the growth through trade or finance.

REFERENCES

- Adam, A.M., Tweneboah, G. (2008) Macroeconomic Factors and Stock Market Movement: Evidence from Ghana. *Working Paper, University of Leicester, UK*
- Adjasi, C.K.D, Biekpe, N.B. (2006) Stock Market Development and Economic Growth: The Case of Selected African Countries. *African Development Review, 18(1) pp.144 – 161.*
- Agenor, P. (2003) Benefits and costs of International Financial Integration: Theory and Facts. *World Economy, 26 (8) pp. 1089 1118.*
- Allen, F., Otchere, I., Senbet, L.W. (2011) African Financial Systems: A review. *Review of Development Finance 1 pp. 79 – 113.*
- Allen, F., Carletti, E., Cull, R., Qian, J., Senbet, L.W. (2010) The African Financial Development Gap. *Working Paper.*
- Appiah-Kusi, J., Menyah, K. (2003) Return predictability in Africa stock markets. *Review of Financial Economics 12 pp. 247-270.*
- Arellano, M., and Bond, S. (1991) Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies 58: pp 277– 297.*
- Arestis, P., Demetriades, P., Luintel, K.B. (2001) Financial Development and Economic Growth: The role of Stock Markets. *Journal of Money, Credit, and Banking, 33(1) pp.16-41.*
- Arteta, C., Eichengreen, B., Wyplosz, C. (2001) When does Capital Account Liberalization Help More Than It Hurts? *NBER Working Paper, no. 8414.*
- Aryeetey, E., Senbet, L.W., Udry, C. (1997) Financial Liberalisation and Financial Markets in Sub-Saharan Africa: a Synthesis. *Journal of African Economies 6 (1) pp. 1 – 28.*
- Baltagi, B.H., Demetriades, P.O., Law, S.H. (2009) Financial Development and Openness: Evidence from panel data. *Journal of Development Economics, 89 pp 285 – 296.*
- Bangake, C., Eggoh, J.C. (2011) Further evidence on finance-growth causality: A panel data analysis. *Economic Systems 35(2), pp. 176 – 188.*

Barro, R. J. (1990) The Stock Market and Investment. *Review of Financial Studies*, 3(1), pp. 115-31.

Barro, R. J. (1991) Economic Growth in a Cross Section of Countries. *The Quarterly Journal of Economics*, 106 (2) pp. 407 – 443.

Barro, R. J. & Sala-i-Martin, X (1991) Convergence across states and regions. *Brookings Papers on Economic Activity* 1, pp. 107-82.

Barro, R. J. & Sala-i-Martin, X (1992) Convergence. *Journal of Political Economy*, 100(2), pp. 223- 251.

Baumol, W. J. (1986) Productivity growth, convergence, and welfare. *American Economic Review* 76 (5), pp. 1072-85.

Beck, T., Levine, R., Loayza, N. (2000) Finance and the sources of growth. *Journal of Financial Economics*, 58(1, 2), pp. 261-300.

Beck, T., Levine, R. (2004) Stock markets, banks, and growth: Panel evidence. *Journal of Banking & Finance* 28 pp. 423 – 44.

Beck, T., Demirgüç-Kunt A. (2009) Financial Institutions and Markets Across Countries and over Time: Data and Analysis, *World Bank Policy Research Working Paper No. 4943*.

Bekaert, G., Harvey, C.R. (2003) Emerging market finance. *Journal of Empirical Finance* 10 pp. 3 – 55.

Bekaert, G., Harvey, C.R. (2001) Emerging equity markets and economic development. *Journal of Development Economics*. 66 pp. 465 – 504.

Bekaert, G., Harvey, C.R. (2000) Foreign speculators and emerging equity markets. *Journal of Finance*. 55 pp. 565 – 613.

Bilson, C.M., Brailsford, T.J., Hooper, V.J. (2001) Selecting macroeconomic variables as explanatory factors of emerging stock market returns. *Pacific-Basin Finance Journal* 9 pp. 401 – 426.

Blundell R., and S. Bond, (1998) Initial Conditions and Moment Restrictions in Dynamic Panel Data Methods. *Journal of Econometrics* 87: 115-143.

Bun, M.J.G., Kiviet, J. F. (2006) The effects of dynamic feedbacks on LS and MM estimator accuracy in panel data models. *Journal of Econometrics* 132 pp. 409 – 444.

Campbell, J. Y., Lettau, M.; Malkiel, B. G., and Xu, Y. (2001) Have Individual Stocks Become More Volatile? An Empirical Exploration of Idiosyncratic Risk. *Journal of Finance*, 56(1), pp. 1-43.

Chari, A., Henry, P.B., Sasson, D. (2012) Capital Market Integration and Wages. *American Economic Journal: Macroeconomics* 4 (2) pp. 102 – 132.

- Chen, N. F., Roll, R., and Ross, S. (1986) Economic forces and the stock market, *Journal of Business* 56: 383 - 403.
- Chinn, M., Ito, H. (2008) A new measure of financial openness. *Journal of Comparative Policy Analysis: Research and Practice* 10 (3):309-322.
- Choong, C. (2012) Does domestic financial development enhance the linkages between foreign direct investment and economic growth? *Empirical Economics* 42 (3) pp.819 – 834.
- Cohen, R., Polk, C., Vuolteenaho, T. (2005) Money illusion in the stock market: The Modigliani-Cohn hypothesis. *Quarterly Journal of Economics* 120 (2): 639-668.
- Collier, P., Gunning, J.W. (1999) Explaining African Economic Performance. *Journal of Economic Literature*. XXXVII, pp 64 – 111.
- Collins, D., Biekpe, N. (2003) Contagion: a fear for African equity markets? *Journal of Economics and Business* 55 pp 285 – 297.
- Databank Group (2004) ‘African Stock Markets Consolidated Gains’, *Databank Research Accra, Ghana*.
- De Jong, F., De Room, F.A. (2005) Time varying market integration and expected returns in emerging markets. *Journal of Financial Economics* 78 pp. 583 – 613.
- Demirguc-Kunt, A., Levine, R. (1996) Stock Markets, Corporate Finance, and Economic Growth: An overview. *The World Bank Economic Review*. 10 (2) pp. 223 – 239.
- Edison, H.J., Warnock, F.E. (2003) A simple measure of the intensity of capital controls. *Journal of Empirical Finance* 10 pp. 81 – 103.
- Eichengreen, B., Leblang, D. (2003) Capital Account Liberalization and Growth: Was Mr. Mahathir Right? *International Journal of Finance & Economics* 8, pp 205 – 224.
- Enisan, A.A., Olufisayo (2009) Stock market development and economic growth: Evidence from seven sub-Sahara African Countries. *Journal of Economics and Business* 61 pp 162-171.
- Esqueda, O., Assefa, T., Mollick, A. V. (2012) Financial Globalization and Stock Market Risk. *Journal of International Financial Markets Institutions and Money* 22 pp 87 – 102.
- Errunza, V. (2001) Foreign Portfolio Equity Investments, Financial Liberalization, and Economic Development. *Review of International Economics* 9 (4) pp. 703 – 726.
- Errunza, V., Miller, D.P. (2000) Market segmentation and the cost of capital in international equity markets. *The Journal of Financial and Quantitative Analysis* 35 pp. 577 – 600.
- Fama, E. F. (1981) Stock Return, Real Activity, Inflation, and Money. *American Economic Review*, 71(4), pp. 545-65.

- Fisher, S., Merton, R. C. (1984) Macroeconomics and Finance: The Role of the Stock Market. *Carnegie- Rochester Conference Series on Public Policy*, 21(0), pp. 57-108.
- Fung, W., Hsieh, D.A. (2004) Extracting portable alphas from equity long/short hedge funds. *Journal of Investment Management* 2 (4): 1–19.
- Ghirmay, T., (2004) Financial Development and Economic Growth in Sub-Saharan African Countries: Evidence from Time Series Analysis. *African Development Review*, 16(3) pp. 415 – 432.
- Greenwood, J., Smith, B. (1997) Financial market in development, and the development of financial markets. *Journal of Economic Dynamics and Control*, 21(1) pp. 145 – 181.
- Gregorio, J., Guidotti, P. (1995) Financial Development and Economic Growth. *World Development*, 23 (3) pp.433 – 448.
- Guo, H. (2002) Stock Market Returns, Volatility, and Future Output. *Review: The Federal Reserve Bank of St. Louis*. pp. 75 – 86.
- Gyimah-Brempong, K. Paddison, O. Mitiku, W. (2006) “Higher Education and Economic Growth in Africa” *Journal of Development Studies*, 42 (3) pp. 509 – 529.
- Harvey, C.R. (1989) Forecasts of Economic Growth from the Bond and Stock Markets. *Financial Analysts Journal*, 45(5) pp. 38 – 45.
- Hassen, M.K, Maroney, N.C.; El-Sady, H.M. and Telfah, A. (2003) Country risk and stock market volatility, predictability, and diversification in the Middle East and Africa. *Economic Systems* 27 pp. 63 – 82.
- Henry, O. T., Olekalns, N., Thong, J. (2004) Do market returns predict changes to output? Evidence from nonlinear panel data model. *Empirical Economics* 29 pp. 527 – 540.
- Henry, P. B. (2007) Capital Account Liberalization: Theory, Evidence, and Speculation. *Journal of Economic Literature* XLV pp. 887 – 935.
- Henry, P. B. (2003) Capital Account Liberalization: The Cost of Capital, and Economic Growth. *NBER Working Paper series, Working Paper 9488*.
- Henry, P. B. (2000) Stock Market Liberalization, Economic Reform, and Emerging Market Equity Prices. *Journal of Finance* LV (2) pp. 529 – 564.
- Jefferis, K., Thupayagale, P. (2008) Long Memory in Southern Africa Stock Markets. *South African Journal of Economics* 76 (3) pp. 384 – 398.

- Judson, R.A., Owen, A.L., (1999) Estimating dynamic panel data models: a guide for macroeconomists. *Economics Letters* 65 pp. 9–15.
- Kaul, G. (1987) Stock Returns and Inflation: The Role of Monetary Sector. *Journal of Financial Economics* 18 pp. 253 – 276.
- Klein, M. W., Olivei, G.P. (2008) Capital account liberalization, financial depth, and economic growth. *Journal of International Money and Finance* 27 pp. 861 – 875.
- Kose, M.A., Prasad, E.S., Terrones, M.E. (2006) How do trade and financial integration affect the relationship between growth and volatility? *Journal of International Economics*. 69 pp. 176 – 202.
- Krugman, P.(1993) International Finance and Economic Development, in Alberto Giovannini (ed.), *Finance and Development: Issues and Experience*, Cambridge: Cambridge University Press:11–24.
- Lane, P. R., and Milesi-Ferretti, G.M. (2007) The external wealth of nations mark II: Revised and extended estimates of foreign assets and liabilities, 1970–2004. *Journal of International Economics* 73: 223–250.
- Levine, R. (1996) Stock Markets: A Spur to Economic Growth. *Finance and Development* pp. 7 – 10.
- Levine, R. (1997) Financial Development and Economic Growth: Views and Agenda. *Journal of Economic Literature*, 35 (2) pp 688 – 726.
- Levine, R., Zervos, S. (1998) Stock Markets, Banks, and Economic Growth. *The American Economic Review* 88 (3) pp 537 – 558.
- Levine, R., Zervos, S. (1996) Stock Markets Development and Long –Run Growth. *The World Bank Economic Review*, 10 (2) pp 323 – 339.
- Levine, R., Loayza, N., Beck, T. (2000) Financial intermediation growth: Causality and causes. *Journal of Monetary Economics*, 46 pp 31 – 77.
- Levine, R. (2001) International Finance Liberalization and Economic Growth. *Review of International Economics*, 9(4), 688 – 702.
- Lucas, R. E., Jr. (1988) On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22 (1), pp. 3- 42.
- Magnusson, M.A, Wydick, B. (2002) How efficient are African’s Emerging Stock Markets? *The Journal of Development Studies*. 38 (4) pp. 141 – 156.
- Mankiw, N.G., Romer, D., Weil, D. (1992) A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics* 107 (2) pp. 407 – 437.

- Most, S., Van Den Berg, H. (1996) Growth in Africa: does the source of investment financing matter? *Applied Economics* 28 pp 1427 – 1433.
- Naceur, S.B., Ghazouani, S. (2007) Stock markets, banks, and economic growth: Empirical evidence from MENA region. *Research in International Business and Finance* 21 pp. 297 – 315.
- Naude, W.A., Krugell, W.F. (2007) Investigating geography and institutions as determinants of foreign direct investment in Africa using panel data. *Applied Economics* 39 pp. 1223 – 1233.
- Nzotta, S.M., Okereke, E.J. (2009) Financial Deepening and Economic Development of Nigeria: an Empirical Investigation. *African Journal of Accounting, Economics, Finance and Banking Research* 5 (5) pp. 52 – 66.
- N’Zue, F.F. (2006) Stock Market Development and Economic Growth: Evidence from Cote D’Ivoire. *African Development Review* 18 (1) pp. 123 – 143.
- Olowe, R.A. (1999) Weak form efficiency of the Nigerian stock market: Further Evidence. *African Development Review* 11 (1) pp. 54 – 68.
- Owusu-Antwi, G. (2012) Determinants of Foreign Direct Investment: Is it a better Prescription for Economic Growth in Africa? *International Business & Economic Research Journal* 11(7) pp. 757 – 770.
- Petkova R., Zhang, L. (2005) Is value riskier than growth? *Journal of Financial Economics* 78: 187-202.
- Prasad, E.S., Rogoff, K., Wei, S., Kose, M.A. (2003) Effects of Financial Globalization on Developing Countries: Some Empirical Evidence. *International Monetary Fund. Occasional paper* 220. Washington DC.
- Quinn, D., (1997) The Correlates of Change in International Financial Regulation. *American Political Science Review*, 91(3), pp. 531-51.
- Rajan, R.G., Zingales, L. (2003) The great reversals: the politics of financial development in the twentieth century. *Journal of Financial Economics* 69 pp 5 -50.
- Robinson, J. (1952) The Generalization of the General Theory. *The rate of interest and other essays*, London, Macmillan, pp. 67-146.
- Rodrik, D. (1998) Who needs Capital Account Convertibility? In: *Should the IMF pursue Capital Account Convertibility. Essays in International Finance Section, Department of Economics, Princeton University*, 55 – 65.
- Roodman, D. (2009) Practitioner’s Corner. A note on the Theme of Too many Instruments. *Oxford Bulletin of Economics and Statistics*, 71 (1) pp. 135 - 158.

Rouwenhorst, K. G. (1999) Local Return Factors and Turnover in Emerging Stock Markets. *The Journal of Finance*, LIV (4) pp. 1439 – 1464.

Sargan, J. D., (1958) The estimation of economic relationships using instrumental variables. *Econometrica* 26: 393-414.

Sarkees, M. R., Wayman, F. (2010) *Resort to War: 1816 - 2007*. CQ Press. (www.correlatesofwar.org)

Schumpeter, J.A. (1912/2002) The Economy as a Whole, English translation of Das Gesamtbild der Volkswirtschaft. In: Schumpeter, J.A. (Ed.), *Theorie der wirtschaftlichen Entwicklung, printed in Industry and Innovation*, 9(7), pp. 93–145.

Schwert, G. W. (1989a) Business Cycles, Financial Crises, and Stock Volatility. *Carnegie-Rochester Conference Series on Public Policy*, 31(0), pp. 83-126.

Schwert, G. W. (1989b) Why Does Stock Market Volatility Change Over Time? *Journal of Finance*, 44(5), pp. 1115-53.

Senbet, L.W. Otchere, I. (2005) Financial Sector Reforms in Africa: Perspectives on Issues and policies. *Annual World Bank Conference on Development Economics (ABCDE), Dakar Senegal*.

Senbet, L.W. (2001) Global Financial Crisis: Implications for Africa. *Journal of African Economies*, 10(1), pp. 104 – 140.

Senbet, L.W. (1997) The Development of Capital Markets in Africa: Challenges and Prospects. *Paper presented at the 6th Session of the Conference of African Ministers of Finance and the Meeting of Intergovernmental Group of Experts, Addis Ababa, 31 March – 2 April*.

Singh, A. (1999) Should African Promote Stock Market Capitalism? *Journal of International Development* 11, pp. 343 – 365.

Singh, A. (1997) Financial liberalization, Stock markets and Economic Development. *The Economic Journal*, 107(442), pp. 771 – 782.

Stiglitz, J. (2000) Capital Market Liberalization, Economic Growth, and Instability. *World Development*, 28 (6) pp. 1075 - 1086

Stulz, R. M. (1999) International portfolio flows and security markets. *Working paper, NBER, The Ohio State University*.

Stulz, R. M. (2005) The Limits of Financial Globalization. *Journal of Finance* 60(4) pp. 1595 – 1638.

Suliman, A.H., Mollick, A.V. (2009) Human Capital Development, War and Foreign Direct Investment in Sub-Saharan Africa. *Oxford Development Studies* 37(1) pp. 47 -61.

Tesar, L. L., Werner, I. M. (1998) The internationalization of securities markets since the 1987 crash; in Robert E. Litan and Anthony M. Santomero, eds.: *Brookings-Wharton Papers on Financial Services* (Brookings Institution Press, Washington).

Yartey, A.C.; Adjasi, C. K.D (2007) Stock market development in Sub-Saharan Africa: Critical Issues and Challenges. *International Monetary Fund Working Paper IMF WP/07/209 International Monetary Fund, Washington DC.*

Wang, Z., Yang, J., Bessler, D.A. (2003) Financial crisis and African stock market integration. *Applied Economics Letters*, 10 (9) pp 527 – 533.

Table 1. Descriptive statistics

	N	Mean	St. Dev.	Min.	Max.
Real Stock Index Return	203	8.23	40.71	-83.54	174.59
Real MSCI return	240	1.90	19.12	-43.37	26.79
Stock return volatility (SD)	170	.06	.03	.02	.16
Stock return volatility (Beta)	164	.35	.53	-1.08	2.59
Stock market capitalization as a percentage of GDP	226	34.04	50.32	0.55	291.28
Turnover (TO)	217	11.03	14.00	0	62.00
Size	222	8.09	22.60	0	148.80
Trade Openness	208	.62	.29	.18	1.75
KA Openness	240	-.08	1.47	-1.84	2.48
IFI	208	1.37	.52	.45	3.21
GEQY	208	.57	.32	.10	1.48
Real GDP growth	256	4.53	2.89	-6.58	16.73
REER	144	105.30	19.44	63.37	177.20
Exchange rate	256	439.80	979.20	.15	4832.20
Primary Enrollment Rate	177	81.91	13.96	48.67	99.79
Private Credit Per GDP(PCRDOFGDP)	204	.27	.23	.03	.87
Gross Capital Formation/GDP (GCFPERGDP)	240	20.98	5.31	8.69	38.12
General Government Cons./GDP	240	15.87	4.80	6.48	30.32
Discount rate	252	13.88	9.80	1.33	50.23
Economic Freedom	250	59.32	5.12	45.70	76.30
Civil War	256	.07	0.25	0	1.00

Note: Annual data from 1995 – 2010 for Sixteen African countries. Zimbabwe is excluded from the sample due to the country's very high inflation that changes the average stock return of all countries in this study to negative. Real stock returns are calculated from the countries stock index obtained from *DataStream*. Real GDP growth data are collected from the World Bank website. Real MSCI return is calculated from the MSCI index obtained from *DataStream*. Stock return volatilities are time varying calculated from monthly indices of the corresponding countries using 24 month. Turnover is proxy for stock market liquidity. Size is equal to the stock market capitalization deflated by GDP. Turnover and size are data collected from World Bank website. KA Openness data obtained from Chinn and Ito (2008) is a measures the degree of a countries capital account openness. IFI and GEQY are from Lane and Milesi-Ferretti's IMF website.

Table 2A. Correlation Economic Growth variables

Probability	CIVIL_W AR	GEQY	GCFPE RGDP	IFI	KAOP EN	INFLA TION	PCRDBOFG DP	PRIMENRR ATE	R_GDP_ GR	XM_OP EN	LN_MKTC AP	SD	DIS_R ATE	E_FREE_I ND	BET A	
CIVIL_WAR	1.000															
GEQY	-0.047 (0.487)	1.000														
GCFPERGDP	-0.167 (0.007)	0.407 (0.000)	1.000													
IFI	0.047 (0.483)	0.529 (0.000)	-0.064 (0.356)	1.000												
KAOPEN	-0.101 (0.108)	0.091 (0.175)	0.210 (0.001)	-0.047 (0.487)	1.000											
INFLATION	-0.015 (0.806)	-0.106 (0.124)	-0.188 (0.003)	-0.071 (0.303)	-0.093 (0.147)	1.000										
PCRDBOFGDP	-0.104 (0.138)	0.442 (0.000)	0.194 (0.008)	-0.233 (0.002)	-0.084 (0.234)	-0.314 (0.000)	1.000									
PRIMENRRATE	-0.082 (0.279)	0.387 (0.000)	0.405 (0.000)	-0.144 (0.075)	0.196 (0.009)	-0.234 (0.002)	0.550 (0.000)	1.000								
R_GDP_GR	-0.058 (0.345)	0.176 (0.009)	0.412 (0.000)	-0.039 (0.560)	0.196 (0.002)	-0.124 (0.045)	-0.119 (0.091)	0.173 (0.021)	1.000							
XM_OPEN	-0.009 (0.896)	0.318 (0.000)	0.136 (0.050)	0.303 (0.000)	-0.204 (0.002)	-0.054 (0.434)	-0.034 (0.647)	0.062 (0.443)	-0.043 (0.528)	1.000						
LN_MKTCAP	-0.065 (0.315)	0.073 (0.307)	-0.056 (0.402)	-0.328 (0.000)	-0.020 (0.766)	0.122 (0.063)	0.747 (0.000)	0.384 (0.000)	-0.186 (0.004)	-0.088 (0.213)	1.000					
SD	-0.051 (0.494)	-0.189 (0.024)	-0.509 (0.000)	-0.090 (0.286)	-0.143 (0.064)	0.545 (0.000)	0.177 (0.040)	0.151 (0.083)	-0.467 (0.000)	-0.064 (0.445)	0.339 (0.000)	1.000				
DIS_RATE	-0.055 (0.374)	-0.178 (0.008)	-0.388 (0.000)	-0.026 (0.702)	-0.153 (0.016)	0.740 (0.000)	-0.377 (0.000)	-0.294 (0.000)	-0.305 (0.000)	-0.017 (0.805)	0.178 (0.006)	0.837 (0.000)	1.000			
E_FREE_IND	-0.060 (0.326)	0.373 (0.000)	0.552 (0.000)	0.111 (0.104)	0.348 (0.000)	-0.316 (0.000)	0.416 (0.000)	0.299 (0.000)	0.271 (0.000)	0.174 (0.011)	-0.082 (0.214)	-0.593 (0.000)	-0.511 (0.000)	1.000		
BETA	-0.073 (0.334)	0.249 (0.003)	0.144 (0.069)	-0.042 (0.620)	0.070 (0.374)	0.281 (0.000)	0.574 (0.000)	0.424 (0.000)	0.250 (0.001)	-0.190 (0.025)	0.267 (0.000)	-0.118 (0.120)	-0.072 (0.344)	0.268 (0.000)	1.000	

Note: P-value in parentheses.

Table 2B. Correlation Return and Volatility Variables

Probability	GEQY	IFI	KAOPEN	INFLATION	R_GDP_GR	XM_OPEN	LN_MKTCAP	SD	DISC_RATE	BETA	ST_RETURN	TURNOVER	MSCI_RET	SIZE
GEQY	1.000													
IFI	0.529 (0.000)	1.000												
KAOPEN	0.091 (0.175)	-0.047 (0.487)	1.000											
INFLATION	-0.106 (0.124)	-0.071 (0.303)	-0.093 (0.147)	1.000										
R_GDP_GR	0.176 (0.009)	-0.039 (0.560)	0.196 (0.002)	-0.124 (0.045)	1.000									
XM_OPEN	0.318 (0.000)	0.303 (0.000)	-0.204 (0.002)	-0.054 (0.434)	-0.043 (0.528)	1.000								
LN_MKTCAP	0.073 (0.307)	-0.328 (0.000)	-0.020 (0.766)	0.122 (0.063)	-0.186 (0.004)	-0.088 (0.213)	1.000							
SD	-0.189 (0.024)	-0.090 (0.286)	-0.143 (0.064)	0.545 (0.000)	-0.467 (0.000)	-0.064 (0.445)	0.339 (0.000)	1.000						
DISC_RATE	-0.178 (0.008)	-0.026 (0.702)	-0.153 (0.016)	0.740 (0.000)	-0.305 (0.000)	-0.017 (0.805)	0.178 (0.0060)	0.837 (0.000)	1.000					
BETA	0.249 (0.003)	-0.042 (0.620)	0.070 (0.374)	0.281 (0.000)	0.250 (0.001)	-0.190 (0.025)	0.267 (0.000)	-0.118 (0.120)	-0.072 (0.344)	1.000				
ST_RETURN	-0.087 (0.258)	-0.156 (0.040)	0.002 (0.981)	0.814 (0.000)	0.018 (0.787)	-0.155 (0.042)	0.138 (0.050)	0.374 (0.000)	0.524 (0.000)	0.314 (0.000)	1.000			
TURNOVER	0.182 (0.011)	-0.167 (0.019)	0.008 (0.907)	-0.039 (0.563)	-0.009 (0.890)	-0.332 (0.000)	0.601 (0.000)	0.080 (0.294)	-0.067 (0.316)	0.310 (0.000)	0.038 (0.593)	1.000		
MSCI_RET	-0.013 (0.850)	-0.065 (0.356)	-0.028 (0.666)	0.019 (0.764)	0.135 (0.031)	0.041 (0.564)	0.020 (0.766)	-0.014 (0.852)	0.068 (0.288)	0.010 (0.900)	0.165 (0.016)	-0.050 (0.462)	1.000	
SIZE	0.274 (0.000)	-0.062 (0.388)	-0.113 (0.094)	0.027 (0.682)	-0.086 (0.188)	-0.199 (0.005)	0.618 (0.000)	0.118 (0.121)	0.009 (0.893)	0.384 (0.000)	0.048 (0.496)	0.783 (0.000)	-0.038 (0.570)	1.000

Note: P-value in parentheses.

Table 3. Fixed Effect real GDP growth dependent variable: Investment model- all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-1.584*	1.590	1.564	1.437	-0.900	1.554	1.558	1.767	-0.839	1.398	1.343
	(0.835)	(1.038)	(1.055)	(1.078)	(1.152)	(1.047)	(1.056)	(1.111)	(1.143)	(1.076)	(1.097)
Investment/GDP	0.192***	0.209**	0.203**	0.194**	0.071	0.205**	0.198**	0.201**	0.098	0.196**	0.190**
	(0.051)	(0.084)	(0.087)	(0.088)	(0.079)	(0.085)	(0.087)	(0.088)	(0.080)	(0.089)	(0.090)
Real GDP growth (lag)		-0.334***	-0.320***	-0.317***	-0.217**	-0.333***	-0.330***	-0.327***	-0.220**	-0.340***	-0.326***
		(0.081)	(0.081)	(0.081)	(0.090)	(0.081)	(0.082)	(0.081)	(0.090)	(0.082)	(0.083)
Beta		0.257	0.173	0.168	0.745	0.214	0.285	0.223	0.833	0.143	0.114
		(0.501)	(0.528)	(0.518)	(0.537)	(0.515)	(0.544)	(0.519)	(0.535)	(0.517)	(0.539)
Market Cap.		1.327***	1.280**	1.233**	1.378**	1.029	1.691**	2.740**	1.106*	1.070*	1.131**
		(0.496)	(0.514)	(0.521)	(0.602)	(0.916)	(0.695)	(1.363)	(0.617)	(0.552)	(0.549)
IFI		-0.891				-1.471				0.755	
		(0.613)				(1.618)				(2.509)	
GEQY			0.760				3.708				2.029
			(1.436)				(3.650)				(3.185)
XM Openness				2.263				9.239		6.887	4.090
				(3.085)				(6.595)		(6.838)	(5.123)
KA Openness					-2.347***				-4.952***		
					(0.774)				(1.678)		
Market Cap*IFI						0.218					
						(0.562)					
Market Cap.*GEQY							-0.753				
							(0.857)				
Market Cap.*XM Open								-2.606			
								(2.179)			
Market Cap.*KA Open									0.630*		
									(0.361)		
IFI*XM Openness										-2.837	
										(4.084)	
GEQY*XM Openness											-2.544
											(4.980)
<i>R-Square within</i>	0.0769	0.2510	0.2368	0.2389	0.1315	0.2521	0.2429	0.2500	0.1537	0.2605	0.2422
<i>N</i>	240	115	115	115	135	115	115	115	135	115	115

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Stock Market Capitalization is in the natural log form.

Table 4. Fixed Effect real GDP growth dependent variable: Investment model- excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-1.578*	1.492	1.549	1.415	-0.937	1.566	1.603	2.060*	-0.885	1.299	1.306
	(0.849)	(1.073)	(1.100)	(1.130)	(1.176)	(1.077)	(1.076)	(1.167)	(1.165)	(1.124)	(1.154)
Investment/GDP	0.198***	0.199**	0.201**	0.191**	0.074	0.208**	0.203**	0.206**	0.101	0.184*	0.188*
	(0.053)	(0.087)	(0.092)	(0.093)	(0.082)	(0.088)	(0.090)	(0.092)	(0.082)	(0.093)	(0.095)
Real GDP growth (lag)		-0.357***	-0.337***	-0.333***	-0.234**	-0.364***	-0.368***	-0.359***	-0.236**	-0.358***	-0.347***
		(0.084)	(0.085)	(0.085)	(0.094)	(0.085)	(0.084)	(0.085)	(0.093)	(0.085)	(0.088)
Beta		0.067	0.100	0.049	0.638	0.129	0.564	0.164	0.695	-0.060	0.012
		(0.585)	(0.617)	(0.617)	(0.611)	(0.590)	(0.639)	(0.612)	(0.606)	(0.614)	(0.638)
Market Cap.		1.225**	1.245**	1.187**	1.409**	2.335*	3.083***	3.901**	1.090*	1.037*	1.074*
		(0.515)	(0.538)	(0.547)	(0.624)	(1.328)	(0.986)	(1.556)	(0.644)	(0.577)	(0.581)
IFI		-1.225*				0.767				-0.213	
		(0.675)				(2.299)				(2.848)	
GEQY			0.499				10.019**				2.520
			(1.894)				(4.701)				(3.992)
XM Openness				1.879				13.749*		4.955	4.513
				(3.317)				(7.172)		(7.561)	(5.500)
KA Openness					-2.350***				-5.022***		
					(0.797)				(1.725)		
Market Cap*IFI						-0.855					
						(0.943)					
Market Cap.*GEQY							-3.234**				
							(1.468)				
Market Cap.*XM Open								-4.666*			
								(2.509)			
Market Cap.*KA Open									0.653*		
									(0.375)		
IFI*XM Openness										-1.713	
										(4.504)	
GEQY*XM Openness											-3.473
											(5.484)
<i>R- Square within</i>	0.0806	0.2625	0.2348	0.2371	0.1362	0.2696	0.2762	0.2669	0.1609	0.2683	0.2409
<i>N</i>	224	103	103	103	121	103	103	103	121	103	103

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Stock Market Capitalization is in the natural log form.

Table 5. Fixed Effect real GDP growth dependent variable: Primary enrollment and beta model - all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-0.297 (0.869)	3.228*** (1.108)	3.207*** (1.105)	3.194*** (1.108)	1.968* (1.172)	3.208*** (1.119)	3.209*** (1.113)	3.237*** (1.118)	1.943 (1.176)	3.207*** (1.120)	3.194*** (1.119)
Primary Enroll.	0.056** (0.024)	0.072* (0.037)	0.063* (0.035)	0.060 (0.037)	0.067* (0.036)	0.072* (0.038)	0.063* (0.037)	0.054 (0.040)	0.063* (0.036)	0.066 (0.040)	0.059 (0.040)
Discount Rate	-0.096*** (0.035)	-0.104 (0.064)	-0.088 (0.055)	-0.093* (0.055)	-0.064 (0.058)	-0.101 (0.067)	-0.088 (0.055)	-0.097* (0.056)	-0.060 (0.059)	-0.107 (0.066)	-0.092 (0.058)
Real GDP growth (lag)		-0.171** (0.085)	-0.174** (0.085)	-0.174** (0.085)	-0.141 (0.088)	-0.171* (0.086)	-0.174** (0.085)	-0.175** (0.085)	-0.139 (0.089)	-0.170* (0.086)	-0.173** (0.086)
Beta		0.142 (0.513)	0.038 (0.533)	0.117 (0.519)	0.348 (0.509)	0.114 (0.535)	0.043 (0.567)	0.146 (0.526)	0.378 (0.514)	0.094 (0.529)	0.010 (0.545)
Market Cap.		1.182** (0.566)	1.126* (0.570)	1.148** (0.576)	1.362** (0.595)	0.982 (1.160)	1.144 (0.917)	1.774 (1.623)	1.342** (0.598)	1.133* (0.608)	1.079* (0.607)
IFI		0.394 (0.829)				-0.018 (2.254)				0.082 (2.758)	
GEQY			1.351 (1.633)				1.440 (3.851)				1.280 (3.961)
XM Openness				1.836 (3.400)				4.864 (8.096)		0.940 (7.983)	1.364 (6.672)
KA Openness					-1.588** (0.778)				-2.485 (1.745)		
Market Cap*IFI						0.158 (0.803)					
Market Cap.*GEQY							-0.026 (1.034)				
Market Cap.*XM Open								-1.053 (2.553)			
Market Cap.*KA Open									0.210 (0.365)		
IFI*XM Openness										0.446 (4.536)	
GEQY*XM Openness											-0.115 (5.947)
<i>R- Square within</i>	0.1186	0.2588	0.2626	0.2594	0.1904	0.2591	0.2627	0.2608	0.1930	0.2608	0.2637
<i>N</i>	174	108	108	108	124	108	108	108	124	108	108

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock Market Capitalization is in the natural log form.

Table 6. Fixed Effect real GDP growth dependent variable: primary enrollment and beta model - excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-0.299 (0.876)	3.163*** (1.140)	3.167*** (1.139)	3.159*** (1.140)	1.953 (1.178)	3.278*** (1.145)	3.236*** (1.134)	3.273*** (1.148)	1.921 (1.183)	3.149*** (1.155)	3.175*** (1.155)
Primary Enroll.	0.056** (0.025)	0.084** (0.039)	0.083** (0.038)	0.083** (0.040)	0.074* (0.037)	0.092** (0.040)	0.080** (0.038)	0.069 (0.043)	0.070* (0.038)	0.083* (0.043)	0.086* (0.045)
Discount Rate	-0.095*** (0.036)	-0.071 (0.072)	-0.074 (0.059)	-0.075 (0.060)	-0.063 (0.061)	-0.082 (0.073)	-0.077 (0.058)	-0.084 (0.060)	-0.058 (0.062)	-0.074 (0.074)	-0.070 (0.063)
Real GDP growth (lag)		-0.202** (0.090)	-0.201** (0.089)	-0.201** (0.089)	-0.164* (0.091)	-0.213** (0.090)	-0.215** (0.089)	-0.209** (0.090)	-0.161* (0.091)	-0.201** (0.091)	-0.198** (0.091)
Beta		-0.106 (0.600)	-0.148 (0.617)	-0.132 (0.613)	0.097 (0.578)	-0.003 (0.608)	0.129 (0.647)	-0.044 (0.621)	0.116 (0.581)	-0.122 (0.623)	-0.155 (0.635)
Market Cap.		1.052* (0.595)	1.024* (0.597)	1.023* (0.609)	1.319** (0.618)	2.500 (1.516)	2.395** (1.173)	2.594 (1.823)	1.280** (0.623)	1.067 (0.641)	1.049 (0.640)
IFI		-0.046 (0.912)					2.867 (2.949)			-0.730 (2.930)	
GEQY			0.459 (1.871)				6.449 (4.793)				-0.622 (4.557)
XM Openness				0.588 (3.643)				7.776 (8.670)		-1.208 (8.428)	-1.120 (7.177)
KA Openness					-1.536* (0.790)				-2.534 (1.772)		
Market Cap*IFI						-1.220 (1.175)					
Market Cap.*GEQY							-2.119 (1.562)				
Market Cap.*XM Open								-2.633 (2.882)			
Market Cap.*KA Open									0.236 (0.375)		
IFI*XM Openness										1.140 (4.737)	
GEQY*XM Openness											1.620 (6.458)
<i>R- Square within</i>	0.1224	0.2601	0.2606	0.2603	0.2008	0.2701	0.2776	0.2681	0.2042	0.2609	0.2613
<i>N</i>	161	98	98	98	112	98	98	98	112	98	98

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock Market Capitalization is in the natural log form.

Table 7. Fixed Effect real GDP growth dependent variable: Primary enrollment SD model - all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-0.431 (0.978)	3.200*** (1.167)	3.219*** (1.170)	3.216*** (1.171)	1.852 (1.210)	3.151*** (1.173)	3.224*** (1.176)	3.252*** (1.180)	1.816 (1.211)	3.189*** (1.181)	3.264*** (1.182)
Primary Enroll.	0.088*** (0.025)	0.057 (0.034)	0.060* (0.034)	0.064* (0.035)	0.060* (0.031)	0.054 (0.035)	0.058 (0.036)	0.057 (0.039)	0.058* (0.031)	0.055 (0.037)	0.071* (0.039)
Real GDP growth (lag)		-0.276*** (0.083)	-0.270*** (0.082)	-0.269*** (0.083)	-0.228*** (0.085)	-0.276*** (0.083)	-0.270*** (0.083)	-0.268*** (0.083)	-0.221** (0.085)	-0.275*** (0.084)	-0.266*** (0.084)
SD		-0.125 (0.137)	-0.158 (0.136)	-0.149 (0.136)	-0.178 (0.110)	-0.124 (0.137)	-0.162 (0.140)	-0.155 (0.137)	-0.171 (0.110)	-0.124 (0.142)	-0.161 (0.140)
Market Cap.		1.514*** (0.569)	1.459** (0.584)	1.529** (0.589)	1.651*** (0.601)	0.858 (1.188)	1.553 (0.937)	2.178 (1.631)	1.600*** (0.603)	1.523** (0.629)	1.545** (0.608)
IFI		-0.582 (0.726)				-1.808 (2.079)				-1.010 (2.884)	
GEQY			0.791 (1.638)				1.264 (4.033)				-1.225 (4.032)
XM Openness				-0.244 (3.488)				2.860 (8.074)		-0.597 (8.370)	-4.155 (6.694)
KA Openness					-1.685** (0.795)				-3.180* (1.709)		
Market Cap*IFI						0.493 (0.783)					
Market Cap.*GEQY							-0.131 (1.022)				
Market Cap.*XM Open								-1.070 (2.509)			
Market Cap.*KA Open									0.352 (0.356)		
IFI*XM Openness										0.683 (4.725)	
GEQY*XM Openness											3.568 (6.048)
<i>R-Square within</i>	0.0736	0.2524	0.2491	0.2472	0.1918	0.2556	0.2492	0.2487	0.1990	0.2527	0.2524
<i>N</i>	177	111	111	111	128	111	111	111	128	111	111

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is the standard deviation of the country's stock return measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock Market Capitalization is in the natural log form

Table 8. Fixed Effect Model: real GDP growth dependent variable: Primary enrollment SD model Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Civil War	-0.431 (0.992)	3.149*** (1.187)	3.171*** (1.199)	3.196*** (1.199)	1.859 (1.224)	3.250*** (1.188)	3.209*** (1.191)	3.286*** (1.204)	1.813 (1.222)	3.140** (1.202)	3.233*** (1.209)
Primary Enroll.	0.088*** (0.025)	0.073** (0.036)	0.088** (0.038)	0.087** (0.037)	0.067** (0.032)	0.084** (0.037)	0.079** (0.038)	0.071* (0.041)	0.067** (0.032)	0.075* (0.039)	0.107** (0.043)
Real GDP growth (lag)		-0.314*** (0.086)	-0.298*** (0.086)	-0.301*** (0.086)	-0.254*** (0.087)	-0.326*** (0.087)	-0.308*** (0.086)	-0.304*** (0.087)	-0.247*** (0.088)	-0.313*** (0.087)	-0.292*** (0.087)
SD		0.016 (0.155)	-0.022 (0.157)	-0.047 (0.151)	-0.097 (0.118)	0.053 (0.158)	-0.045 (0.156)	-0.052 (0.151)	-0.085 (0.118)	0.008 (0.159)	-0.014 (0.162)
Market Cap.		1.139* (0.606)	1.236** (0.613)	1.263** (0.624)	1.503** (0.635)	2.777* (1.558)	2.596** (1.109)	2.819 (1.770)	1.399** (0.641)	1.217* (0.662)	1.348** (0.635)
IFI		-1.046 (0.770)				2.116 (2.875)				-1.980 (3.012)	
GEQY			-0.825 (1.942)				5.447 (4.691)				-4.356 (4.611)
XM Openness				-1.464 (3.667)				5.711 (8.475)		-2.872 (8.684)	-6.266 (6.959)
KA Openness					-1.637** (0.807)				-3.403* (1.743)		
Market Cap*IFI						-1.380 (1.210)					
Market Cap.*GEQY							-2.091 (1.426)				
Market Cap.*XM Open								-2.579 (2.746)			
Market Cap.*KA Open									0.420 (0.367)		
IFI*XM Openness										1.599 (4.887)	
GEQY*XM Openness											5.786 (6.422)
<i>R-Square within</i>	0.0770	0.2712	0.2566	0.2564	0.1963	0.2826	0.2756	0.2644	0.2070	0.2723	0.2647
<i>N</i>	164	101	101	101	116	101	101	101	116	101	101

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is the standard deviation of the country's stock return measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock Market Capitalization is in the natural log form.

Table 9. System GMM real GDP growth dependent variable: Primary enrollment and beta model - all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP growth (lag)	-0.136 (0.161)	-0.124 (0.187)	-0.144 (0.177)	-0.133 (0.184)	-0.091 (0.182)	-0.124 (0.187)	-0.142 (0.177)	-0.140 (0.182)	-0.094 (0.182)	-0.131 (0.187)	-0.143 (0.181)
Civil War	2.092 (2.312)	2.531 (1.736)	2.893* (1.670)	2.891 (1.797)	2.454 (1.648)	2.415 (1.668)	2.908* (1.673)	3.138* (1.707)	2.430 (1.625)	2.998* (1.749)	3.029* (1.810)
Primary Enroll.	0.099*** (0.029)	0.086* (0.046)	0.044 (0.043)	0.072 (0.049)	0.089** (0.036)	0.090** (0.043)	0.049 (0.042)	0.089* (0.049)	0.088** (0.036)	0.071 (0.046)	0.044 (0.044)
Discount Rate	0.009 (0.068)	-0.126* (0.065)	-0.097** (0.038)	-0.104** (0.046)	-0.066* (0.037)	-0.113* (0.061)	-0.100*** (0.039)	-0.092** (0.046)	-0.048 (0.036)	-0.114* (0.061)	-0.098** (0.041)
Market Cap.		-0.346 (0.528)	-0.379 (0.530)	-0.340 (0.558)	-0.646 (0.437)	-2.050 (1.541)	-0.745 (0.932)	-2.381* (1.301)	-0.545 (0.402)	-0.318 (0.558)	-0.367 (0.546)
Beta		0.177 (0.490)	-0.209 (0.503)	0.089 (0.513)	-0.009 (0.490)	0.035 (0.476)	-0.286 (0.521)	-0.021 (0.496)	-0.090 (0.525)	0.019 (0.540)	-0.257 (0.500)
IFI		0.824 (0.937)				-2.686 (2.395)				2.293 (2.277)	
GEQY			3.640*** (1.359)				2.152 (3.493)				2.915 (2.605)
XM Openness				4.084 (2.608)				-7.504 (7.754)		7.620 (5.228)	1.564 (4.034)
KA Openness					-0.131 (0.334)				-1.262 (0.807)		
Market Cap*IFI						1.302 (0.908)					
Market Cap.*GEQY							0.481 (0.879)				
Market Cap.*XM Open								3.806* (2.231)			
Market Cap.*KA Open									0.350* (0.193)		
IFI*XM Openness										-2.874 (4.223)	
GEQY*XM Openness											0.511 (4.062)
M1	-2.708*** (0.007)	-2.729*** (0.006)	-2.851*** (0.004)	-2.752*** (0.006)	-2.725*** (0.006)	-2.718*** (0.007)	-2.844*** (0.005)	-2.680*** (0.007)	-2.705*** (0.007)	-2.777*** (0.006)	-2.884*** (0.004)
M2	0.501 (0.616)	0.226 (0.821)	0.277 (0.782)	-0.112 (0.911)	0.271 (0.787)	0.233 (0.816)	0.301 (0.764)	-0.130 (0.896)	0.311 (0.756)	-0.019 (0.985)	0.122 (0.903)
Sargan	10.090 (1.000)	6.213 (1.000)	5.921 (1.000)	6.914 (1.000)	10.048 (1.000)	4.509 (1.000)	5.330 (1.000)	6.577 (1.000)	5.620 (1.000)	0.616 (1.000)	7.691 (1.000)
N	166	108	108	108	124	108	108	108	124	108	108

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 10. System GMM real GDP growth dependent variable: Primary enrollment and beta model- excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP growth (lag)	-0.164 (0.149)	-0.159 (0.185)	-0.174 (0.175)	-0.160 (0.185)	-0.129 (0.176)	-0.155 (0.188)	-0.172 (0.177)	-0.160 (0.185)	-0.130 (0.177)	-0.160 (0.187)	-0.173 (0.181)
Civil War	2.105 (2.236)	2.454 (1.741)	2.774 (1.711)	2.679 (1.834)	2.381 (1.679)	2.384 (1.704)	2.789 (1.717)	2.975* (1.765)	2.407 (1.664)	2.750 (1.802)	2.768 (1.863)
Primary Enroll.	0.106*** (0.028)	0.103** (0.050)	0.065 (0.047)	0.095* (0.052)	0.107*** (0.040)	0.103** (0.049)	0.066 (0.045)	0.107** (0.050)	0.106*** (0.040)	0.093* (0.049)	0.067 (0.046)
Discount Rate	0.014 (0.076)	-0.061 (0.053)	-0.051 (0.033)	-0.057 (0.043)	-0.015 (0.034)	-0.057 (0.051)	-0.053 (0.034)	-0.051 (0.042)	-0.008 (0.034)	-0.060 (0.061)	-0.049 (0.042)
Market Cap.		-0.114 (0.597)	-0.141 (0.599)	-0.175 (0.585)	-0.173 (0.564)	-1.079 (2.431)	-0.393 (1.365)	-2.022 (1.434)	-0.179 (0.462)	-0.145 (0.581)	-0.145 (0.572)
Beta		0.083 (0.501)	-0.345 (0.546)	-0.013 (0.548)	-0.123 (0.518)	0.027 (0.502)	-0.393 (0.534)	-0.165 (0.523)	-0.216 (0.502)	-0.027 (0.585)	-0.343 (0.551)
IFI		0.372 (0.980)				-1.589 (4.304)				1.456 (2.435)	
GEQY			3.314** (1.586)				2.237 (5.798)				2.523 (3.144)
XM Openness				2.237 (2.994)				-7.631 (8.292)		4.719 (5.372)	-0.712 (4.525)
KA Openness					-0.328 (0.345)				-1.078 (0.757)		
Market Cap*IFI						0.786 (1.811)					
Market Cap.*GEQY							0.387 (1.804)				
Market Cap.*XM Open								3.406 (2.393)			
Market Cap.*KA Open									0.239 (0.187)		
IFI*XM Openness										-1.980 (4.647)	
GEQY*XM Openness											1.135 (4.811)
M1	-2.712*** (0.007)	-2.571** (0.010)	-2.743*** (0.006)	-2.641 (0.008)	-2.634*** (0.144)	-2.563** (0.10)	-2.728*** (0.006)	-2.595** (0.010)	-2.634*** (0.008)	-2.629*** (0.009)	-2.787*** (0.005)
M2	0.403 (0.687)	0.043 (0.966)	0.108 (0.914)	-0.117 (0.907)	0.144 (0.886)	0.081 (0.935)	0.138 (0.890)	-0.102 (0.919)	0.185 (0.854)	-0.068 (0.946)	0.078 (0.938)
Sargan	10.491 (1.000)	4.325 (1.000)	7.081 (1.000)	7.788 (1.000)	6.683 (1.000)	2.112 (1.000)	4.452 (1.000)	6.112 (1.000)	4.695 (1.000)	3.315 (1.000)	3.248 (1.000)
N	154	98	98	98	112	98	98	98	112	98	98

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 11. System GMM real GDP growth dependent variable: Investment and beta model - all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP growth (lag)	0.068 (0.146)	-0.240 (0.173)	-0.240 (0.178)	-0.233 (0.170)	-0.094 (0.211)	-0.239 (0.173)	-0.245 (0.178)	-0.233 (0.171)	-0.101 (0.212)	-0.255 (0.171)	-0.246 (0.180)
Civil War	-1.545* (0.832)	2.034*** (0.591)	1.816*** (0.559)	2.078*** (0.592)	0.714 (0.468)	1.976*** (0.610)	1.837*** (0.569)	2.026*** (0.582)	0.848 (0.588)	2.305*** (0.655)	1.875*** (0.620)
Investment/GDP	0.214*** (0.072)	0.267*** (0.073)	0.231*** (0.080)	0.281*** (0.076)	0.190*** (0.063)	0.265*** (0.071)	0.225*** (0.084)	0.278*** (0.075)	0.193*** (0.061)	0.289*** (0.082)	0.252*** (0.078)
Market Cap.		0.266 (0.676)	0.202 (0.656)	0.314 (0.641)	-0.304 (0.711)	-0.031 (1.387)	0.524 (1.040)	0.029 (1.280)	-0.297 (0.679)	0.205 (0.676)	0.201 (0.646)
Beta		0.783* (0.413)	0.299 (0.386)	0.794* (0.411)	0.475 (0.486)	0.756* (0.413)	0.332 (0.392)	0.794* (0.407)	0.353 (0.511)	0.798* (0.423)	0.384 (0.404)
IFI		-0.425 (0.501)				-0.995 (1.691)				2.754 (2.107)	
GEQY			2.005* (1.079)				3.651 (3.482)				3.057 (3.127)
XM Openness				-0.847 (1.865)				-2.480 (5.803)		6.255 (5.636)	-1.080 (2.991)
KA Openness					0.053 (0.364)				-1.007 (0.719)		
Market Cap*IFI						0.221 (0.602)					
Market Cap.*GEQY							-0.496 (0.844)				
Market Cap.*XM Open								0.548 (1.864)			
Market Cap.*KA Open									0.333 (0.243)		
IFI*XM Openness										-5.262 (3.950)	
GEQY*XM Openness											-1.346 (3.902)
M1	-3.174*** (0.002)	-2.820*** (0.005)	-2.902*** (0.004)	-2.856*** (0.004)	-2.910*** (0.004)	-2.806*** (0.005)	-2.921*** (1.000)	-2.848*** (0.004)	-2.883*** (0.004)	-2.801*** (0.005)	-2.892*** (0.004)
M2	0.489 (0.625)	-0.550 (0.582)	-0.296 (0.767)	-0.470 (0.638)	0.804 (0.421)	-0.526 (0.599)	-0.381 (0.703)	-0.449 (0.654)	0.816 (0.414)	-0.531 (0.595)	-0.156 (0.876)
Sargan	13.862 (1.000)	5.946 (1.000)	6.284 (1.000)	7.574 (1.000)	6.111 (1.000)	2.333 (1.000)	5.389 (1.000)	3.854 (1.000)	3.003 (1.000)	4.003 (1.000)	2.850 (1.000)
<i>N</i>	225	115	115	115	135	115	115	115	135	115	115

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 12. System GMM real GDP growth dependent variable: Investment and beta model - excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP growth (lag)	0.057 (0.147)	-0.252 (0.170)	-0.257 (0.178)	-0.245 (0.167)	-0.104 (0.211)	-0.255 (0.170)	-0.266 (0.179)	-0.245 (0.169)	-0.110 (0.213)	-0.267 (0.168)	-0.272 (0.181)
Civil War	-1.668** (0.828)	1.907*** (0.620)	1.656*** (0.565)	1.988*** (0.636)	0.625 (0.479)	1.941*** (0.705)	1.664*** (0.567)	1.979*** (0.634)	0.828 (0.642)	2.223*** (0.709)	1.721*** (0.642)
Investment/GDP	0.213*** (0.072)	0.266*** (0.064)	0.203** (0.084)	0.281*** (0.072)	0.192*** (0.066)	0.269*** (0.059)	0.210*** (0.075)	0.281*** (0.071)	0.210*** (0.068)	0.288*** (0.078)	0.224** (0.090)
Market Cap.		0.182 (0.868)	0.235 (0.795)	0.268 (0.819)	-0.251 (0.868)	0.585 (2.063)	0.905 (1.516)	0.204 (1.474)	-0.384 (0.829)	0.167 (0.859)	0.262 (0.786)
Beta		0.691* (0.384)	0.110 (0.479)	0.751* (0.397)	0.308 (0.516)	0.708* (0.413)	0.223 (0.505)	0.749* (0.398)	0.090 (0.509)	0.765* (0.405)	0.224 (0.530)
IFI		-0.514 (0.531)				0.237 (2.928)				2.512 (2.350)	
GEQY			2.612* (1.497)				5.837 (6.354)				4.923 (4.195)
XM Openness				-1.173 (1.903)				-1.525 (6.665)		5.362 (6.077)	-0.955 (3.436)
KA Openness					0.095 (0.405)				-1.163 (0.783)		
Market Cap*IFI						-0.323 (1.228)					
Market Cap.*GEQY							-1.181 (1.911)				
Market Cap.*XM Open								0.122 (2.096)			
Market Cap.*KA Open									0.411 (0.261)		
IFI*XM Openness										-4.854 (4.214)	
GEQY*XM Openness											-2.877 (4.848)
M1	-3.077*** (0.002)	-2.728*** (0.006)	-2.858*** (0.004)	-2.775*** (0.006)	-2.868*** (0.004)	-2.728*** (0.006)	-2.854*** (0.004)	-2.773*** (0.006)	-2.843*** (0.005)	-2.713*** (0.007)	-2.842*** (0.005)
M2	0.529 (0.597)	-0.439 (0.661)	-0.145 (0.885)	-0.343 (0.732)	0.838 (0.402)	-0.521 (0.603)	-0.368 (0.713)	-0.336 (0.737)	0.823 (0.410)	-0.411 (0.681)	0.095 (0.924)
Sargan	13.216 (1.000)	6.694 (1.000)	7.559 (1.000)	6.826 (1.000)	5.771 (1.000)	6.375 (1.000)	6.248 (1.000)	3.057 (1.000)	5.577 (1.000)	5.241 (1.000)	2.819 (1.000)
<i>N</i>	210	103	103	103	121	103	103	103	121	103	103

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 13. System GMM real GDP growth dependent variable: Primary enrollment and SD model - all countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP Growth (lag)	-0.146 (0.169)	-0.179 (0.221)	-0.197 (0.208)	-0.183 (0.217)	-0.147 (0.209)	-0.181 (0.218)	-0.197 (0.208)	-0.192 (0.213)	-0.152 (0.206)	-0.194 (0.217)	-0.193 (0.212)
Civil War	2.290 (2.282)	2.508 (1.701)	2.935* (1.574)	2.806 (1.731)	2.629* (1.571)	2.341 (1.596)	2.935* (1.575)	3.052* (1.656)	2.586* (1.554)	2.952* (1.669)	2.939* (1.670)
Primary Enroll.	0.120*** (0.029)	0.087** (0.039)	0.041 (0.040)	0.071* (0.041)	0.086*** (0.032)	0.088** (0.034)	0.041 (0.042)	0.090** (0.041)	0.084*** (0.031)	0.066* (0.039)	0.049 (0.043)
Market Cap.		-0.200 (0.567)	-0.183 (0.560)	-0.202 (0.590)	-0.368 (0.517)	-2.396 (1.567)	-0.161 (0.848)	-2.251** (1.110)	-0.322 (0.459)	-0.277 (0.616)	-0.195 (0.562)
SD		0.007 (0.147)	-0.064 (0.128)	0.057 (0.138)	-0.165 (0.138)	0.020 (0.129)	-0.065 (0.128)	0.067 (0.136)	-0.153 (0.139)	0.099 (0.146)	-0.044 (0.126)
IFI		-0.035 (0.894)				-4.447* (2.398)				1.915 (2.220)	
GEQY			3.395** (1.428)				3.492 (3.630)				0.769 (2.587)
XM Open				3.886 (2.642)				-7.584 (7.367)		9.764* (5.287)	-1.457 (3.757)
KA Openness					-0.090 (0.316)				-1.445** (0.737)		
Market Cap*IFI						1.648* (0.933)					
Market Cap.*GEQY							-0.030 (0.836)				
Market Cap.*XM Open								3.765* (2.128)			
Market Cap.*KA Open									0.424** (0.171)		
IFI*XM Openness										-3.955 (3.950)	
GEQY*XM Openness											3.580 (3.068)
M1	-3.152*** (0.002)	-2.845*** (0.004)	-3.024*** (0.003)	-2.969*** (0.003)	-2.854*** (0.004)	-2.825*** (0.005)	-3.026*** (0.003)	-2.843*** (0.005)	-2.828*** (0.005)	-2.866*** (0.004)	-3.035*** (0.002)
M2	0.857 (0.391)	0.827 (0.409)	0.896 (0.370)	0.620 (0.535)	0.960 (0.337)	0.879 (0.379)	0.896 (0.370)	0.553 (0.580)	0.950 (0.342)	0.500 (0.617)	0.829 (0.407)
Sargan	8.365 1.000	7.739 (1.000)	8.524 (1.000)	5.816 (1.000)	9.141 (1.000)	4.939 (1.000)	8.267 (1.000)	6.919 (1.000)	5.459 (1.000)	4.085 (1.000)	6.976 (1.000)
N	168	111	111	111	128	111	111	111	128	111	111

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. SD is the standard deviation of the country's stock return measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 14. System GMM Model real GDP growth dependent variable: Primary enrollment and SD model- excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Real GDP Growth (lag)	-0.171 (0.158)	-0.241 (0.211)	-0.242 (0.203)	-0.233 (0.211)	-0.196 (0.201)	-0.239 (0.214)	-0.244 (0.205)	-0.234 (0.210)	-0.196 (0.200)	-0.248 (0.209)	-0.237 (0.209)
Civil War	2.251 (2.223)	2.173 (1.830)	2.525 (1.670)	2.413 (1.816)	2.352 (1.659)	2.132 (1.803)	2.520 (1.674)	2.658 (1.751)	2.388 (1.635)	2.527 (1.785)	2.494 (1.768)
Primary Enroll.	0.123*** (0.029)	0.108*** (0.038)	0.070* (0.042)	0.096** (0.040)	0.102*** (0.031)	0.107*** (0.039)	0.069* (0.042)	0.107*** (0.040)	0.099*** (0.031)	0.091** (0.038)	0.079* (0.046)
Market Cap.		-0.286 (0.648)	-0.142 (0.664)	-0.222 (0.620)	-0.232 (0.652)	-0.923 (2.405)	0.072 (1.134)	-1.736 (1.111)	-0.257 (0.535)	-0.401 (0.622)	-0.169 (0.625)
SD		0.204* (0.109)	0.109 (0.094)	0.203* (0.122)	-0.021 (0.120)	0.198* (0.109)	0.105 (0.098)	0.196 (0.127)	-0.021 (0.123)	0.272** (0.114)	0.108 (0.087)
IFI		-0.582 (0.860)				-1.856 (4.331)				0.697 (2.203)	
GEQY			2.490 (1.522)				3.481 (5.695)				-0.110 (2.785)
XM Open				2.217 (2.944)				-6.041 (7.341)		6.898 (5.526)	-2.525 (4.045)
KA Openness					-0.319 (0.352)				-1.268* (0.768)		
Market Cap*IFI						0.518 (1.882)					
Market Cap.*GEQY							-0.338 (1.634)				
Market Cap.*XM Open								2.806 (2.099)			
Market Cap.*KA Open									0.305 (0.199)		
IFI*XM Openness										-2.674 (4.035)	
GEQY*XM Openness											3.783 (3.452)
M1	-3.047*** (0.002)	-2.744*** (0.006)	-2.885*** (0.004)	-2.878*** (0.004)	-2.802*** (0.005)	-2.734*** (0.006)	-2.892*** (0.004)	-2.789*** (0.005)	-2.804*** (0.005)	-2.734** (0.006)	-2.913*** (0.004)
M2	0.593 (0.553)	0.443 (0.658)	0.569 (0.569)	0.380 (0.704)	0.612 (0.540)	0.457 (0.648)	0.501 (0.616)	0.384 (0.701)	0.650 (0.516)	0.182 (0.856)	0.535 (0.592)
Sargan	10.854 (1.000)	6.636 (1.000)	4.416 (1.000)	5.237 (1.000)	7.374 (1.000)	6.422 (1.000)	4.421 (1.000)	7.580 (1.000)	5.233 (1.000)	5.829 (1.000)	3.824 (1.000)
<i>N</i>	156	101	101	101	116	101	101	101	116	101	101

Note: The dependent variable is real GDP growth. Annual data from 1995 – 2010. Primary enrollment rate is the primary enrollment rate proxy for the human capital. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. SD is the standard deviation of the country's stock return measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Gross capital formation proxy for investment data not available for Nigeria. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. In all specifications stock market capitalization is treated as endogenous variable. Stock Market Capitalization is in the natural log form.

Table 15. Fixed Effect Model: Stock returns dependent variable Beta - size model: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.063 (0.078)	-0.021 (0.092)	-0.022 (0.092)	-0.027 (0.092)	-0.066 (0.090)	-0.022 (0.086)	-0.025 (0.094)	0.005 (0.095)
Beta	-4.729 (7.611)	-8.987 (8.907)	-11.195 (9.159)	-10.452 (9.051)	-6.767 (8.290)	-8.197 (7.981)	-9.971 (9.107)	-11.911 (9.237)
Real GDP Growth	2.504* (1.402)	2.534 (1.658)	2.302 (1.653)	2.181 (1.671)	1.477 (1.644)	3.360** (1.426)	2.367 (1.690)	2.287 (1.675)
Size	0.276 (0.253)	0.435 (0.347)	0.431 (0.360)	0.526 (0.330)		0.243 (0.252)	0.385 (0.364)	0.477 (0.364)
MSCI Real Return	0.569*** (0.153)	0.420** (0.197)	0.407** (0.196)	0.372* (0.197)	0.326* (0.192)	0.649*** (0.159)	0.396* (0.202)	0.397** (0.199)
Discount Rate	-1.223 (0.756)	-2.801*** (0.917)	-2.296*** (0.843)	-2.350*** (0.838)	-1.851** (0.832)	-1.882** (0.817)	-2.702*** (0.945)	-2.270*** (0.845)
IFI		13.159 (12.525)					22.864 (48.255)	
GEQY			24.770 (28.286)					-40.102 (61.439)
XM Open				36.367 (49.993)	17.546 (49.025)		59.183 (129.943)	-53.512 (88.176)
Market Cap.					26.978*** (9.008)			
KA Open						16.700 (10.518)		
IFI*XM Openness							-17.241 (77.835)	
GEQY*XM Openness								102.246 (90.437)
<i>R- Square within</i>	0.181	0.215	0.212	0.210	0.256	0.243	0.218	0.224
<i>N</i>	154	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock market Capitalization is in the natural log form.

Table 16. Fixed Effect Model: Stock returns dependent variable Beta-turnover model: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.040 (0.078)	-0.051 (0.090)	-0.051 (0.090)	-0.053 (0.090)	-0.066 (0.090)	-0.035 (0.086)	-0.052 (0.092)	-0.021 (0.093)
Beta	-5.894 (7.441)	-7.376 (8.140)	-8.880 (8.689)	-7.694 (8.346)	-6.767 (8.290)	-8.817 (7.789)	-8.146 (8.422)	-9.098 (8.771)
Real GDP Growth	2.121 (1.415)	1.785 (1.638)	1.601 (1.636)	1.536 (1.650)	1.477 (1.644)	2.885** (1.444)	1.692 (1.668)	1.643 (1.653)
Stock Turnover	0.721* (0.380)	1.295*** (0.482)	1.299*** (0.494)	1.361*** (0.478)		0.703* (0.380)	1.257** (0.500)	1.347*** (0.500)
MSCI Real Return	0.597*** (0.152)	0.377* (0.192)	0.363* (0.192)	0.338* (0.193)	0.326* (0.192)	0.670*** (0.158)	0.365* (0.197)	0.360* (0.195)
Discount Rate	-1.542** (0.771)	-2.942*** (0.879)	-2.518*** (0.826)	-2.573*** (0.819)	-1.851** (0.832)	-1.950** (0.808)	-2.883*** (0.916)	-2.504*** (0.829)
IFI		11.513 (11.701)					14.010 (45.632)	
GEQY			18.013 (26.188)					-49.425 (58.302)
XM Open				24.475 (48.841)	17.546 (49.025)		27.989 (124.870)	-70.547 (85.914)
Market Cap.					26.978*** (9.008)			
KA Open						15.780 (10.420)		
IFI*XM Openness							-4.976 (74.687)	
GEQY*XM Openness								110.675 (87.720)
<i>R- Square within</i>	0.204	0.256	0.252	0.250	0.256	0.258	0.257	0.265
<i>N</i>	153	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock market Capitalization is in the natural log form.

Table 17. Fixed Effect Model: Stock return dependent variable Beta-size model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.052 (0.083)	-0.063 (0.097)	-0.065 (0.097)	-0.065 (0.097)	-0.058 (0.095)	-0.036 (0.092)	-0.058 (0.099)	-0.021 (0.100)
Beta	-7.196 (8.571)	-11.924 (9.718)	-13.976 (9.960)	-13.428 (9.915)	-7.317 (9.547)	-10.632 (8.977)	-12.936 (10.026)	-14.978 (10.002)
Real GDP Growth	1.938 (1.473)	2.163 (1.673)	1.967 (1.663)	1.885 (1.679)	1.277 (1.698)	2.668* (1.517)	2.043 (1.707)	2.030 (1.669)
Size	1.088* (0.558)	1.762** (0.675)	1.747** (0.684)	1.816*** (0.670)		1.017* (0.576)	1.753** (0.732)	2.030*** (0.709)
MSCI Real Return	0.543*** (0.161)	0.353* (0.206)	0.345* (0.205)	0.310 (0.207)	0.301 (0.205)	0.635*** (0.168)	0.339 (0.212)	0.328 (0.208)
Discount Rate	-1.017 (0.796)	-2.637*** (0.960)	-2.231** (0.859)	-2.251** (0.859)	-1.584* (0.872)	-1.769** (0.859)	-2.610*** (0.988)	-2.175** (0.856)
IFI		10.210 (13.036)					-0.605 (51.871)	
GEQY			22.141 (30.589)					-86.870 (69.618)
XM Open				28.090 (51.627)	21.750 (51.489)		-1.729 (138.819)	-107.646 (91.435)
Market Cap.					27.864*** (9.333)			
KA Open						12.250 (11.161)		
IFI*XM Openness							16.820 (82.466)	
GEQY*XM Openness								164.266* (96.205)
<i>R- Square within</i>	0.177	0.237	0.237	0.235	0.247	0.238	0.240	0.262
<i>N</i>	140	110	110	110	110	130	110	110

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock market Capitalization is in the natural log form.

Table 18. Fixed Effect Model: Stock return dependent variable Beta-turnover model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.050 (0.082)	-0.048 (0.094)	-0.050 (0.094)	-0.048 (0.094)	-0.058 (0.095)	-0.030 (0.090)	-0.053 (0.097)	-0.011 (0.099)
Beta	-6.605 (8.418)	-7.731 (9.272)	-10.193 (9.683)	-9.463 (9.590)	-7.317 (9.547)	-10.392 (8.891)	-9.286 (9.662)	-10.745 (9.819)
Real GDP Growth	1.775 (1.493)	1.679 (1.689)	1.448 (1.680)	1.324 (1.696)	1.277 (1.698)	2.507 (1.527)	1.530 (1.721)	1.467 (1.698)
Stock Turnover	0.853* (0.431)	1.553*** (0.534)	1.530*** (0.542)	1.583*** (0.534)		0.833* (0.433)	1.498*** (0.546)	1.580*** (0.546)
MSCI Real Return	0.558*** (0.161)	0.309 (0.206)	0.299 (0.205)	0.254 (0.207)	0.301 (0.205)	0.639*** (0.168)	0.280 (0.212)	0.279 (0.210)
Discount Rate	-1.366 (0.825)	-2.983*** (0.950)	-2.470*** (0.860)	-2.496*** (0.860)	-1.584* (0.872)	-1.841** (0.859)	-2.856*** (0.982)	-2.414*** (0.863)
IFI		12.910 (12.688)					24.355 (48.408)	
GEQY			26.354 (29.787)					-53.274 (66.525)
XM Open				36.709 (50.630)	21.750 (51.489)		62.590 (129.813)	-64.936 (88.382)
Market Cap.					27.864*** (9.333)			
KA Open						15.422 (10.780)		
IFI*XM Openness							-20.684 (77.907)	
GEQY*XM Openness								119.285 (93.300)
<i>R-Square within</i>	0.186	0.250	0.248	0.246	0.247	0.242	0.254	0.263
<i>N</i>	139	110	110	110	110	130	110	110

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock market Capitalization is in the natural log form.

Table 19. Fixed Effect Model: Stock returns dependent variable SD -Size model: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.082 (0.078)	0.027 (0.091)	0.041 (0.089)	0.037 (0.089)	0.020 (0.085)	-0.081 (0.081)	0.003 (0.092)	0.063 (0.092)
Real GDP Growth	2.464* (1.333)	2.925* (1.560)	3.126** (1.535)	2.934* (1.536)	3.323** (1.366)	2.741** (1.359)	2.753* (1.563)	2.940* (1.543)
Size	0.300 (0.245)	0.577* (0.321)	0.354 (0.356)	0.399 (0.313)	0.235 (0.248)	0.230 (0.245)	0.370 (0.344)	0.384 (0.359)
MSCI Real Return	0.551*** (0.155)	0.314 (0.200)	0.345* (0.198)	0.293 (0.200)	0.649*** (0.165)	0.608*** (0.153)	0.246 (0.203)	0.311 (0.202)
Standard Deviation	-0.342 (1.435)	5.292** (2.149)	4.708** (2.135)	5.339** (2.116)	1.134 (1.659)		5.883*** (2.170)	5.268** (2.178)
IFI		-8.635 (11.776)					41.780 (47.958)	
GEQY			21.399 (27.443)					-45.594 (60.612)
XM Open				61.093 (49.427)			191.019 (126.278)	-20.494 (87.285)
KA Open					15.041 (10.419)	13.295 (10.047)		
Discount Rate						-1.798** (0.765)		
IFI*XM Openness							-84.040 (76.340)	
GEQY*XM Openness								96.373 (89.872)
<i>R- Square within</i>	0.152	0.174	0.175	0.182	0.200	0.202	0.197	0.192
<i>N</i>	156	122	122	122	144	160	122	122

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is country level stock index standard deviation measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available.

Table 20. Fixed Effect Model: Stock returns dependent variable SD - turnover model: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.069 (0.077)	0.016 (0.088)	0.024 (0.087)	0.023 (0.087)	0.013 (0.084)	-0.068 (0.083)	-0.010 (0.091)	0.051 (0.090)
Real GDP Growth	2.202 (1.344)	2.586* (1.535)	2.748* (1.517)	2.621* (1.519)	2.988** (1.374)	2.277 (1.378)	2.424 (1.542)	2.608* (1.523)
Stock Turnover	0.748** (0.374)	1.290*** (0.480)	1.085** (0.498)	1.083** (0.481)	0.658* (0.379)	0.731* (0.371)	1.059** (0.504)	1.108** (0.506)
MSCI Real Return	0.569*** (0.154)	0.282 (0.197)	0.313 (0.195)	0.271 (0.197)	0.657*** (0.164)	0.641*** (0.155)	0.225 (0.200)	0.288 (0.199)
Standard Deviation	-0.601 (1.442)	4.683** (2.111)	4.245** (2.096)	4.765** (2.103)	0.784 (1.662)		5.327** (2.153)	4.704** (2.143)
IFI		-8.518 (11.206)					35.767 (45.615)	
GEQY			17.260 (24.483)					-52.740 (57.528)
XM Open				50.523 (48.468)			167.478 (121.103)	-39.446 (86.156)
KA Open					14.247 (10.302)	9.877 (10.031)		
Discount Rate						-2.026*** (0.774)		
IFI*XM Openness							-75.330 (73.530)	
GEQY*XM Openness								106.909 (88.156)
<i>R- Square within</i>	0.170	0.204	0.203	0.208	0.213	0.225	0.221	0.220
<i>N</i>	155	122	122	122	144	158	122	122

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is country level stock index standard deviation measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Stock market Capitalization is in the natural log form

Table 21. Fixed Effect Model: Stock returns dependent variable SD- Size model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.071 (0.082)	-0.019 (0.094)	0.000 (0.093)	0.002 (0.092)	-0.003 (0.090)	-0.097 (0.086)	-0.032 (0.095)	0.038 (0.095)
Real GDP Growth	1.972 (1.384)	2.441 (1.539)	2.775* (1.518)	2.592* (1.517)	2.706* (1.430)	2.031 (1.438)	2.303 (1.549)	2.525* (1.517)
Size	1.027* (0.528)	1.580** (0.630)	1.330** (0.666)	1.229* (0.648)	0.856 (0.557)	1.023* (0.556)	1.138 (0.707)	1.508** (0.696)
MSCI Real Return	0.535*** (0.162)	0.260 (0.205)	0.302 (0.204)	0.251 (0.206)	0.671*** (0.174)	0.603*** (0.161)	0.193 (0.210)	0.254 (0.208)
Standard Deviation	-0.103 (1.520)	6.853*** (2.297)	6.242*** (2.281)	6.799*** (2.285)	1.778 (1.793)		7.668*** (2.366)	6.757*** (2.321)
IFI		-12.557 (11.716)					28.504 (51.006)	
GEQY			14.153 (29.139)					-91.579 (67.073)
XM Open				55.672 (50.233)			165.251 (135.633)	-59.711 (89.787)
KA Open					10.669 (10.996)	7.885 (10.690)		
Discount Rate						-1.675** (0.797)		
IFI*XM Openness							-68.096 (80.740)	
GEQY*XM Openness								148.497 (93.704)
<i>R- Square within</i>	0.153	0.231	0.223	0.232	0.203	0.198	0.248	0.252
<i>N</i>	142	111	111	111	131	147	111	111

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is country level stock index standard deviation measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available.

Table 22. Fixed Effect Model: Stock returns dependent variable SD -turnover model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.079 (0.081)	0.007 (0.091)	0.019 (0.090)	0.018 (0.089)	0.007 (0.089)	-0.063 (0.087)	-0.027 (0.093)	0.053 (0.093)
Real GDP Growth	1.901 (1.403)	2.210 (1.551)	2.543* (1.526)	2.325 (1.522)	2.632* (1.437)	1.916 (1.450)	2.037 (1.549)	2.290 (1.528)
Stock Turnover	0.803* (0.417)	1.329** (0.520)	1.151** (0.532)	1.110** (0.522)	0.677 (0.424)	0.856** (0.418)	1.089** (0.532)	1.182** (0.537)
MSCI Real Return	0.544*** (0.163)	0.226 (0.206)	0.272 (0.205)	0.210 (0.206)	0.669*** (0.174)	0.618*** (0.163)	0.145 (0.210)	0.218 (0.210)
Standard Deviation	-0.111 (1.534)	6.753*** (2.298)	6.101*** (2.277)	6.757*** (2.270)	1.627 (1.804)		7.658*** (2.332)	6.712*** (2.321)
IFI		-11.538 (11.623)					42.281 (47.375)	
GEQY			19.723 (27.990)					-68.540 (63.963)
XM Open				63.954 (48.602)			205.418 (123.806)	-29.689 (86.348)
KA Open					13.599 (10.542)	9.002 (10.306)		
Discount Rate						-1.922** (0.816)		
IFI*XM Openness							-90.716 (75.484)	
GEQY*XM Openness								120.097 (90.990)
Real Stock Return(lag)								
<i>R- Square within</i>	0.156	0.233	0.229	0.239	0.205	0.209	0.261	0.253
<i>N</i>	141	111	111	111	131	145	111	111

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Standard errors in parentheses * p<.10, ** p<.05, *** p<.01. SD is country level stock index standard deviation measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available.

Table 23. System GMM Model: Stock returns dependent variable Beta – Size model: All countries

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return (lag)	0.094 (0.069)	0.067 (0.104)	0.065 (0.105)	0.056 (0.110)	0.034 (0.119)	0.020 (0.094)	0.067 (0.106)	0.085 (0.104)
Real GDP Growth	1.937 (1.435)	2.620** (1.306)	2.366* (1.335)	2.693** (1.267)	2.438** (1.236)	2.696* (1.467)	2.816** (1.251)	2.629** (1.254)
Size	0.385 (0.323)	0.427 (0.395)	0.453 (0.407)	0.527 (0.431)		0.239 (0.146)	0.451 (0.410)	0.497 (0.423)
MCSI Real Return	0.644*** (0.187)	0.536** (0.257)	0.517** (0.246)	0.529** (0.247)	0.470** (0.228)	0.801*** (0.212)	0.563** (0.261)	0.537** (0.246)
Discount Rate	-0.491 (0.909)	-2.868** (1.167)	-2.446** (1.149)	-2.554** (1.165)	-2.063* (1.202)	-1.891* (1.029)	-2.935** (1.202)	-2.333* (1.204)
Beta		-10.624 (8.402)	-11.632 (7.373)	-6.532 (7.513)	-1.625 (7.964)	-9.589 (7.337)	-8.332 (8.035)	-10.329 (7.247)
IFI		14.652 (10.287)					-0.652 (61.050)	
GEQY			14.291 (16.524)					-53.996 (40.824)
Xm Open				-29.683 (36.643)	-33.693 (34.911)		-64.756 (117.919)	-111.389** (55.748)
Market Cap.					18.029*** (6.223)			
KA Open						13.222*** (3.173)		
IFI*XM Openness							25.965 (91.595)	
GEQY*XM Openness								119.526 (77.149)
M1	-3.057*** (0.002)	-2.801*** (0.005)	-2.765*** (0.006)	-2.829*** (0.005)	-2.877*** (0.004)	-3.071*** (0.002)	-2.794*** (0.005)	-2.664*** (0.008)
M2	-0.255 (0.799)	-0.745 (0.457)	-0.719 (0.472)	-0.683 (0.495)	-0.740 (0.459)	-0.703 (0.482)	-0.625 (0.532)	-0.731 (0.465)
Sargan	9.826 (1.000)	10.028 (1.000)	3.192 (1.000)	9.649 (1.000)	5.386 (1.000)	4.470 (1.000)	8.254 (1.000)	4.404 (1.000)
N	172	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 24. System GMM Model: Stock returns dependent variable Beta – Turnover model: All country

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.088 (0.073)	0.037 (0.100)	0.035 (0.101)	0.030 (0.104)	0.034 (0.119)	0.015 (0.093)	0.035 (0.101)	0.054 (0.102)
Real GDP Growth	1.582 (1.470)	1.805 (1.190)	1.614 (1.236)	1.837 (1.173)	2.438** (1.236)	2.234 (1.467)	1.943 (1.206)	1.866 (1.243)
Stock Turnover	0.792*** (0.287)	1.296*** (0.422)	1.313*** (0.398)	1.341*** (0.413)		0.636** (0.283)	1.270*** (0.424)	1.230*** (0.377)
MSCI Real Return	0.668*** (0.193)	0.497** (0.250)	0.475** (0.236)	0.479** (0.238)	0.470** (0.228)	0.810*** (0.211)	0.514** (0.252)	0.490** (0.233)
Discount rate	-0.808 (0.934)	-2.942*** (1.030)	-2.549** (1.008)	-2.622*** (0.995)	-2.063* (1.202)	-1.924** (0.976)	-2.983*** (1.049)	-2.451** (1.066)
Beta		-8.781 (7.476)	-8.605 (6.560)	-4.737 (6.462)	-1.625 (7.964)	-8.827 (6.457)	-7.256 (7.599)	-7.621 (6.586)
IFI		14.175 (10.233)					11.727 (62.932)	
GEQY			10.194 (18.076)					-39.089 (46.317)
XM Open				-17.491 (37.932)	-33.693 (34.911)		-25.475 (130.775)	-79.034 (69.435)
Market Cap.					18.029*** (6.223)			
KA Open						11.169*** (2.955)		
IFI*XM Openness							4.608 (95.795)	
GEQY*XM Openness								88.164 (87.057)
M1	-3.033*** (0.002)	-2.727*** (0.006)	-2.687*** (0.007)	-2.734*** (0.006)	-2.877*** (0.004)	-3.061*** (0.002)	-2.730*** (0.006)	-2.643*** (0.008)
M2	-0.233 (0.816)	-1.056 (0.291)	-1.068 (0.286)	-1.096 (0.273)	-0.740 (0.459)	-0.669 (0.503)	-0.980 (0.327)	-1.113 (0.266)
Sargan	9.352 (1.000)	5.588 (1.000)	8.706 (1.000)	9.206 (1.000)	5.386 (1.000)	4.876 (1.000)	4.203 (1.000)	3.342 (1.000)
<i>N</i>	169	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 25. System GMM Model: Stock returns dependent variable Beta – Size model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return (lag)	0.085 (0.068)	0.025 (0.105)	0.020 (0.102)	0.012 (0.105)	0.032 (0.124)	0.014 (0.093)	0.020 (0.109)	0.046 (0.101)
Real GDP Growth	1.387 (1.485)	2.319** (1.140)	1.966* (1.174)	2.316** (1.139)	2.186** (1.104)	2.151 (1.560)	2.495** (1.121)	2.253** (1.147)
Size	0.946*** (0.193)	1.648*** (0.282)	1.659*** (0.265)	1.727*** (0.252)		0.821*** (0.198)	1.658*** (0.295)	1.658*** (0.188)
MCSI Real Return	0.583*** (0.194)	0.431* (0.250)	0.408* (0.236)	0.416* (0.229)	0.393* (0.215)	0.761*** (0.209)	0.459* (0.255)	0.421* (0.229)
Discount Rate	-0.306 (0.865)	-2.711** (1.271)	-2.214** (1.108)	-2.279** (1.134)	-1.659 (1.121)	-1.725 (1.069)	-2.776** (1.316)	-2.090* (1.175)
Beta		-10.522 (9.476)	-12.086 (8.474)	-5.515 (8.561)	1.448 (8.624)	-10.744 (8.238)	-7.919 (8.839)	-10.997 (8.287)
IFI		15.556 (12.166)					6.244 (61.637)	
GEQY			18.076 (16.627)					-55.560 (43.729)
Xm Open				-27.459 (33.384)	-29.214 (33.649)		-51.692 (108.800)	-107.384* (58.108)
Market Cap.					18.862*** (3.701)			
KA Open						12.920*** (3.159)		
IFI*XM Openness							16.708 (89.915)	
GEQY*XM Openness								124.091 (79.748)
M1	-2.930*** (0.003)	-2.572** (0.010)	-2.527** (0.012)	-2.624*** (0.009)	-2.673*** (0.008)	-2.869*** (0.004)	-2.607*** (0.009)	-2.458** (0.014)
M2	-0.542 (0.588)	-1.492 (0.136)	-1.446 (0.148)	-1.411 (0.158)	-1.105 (0.269)	-1.060 (0.289)	-1.416 (0.157)	-1.521 (0.128)
Sargan	7.108 (1.000)	1.611 (1.000)	1.810 (1.000)	1.478 (1.000)	2.768 (1.000)	2.032 (1.000)	1.143 (1.000)	1.898 (1.000)
N	158	110	110	110	110	130	110	110

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 26. System GMM Model: Stock returns dependent variable Beta –Turnover model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.092 (0.077)	0.030 (0.106)	0.026 (0.104)	0.027 (0.108)	0.032 (0.124)	0.018 (0.100)	0.022 (0.110)	0.052 (0.106)
Real GDP Growth	1.197 (1.440)	1.734* (1.010)	1.357 (1.034)	1.629 (1.010)	2.186** (1.104)	1.883 (1.485)	1.759* (1.048)	1.612 (1.075)
Stock Turnover	0.839*** (0.282)	1.524*** (0.303)	1.506*** (0.304)	1.523*** (0.301)		0.723** (0.341)	1.521*** (0.300)	1.389*** (0.269)
MSCI Real Return	0.604*** (0.203)	0.386 (0.243)	0.361 (0.230)	0.348 (0.220)	0.393* (0.215)	0.766*** (0.219)	0.394 (0.244)	0.369* (0.218)
Discount rate	-0.663 (0.910)	-2.993*** (1.120)	-2.424** (0.984)	-2.464** (0.984)	-1.659 (1.121)	-1.810* (1.018)	-3.012*** (1.148)	-2.314** (1.056)
Beta		-6.833 (9.366)	-8.401 (8.211)	-3.225 (8.336)	1.448 (8.624)	-9.487 (7.812)	-5.979 (8.762)	-8.110 (7.803)
IFI		17.776 (12.147)					30.343 (63.993)	
GEQY			19.996 (16.560)					-31.834 (49.039)
XM Open				-5.010 (36.920)	-29.214 (33.649)		17.165 (123.182)	-64.925 (73.571)
Market Cap.					18.862*** (3.701)			
KA Open						12.238*** (2.845)		
IFI*XM Openness							-20.601 (94.830)	
GEQY*XM Openness								85.574 (91.595)
M1	-2.868*** (0.004)	-2.574** (0.010)	-2.474** (0.013)	-2.542** (0.011)	-2.673*** (0.008)	-2.812*** (0.005)	-2.605*** (0.009)	-2.437** (0.015)
M2	-0.307 (0.759)	-1.393 (0.164)	-1.313 (0.189)	-1.405 (0.160)	-1.105 (0.459)	-0.850 (0.395)	-1.418 (0.156)	-1.434 (0.152)
Sargan	10.872 (1.000)	5.528 (1.000)	2.766 (1.000)	5.634 (1.000)	2.768 (1.000)	3.064 (1.000)	1.494 (1.000)	1.772 (1.000)
<i>N</i>	155	110	110	110	110	130	110	110

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 27. System GMM Model: Stock returns dependent variable Standard deviation – Size model: All country

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return (lag)	0.094 (0.069)	0.038 (0.121)	0.033 (0.123)	0.034 (0.122)	0.016 (0.128)	0.015 (0.104)	0.039 (0.115)	0.061 (0.118)
Real GDP Growth	1.937 (1.435)	2.324 (1.549)	2.377 (1.492)	2.358 (1.450)	2.138 (1.378)	2.629* (1.531)	2.426* (1.470)	2.517* (1.372)
Size	0.385 (0.323)	0.307 (0.353)	0.411 (0.357)	0.361 (0.322)		0.145 (0.108)	0.330 (0.366)	0.473 (0.375)
MCSI Real Return	0.644*** (0.187)	0.453* (0.238)	0.439** (0.223)	0.456* (0.238)	0.417* (0.227)	0.823*** (0.224)	0.471* (0.246)	0.429* (0.221)
Discount Rate	-0.491 (0.909)	-2.745** (1.103)	-2.685** (1.134)	-2.655** (1.096)	-2.246** (1.123)	-1.798* (1.003)	-2.787** (1.151)	-2.525** (1.166)
Standard Deviation		6.003** (2.823)	6.375** (2.854)	5.994** (2.522)	5.491** (2.616)	0.496 (1.573)	5.730** (2.761)	6.387** (2.780)
IFI		4.728 (8.726)					-1.652 (65.679)	
GEQY			-8.510 (18.259)					-84.104** (34.582)
Xm Open				-11.363 (36.088)	-12.124 (34.236)		-29.199 (142.687)	-82.662 (76.925)
Market Cap.					15.055*** (5.510)			
KA Open						11.545*** (3.740)		
IFI*XM Openness							11.817 (105.153)	
GEQY*XM Openness								124.438 (78.355)
M1	-3.057*** (0.002)	-2.588** (0.010)	-2.573** (0.010)	-2.587** (0.010)	-2.646*** (0.008)	-3.024*** (0.003)	-2.575** (0.010)	-2.480** (0.013)
M2	-0.255 (0.799)	-0.811 (0.417)	-0.881 (0.378)	-0.768 (0.442)	-0.767 (0.443)	-0.745 (0.456)	-0.732 (0.464)	-0.992 (0.321)
Sargan	9.826 (1.000)	7.207 (1.000)	2.723 (1.000)	9.173 (1.000)	10.264 (1.000)	5.163 (1.000)	6.546 (1.000)	5.236 (1.000)
<i>N</i>	172	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 28. System GMM Model: Stock returns dependent variable Standard deviation –Turnover model: All country

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.088 (0.073)	0.015 (0.111)	0.010 (0.113)	0.012 (0.112)	0.016 (0.128)	0.011 (0.102)	0.013 (0.107)	0.035 (0.109)
Real GDP Growth	1.582 (1.470)	1.629 (1.320)	1.692 (1.300)	1.623 (1.254)	2.138 (1.378)	2.174 (1.521)	1.670 (1.318)	1.804 (1.276)
Stock Turnover	0.792*** (0.287)	1.112*** (0.411)	1.181*** (0.359)	1.136*** (0.403)		0.585* (0.304)	1.109*** (0.419)	1.146*** (0.334)
MSCI Real Return	0.668*** (0.193)	0.430* (0.230)	0.414* (0.217)	0.423* (0.237)	0.417* (0.227)	0.831*** (0.221)	0.437* (0.244)	0.398* (0.214)
Discount rate	-0.808 (0.934)	-2.810*** (0.916)	-2.749*** (0.991)	-2.702*** (0.938)	-2.246** (1.123)	-1.823* (0.941)	-2.828*** (0.969)	-2.617** (1.021)
Standard Deviation		5.246* (2.792)	5.601** (2.810)	5.387** (2.705)	5.491** (2.616)	0.354 (1.635)	5.147* (2.866)	5.802** (2.818)
IFI		5.084 (7.237)					7.345 (64.747)	
GEQY			-7.701 (18.384)					-65.438 (40.208)
XM Open				-2.819 (41.543)	-12.124 (34.236)		-1.875 (153.199)	-53.886 (88.852)
Market Cap.					15.055*** (5.510)			
KA Open						9.596*** (3.215)		
IFI*XM Openness							-3.197 (106.656)	
GEQY*XM Openness								94.578 (86.986)
M1	-3.033*** (0.002)	-2.560** (0.011)	-2.539** (0.011)	-2.522** (0.012)	-2.646*** (0.008)	-3.020*** (0.003)	-2.536*** (0.011)	-2.467** (0.014)
M2	-0.233 (0.816)	-1.068 (0.286)	-1.082 (0.279)	-1.082 (0.279)	-0.767 (0.443)	-0.730 (0.465)	-1.058 (0.290)	-1.277 (0.202)
Sargan	9.352 (1.000)	9.258 (1.000)	6.680 (1.000)	8.080 (1.000)	10.264 (1.000)	5.205 (1.000)	6.040 (1.000)	6.084 (1.000)
N	169	121	121	121	121	143	121	121

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 29. System GMM Model: Stock returns dependent variable Standard deviation –Size model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return (lag)	0.085 (0.068)	-0.028 (0.121)	-0.030 (0.122)	-0.028 (0.121)	-0.012 (0.135)	-0.004 (0.107)	-0.034 (0.115)	0.007 (0.115)
Real GDP Growth	1.387 (1.485)	1.574 (1.309)	1.603 (1.227)	1.530 (1.189)	1.387 (1.149)	1.976 (1.604)	1.521 (1.231)	1.732 (1.143)
Size	0.946*** (0.193)	1.415*** (0.487)	1.456*** (0.445)	1.419*** (0.462)		0.745*** (0.229)	1.402*** (0.505)	1.451*** (0.351)
MCSI Real Return	0.583*** (0.194)	0.333 (0.233)	0.326 (0.213)	0.325 (0.222)	0.304 (0.202)	0.822*** (0.231)	0.329 (0.236)	0.292 (0.199)
Discount Rate	-0.306 (0.865)	-2.315** (1.062)	-2.281** (0.956)	-2.258** (0.951)	-1.750* (0.940)	-1.523 (0.968)	-2.303** (1.120)	-2.112** (0.995)
Standard Deviation		8.322*** (2.728)	8.479*** (2.765)	8.467*** (2.394)	8.545*** (2.270)	1.538 (1.679)	8.497*** (2.638)	8.621*** (2.706)
IFI		1.763 (9.448)					14.813 (68.659)	
GEQY			-4.275 (18.473)					-78.571* (42.520)
Xm Open				3.409 (35.195)	9.986 (32.870)		31.148 (147.522)	-54.947 (87.015)
Market Cap.					16.664*** (3.697)			
KA Open						9.928*** (3.499)		
IFI*XM Openness							-22.302 (110.318)	
GEQY*XM Openness								111.912 (89.111)
M1	-2.930*** (0.003)	-2.297** (0.021)	-2.296** (0.022)	-2.269** (0.023)	-2.337*** (0.019)	-2.795*** (0.005)	-2.274** (0.023)	-2.149** (0.032)
M2	-0.542 (0.588)	-0.971 (0.332)	-1.026 (0.305)	-0.976 (0.329)	-0.651 (0.515)	-0.947 (0.344)	-0.977 (0.328)	-1.061 (0.289)
Sargan	7.108 (1.000)	4.847 (1.000)	4.112 (1.000)	3.007 (1.000)	6.139 (1.000)	1.392 (1.000)	2.959 (1.000)	0.912 (1.000)
N	158	110	110	110	110	130	110	110

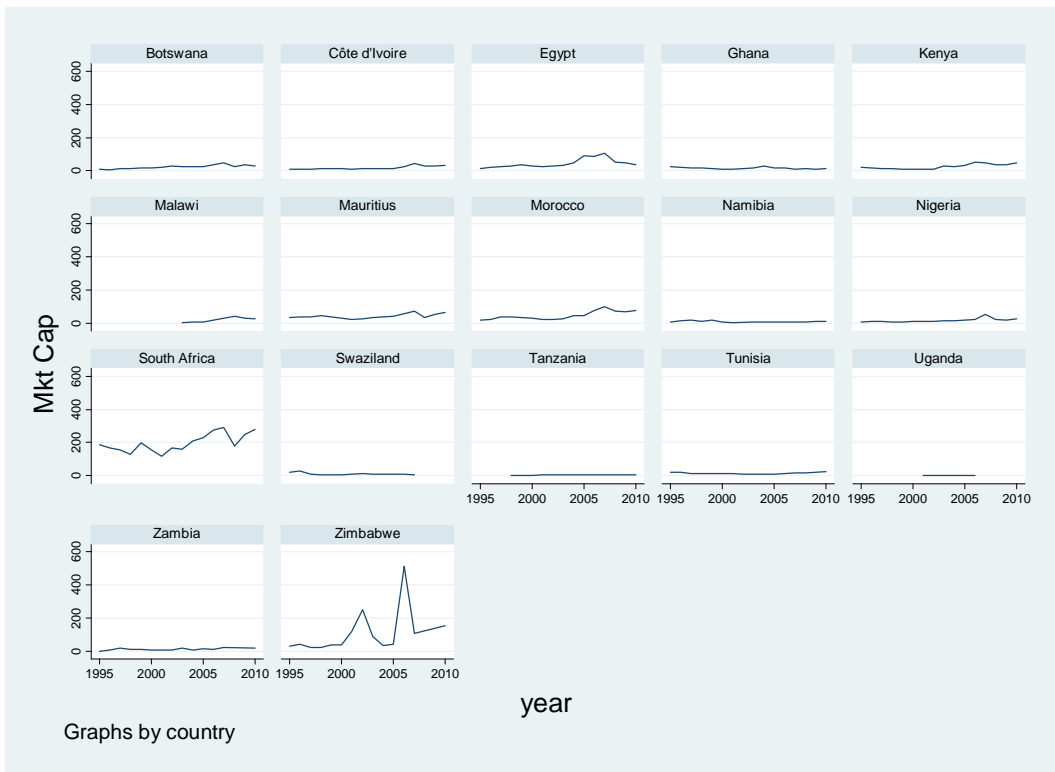
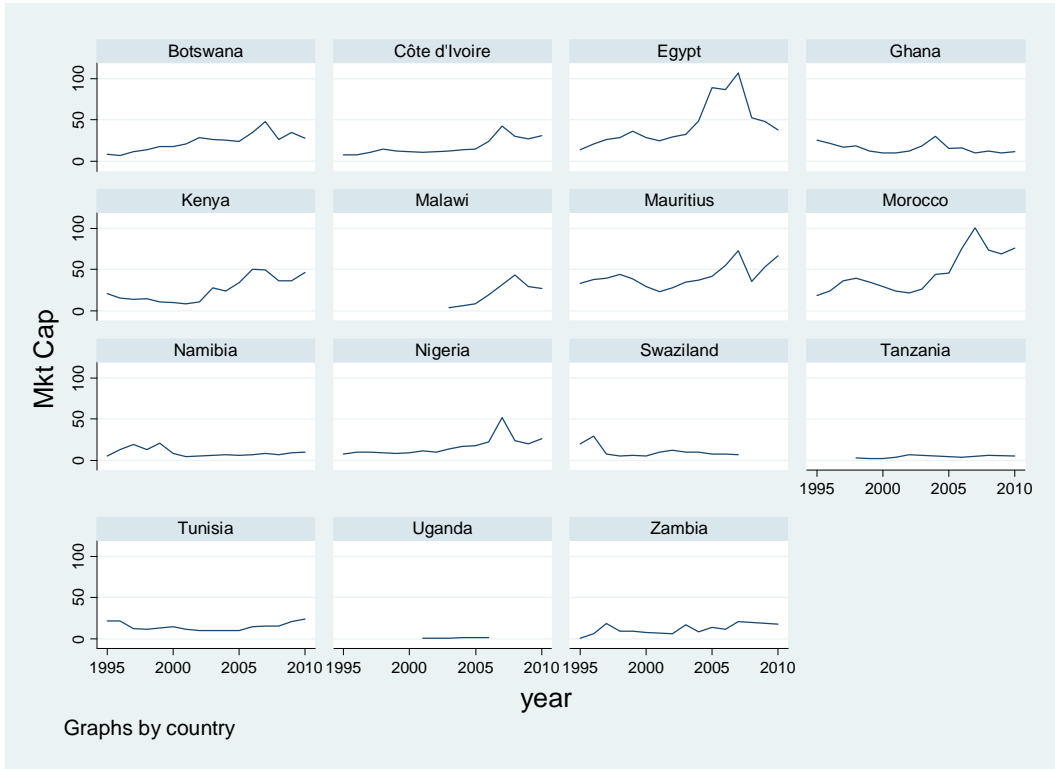
Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Table 30. System GMM Model: Stock returns dependent variable Standard deviation – Turnover model: Excluding South Africa

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Real Stock Return(lag)	0.092 (0.077)	-0.016 (0.122)	-0.018 (0.123)	-0.015 (0.118)	-0.012 (0.135)	0.002 (0.112)	-0.033 (0.111)	0.013 (0.114)
Real GDP Growth	1.197 (1.440)	1.206 (1.111)	1.132 (1.027)	0.948 (0.952)	1.387 (1.149)	1.732 (1.509)	0.879 (1.033)	1.143 (0.989)
Stock Turnover	0.839*** (0.282)	1.270*** (0.415)	1.265*** (0.402)	1.304*** (0.426)		0.687* (0.367)	1.347*** (0.435)	1.249*** (0.331)
MSCI Real Return	0.604*** (0.203)	0.313 (0.228)	0.301 (0.212)	0.268 (0.216)	0.304 (0.202)	0.818*** (0.234)	0.274 (0.227)	0.250 (0.187)
Discount rate	-0.663 (0.910)	-2.638*** (0.942)	-2.470*** (0.861)	-2.427*** (0.838)	-1.750* (0.940)	-1.628* (0.920)	-2.539*** (0.980)	-2.322*** (0.889)
Standard Deviation		7.563*** (2.831)	7.795*** (2.871)	8.261*** (2.385)	8.545*** (2.270)	1.275 (1.731)	8.285*** (2.603)	8.422*** (2.728)
IFI		5.740 (10.264)					35.839 (69.823)	
GEQY			1.814 (18.068)					-55.746 (48.359)
XM Open				24.086 (41.084)	9.986 (32.870)		90.970 (159.176)	-17.008 (100.883)
Market Cap.					16.664*** (3.697)			
KA Open						9.645*** (2.949)		
IFI*XM Openness							-53.793 (113.199)	
GEQY*XM Openness								78.874 (98.902)
M1	-2.868*** (0.004)	-2.361** (0.018)	-2.319** (0.020)	-2.236** (0.025)	-2.337** (0.019)	-2.752*** (0.006)	-2.326** (0.020)	-2.157** (0.031)
M2	-0.307 (0.759)	-0.775 (0.438)	-0.748 (0.455)	-0.849 (0.396)	-0.651 (0.515)	-0.786 (0.432)	-0.927 (0.354)	-0.945 (0.345)
Sargan	10.872 (1.000)	6.800 (1.000)	5.737 (1.000)	5.353 (1.000)	6.139 (1.000)	3.078 (1.000)	2.606 (1.000)	3.868 (1.000)
<i>N</i>	155	110	110	110	110	130	110	110

Note: The dependent variable is real stock return. Annual data from 1995 – 2010. IFI, GEQY, XM Openness, KA Openness are measures of financial, trade, and capital account openness. Beta is country level measure of stock market volatility. Zimbabwe is excluded from all the analysis due to the countries hyper inflation. Malawi, Swaziland, and Uganda excluded due to monthly stock market returns data not available. Standard errors in parentheses for the coefficients and p-values in parentheses for M1, M2 and Sargan * p<.10, ** p<.05, *** p<.01. Stock Market Capitalization is in the natural log form.

Figure 1. Market Capitalization of listed companies as a percentage of GDP



Note: The top chart excludes South Africa and Zimbabwe. Data source World Bank.

Figure 2. Capital account openness measure by country

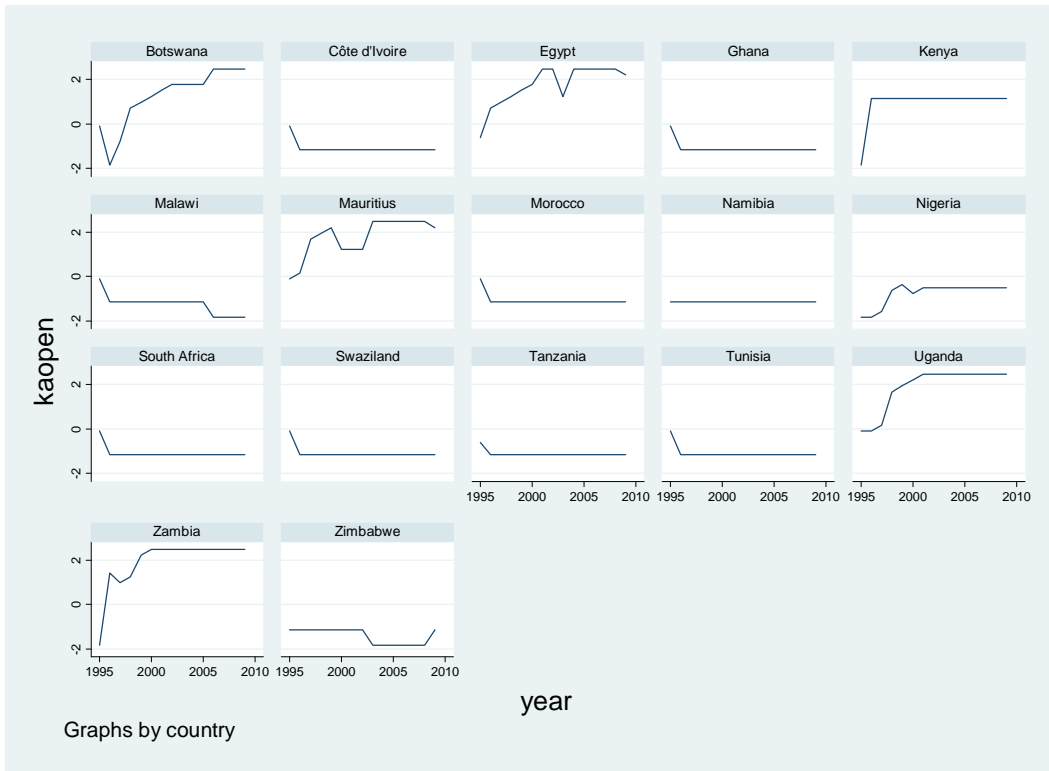


Figure 3. GEQY financial openness measure by country

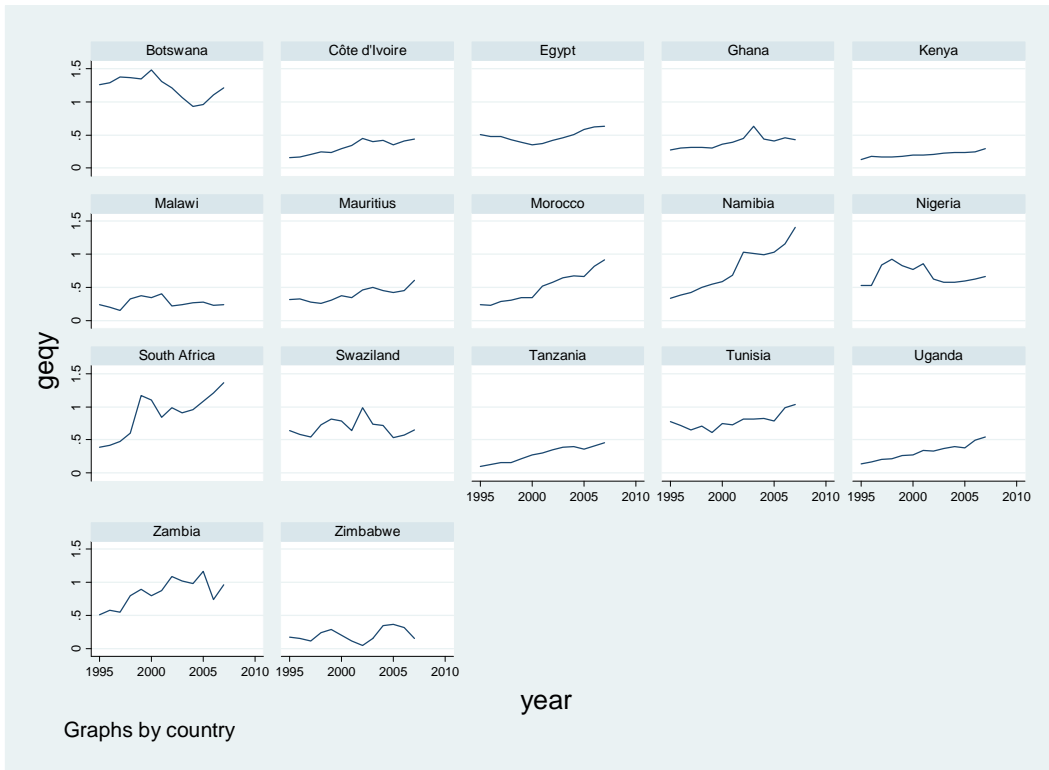


Figure 4. Trade openness measure by country

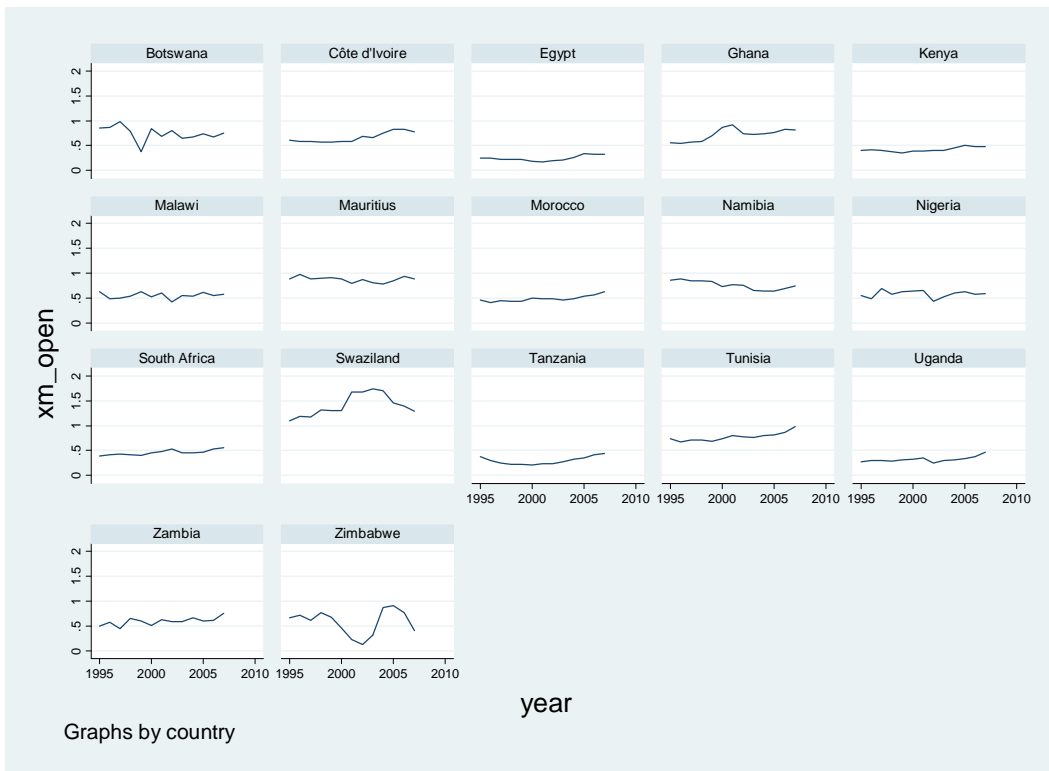


Figure 5. IFI financial openness measure by country

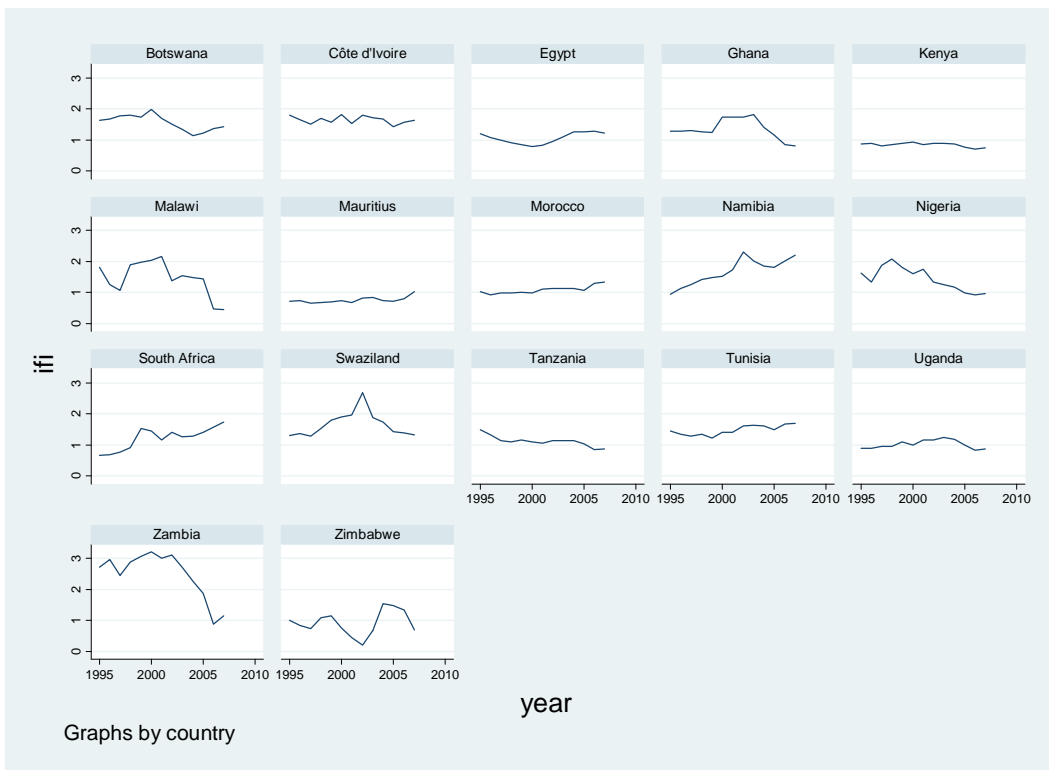


Figure 6. Real GDP growth with and without Zimbabwe

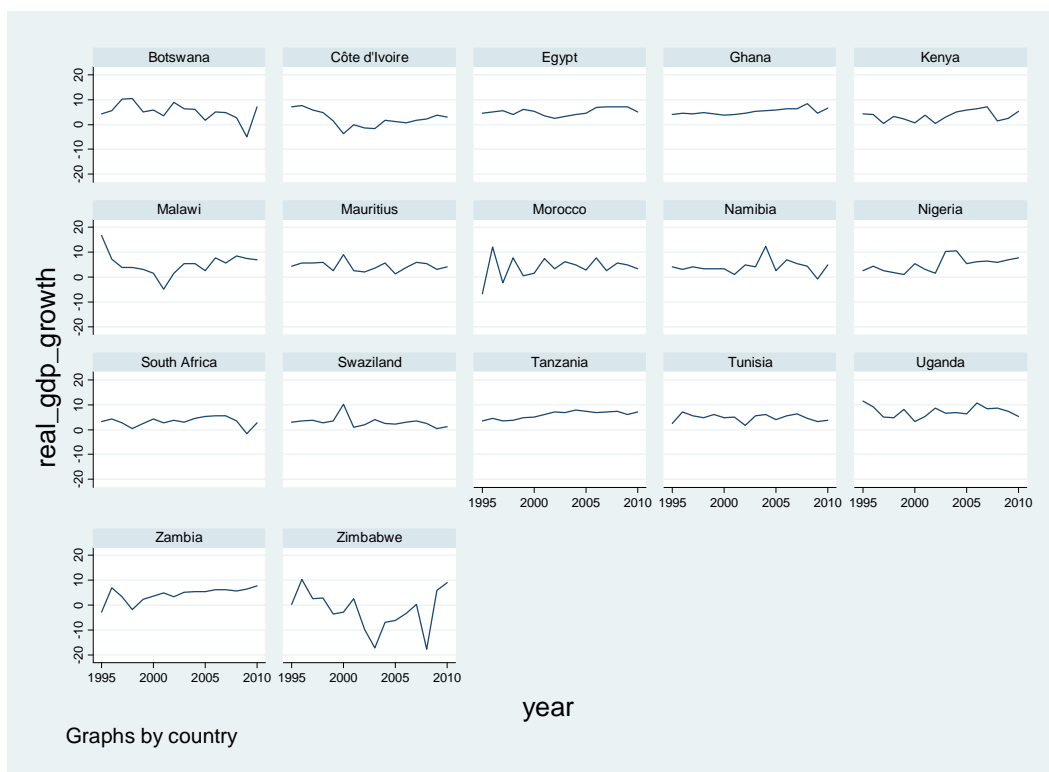
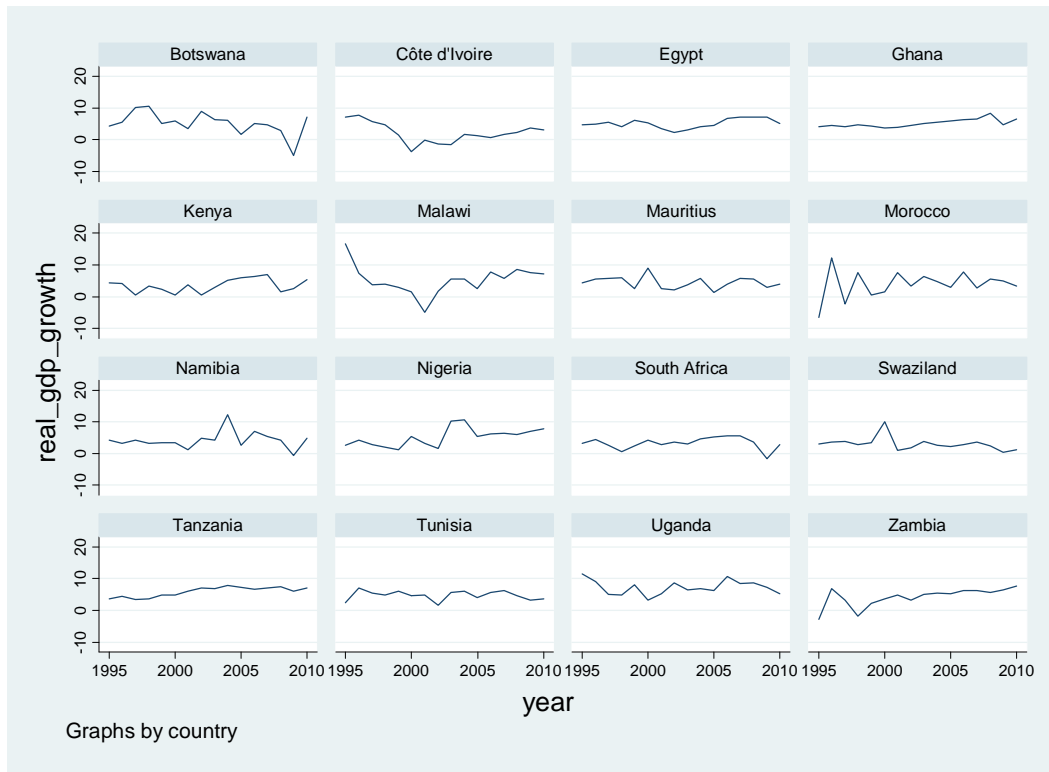


Figure 7. Real stock returns with and without Zimbabwe

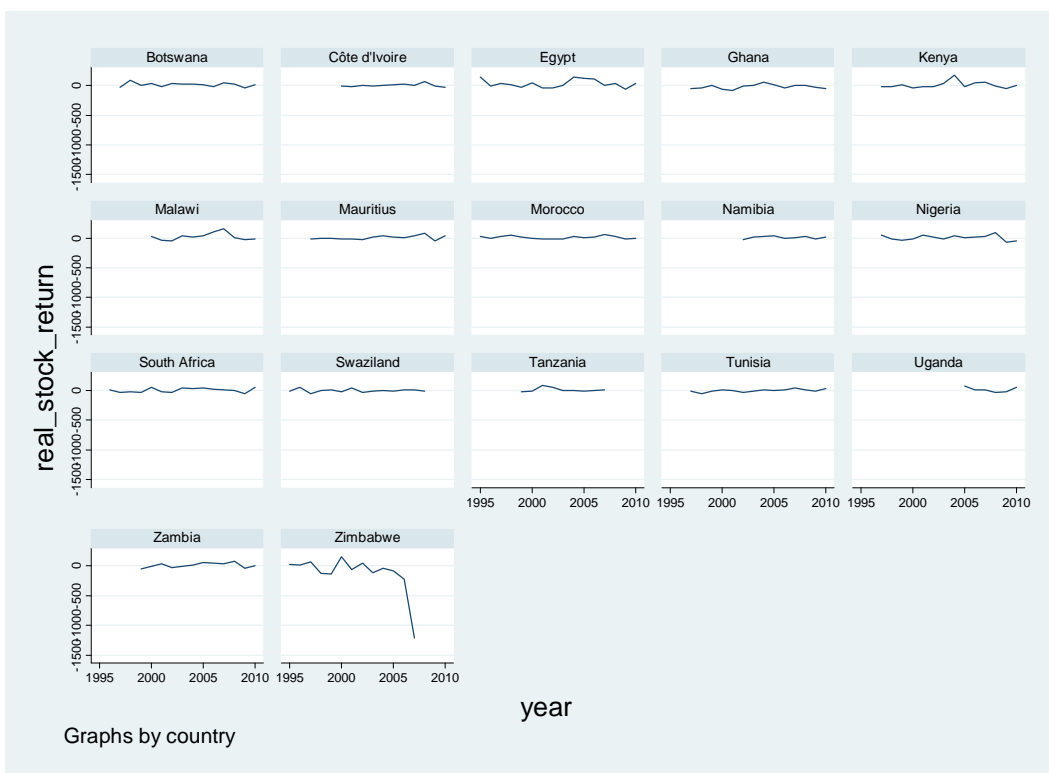
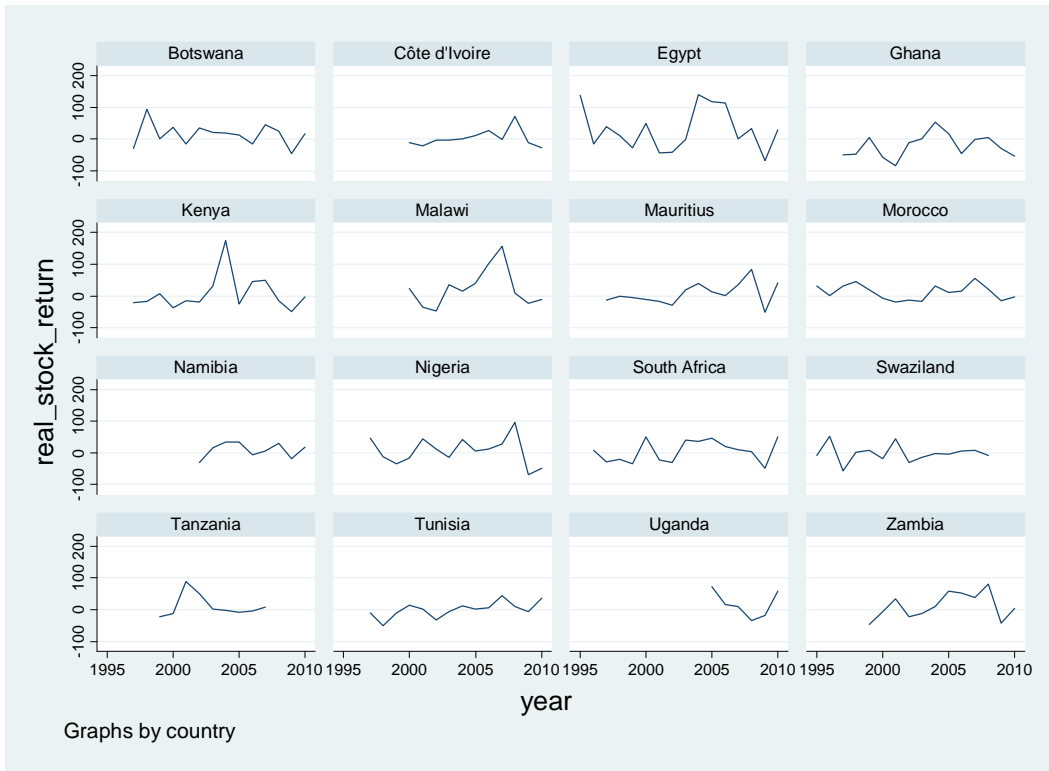
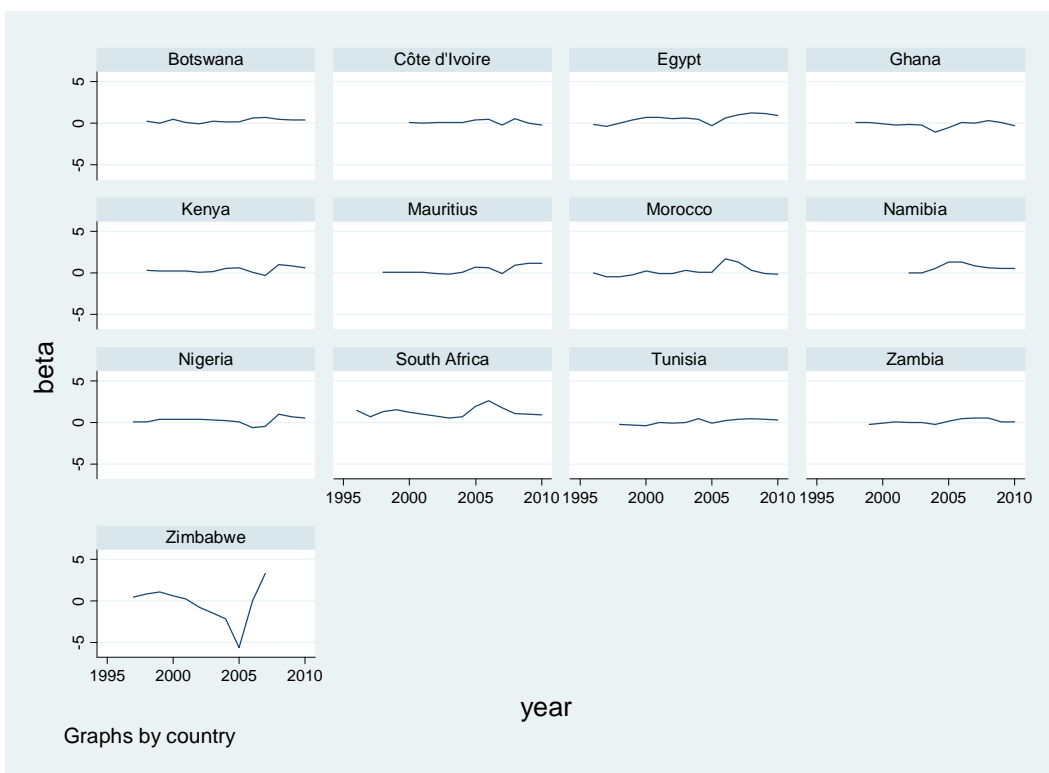
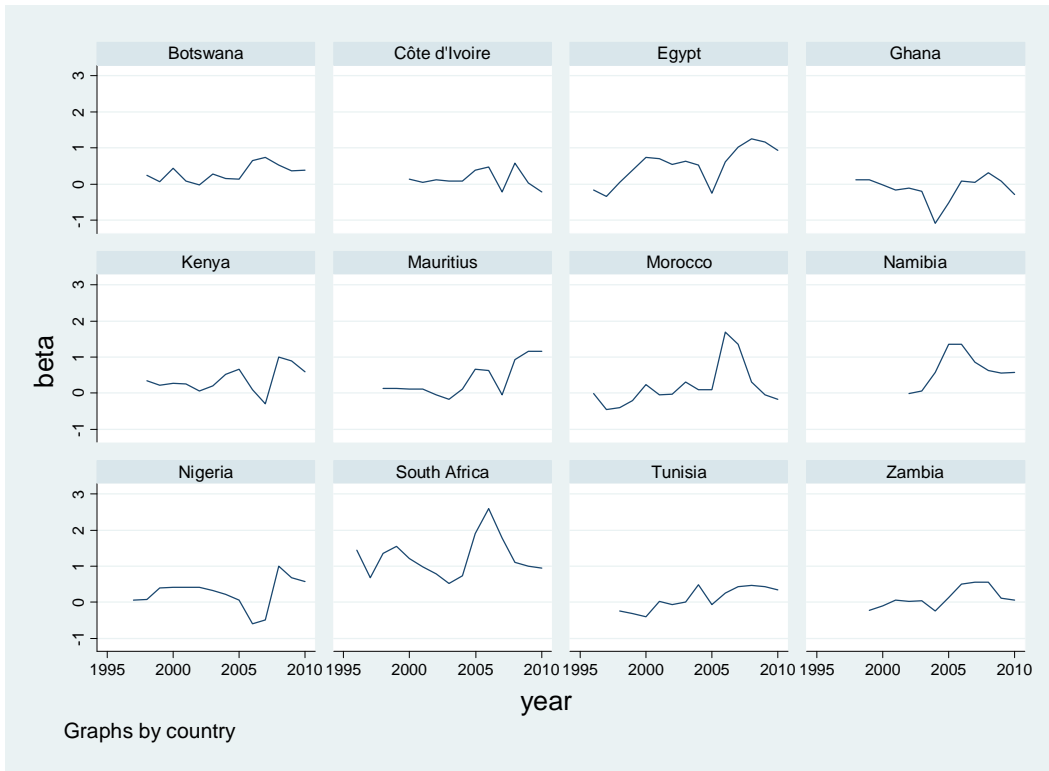
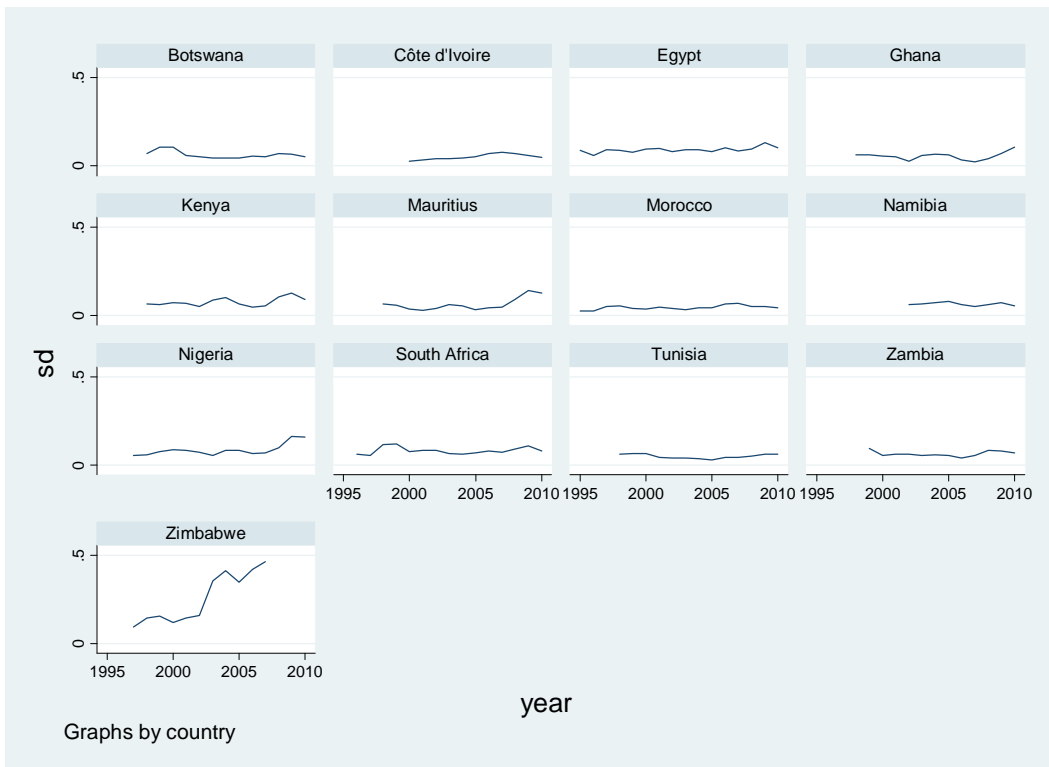
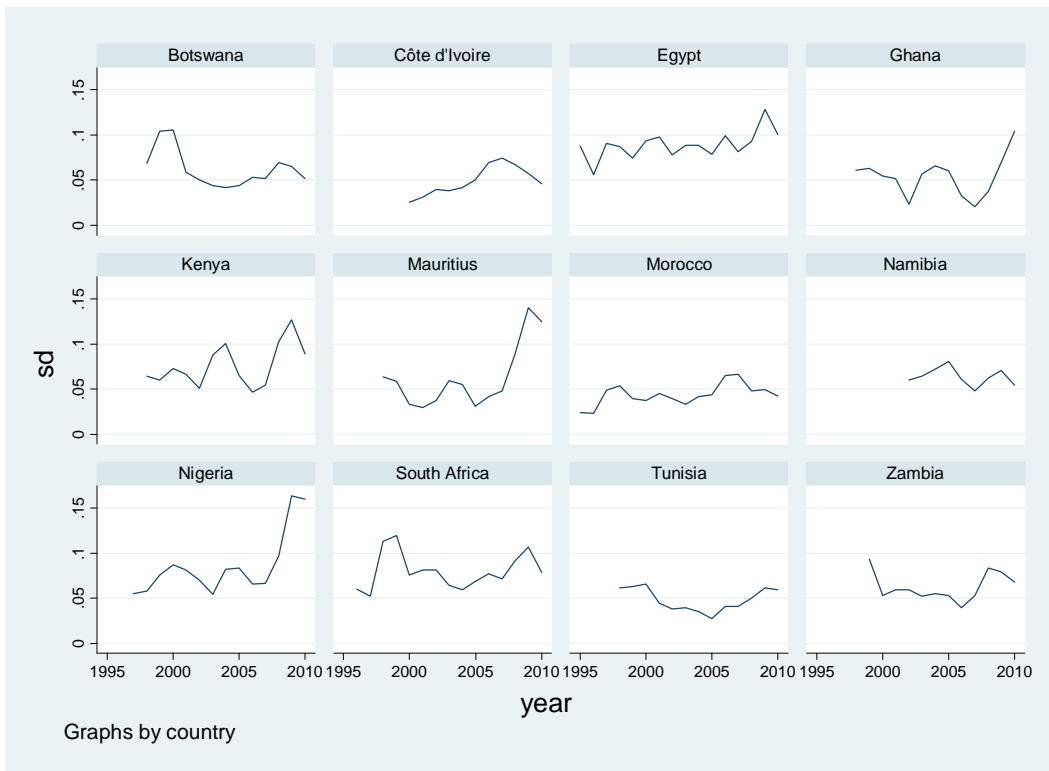


Figure 8. Beta with and without Zimbabwe



Note: Malawi, Swaziland, Tanzania and Uganda monthly stock market returns data is not available

Figure 9. SD with and without Zimbabwe



Note: Malawi, Swaziland, Tanzania and Uganda monthly stock market returns data is not available

BIOGRAPHICAL SKETCH

Mr. Tibebe Abebe Assefa graduated from Addis Ababa University with a Bachelor of Science in Statistics in 1988. He worked as a statistician with the Central Statistical Authority in Ethiopia until he left in 1997, to study Demography at University of Ghana. Mr. Assefa received his M.A. Degree in Demography in 1998. Subsequently in 2000 and 2002, he received a MBA in International Business and a M.Sc. in Computer Science respectively from the University of Texas Pan American. After completing his masters' degree he worked as Program Coordinator/Data Analyst at Center on Aging and Health at the University of Texas Pan American until he joined the PhD program at the College of Business Administration – University of Texas Pan American in 2007.

Mr. Assefa completed his doctoral studies in Business Administration with emphasis in Finance at The University of Texas Pan American in August of 2012. He has published in professional peer-reviewed journals that include: The Journal of Economics and Finance, The Global Business and Finance Review, and The Journal of Financial and Economic Practice. He has also presented in several academic professional conferences such as the Southern Economic Association, the Southern Finance Association, the Southwestern Finance Association, and the Academy of Economics and Finance. Since August of 2012, Mr. Assefa works as an Assistant Professor of Finance at Kentucky State University - School of Business.