What Can Ethiopia Learn from African Countries Stock Market?

Frame Work, Experience and Benefit

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This is to certify that the thesis prepared by Henok Abadi, entitled: *What Can Ethiopia Learn from African countries Stock Market? Frame Work, Experience and Benefit* and submitted in the partial fulfillment of the requirement for the degree of Master of Science in Economics (Economic Policy Analysis) complies with the regulations of the university and meets the accepted standards with respect to the originality and quality.

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Abstract

What Can Ethiopia Learn from African countries Stock Market? Frame Work, Experience and Benefit

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This paper aimed to draw lessons what Ethiopia can learn from African countries stock market. Thus the main objective of the study has been focused on examining and assessing lessons regarding framework, experience and benefits of already developed stock markets sampled from 11 African countries during 1991-2010. Both descriptive and econometric analysis has been adopted. Descriptively different frameworks and experiences of sampled African stock markets has been explored in regard to institutional, traditional and asset pricing characteristics of stock markets. On the other hand, three econometrics models using a panel data model, dynamic panel data model and Unrestricted Vector Auto regression (VAR) has been employed to show the economic benefits of development of stock market on growth in Africa collectively and specifically a simulation in Ethiopia's growth model. Basically the findings had revealed the fact that stock markets ability to enhance the efficiency of investments and through which its effect extends to growth is highly dependent on its level of efficiency. This was evident from econometric approach where stock market development enhanced investment positively but their indirect impact on growth were negatively associated due to stock market variables fluctuation and inefficient operation and management of the market in the sampled African stock markets. Besides advocating the establishments of new stock market in Ethiopia with efficient institutional formation, maintaining sustainable boost in stock market variables and improving way of operating the markets successively were recommended to enhance growth through stock market development.

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Finally, I hereby acknowledge the contribution of everyone involved in this study and whose names are not mentioned.

Dedication

It's my deep gratification to dedicate this study to my family, my special wife and Mr. Zerayehu Sime, for their vigorous moral and academic support throughout the study.

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Acronyms

GTP- growth and transformation plan

GDP- Gross Domestic Product

FDI- Foreign Direct Investment

UNCTAD- United nation Conference on Trade and Agriculture development

IMF- International Monetary Fund

WDI- World Development Indicator Data Base

GSE- Ghana Stock Exchange

NSE- Nairobi Stock Exchange

NSE- Nigeria Stock Exchange

JSE- Johannesburg Stock Exchange

ZSE- Zimbabwe Stock Exchange

Chapter One

1. Introduction

1.1.Background

Over the past few decades, the world stock markets have surged, and emerging markets have accounted for a large amount of this boom. For example, while overall market capitalization rose from $32 trillion in 2002 to $54 trillion in 2007 globally, the share of emerging markets jumped from 6.2 to 14.8 percent in this period. Trading activity in these markets surged equally fast: the value of shares traded in emerging markets per their GDP climbed from 33.2 percent in 2002 to 39.2 percent in 2006 though the total value of shares traded globally has declined from 152.8 to 143.4 percent for the same period (WDI, 2008).

In Africa on the other hand, there are number of stock market developments aging even more than a century such as South Africa and Egypt stock markets established in 1887 and 1888 respectively. Currently, the number of stock market and their economic role in Africa is becoming more significant. Almost 23 African nations have stock market so far, which includes the recently added Rwanda in the year 2008. While South Africa boasts of four stock markets, Zambia and Nigeria have two each to their account. All the other countries, i.e. the remaining 21 countries have one stock market each. Stock market development has been central to the domestic financial liberalization programs of most African countries. It seems any program of financial liberalization in Africa is incomplete without the establishment and development of stock markets (Charles Amo Yartey and Charles Komla Adjasi, 2007). With the exception of South Africa, most African stock

markets doubled their market capitalization between 1992 and 2002. South Africa itself has experienced an enormous achievement from 2000 to 2007 by tripling its market capitalization. Total market capitalization for Sub Saharan African markets increased from US$217.7 million to US$ 803.8 million between 2002 and 2007 (WDI, 2008).

In Ethiopia, a short lived stock market has been started informally in the late 1950s and was formally instituted in 1965. The stock market was administered by the National Bank of Ethiopia. The government through the national bank tried to improve resource mobilization by establishing a share-dealing group that brought together buyers and sellers to participate in an auction process (Asrat Tessema, 1998). According to him, the development of the stock market at the time was a good start, and no crisis of public confidence had occurred. Moreover, according to a study by J.D Von Pischke (1968), the stock market was moderately successful in its pioneering efforts to provide an organized market for companies whose shares were relatively widely held. Market capitalization, however, remained small and did not have much impact on the economy since the participation of the general public was limited. Though, this was the story about short lived stock market, currently Ethiopia lack a stock market at all. Particularly the infant stock market ceased to exist in 1975 with the declaration of a centrally planned command economy. Hence, first order of business was to nationalize most of the industries and assume ownership and control of virtually all economic activities. With the fall of communism and the emergence of a global economy, many nations around the world were slowly moving towards a market oriented economy. It became clear that market based economies fared better than those guided by socialist ideologies. Hence the new government, EPRDF which over threw the Derg Regime, exercised transforming the

economy from a centrally planned to a market-oriented system. Since 1992 the government has undertaken economic reforms by adopting the Structural Adjustment Program that meets International Monetary Fund (IMF)/The World Bank requirements. The program's main emphasis was the liberalization of both factor and commodity markets, as well as privatization and commercialization of state-owned enterprises. However, the financial sector in Ethiopia is the least improved sectors still. Moreover except sluggish moves towards opening up a capital market in Ethiopia, the government still did not want to work hard on it mainly due to political (not to let go the financial regulation associated with the new development of stock markets) and economical reasons (such as low capacity to absorb foreign investors).

Intending to accelerate and support the move towards opening up new stock markets in Ethiopia, therefore, this paper has assessed stock markets in different African countries in terms of their frame work, experience and benefits.

1.2.Statement of the Problem

The role of financial markets in economic development continues to attract increasing attention both in academic and among policy-makers. Evidence from recent empirical studies suggests that deeper, broader, and better functioning financial markets can stimulate higher economic growth[1]. Moreover since many African countries, particularly Ethiopia are in the process of overhauling their economic and political systems and may be opening the last untapped market in the world, then the development of domestic

[1] See Levine, Loayza and Beck 2000; Beck, Levine,and Loayza 1999; King and Levine 1993a, 1993b for excellent literature review on financial development and economic growth

capital markets will most likely help the economy to rely less on foreign sources of capital.

Nevertheless Ethiopia still lack market for securities at all. There has been liberalization of the whole economy since 1991 though limited in scope. Specially the financial market is still highly regulated sector, where by financial institutions are restricted in their access to funds, extending loans, interest rate ceilings and unilateral exchange rate setting through government, branching constraints, completely domestic banks allowed to run the market (not allowed for foreign banks), major role coming from central/national bank of Ethiopia. These are among the many financial regulations that government and central bank exercise in the market

Financial restrictions in Ethiopia, one way or the other, led to limited availability of funds for borrowers (investors) in terms of targeted group lending and rationing borrowers based on their relative risk potential, less incentives to save money in banks rather high demand for informal financial institutions i.e. the domestic saving rate was as low as 5.9% in 2004/05 and remained at 5.5% in 2009/10 and consequently leading to scarcity of investable fund by entrepreneurs. Moreover the investment saving gap got worse and worse as time goes by. For instance, the investment gap in 1981-1991 was on average 5%, but the investment gap peaked to double digit from 1992-2010 on average around 13% (WDI, 2011). This shows how much scanty is the role of financial institutions in filling the gap of investment and saving.

The role of industries in the economy is limited as low as 12.9% of GDP of the country for the year 2009/10 while service and agricultural sectors contribute 45.5% and 41.6%. Though agriculture takes the lion share of GDP still lack diversification, mechanization

and production boosting. For instance, agricultural or primary products in the economy account the highest proportion of export. However, the country's export is declining from time to time from 6.9% in 2004/05 to 4% in 2009/10, mainly because of the sluggish development of agricultural sector to produce exportable items, resulting from an old methodologies and technique of production applied. Still entrepreneurs or farmers in the agricultural sector would have improved way of harvesting and/or production to an increased productivity level but they are constrained with financial access (GTP, 2010) hence it would have been big injection for the economy if there had been stock markets where entrepreneurs will enjoy an increased liquidity in the market.

Nowadays despite the bulk financial regulations prevailing in Ethiopia, there are enormous development of stock based share companies. These entrepreneurs look forward to reduce scarcity of funds for huge investments through mobilization of savings from the public. They are currently able to raise funds more than 500 million birr[2] capitals for investments in agricultural, industrial and service sectors. However this companies sale their stocks not in an organized markets but rather in their own temporary offices. This is because in Ethiopia there is no stock market at all. In addition, many of the entrepreneur investors, banks, social security associations and other insurance companies including huge firms lack wide investment opportunities. Though there is investment opportunity in government Treasury bill, the return however discourages huge investors and different potential participants because of low interest payment. Consequently the T-Bill in Ethiopia mostly encounters limited participators and mostly

[2] Hiber Sugar, Ayat, Habesha Cement and Debub Global Bank are good examples (access capital banking sector review, 2010)

the national bank purchase the bills with low return and sometimes with loses even. Moreover, as briefly discussed earlier investors lack investment opportunities, hence investing their money in banking activities by lending at market rate earning remained unquestionable option they have got. If stock markets were available in the economy then all this economic entities would be interested and encouraged to invest their money on productive economic activities and multidimensional benefit would be obtained.

The government does understand the merits of having a stock market; however, the officials also feel that stock market does not contribute to the short term development of the country. On the other hand, some consider Ethiopian National bank and other financial institutions to be sleeping dog, who are the major role players for the development of new stock markets. This individuals question the capability of the financial institutions found in Ethiopia to run stock markets. However, despite the divergence in view, government and nongovernmental bodies are striving to develop markets for securities for several reasons. Government, for instance, in its growth and transformation plan aims to increase industrial sector contribution to 18.8% of GDP in 2014/15 for the planning period. Hence, their intention to develop organized stock markets in the country will help to realize planned statistic. Plus, fragmented or privately conducted trading with limited disclosure of quantity and price means that each new transaction in effect must be based on relatively expensive search costs and there is a risk of the transaction going out of line with prevailing prices. Opaque trading procedures engender suspicion of market manipulation and may reduce the rate of investment.

Consequently the development of new stock market in Ethiopia will offer much and urges a quick effort towards pushing concerned bodies.

Although evidence on Africa is still limited the results from existing empirical work supports the view that financial development has a positive effect on economic growth in African countries[3]. The Ghana Stock Exchange, for instance, was adjudged as the world's best-performing market at end of 2004 with a year return of 144 percent in US dollar terms compared with 30 percent return by Morgan Stanley Capital International Global Index (Databank Group, 2004). Within the continent itself five other bourses—Uganda, Kenya, Egypt, Mauritius and Nigeria apart from Ghana—were amongst the best performers in the year. Let alone the current performances of stock markets but as early as 1998 market capitalization from security markets in South Africa, Egypt, Morocco, Mauritius were massive. As high as 127% in South Africa and 30% in Egypt, while Morocco and Mauritius each of them account 44% of the respective GDP (WDI, 2008). In such a way many African countries had developed stock markets and are able to support their investment demand through mobilization of savings. What important can be from such experience is the ups and downs this countries had to come up before such enormous achievements. Moreover it becomes clear that how much Ethiopia is missing to exploit such markets, since the economy lacks stock markets yet.

Asrat Tessema (1998) in his analytical review of prospects and challenges for developing securities market in Ethiopia discussed issues such as rationale for developing securities markets, the cost and environmental requirements for securities markets development.

[3] See Kofi A. Osei (1998), Abu Nurudee (2009), Rachelle Wouono Ognaligui (et al, 2010) and Umar Bida Ndako (2009) for further readings on positive role of stock market developments in different African countries

Finally concluded the developments of stock market in sub-Saharan Africa hint that benefit to be gained as a result of opportunities from the domestic capital market, however did not further assessed the lessons Ethiopia can draw from their developments.

Ruediger Ruecker (2011) had recently conducted a study over market potential assessment and road map development for the establishment of a capital market in Ethiopia, and provided an excellent analysis over preconditions for the development, legal and regulatory infrastructure conditions including current market conditions. The study highly criticized the level of government commitment, macroeconomic conditions, transparency level and legal and regulatory infrastructure conditions as the main limitations observable in Ethiopia. However still lessons from other African countries stock market hardly been mentioned and used in the analysis.

Most likely the development of stock market for an economy has an undisputable importance for a given economy. Hence for countries like Ethiopia which does not have any stock markets yet, it is imperative to understand the economic role of this capital markets. When it comes to the verge of opening up the economy for a new stock market development then learning the basic challenges and experiences of neighboring African countries which already developed stock markets will be smart idea to carefully and smoothly design as well as run the market efficiently. Despite the slight review and highlight discussion over the need for stock markets in Ethiopia by many scholars, there has not been any article which tried to draw lessons from African or developing countries capital markets.

Hence the major rationale of this paper was to assess the lessons Ethiopia can draw from African countries stock market by emphasizing on basic Research questions such as:

- What basic frame work for stock markets has been employed by selected African countries and furthermore what are the appropriate measures to maintain good performance of the market?
- What important experiences could be identified from already established stock markets in Africa?
- What benefits had the stock market development resulted in these African countries economy and what potential benefit would Ethiopia gain from developing a stock market?

1.3. Objective of the study

1.3.1. General Objective

The main objective of the study was to examine the lessons what Ethiopia can learn from the performances of already developed stock markets of selected African countries and its potential benefit for Ethiopian economic growth

1.3.2. Specific objectives

- Examine the possible frame work of a stock market essential for Ethiopia's development of new stock market
- Assess the experience of different African countries stock market, and check its applicability in Ethiopia

- Identify the benefits of developing a stock market in Ethiopia basically from experience of selected African countries in regard to their economic growth using econometric approach

1.4. Significance of the study

Ethiopia is in the midst of economic transformation. A successful transformation requires gradual development of the capital markets to support economic activities. International experience shows that no universal blueprint or model can address every country's needs. This suggests the need for flexibility in the choice of methods in economic reform that must take into account the unique features of a country, particularly in terms of the level of economic development and administrative capacity. The success also depends on how carefully it is implemented, as there is much potential for good or bad. It takes time to develop the country's rudimentary institutional infrastructure to run the operations of securities markets.

The Ethiopian government has been studying the possibilities of developing a stock exchange. The government has sent a delegation of experts from the National Bank of Ethiopia to some African and Asian countries to see how securities markets operate. Pressure also may be coming from the International Monetary Fund (IMF) and the World Bank to open up the economy by developing securities markets. Since 1998, there were efforts by several institutions and individuals like Addis Ababa Chamber of Commerce and Sectoral Association to introduce stock market in Ethiopia, though they failed to procure permission of the government. A panel discussions organized by the Addis Ababa Chamber of Commerce underscored the need to develop a stock exchange in

Ethiopia. The panel highlighted the need to look beyond the banking system for additional capital by providing investors with choices that induce them to save and invest.

Hence the conduct of this paper has attempted to look at different lessons what Ethiopia can learn from already developed African countries stock market so that it will serve as guide line for the inevitable new (hopefully) development of Ethiopian securities market. Further the paper will serve as a ground for future policy formulations and/or as a guide for other related researches regarding stock market and/or capital market development in Ethiopia generally.

1.5. Scope of the Study

The area of interest on this study has covered assessing possible frameworks which are consistent to Ethiopian economic context, plus identified the experience of already developed stock markets found in Africa with the associated benefits they have accrued to their economy. The scope of this paper has been restricted to stock markets specifically found in Africa only, hoping to avoid complications and inconveniency when drawing lessons and simulating potential benefits of stock markets for Ethiopia. The potential economic role of stock market development that would have been generated for Ethiopia has been drawn basically from 11 African countries, which had developed securities markets in their economy. In line with these, a slight overview and comparison regarding the financial sector performance of these African countries and Ethiopia has also been given in descriptive analyses. The paper had used econometrics models, which helped to explain the relationship between stock market development and investment and in turn with growth of an economy. The scope as mentioned above is limited because of the

desired objectives to give basic understanding about the role of stock markets in Africa and possibly to draw lesson for Ethiopia and other related concepts along with it. It is therefore very important that the study is concise and clear.

1.6. Research Methodology

1.6.1. Model Specification

There are several literature found on stock market developments and their economic roles worldwide. Among which Hamid Mohtadi and Sumit Agarwal[4] (2000) did their article on stock market development and economic growth evidenced from developing countries[5]. By applying a model consisting of a two-stage, they have tried to test the hypothesis of whether the stock market affects economic growth. Their argument is based on the well known theoretical study of Levine (1991) who proposes that investing in the stock market alleviates both the liquidity shock and the productivity shock that firms would otherwise face. Firms not facing liquidity shocks will have a higher level of investment leading to a higher growth rate. Essentially this paper found the hypothesis very vital and adopted their model to explain the potential benefit of stock markets in Ethiopia. In order to test the above theoretical hypothesis and basically to attempt an econometric model for "potential benefit" analysis, first investment has been regressed on three measures of the stock market and then regress growth on "fitted" investments as shown below[6].

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[4] Authors are, Associate Professor, University of Wisconsin-Milwaukee and Senior Quantitative Analyst, Fleet Financial, Providence, RI

[5] Their study examines the relationship between stock market development and economic growth for 21 emerging markets from Asia, Latin America, Europe and African courtiers over 21 years, using a dynamic panel method

[6] Both models doesn't include Ethiopia

[7]$INV = \alpha_i + \gamma_t + \theta_1 (MCR_{it-1}) + \theta_2 (STR_{it-1}) + \theta_3 (TR_{it-1}) + \varepsilon_{it}$

Where INV is real investment as a fraction of GDP, MCR is market capitalization ratio divided by GDP, STR is value of shares traded divided by GDP, TR is turnover ratio, α_i captures any *country-specific* effects, such as initial endowments, γ_t captures any common *period-specific* effects, such as general technical progress, and ε_{it} is an independent disturbance.

From the basic theories of Solow growth model[8], an aggregate production function for the unique final good is;

$Y(t) = F[K(t), L(t), A(t)]$

Where Y(t) is the total amount of production of the final good at time t, K(t) is the capital stock, L(t) is total employment, and A(t) is technology at time t. Employment can be measured in different ways. For example, we may want to think of L(t) as corresponding to hours of employment or number of employees. Assuming that technology highly improves efficiency of labor[9], for this model let us consider labor force as a proxy for labor contribution for growth in Africa.

Hence; $Y(t) = F[K(t), LF]$, where LF is labor force

[7] The model applied for investment is 'Traditional panel data model'. But the growth model goes beyond traditional panel data model by considering a dynamic panel data model

[8] See Daron Acemouglu (2008) for further readings and assumption employed in constructing Solow growth model

[9] Increasing labor efficiency in a sense $Y(t) = F[K(t), L(t)*A(t)]$, see Valdes, Benigono (1999)

The capital stock K (t), on the other hand, corresponds to the quantity of "machines" (or more explicitly, equipment and structures) used in production, and it is typically measured in terms of the value of the machines. There are also multiple ways of thinking of capital (and equally many ways of specifying how capital comes into existence). Since the objective here is to start out with a simple workable model for African growth model, then it make sense for rather sharp simplifying assumption that capital is the same as the final good of the economy. However it is very difficult to capture this in Africa. Thus it is fair to use investment to proxy capital stock (accumulation). Thus;

$Y(t) = F[GINV, LF]$ where GINV is gross investment

Basically gross investments in Africa mainly are sourced from savings, foreign resources, and domestic resources. Hence;

$Y(t) = F[S, FR, DR, LF]$ where S is saving, FR is foreign resource and DR is domestic resource

Moreover foreign sources can be broadly explained as foreign aid (FAID) and foreign direct investment (FDI). In addition, domestic resources can be again broadly classified as bank credit (BC) and investment emanating from stock markets (INV_S) (since stock market development is the main interest of this study). Thus

$Y(t) = F[S, FAID, FDI, BC, INV_S, LF]$

Because of lack of satisfactory data regarding foreign aid in Africa the study considered to use foreign direct investment as a representative proxy for foreign resources. Hence the extended Solow growth model has been expressed as follows;

$Y(t) = F[S, FDI, BC, INV_S, LF]$

Finally the extended Solow growth model in a Dynamic panel data model has been formulated as follows;

$$Growth = \alpha'_i + \gamma'_t + \varphi_1(Growth_{it-1}) + \varphi_2(GDP_{it-1}) + \varphi_3(INVF_{it}) + \varphi_4(FDI_{it}) + \varphi_5(S_{it}) + \varphi_6(BC_{it}) + \varphi_7(LF_{it}) + \varepsilon'_{it}$$

Where INVF is "fitted" value of investments (Or investment emanating from stock market development INV_S and obtained from equation 1 above), FDI is foreign direct investment divided by GDP, and LF is labor force. α_i captures any *country-specific* effects, such as initial endowments, γ_t captures any common *period-specific* effects, such as general technical progress, and ε_{it} is an independent disturbance. Lagged dependent variable ($Growth_{t-1}$) and lagged value of GDP (GDP_{t-1}) are included in the model only because the panel data model is in dynamic analysis.

Panel data models are better suited for studying the duration (dynamics) of economic states like growth, unemployment and poverty and if such panels are long enough, they can shed some light on the speed of adjustments to economic policy changes. Moreover, dynamic panel data, in general, provides sequential observations for a number of individuals or countries and thus allow to distinguish inter-country differences from intra-country differences and to construct proper recursive structure for studying the issue in question through a before-and- after effect.

Once the economic role of stock market on growth of African neighbors was analyzed, then by generating the potential contribution of stock market it is made possible to indicate what would have been realized in Ethiopia's investment as shown below;

$EINV^* \theta_2 = GINV$

Where- EINV- investment in Ethiopia

θ_2- coefficient of shares traded in the first model of investment in Africa

GINV- potential (generated) contribution of stock markets in Ethiopia's investment

Finally the regressed growth model including the newly generated investment to obtain the potential economic benefits what Ethiopia would have earned by developing a stock market. However, since we have used Unrestricted Vector Auto Regression (VAR), the model itself determined the relationships among variables, though the main interest of the paper has been the relationship between potential benefits of stock market development (GINV) and growth.

[10]$Growth = f(GINV, FDI, BC, LF, S)$

Unlike the first growth model, this one is not a panel data model rather a simple Unstructured VAR model on Ethiopia only. The model has been limited to an unrestricted VAR model because, provided the fact that the model is a simulation, it is better to let the model itself determine the relationships between the variables other than determining it in our own way. Hence the unrestricted VAR is preferable in its flexible and basic outputs of the regression results and more specifically aiming only to show the

[10] The growth model is only important for assimilating the lesson with the African model constructed priory on the second model of growth in Africa. However the relationships of variables will be determined in the model itself

impacts of stock market development on growth and complete the lesson the paper has been exploring so far, the unrestricted VAR model is fairly enough.

1.6.2. Methodology and Data Analysis

Aiming to achieve objectives of the paper both descriptive and econometric analyses are employed so as to make the research productive enough. It is believed such kinds of analysis can symbolize a paper theoretically and scientifically based analyses and conclusion.

Descriptive statistics are important to have clear picture of the characteristics of sample units. By applying descriptive statistics, one can compare and contrast different categories of sample units (for instance, different African countries stock market frame works) with respect to the desired characteristics. On the other hand by applying econometric approach, namely traditional panel data model, Dynamic Panel model and Unrestricted Vector Auto Regression (VAR) model, the paper has emphasized on the scientific clarification of economic growth and stock market development.

1.6.3. Source of Data

All data have been collected from secondary sources. Data for the different African countries will be collected from World Bank data base (http://www.data.worldbank.com), world development indicator (WDI CD-ROM), international financial statistics (IMF database, http://www.imf.org/external/data.htm), International Monetary Fund working papers (IMF working papers), and working papers of African Economic Research Consortium (AERC), and from different articles.

1.7. Limitation of the study

When assessing and examining the frameworks and experiences of African stock markets, the paper has been limited to use basically detailed studies conducted on the investigation of institutional characteristics of the markets. This is due to the difficulty faced to obtain secondary data regarding each stock markets framework structure and provided the nature of the panel data requirement it is unattainable at this level to personally browse the frameworks and experiences of each stock market. Hence to support the discussions made in regard to these concepts a number of detailed research works were employed to solve the problem.

To simulate the Ethiopian growth model on the potential benefits of a stock market that would have been achieved if stock market were available so far, Unstructured Vector Auto Regression (VAR) had been employed. This is because with the aim of the research paper being to link the lesson drawn from African countries stock market in to Ethiopia, what has been major focus of the study were to show what and how would have been the relationships of stock market development and economic growth in Ethiopia. Hence it is thus limited to just Unrestricted VAR model estimation only.

1.8. Organization of the Study

This research paper has been organized in to six chapters. The first chapter gives the introduction section of the research paper. It encompasses; back ground, statement of the problem, objectives of the study, scope of the study, significance and limitations of the study. In the second chapter different literatures have been reviewed both in regard to theoretical framework and empirical aspects. The third chapter gives a bird's eye view

on the overview profiles of the private and financial sectors of Ethiopia and Africa in general. The fourth chapter had descriptively examined and assessed the framework and experience of different sampled African countries stock market based on their institutional characteristics. The fifth chapter employed three different econometric approaches to empirically reveal the economic benefits accrued from stock market development over investment and growth of African economies, where the third model involves a simulation model for Ethiopian growth model. Finally in the sixth chapter conclusion and recommendations of the research paper were given based on the analysis made in the previous two chapters.

Chapter Two

2. Literature Review

2.1. Theoretical Literature Review

2.1.1. Definition of key terms in Stock Market

In a simple terms a financial instruments and financial market for this instruments can be defined as Ralph Chami, et al (2009) "Financial instruments are contracts between borrowers and lenders that govern the transfer, use, and repayment of funds. And financial markets are the "arena" where potential borrowers and lenders "meet" and agree on the terms of these contracts." Further Ralph Chami, et al (2009) acknowledged the two parties to the contract: borrower and lender are the most fundamental building blocks of financial markets. Hence the parties are required to reach an agreement through making negotiation between their opposing goals, as in most contracting situations.

In other words Capital markets (securities market) are mechanisms for raising and trading long-term capital and thus represent the long end of the maturity spectrum of financial instruments (Sam Mensah, 2003). Accordingly within the capital market, securities firms (also called investment banking and/or stockbrokerage firms) work within a stock exchange framework to fulfill the economic role of financial markets through a set of distinct activities.

Levine (1996) indicates that stock markets can give a big boost to economic development. Stock markets may affect economic activity through the creation of liquidity. Liquidity in stock market is usually defined as the ease and speed at which agents can buy and sell securities. It is one of the most important functions the stock markets provide (Miller, 1991). Profitable investments require a long-term commitment

of capital, which investors are unwilling to commit unless there are mechanisms that allow holders of long-term investments, such as bonds and shares, to sell quickly and cheaply if they need access to their savings or want to rearrange their portfolios. In this process, companies also enjoy permanent access to capital raised through equity issues. By facilitating profitable investment by companies, liquid markets improve the allocation of capital and enhance prospects for economic growth.

Furthermore Levine (1996) defined the market where stocks or securities issued and sold for the first time (originally) is known as primary securities market. On the other hand, those financial markets where securities are repurchased or resold are called secondary securities market.

The key activities of securities firms cover the broker, dealer and advisory and research functions (Sam Mensah, 2003).

Broker Function: by bringing buyers and sellers together Brokers earn a commission or fee. Since brokers do not take an ownership position on an asset they buy or sell, they do not accept the risk of fluctuating asset prices. Similarly securities firms are the channels through which individuals, businesses and governments may purchase or sell bonds, shares and other types of securities. While direct purchases and sale of securities are possible between consenting parties, such transactions are time-consuming and costly because of the amount of time it takes a buyer to find a seller (i.e., high search costs). The broker, on the other hand, has a well-developed set of relationships for trading securities and is able to arrange transactions for a fee and at a lower overall cost.

Dealer Function: unlike the brokers, Dealers take an ownership position with the intent of immediately disposing of the asset or holding it for a more extended period. This act of

dealers makes them as market makers. In this manner, through holding an inventory of securities and preparing to resell the securities at the offer price and buy at the bid price, they earn a spread equal to the difference. When instruments are traded over the counter, the existence of a secondary market depends on the function of the dealer as a market maker.

Advisory and Research Function: The research functions are important for the efficiency of financial markets. An efficient financial market is defined as a market in which securities prices fully reflect all available information. By researching extensively on various securities and by using such information to make trades, securities firms provide a transmission mechanism for the flow of information into securities prices.

2.1.2. The Nexus of Stock Market, Financial Development and Growth

The potential role of financial markets in economic growth has been well documented. Research indicates that stock markets can give a big boost to economic development. The links between financial development and economic growth is not a new theme in the economics literature. Schumpeter (1934) observed that financial markets play an important role in the growth process by channeling funds to the most efficient investors and by fostering entrepreneurial innovation. Schumpeter's view was that financial development leads economic growth. In principle, the stock market is expected to accelerate economic growth by providing a boost to domestic savings and increasing the quantity and the quality of investment (Singh, 1997). The stock market is expected to encourage savings by providing individuals with an additional financial instrument that

may better meet their risk preferences and liquidity needs. Better savings mobilization may increase the savings rate (Levine and Zervos, 1998).

Stock markets are also considered as opportunities for growing companies to raise capital at lower cost. In addition, companies in countries with developed stock markets are less dependent on bank financing, which can reduce the risk of a credit crunch. Stock markets therefore are able to positively influence economic growth through encouraging savings amongst individuals and providing avenues for firm financing (Charles Amo Yartey and Charles Komla Adjasi, 2007). Stock markets may affect economic activity through the creation of liquidity. Profitable investments require a long-term commitment of capital, which investors are unwilling to commit unless there are mechanisms that allow holders of long-term investments, such as bonds and shares, to sell quickly and cheaply if they need access to their savings or want to rearrange their portfolios. In this process, companies also enjoy permanent access to capital raised through equity issues. By facilitating profitable investment by companies, liquid markets improve the allocation of capital and enhance prospects for economic growth (Levine, 1996).

In general, Sam Mensah (2003) believed that financial markets provide four important economic functions. Accordingly, financial markets determine the prices of assets traded through the interaction of buyers and sellers (which is the process of *price* discovery). Plus financial markets provide a mechanism for an investor to sell a financial asset. Thus, markets offer *liquidity* or the ability to convert a financial asset into cash. Thirdly, financial markets reduce the cost of financial transactions. By bringing sellers and buyers of financial assets together, *Information costs*, which are incurred in assessing the investment merits of a financial asset, are reduced because specialized institutions emerge

to produce information more efficiently. Explicit *search costs*, such as the cost that would be spent to identify a seller or buyer of an asset are also eliminated. Eventually, financial markets provide facilities for *transferring risk.* Through distributing risks to those most willing to bear them, financial markets ensure that risks are borne willingly. In doing so all these functions, financial markets serve to mobilize savings from the public and channel them to firms undertaking productive investments, generating even more savings and investment in a virtuous growth cycle.

Financial markets typically comprise of several institutions including banks, insurance companies, mutual funds, mortgage firms, finance companies and stock markets.

In developing countries, particularly in Sub-Saharan Africa, commercial banks have dominated financial market activities, which have not been reliable sources of long-term financing. The non-bank sources of medium and long-term financing are generally, underdeveloped. The short-term natures of commercial banks' assets and liabilities as well as regulatory reserve requirements in many countries render them (banks) incapable of supplying long-term capital. The high yielding short-term government treasury bills have, therefore, resulted in "crowding out" of the private sector as commercial banks hold large portions of their asset portfolios in the government bills.

2.1.3. Theoretical arguments-for and against-stock market contribution for growth

Substantial economic literature, dating back to Bagehot (1873) and Schumpeter (1911), has emphasized the importance of the financial system on economic growth. Although the direction of the causal relationship between the development of a country's financial

sector and its growth rate has been frequently questioned (Robinson, 1952)[11] or regarded as unimportant (Lucas, 1988), recent empirical research seems to have tipped the balance of evidence towards the belief that well developed financial systems stimulate economic growth.[12]

Greenwood and Smith (1996) show that stock markets lower the cost of mobilizing savings, facilitating investments into the most productive technologies. Obstfeld (1994) shows that international risk sharing through internationally integrated stock markets improves resource allocation and accelerates growth. Bencivenga, et. al. (1996) and Levine (1991) have argued that stock market liquidity --the ability to trade equity easily-- plays a key role in economic growth: Although profitable investments require long run commitment to capital, savers prefer not to relinquish control of their savings for long periods. Liquid equity markets ease this tension by providing assets to savers that are easily liquidated at any time, while simultaneously allowing firms permanent access to capital that are raised through equity issues. Liquidity has also been argued to increase investor incentive to acquire information on firms and improve corporate governance (Kyle, 1984; Holmstrom and Tirole, 1993), thereby facilitating growth.[13]

On the other hand, doubts on the contribution of stock markets to long-run growth. For example, the role of stock markets in improving informational asymmetries has been

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[11] Robinson (1952), however, argued that financial development passively follows economic growth by responding to the increasing demand for funds due to economic prosperity

[12] See, for example, Demirguc-Kunt and Maksimovic (1996), Jayaratne and Strahan (1996), Levine and Zervos (1998) and Rajan and Zingales (1998)

[13] Kyle (1984) argues that, an investor can profit by researching a firm, before the information becomes widely available and prices change. Thus investors will be more likely to research and monitor firms. To the extent that larger, more liquid stock markets increase incentives to research firms, the improved information will improve resource allocation and accelerate economic growth.

questioned by Stiglitz (1985) who argues that stock markets reveal information through price changes rapidly, creating a free-rider problem that reduces investor incentives to conduct costly search. Shleifer and Vishny (1986) and Bhide (1993) argue, however, that high liquidity may weaken monitoring efforts, thus impeding effective resource allocation and slowing economic growth. The contribution of liquidity *itself* to long-term growth has been questioned. Demirguc-Kunt and Levine (1996) point out that increased liquidity may deter growth via three channels. First, it may reduce saving rates through income and substitution effects. Second, by reducing the uncertainty associated with investments, greater stock market liquidity may reduce saving rates because of the ambiguous effects of uncertainty on savings; third, stock market liquidity encourages investor myopia, adversely affecting corporate governance3 and thereby reducing growth. However, on the opposite side of the last issue--that of corporate governance--Jensen and Murphy (1990) argue that in well developed stock markets tying managers' compensation to stocks is an incentive compatible design that aligns the interests of principles (owners) and agents (managers), thereby spurring efficient resource allocation and economic growth.

2.1.4. Determinants of stock market performance

According to Valeriano F. Garcia and Lin Liu (1999) to measure the performance of stock market development[14] in an economy, there are basically two approaches: institutional[15] and macroeconomic. Both institutional and macroeconomic factors are

[14] This paper focuses on the determinants of stock market capitalization- defined as the total market value of all listed shares divided by GDP- as a proxy for stock market development

[15] The institutional approach looks at institutional factors such as property rights, clearance and settlement issues, transparency and the inside information problems, taxation issues, and accounting standards.

important in stock market development. In similar fashion Pardy (1992) also argued that there are two basic building blocks necessary for a thriving securities market: (1) a *macroeconomic* and *fiscal* environment conducive to the supply of good quality securities and sufficient demand for them; and (2) a *market infrastructure* capable of supporting efficient operation of the securities market. Under the first precondition, the author indicates that the demand for and supply of securities is crucially linked to the state of the macro economy. If the macro economy is conducive to profitable business operation, a sufficient number of sound businesses can develop to a stage where access to securities markets is useful for their continued growth. This means that if there are not sufficient profitable businesses with good prospects for the future, there is little reason to have a securities market.

Pardy (1992) and Valeriano F. Garcia and Lin Liu (1999) took the macroeconomic approach in their study and suggested the following;

Real income and income growth rate: Higher real income growth can be realized through stock markets high volume of intermediation. High income growth in turn promotes development in the stock market. As income increases, its cyclical component should impact the size of the stock market and its price index. In addition, because higher income usually goes hand in hand with better defined property rights, better education, and a better general environment for business thus expected to have a positive effect on the stock market size.

Savings and investment: Usually the higher will be the amount of capital flows through stock markets when savings are larger. However, savings may not be highly correlated

with income in their sample. In fact in Latin America during the last several years it is negatively correlated, probably due to the sizable capital flows.

Financial intermediary development: Since both the banking sector and stock markets intermediate savings towards investment projects, they can be either complements or substitutes. In either of the cases the financial intermediation is expected to be developed.

Stock market liquidity: one of the most important functions the stock markets provide is Liquidity. Many high-return projects require a long-run commitment of capital, which bears higher default and liquidity risks. Investors are generally reluctant to take these risks. Thus, without liquid stock markets less investment may occur to the high-return projects. In contrast, liquid stock markets allow investors to alter their portfolios quickly and cheaply, it makes investment less risky and facilitates longer-term, more profitable investments (Levine (1991) and Bencivenga, Smith and Starr (1996)). Consequently, the more liquid the stock market, the larger the amount of savings are channeled through stock markets.[16] Therefore, Valeriano F. Garcia and Lin Liu expect a more liquid market to lead to higher market capitalization.

Macroeconomic stability: General macroeconomic stability may well be an important factor for the development of the stock market. We expect that the higher the volatility of the underlying economic situation the less incentive firms and savers would have to participate in the market. With the high instability found in many developing countries, particularly during the seventies and eighties, stock markets became more opaque. Prices become signals with large standard deviations which make it very difficult to assert

[16] In contrast, some economists regard liquidity as retarding growth by reducing uncertainty and consequently precautionary savings and by lowering investors' search incentives because it would be easier for them to get out fast. Also liquidity would reduce shareholders incentives to control managers due to their short-run commitment to the corporation.

whether price changes were temporary or permanent, and markets become more uncertain and prone to attract mostly "gamblers". Furthermore, the profitability of corporations can experience sharp movements due to unexpected changes in economic policies such as monetary policy, fiscal policy, exchange rate policy and trade policy. Hence, the authors expect that stock markets in countries with volatile macroeconomic conditions would also have volatile price indexes and market capitalization.

The second precondition, according to Pardy (1992), i.e., the market infrastructure that will make the securities markets operate in an efficient, fair and stable manner can be broken in to three:

1. The *institutional infrastructure*, which provides the operational basis for the market, relates to intermediaries that provide trading, investment management and financial advisory services; market and market-related service providers for stock exchanges, over-the-counter markets, market information services, transaction clearance and settlement systems, and securities transfer, registration and custody; and providers of ancillary services such as accounting and auditing, legal advice, and financial valuation and debt rating services.

2. The *regulatory infrastructure* relates not only to the government body that has the power and responsibility to supervise the market, but also includes self-regulatory organizations such as stock exchanges, accounting standards boards, and accounting and auditing professional associations and similar organizations. It also includes their rules and regulations, procedures, and facilities such as stock exchange listing and trading rules or accounting and auditing standards, plus the monitoring and enforcement of these rules.

3. The *legal infrastructure* provides the basis for the operational and regulatory framework. It provides for property rights, contractual relationships, forms of incorporation, and rights and responsibilities of participants in the market. It also specifies the powers and responsibilities of the government supervisory authority and self-regulatory organizations.

2.2. Empirical literature

2.2.1. Stock market developments contribution to economic growth

Hamid Mohtadi and Sumit Agarwal (2000) used a panel data approach that covers 21 emerging markets over 21 years (1977-97). They have used two alternative models for estimating the long-run effects of stock markets on economic growth, the second and third of which incorporate dynamic panel estimation.

Their first model was a two-stage test of the hypothesis of whether the stock market affects economic growth. This is motivated by the well known theoretical study of Levine (1991) who proposes that investing in the stock market alleviates both the liquidity shock and the productivity shock that firms would otherwise face. Firms not facing liquidity shocks will have a higher level of investment leading to a higher growth rate (at al Solow). In order to test the above theoretical hypothesis they have regressed investment on three measures of the stock market and then regress growth on "fitted" investments as shown below.

$$INV = \alpha_i + \gamma_t + \theta_1 (MCR_{it-1}) + \theta_2 (STR_{it-1}) + \theta_3 (TR_{it-1}) + \varepsilon_{it}$$

Where:

Market Capitalization Ratio (MCR): This measure equals the value of listed shares divided by GDP.

Total Value of Shares Traded Ratio (STR): This measure equals total value of shares traded on the stock market exchange divided by GDP.

Turnover Ratio (TR): This ratio equals the value of total shares traded divided by market capitalization.

Thus;

$$Growth = \alpha'_i + \gamma'_t + \varphi_1(Growth_{it-1}) + \varphi_2(GDP_{it-1}) + \varphi_3(INVF_{it-1}) + \varphi_4(FDI_{it-1}) + \varphi_5(SE_{it-1}) + \varepsilon'_{it}$$

Where INV is real investment as a fraction of GDP, and INVF is "fitted" value of investments, SE is secondary school education, and FDI is Foreign Direct Investment divided by GDP. α_i captures any *country-specific* effects, such as initial endowments, γ_t captures any common *period-specific* effects, such as general technical progress, and ε_{it} is an independent disturbance.[17]

The second model examines the relationship between stock market development and economic growth *directly*, rather than through investment behavior. Thus, the level of investments is used as a control variable.

$$Growth = \alpha_i + \gamma_t + \rho Growth_{it-1} + \theta_1 (MCR_{it}) + \theta_2 (STR_{it}) + \theta_3 (TR_{it}) + \varphi_1 (GDP_{it}) + \varphi_2 (INV_{it}) + \varphi_3 (FDI_{it}) + \varphi_4 (SE_{it}) + \varepsilon'_{it}$$

[17] Growth: This measure is from the World Development Indicators (2000) data set.
Foreign Direct Investment (FDI): Foreign direct investment is used as a control variable since it is presumed that FDI is a determinant of economic growth.

A time series cross-section data for 21 countries from 1977-1997 suggests that stock market development is positively associated with economic growth. The empirical relationship between stock market development and the long-run growth remains strong even after controlling for lagged growth, initial level of GDP, Foreign Direct Investment, and Secondary School Enrollment, and Domestic Investment. The paper suggests that stock market development contributes to economic growth both directly and indirectly. Following the direct channel, they have showed market liquidity (turnover ratio) has a positive impact on growth. Indirectly, market size (capitalization ratio) affects investments which, in turn, affect growth. The empirical results do support the theoretical literature (e.g., Levine, 1991 in suggesting that the stock market development leads to higher growth because it reduces both liquidity and productivity shocks) and more closely to the works of Boopen Seetanah, et al (2009) also empirically proven the impacts of stock market development on growth of developing countries to be significant and positive.

On the contrary, many authors specifically focused on African stock markets have suggested different conclusions regarding the development of stock markets and its impact on economic growth. For instance, Jecheche Petros (2008) in Zimbabwe, Prof Nicholas M Odhiambo (2008) in South Africa, and Abu Nurudeen (2009) in Nigeria had advocated the positive influence of development of a stock market on growth of the respective country both at the long run and short run periods. However Rachelle Wouono Ognaligui, et al (2010) emphasized the fact that cameeron stock market is still influencing growth insignificantly and more severely Matu Raphael Wahome (2009) has

indicated that both shares traded and turnover ratio influenced growth in Kenya significantly but negatively based on his Vector Auto Regression (VAR).

2.2.2. Framework of stock market developments

Despite an abundance of research on financial market development, much less has been done on examining the process of financial market development *per se*. among the few research works done in Africa three of the most interesting were Kofi A. Osei (1998), Ino L. Inanga and Chidozie Emenuga (1997) and Grace Wambui Kibuthu (2005) respectively from Ghana, Nigeria and Kenya stock exchange markets. Each of the papers aimed at distinguishing the institutional factors which impede the performances of efficient functioning of stock markets. Generally all the three papers has assessed and examined the performances of a stock market in their respective countries fundamentally through eight to ten measurements. These are:

- The legal and regulatory framework
- Information disclosure requirements
- Transparency of transactions
- Accounting and auditing standards
- Transaction costs
- Delivery and settlement
- Barriers to entry and exit
- Taxation of investment income
- Market structure
- Public knowledge of securities markets

It is believed that if these institutional characteristics are efficiently structured and implemented then the development of a given stock market highly expected to bring about a sustainable and sound economic impact. Accordingly their analysis indicates that Ghana and Kenyan stock markets, (Ghanaian stock exchange and Nairobi stock exchange) had confirmed the strict implementation of the laws and regulations with high level of adherence by participants. However in Nigeria Ino L. Inanga and Chidozie Emenuga (1997) explained some problems associated with the implementation and administration of the Nigerian stock exchange.

On the other hand, a paper by Ralph Chami, et al (2009) proposes a framework for analyzing the process of financial development. Their methodology can be characterized as New Institutionalist and is in the spirit of the Functional and Structural Finance (FSF) approach put forward by Merton and Bodie (2005) that synthesizes neoclassical, new institutional and behavioral perspectives to analyze the design of financial systems.

The Merton-Bodie analytical framework takes the functions of the financial system as its conceptual anchor. The key insight of the FSF framework is that the functions performed by financial markets are well defined and constant, while the instruments and institutions that perform these functions change over time, and are endogenously determined by prevailing conditions, including transactions costs, social factors, and behavioral considerations.

At the same time, however, their approach is based on the belief that development ultimately depends on the presence and actions of market participants, and can only be properly understood in terms of their incentives, constraints, and opportunities. Thus, our framework is based on analyzing four important players whose activities are essential for

well-functioning financial markets. The actions taken by these four types of agents—borrowers, lenders, liquidity providers, and regulators—determine whether and how markets develop in a particular environment.

The framework provides a methodical way of diagnosing existing or emerging problems: identify the agents who are or likely to be the borrowers, lenders, liquidity providers, and regulators; examine their preferences, constraints, and incentives; investigate why their needs are currently not being met by existing contracts; and revamp or introduce policies and institutions that make it possible to use existing contracts, or create new ones that meet the requirements of all the players. The paper applies the approach to devising an appropriate strategy for sequencing the development of financial markets. It argues that instruments that require simpler and more easily verifiable compromises will probably appear first. It also shows that market reform may require parallel changes in interrelated markets and policies, and partial reforms may not get the desired results. While clearly the path of development that emerges will depend on economic, legal, political, institutional, and cultural factors, the framework prompts policymakers to ask the right questions in diagnosing the deficiencies and hurdles, and provides some guidance for designing suitable policies for the development and functioning of financial markets.

2.2.3. Countries experience-from developed and developing countries

Hicks (1969) argues that in the nineteenth century, for the first time in history, many private investment projects were so large that they could no longer be financed by individuals or from retained profits. The technological inventions of the industrial revolution, such as steam engine, had been made before, but their implementation had to

wait for well developed financial markets. The industrial society required an adapted financial system where publicly traded companies could get long-term financing. There has been a lengthy debate on why the Industrial Revolution first started in England and why in the second half of the 18th century (Crafts (1995)). One often heard argument is that Both the Bank of England and the dominant stock market of London gave England a competitive edge.

There is substantial cross-country evidence that countries with a better-developed stock market and banking system witness higher subsequent growth. In his study, Goldsmith (1969) establishes the important stylized fact that periods of above average rates of economic growth tend to be accompanied by faster financial development. King and Levine (1993) document a robust relationship between initial levels of financial development and subsequent economic growth across 80 countries, after controlling for other growth-inducing factors. Their measures of financial development are based on the degree of monetization and bank development. Rousseau and Sylla (2001) also employ a cross-country regression framework to make the case for finance-led growth. They use a long data set (1850-1997) for the US, the UK, Japan, France, Germany, and the Netherlands. They argue that financial factors had the strongest effect in the 80 years prior to the Great depression.

Rousseau and Wachtel (1998) compare the US, the UK, Canada, Norway and Sweden for the period 1870-1929. This comparative 5 country study uses the same methodology to study trivariate systems of GDP, the monetary base and financial intensity, measured by the value of the financial sector's assets. The authors find a single co-integration relationship between the three variables under examination, suggesting persistent co-

movements between finance and growth. Rousseau and Wachtel (2000) add a time dimension, and study the link between equity markets and growth for 47 countries between 1980 -1995 in a dynamic panel setting. They emphasize the importance of the liquidity of stock markets for economic growth. The relationship between finance and growth in this kind of studies is mainly the result of the inclusion of non-OECD countries. This is consistent with the hypothesis that finance matters for growth mainly in the early stages of development (Gregorio and Guidotti (1995)). There are two objections to this strain of literature. The first is that regression analysis measures correlation between variables, not causality. A co-integration analysis is the more natural setting for causality inferences. The second is that the time series used are often non-stationary. Often, the necessary corrections are not made, which may give rise to spurious correlation.

Hansson and Jonung (1997) investigate the case of Sweden from 1830 to 1991. In a bi-variate system, they find that bank development is co-integrated with per capita GDP for the entire period 1834-1991, but the relationship is unstable over time. Banking has the strongest influence on the real economy in the interval 1890-1939 and to a lesser extent in the period 1834-1890.

Demetriades and Hussein (1996) and VanNieuwerburgh (1998) apply co-integration analysis to a mixed sample of developing and developed countries for the postwar era. Financial development variables, which are bank-based, are co-integrated with economic development. In both studies, the direction of causality varies across countries and depends on the measure of financial development used. Hamid Mohtadi and Sumit Agarwal examined the relationship between stock market development and economic

growth for 21 emerging markets over 21 years (including Brazil, Chile, India, Indonesia, Korea, Malaysia, Mexico, Pakistan, Portugal, Thailand, turkey and others), using a dynamic panel method. Results suggest a positive relationship between several indicators of the stock market performance and economic growth both directly, as well as indirectly by boosting private investment behavior. Thus they lend support both to the financial intermediation literature as well as to the traditional growth literature.

Chapter Three

3. Overview of private and financial sectors in Ethiopia and Africa

3.1. Overview of private and financial sector in Ethiopia

Basically in Ethiopian history many written documents assert the distinct characteristics of the economic systems and market structures that have evolved in three different regimes namely the imperial regime (1930-1974), the military (Derg) regime (1974-1991) and lastly the current government of Ethiopia (since 1991) Ethiopian People's Revolutionary Democratic Front (EPRDF). Each political regime has experienced different approaches and economic systems that significantly affected the overall participation and existence of private sectors and as well the financial sectors too.

On the imperial regimes mostly the economic systems was characterized by high government involvement over the economic activities parallel to the private sector. Asrat Tessema (1998) described the imperial era as "a feudo-capitalistic characterized economic system in which the period marks the beginning of modernization of the country and the encouragement of private sector participation in economic development". Hence compared to previous ruling regimes the imperial era was appreciated for the modernized approach over the private sectors participation. More over Asrat Tessema (1998) acknowledged the efforts and incentives from government to be encouraging the private sector and foreign investments which includes tax holidays, tariff protection, remittance of profits, repatriation of invested capital, tax exemptions on imported capital goods and concessions in the form of land leases or land grants. As a result said Asrat Tessema, the manufacturing sector had made steady progress. The contributions of medium and large scale manufacturing industry to GDP grew from about 2 per cent in

1961 to about 5 per cent by 1973 (UNIDO, 1991). During the third five-year plan (1968–73), the last for the imperial era), 41 per cent of the manufacturing activities was done by the public sector; the remaining 59 per cent was done by the private sector (third five-year development plan, p. 231). Manufacturing was given a central role with the hope that it would stimulate other sectors of the economy.

On the other hand, the financial sector development was in its low level and moreover government has been controlling much of the financial institutions. There was low saving as compared to the next military regimes accounting an average of 10% of gross domestic saving as a percentage of GDP (WDI, 2009). Hence the effectiveness of banks to mobilize savings and create many investment opportunities was limited. As discussed earlier in the introductory section of this paper there was short-lived stock market started informally in the late 1950s and formally instituted in 1965. The stock market was administered by the National Bank of Ethiopia (the equivalent of the Federal Reserve Board in the United States). The government through the National Bank tried to improve resource mobilization by establishing a share-dealing group that brought together buyers and sellers to participate in an auction process. The infant stock market ceased to exist in 1975.

The period 1974 marked the fall of the imperial regime and set a military junta which immediately adopted a command economic system. Most of the industries were nationalized and passed title of ownership to government and controlled virtually all economic activities. By reorganizing the nationalized industries the new ruling party highly reduced or eradicated the participation of private sectors and foreign investors.

Hence this period was a devastating event for the development of the private sector and other economic activities which were ineffectively administered by the government.

The current governor Ethiopian People's Revolutionary Democratic Front (EPRDF) took power in 1991 from the soviet oriented centralized economy advocators. Given the fact that the previous ruling parties were highly neglecting the financial sector, Ethiopia's financial sector was relatively small, remains closed and is much less developed than those of its neighbors. Moreover the fact that the current governor chosen still to control lending, interest rates and owns the three largest banks, including the Commercial Bank of Ethiopia (CBE), which accounts for two-third of the outstanding credit led to the stagnation of the financial sector development in Ethiopia. This is evident from the World Bank Development Indicator (WDI) of the domestic bank credit trends in Ethiopia so far which has dwindled in the successive five years after 1991 till 1996. However efforts started to put in effect hoping to improve the Ethiopian financial sector, a revised investment proclamation was approved in 1996 that created additional incentives for foreign investors. Major provisions included duty free entry of most capital goods and a reduction of the capital gains tax from 40% to 10%. In addition, the government of Ethiopia opened a number of previously closed sectors of the economy to foreign investment (brewery and textile industries are good examples of liberalized sectors), although financial services such as electricity and power production, telecommunication, and other public utilities remain off-limits. Official estimates say that since 1996 more than 50 foreign investors had been given licenses (Ruediger Ruecker, 2011). Beside the 1996 revised proclamation, government further made a revised investment proclamation approved in 2010. Moreover the investment proclamation that allows the commercial

registration of share companies is referenced from this investment proclamation, specifically proclamation No. 686/2010. It is believed these revisions of investment enactment are more radical and flexible than the previous revisions such as 1996. All this efforts were among governments attempt to improve the participation of the private investors in non banking industry and somehow to increase the role of financial institution.

However, the financial sector is small, shallow and underdeveloped. The government of Ethiopia influences bank lending and controls interest rates. According to Access Capital Banking Review (2010), there are 15 banks, 3 of which are state-owned and 12 are privately owned. The government of Ethiopia owns the largest bank, the CBE, which accounts for two-third of outstanding credits. According to the US State department's investment climate report (2010), the CBE "is reported to have non performing loans in excess of 70% of its loan portfolio." As of 2010, private banks controlled approximately 40% of the total assets in the banking system. (Ruediger Ruecker, 2011). Recent pushes from the world monetary institutions such as International Monetary Institute (IMF) and World Bank (WB) are expected to force the current government to relax its control over the domestic banks. There has been a movement in the improvement and branching of the commercial bank of Ethiopia in order to accommodate the foreign rivals competition. When this paper was conducted the CBE has launched the new multipurpose system and a more sophisticated hi-tech system, was on trial session.

The Birr operates under a managed exchange rate regime. It declined by 8% in 2008. The decline has been sped up in 2009 in order to erase the Ethiopian birr considerable overvaluation as the pace of depreciation has lagged behind the high inflation rate. There

is a black market for the currency. The national bank of Ethiopia acting as a central bank maintains a monopoly on all foreign currency transactions. It supervises all payment or remittances made overseas. The Ethiopian birr is not freely convertible. Residents can only hold foreign currency for 45 days before they have to exchange it at a bank.

Although the government of Ethiopia seems to understand the potential importance of financial liberalization, it is widely believed that liberalization may result in a partial or even total loss of controls over the local economy and may not even be economically beneficial. Because of that, the central bank holds a monopoly on all foreign exchange transactions and supervises all foreign exchange payment and remittances. However, in recent years, the government of Ethiopia has allowed the local private sector to participate in banking, although foreign ownership and branching operations remains strictly barred (Ruediger Ruecker, 2011).

No securities market is present yet in the financial market, but in 2008, the Ethiopian commodity exchange (ECX) was introduced by a group of highly devoted local experts. Currently there is growing number of share or stock based companies who mobilize capital in a fragmented and segregated way either in their own office or through representative branching offices such as postal poles or banks etc. Earlier before this type of share companies came into the picture, individual entrepreneurs, firms and other institutions were financing their businesses through limited amount loans from bank, or micro financing institution or self sourced finances. Thanks to the opening of stock based companies, it enabled all the above agents to enjoy capital mobilization from the whole public in an unlimited way. However the development of this stock based companies are

hardly known or clear for the public, hence reducing the role of the public that would have been exploited. The most important reasons why the companies were unable to introduce themselves to the public is the independent marketing move preferred by all the emerging share companies. However, if there had been cooperation and an organized market for their stocks to be marketed problems would have been resolved. In addition to all this, there are no effective regulation enactments over the development and transaction management of this share companies, resulting in public fears in regard to protection and security of investors.

3.2. Overview of private and financial sector in Africa

For the last two decades, liberalization and privatization have become dominant themes in development strategies in Africa. This has facilitated the development of the capital markets and has brought encouraging attitudes towards the role of the private sector in the development of African economies. In the 1990s many countries in Africa set up stock exchanges as a precondition for the introduction of market economies under the structural adjustment programs propagated by the international monetary institutions and to facilitate the privatization of state owned enterprises. Currently 23 African nations have stock market so far, which includes the recently added Rwanda in the year 2008, and sixteen of which began operations in the 1990s.

The economic role of such an increase in the number of the stock markets in Africa has brought a significant amount of growth in its market capitalization and specifically the magnitude of capital mobilized by these stock markets in respective economies has a remarkable role on supporting the economic growth of each country.

Table3.1. Market performance of stock markets in Sub Saharan Africa (it includes all levels of income levels)

	1992	1997	2010
No of Stock Exchanges	**9**	**14**	**23**
Market Capitalization of Sub Saharan African Stock Markets including all income levels (current US$ Billions)	**107.8**	**245.7**	**1117.2**
Value traded (as % of GDP)	**8**	**18.775439**	**47.6387523**

Source WDI 2011

Following the escalating number of stock markets in Africa the performances of stock markets in Sub Saharan Africa has remarkably risen sharply. Market capitalization for instance has rapidly grown by 140 billions of US$ over five years and with an increased number of 5 stock markets in this period. Up on reaching 23 stock markets currently the market capitalization reached over 1trillion US$. On the other hand practically what has been traded in these Sub Saharan African countries contributed 8% in 1992 and sharply risen to covering up to the extent of almost half of the GDP of the sub Saharan African. These figures clearly tell how much the continent is benefited from the development of stock markets.

To further illustrate the idea of market capitalization and importance of some of African stock markets, table 3.2 presents the market capitalizations in three different periods

Table3.2 Market capitalization of stock exchanges in Africa

	Country	Name of stock exchange	Stock Market capitalization (in Billions US$)		
			1992	1997	2010
1	Botswana	Botswana Stock Exchange	295	614	4075
2	Cote d'ivore	Bourse Re'gionale Des Valeurs Mobilieres [18]	483	1276	7099
3	Egypt	Cairo and Alexandria Stock Exchange	3260	20830	82494
4	Ghana	Ghana Stock Exchange	84	1138	3531
5	Kenya	Nairobi Stock Exchange	637	1824	14460
6	Mauritius	Stock Exchange of Mauritius	416	1665	6505
7	Morocco	Bourse de Casablanca	1910	12177	69152
8	Namibia	Namibia Stock Exchange	21	689	1176
9	Nigeria	Nigeria Stock Exchange	1220	3646	50882
10	South Africa	Johannesburg Stock Exchange	103999	232069	1012538
11	Swaziland	Swaziland Stock Exchange	111	129	N.A
12	Tanzania	Dar-es-Salaam Stock Exchange	N.A	N.A	1264
13	Tunisia	Bourse de Tunis	814	2321	10681
14	Zambia	Lusaka Stock Exchange	N.A	705	2816
15	Zimbabwe	Zimbabwe Stock Exchange	628	1969	11476

Source: WDI (2011)

NA- not available

[18] BRVM- Regional Stock Exchange in West Africa composed of eight (8) French-speaking members of the West African Economic and Monetary Union (UEMOA), namely, Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal and Togo

It is interesting to observe from the above table that for the three periods taken as bench marks for comparison (1992, 1997 and 2010), none of the African stock markets has experienced a decline in their market capitalization, rather their market size has massively grown. Moreover even in early stages of most of the stock markets, for instance Ghana, Namibia, Mauritius, Swaziland, Kenya and others, had enjoyed a remarkable mobilization of capital reaching up to 637Billion US$. The least being Namibia's market size and the highest comes from Johannesburg Stock Exchange respectively around 21Billion US$ and 232Trillion US$. This indicates the magnificent role being streamed in to the stock market for investment and indirectly to economic growth. The figures further exploded currently reaching up to 1.1Trillions of US$ (50 times bigger than what is has been in Namibia 18years ago) and 1012Trillion US$ was South Africa's Johannesburg Stock Exchange (this remarks the highest market size in Africa). It is even worth noting the Zimbabwean Stock Exchange which has immensely grown in market size though the country is falling under threats of over inflation and insecurity for the last couple of years. In between 1997-2010 only their market size has grown by 9Trillion US$. Looking how huge the capitals mobilized in most of the stock markets currently, it really indicates how much financial market are contributing to the well beings of these sampled African countries investment and job opportunities, profitability and as a whole to their economic growth.

Chapter Four

4. Framework and experiences of already established stock markets in Africa

Being convinced African stock markets are offering a remarkable advantages and economic support (based on sampled African countries discussed on the previous chapter), then this paper consider it imperative to asses and examine the framework of this already developed stock markets hoping that Ethiopia will have so many lessons to acquire in the process of opening a new stock market. On the way, the study points out some of the experiences encountered by these countries.

4.1. Assessment of framework and experience of stock markets in Africa

Basically examination of the framework of a stock market can be done through assessing the institutional characteristics[19] of stock markets in Africa in such a way:[20]

- The legal and regulatory framework
- Information disclosure requirements and Transparency of transactions
- Accounting and auditing standards and Transaction costs
- Delivery and settlement

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[19] The institutional characteristics are basically ideas of Kofi A. Osei (1998), Ino L. Inanga and Chidozie Emenuga (1997) and Grace Wambui Kibuthu (2005)

[20] Each discussion in the following section will rely on detailed research studies made on examination of institutional characteristics of each country and the references were tried to be as far back early as possible in regard to the establishment of each stock markets. This is because, for a broad issue such as "lesson to be drawn", it will be very difficult for the researcher to explore all country specific information's to be exploited by this research and the earliest lessons are more important for country like us (efforts being to open up a new stock market).

- Market structure
- Public knowledge of securities markets
- Fiscal incentives and prudent macroeconomic policies

In the discussion to come from now on, different author's research works were cited and all or some of their opinions were taken as it is in some instances where it is important. Provided that the study has tried to draw lessons from different sampled African stock markets (11 countries), it appeared difficult in terms of timeliness and feasibility of browsing information on all sampled stock markets. Hence readers are acknowledged priory that different research works has been cited in order to solve the problems. Moreover this research paper has aimed initiating more successive researches to be conducted on the effort of pushing forward to open up a new stock market, hence convinced to consider this solution other than quitting to draw lessons from different countries.

4.1.1. The legal and regulatory framework

The most important and prior concern in ensuring orderly and equitable dealings in a stock exchange markets, including the protection and security of investors, require that capital markets especially the emerging ones to operate within a framework of law and regulations enacted by the country. This is because; the extent to which these laws are enforced will have a direct impact on the development of the stock market. In other words the implementation of legal and regulatory frameworks requires that various laws to be enacted in order to smoothly run the operation and administer all the transactions in the market. In this regard among the many laws that needs to take effect includes laws

mainly put in effect to acknowledge the establishment of Regulatory Commission of securities and how this institution should operate in the market. In addition to this major law others such as regulatory enactments for listing, membership, transacting, takeover and mergers regulations, foreign investors regulation, investment scheme regulations, companies code of act, laws associated with banking and non-banking financial institutions and many others.

The establishment of responsible body for security market operations can be sourced from many interlinked angels such as; promoting the interest of investors and enhancing their confidence in the capital market, to maintain surveillance over the securities market, ensuring orderly, fair and equitable dealings in securities through which promoting the growth and development of the economy, has the authority over licensing stock exchanges, unit trusts, mutual funds, and securities dealers, it is also responsible for protecting the securities market against abuses such as insider trading practices. Takeovers, mergers and acquisition of companies are subject to the review, approval and regulation of the commission. not only regulate the stock exchanges, but also stockbrokers/dealers or any other persons dealing in securities within the national territory. Finally, on all policy matters concerning capital market development, the authority has an advisory and consultative role.

Many of the stock markets surveyed in this paper had put such legal and regulatory frameworks with associated responsible institutions. However since most of the stock markets have similar features table 4.1 summarized some of the important legal and regulatory enactments adopted in five African countries stock market.

Table 4.1. Legal and regulatory enactments adopted in five African countries stock market

Country	Stock market	Regulatory commission/authority	Legal and regulatory frameworks implemented	Remarks
Ghana	Ghana Stock Exchange (GSE)	Securities Regulatory Commission (SRC)	-Securities Industry Law (SIL) 1993 (PNDCL 333) -GSE Listing Regulation 1990 LI 1509 -GSE Membership Regulations 1990 LI 1510 -Companies Code of 1963 (Act 179) -Bank of Ghana Act, 1963 (Act 182) -Banking Law of 1989 (PNDCL 225) -Financial Institutions (Non-Banking) Law, 1993 PNDCL 328	incorporated in July 1989 as a company limited by guarantee
Nigeria	Nigerian Stock Exchange (NSE)	Securities and Exchange Commission, (SEC) and the Nigerian Stock Exchange (NSE)	The Securities and Exchange Commission (SEC) Decree No. 71	The establishment of the commission by decree No.71 was the result of complaints that greeted the sale of shares during the indigenization program
Zimbabwe	Zimbabwean Stock Exchange (ZSE)	Zimbabwe Stock Exchange	Zimbabwe Stock Exchange act of 1974	ZSE were intended to meet the capital needs of the gold mining industry, and regained the current name ZSE after independence in 1980

Kenya	Nairobi Stock Exchange (NSE)	Capital Market Authority (CMA)	-Capital Markets (Licensing Requirements) (General) Regulations, 2002 -Capital Markets (Securities) (Public Offers, Listing and Disclosure) Regulations, 2002 -Capital Markets (Takeovers and Mergers) Regulations -Capital Markets Authority, Foreign Investor Regulations, 2002 -Capital Markets Authority Fees Structure -Collective Investment Schemes Regulations, 2001 -Corporate Governance Guidelines, 2002 -Rating Agency Guidelines, 2001	NSE was constituted as a voluntary association of stockbrokers registered under the Societies Act.
South Africa	Johannesburg Stock Exchange (JSE)	Johannesburg Stock Exchange	licensed as a stock exchange (for equities) and as a financial market (for financial and agricultural derivatives) in terms of these Acts	a philosophy of self-regulation by the markets is practiced and applies to the JSE
Mozambique	Bolsa de Valores de Maputo (BVM)	----	There is no securities markets regulation and participants can only rely on an inefficient court system and a commercially inexperienced judiciary where corporate disputes can take over elongated to be resolved	----

Source: authors own compilation (see Kofi A. Osei (1998), Ino L. Inanga and Chidozie Emenuga (1997), Jecheche Petros (2008), Grace Wambui Kibuthu (2005), Charles Amo Yartey (2008) and Bruce Hearn and Jenifer Piesse (2009))

The above table systematically summarized the securities markets in five African countries based on their legal and regulatory enactments adopted. Accordingly Ghana Stock Exchange (GSE) was incorporated in July 1989 as a company limited by guarantee. And the various laws enacted in connection with the securities market include the establishment of the Securities Regulatory Commission and how the commission should function. After this the rest of the laws enacted are in connection with regulating transaction and membership, on GSE. Other laws that protect the securities market directly or indirectly include the Companies Code of Act, Banking related Laws and also for the Financial Institutions (Non-Banking). It is really worth mentioning the false start Ghana had experienced in the early 1970's when a rudimentary market was set up. However this list of laws and regulations indicates that the legal and regulatory framework of the securities market and for that matter the stock market has been adequately taken care of after 1970's and GSE commenced on 1990 (Kofi A. Osei, 1998). Similarly in Kenya too specific regulation in regard to licensing, listing, membership, public offer, disclosure requirements, take over and mergers, foreign investors, corporate governance, investment schemes and many other have been formulated by the capital market authority which was responsible for administering the securities market in Kenya. In 1954 the Nairobi Stock Exchange was constituted as a voluntary association of stockbrokers registered under the Societies Act. Africans and Asians were not permitted to trade securities at the NSE. Business was conducted by resident Europeans only until 1963 when Kenya attained independence from Britain. But after 1984, the Government of Kenya through the Central Bank of Kenya in conjunction with the International Finance Corporation (IFC) had exerted great effort in conducting

successive studies and the study became a blue print for structural reforms in Kenya's financial markets and culminated in the establishment of the Capital Markets Authority (CMA) in 1989 as a regulatory body (see Grace Wambui Kibuthu, 2005).

Unlike the rest of African stock exchanges the Johannesburg and Mozambique Stock Exchange are exceptional instances. Where the JSE were established as a self regulating exchange market, where JSE members and their clients (investors), must comply with trading and other rules set by the JSE from time to time. The JSE acts as regulator of its members and ensures that markets operate in a transparent and fair manner ensuring investor protection. Also JSE regulate the listing, disclosure requirements and continued obligation of listed companies. On the other hand in the Mozambique stock Exchange there is no securities markets regulation and participants can only rely on an inefficient court system and a commercially inexperienced judiciary where corporate disputes can take over 500 days to be resolved (Bruce Hearn and Jenifer Piesse, 2009). The IMF ranks Mozambique poorly in terms of legal environment and advises investors to exercise extreme caution (IMF, 2007).

Some of the times a responsible authority over securities exchange could be come from complaints from participants of security exchanges or to support the achievement of a specific objective of a certain groups. In this regard Nigerian Securities and Exchange Commission and Mozambique's Stock Exchanges could be best examples. Where the former had been formed to solve the complaints resulting from sale of shares during the indigenization program held in Nigeria and the later were formed due the emerging capital demand from gold mining industry.

The authority of a security markets such as the above security exchange commissions and the stock exchange themselves as a whole were striving to achieve success in ensuring orderly, fair and equitable dealings in securities through which they try to promote growth and development. However their stipulation of laws and regulation by itself does not mean their task is done. Rather an enforcement of the regulations to adhered and followed strictly by the capital market participant is fundamental. In this regard the major tasks can be summarized as follows; Compliance issues involving listed companies, Suspension, imposition of fines and termination on brokerage firms, Investor complaints on market manipulation, Complaints on mismanagement of listed companies and Violation of regulations. In this manner security market authorities can oblige market participants to comply with the stipulated regulations and laws. And also ensure security and protection of investors, enhance market confidence, maintaining capital market integrity and efficiency. Notable case in points could be Ghana and Kenya's experience over enforcement and implementation of suspension, charging fees against brokerage firms (see (Kofi A. Osei (1998) and Grace Wambui Kibuthu, 2005).

Remark for regulations and rules

Generally, though currently many stock markets are remarkably contributing to their economy, their starting as well as progresses were not as smooth as a plain. Rather many countries struggled to survive and emerge firmly in existence. This is observable from the lessons learnt in the above mentioned African countries. All in all, a regulatory law and enforcement body can be organized for a stock market development either in an official recognition from the parliament or concerned body, or as a company limited by guarantee (a case in Ghana), or as a voluntary stock brokers with no formal market rules or

regulations to govern their operation (a case in Kenya), or as a self regulating stock exchange can also be adopted if there could be formed enough group members to organize a formal stock broking market where members will be benefited from it and later on can join a well organized national stock broking markets and work efficiently with it (a case in South Africa) or work independently, or even if there are stock market however still may lack regulation and so that participants only rely on court system and judiciary where corporate disputes can be resolved (actually this is really riskiest option since it has been noticed in Mozambique highly inefficient court and commercially in experienced judiciary system were adopted, where corporate disputes can take much longer to be resolved).

Whatever form a given economy decided to take in its development of a legal law and regulatory enactment to execution, it is apparent from the lesson above that the importance of a quick move to put a prudent and strict security market laws and regulations when developing a stock market. Ethiopia not to end up like Ghanaian stock market did (facing a false start, plus it is worth noting to remember the late 1950's failures of our stock market) or encounter complaints from participants must organize a security exchange authority which will govern the current stock transactions. Sometimes it is possible also that a regulatory law or enactment could come in slower pace than the establishment of a stock market. However there should be a quick response for any arising difficulties, in such a way that, strict and successive researches are required on the operation and activities of newly developed stock market. Actually we will discuss this in detail later on this section.

Now a day, sales of stocks and shares in Ethiopia are becoming enormous, however still there is no as such any legal and/or regulatory framework[21] which will govern this huge investment by individuals, institutions and firms. Apart from adopting a proclamation for commercial registration and business licensing which will help only for registering share companies in the market, there is no as such a regulation over the administration of this share based companies and investors.[22] This clearly indicates that there is negligence over the security and protection of investors in Ethiopia. One can imagine how much an investor with a stock or a share on hand will face difficulties for resale or purchases, in an economy where these stocks had been sold with huge invested advertisement costs and dissected offices by each companies with no formal or organized stock markets and/or stock brokers. Moreover the already existing share companies have got no formal way of asserting the security of investors about their achievements and progresses except still with exaggerated advertisements through Medias. This highly discourages investors for further investments, which might question the existence of stock dealings for longer. Hence from the above discussion investors need to be protected before plenty of misfortunes are created and before many got prone to danger. Which indirectly implicate the need for an authorized body to oversee and enforce legal law and regulations on behalf of good governance of the newly growing financial activities. This also highly urges the need to develop an organized and strong stock broking firms.

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[21] Provided that Ethiopia still lack a stock market at all

[22] Proclamation No. 686/2010 commercial registration and Business Licensing Proclamation No. 12

4.1.2. Information disclosure requirements and transparency of transactions

A quality information provision in any circumstances will enable decision makers to pass a meaningful and considerable executions and plans. Similarly in a certain market where there are buyers and sellers exchanging, then their decisions in both sides will be highly determined by the available information. Unlike our countries stock and shares transactions where sellers only know the profitability or risk associated with their production, and buyers are simply investing their money on stocks, being optimist with regard to exaggerated media calls and discussion with friends, families or colleagues. In association with the information disclosure requirements, maintaining transparency of transactions at a neat level as much possible as every detailed activity mandated by the rules of trading in the Stock Exchange exhibits and fulfills the mechanisms to achieve a transparent transaction. In many of the African stock markets such as Ghana, Kenya, Uganda and South Africa had been able to enforce an efficient market supervision to protect and secure investors. This is because all the stock markets were given the power to legislate its own rules and regulations over stock market operations and thus had all the means on hand to enforce. However in Ethiopia it is unfortunate we had no stock market at all and this deny what other countries organized stock exchanges had offered in regard to formulation and enforcement of the laws associated with information disclosure requirement and transparency of transactions, and moreover exchange would have been fair and equitable.

A good instance will be Ghana, where Kofi A. Osei (1998, pp9) said, "Public disclosure of relevant information about securities is important for both pricing efficiency and

market confidence. If investors are to make sound judgments about the value of securities, they must be fully informed of relevant facts".

Basically the various activities which are fundamental for the enforcement of information disclosure requirements by listed companies for the public include; requiring to release from the very beginning that full and reliable information for all securities issues is being given to the public, and to ensure that all investors in the company's securities get equal access to such information, requiring to make immediate public disclosure of all material information concerning its affairs, except in exceptional circumstances, requiring to release material information to the public in a manner designed to obtain its fullest possible public dissemination, requires that if listed companies become aware of a rumor or report, which may be true or false, that contains information that is likely to have or has had effect on the trading of the company's securities or might have a bearing on investment decisions, the company is required to publicly clarify the rumor or reports as promptly as possible (Kofi A. Osei, 1998).

For firms wanting to list on the exchange, issuers of securities must comply with the Stock Exchanges Listings Requirements that the information disclosure requirements are that the company must provide the background of the company, especially the history, submission of financial statements/business records for the past few years, the capitalization, the distribution of shares such as authorized and issue of at least a minimum of the issued share capital to the public, and the distribution of shareholders such as a minimum of 500 shareholders. Other information such as dividend records, fiscal year end, date of annual meetings and any pending legal actions must all be

disclosed, simply Audited accounts of the company within the preceding should not exceed nine months.

Generally such an information disclosure requirements for the public through Listings Requirements are aimed at ensuring sufficient disclosure in the public interest of all information relevant to investors. In this regard the extent of enforcement of information disclosure requirements in Ghana, Kenya Uganda and Johannesburg stock exchanges had been almost neat. However a severe problem of information disclosure noticed in Nigeria. The published accounts of the listed companies do not seem to meet the criterion of inter-company comparability. What is available to an investor is the performance of the company in the past year. The investor does not know the performance of other companies that might be of interest, even within the same industrial sector. More severely the only sources of information on share price movements for all the quoted companies has been the weekly Business Times, Financial Guardian and Business Concord, which publish weekly terminal prices of listed stocks (Ino L. Inanga and Chidozie Emenuga, 1997).

As Ino L. Inanga and Chidozie Emenuga (1997) described the worse situation in Nigerian Stock Exchange "The statistics displayed in the daily official list relate to the last traded price of each stock, its lowest price in the year, last ex-dividend date, dividend payment date, amount of dividend paid, earnings per share and price-earnings ratio. These items of information provide little basis for comparing stocks. The information on dividend and earnings is incomplete for any specific accounting period. Other than providing information on the current (with one-week lag) share prices the statistics are of little use, if any, for investment decision making purposes."

The link between publicly available information and share pricing is explained by the efficient capital market hypothesis, in which Fama (1970) shows that security prices reflect all available information. One characteristic of an inefficient capital market is non-availability of information that should be publicly available. Where the required information is available to the public, its reliability is another determinant of market efficiency.

As demonstrated in Inanga (1983), when accounts fail to dispose the following information accounts cannot be used in making investment decisions:

- *forecast of future cash flows;*
- *the market price of the company's shares at the stock exchange; and*
- *the average price of the company's share during the year.*

The implication of the absence of these items of information is that the investor, who relies on the company's annual report for appraising an investment, counts the gains on the basis of dividends alone and does not reckon with capital gains because no information on that is statutorily supplied. Existing and potential investors in the Nigerian stock market are not publicly informed about the expected rates of return on current investments. Such information is not available for the entire market or for any of the sectors. Specialized business magazines and journals analyzing the various sectors of the market are not available. From the point of view of investors, especially those not familiar with the Nigerian capital market, the stock market looks like a black box. The services of an expert would have to be employed even for information that should ordinarily be available. This state of affairs does not make the market investment-friendly.

On the other hand, transparency of transactions can be maintained at a neat level as long as every detailed activities and operations of the stock exchange market made public, unless for national security purposes closed. The importance of maintaining transparency of transaction has been mentioned in many aspects. Kofi A. Osei (1998) made clear that transparency of trading and other activities need to be highly considered. In his own words explained "Transparency of trading and other procedures allows efficient price setting and confidence in the fairness of the market. Fragmented or privately conducted trading with limited disclosure of quantity and price means that each new transaction in effect must be based on relatively expensive search costs and there is a risk of the transaction going out of line with prevailing prices. Opaque trading procedures engender suspicion of market manipulation and may reduce the rate of investment".

Generally maintaining transparency could be possible through requiring all buying and selling of shares to be conducted through brokers or licensed dealing members (LDMs) who have the license to buy and sell shares on behalf of their clients on the exchange. Moreover the tyoe of trading system also determines the extent to which a given trading could be transparent. For instance the study by Kofi A. Osei (1998) found that the call-over system of trading on the GSE is quite transparent as trading is opened to members of the public. There is therefore transparency of pricing too. To further demonstrate transparency, brokers should fill in a bargain slip in triplicate. One copy is for the stock exchange, and one copy goes to each of the brokers making the transaction. This slip has information on price, quantity and the security involved. To further assure public confidence in trading on a given stock exchange it is possible to employ supervisor unit to monitor compliance by all parties involved in trading are in place.

Remark on information disclosure requirements and transparency of transactions

Having no stock market at all in Ethiopia simply indicates how disorganized and scattered it will be for investors to acquire information valuable for making decisions regarding choice of stocks, price of stocks, resale of stock, and/or purchases. In a development of a stock market, hence, the information disclosure requirements need to be addressed and adhered by all the participants. As has been said by one of the Ghanaian author, Kofi A. Osei (1998) said, "Public disclosure of relevant information about securities is important for both pricing efficiency and market confidence". Securities in Ethiopia are being sold constantly, but there is no awareness about how their prices are set. In addition there is no public disclosure of the achievements of these firms in a compacted and organized way. Hence these ultimately endanger the market confidence and the volatility of prices. Good instances could be such as Ghana, Kenya and South Africa in regard to comprehensive and appreciable information disclosure Legislatives and strict adherence. However in Nigeria a severe problem of information embezzlement and misleading were prevailing. Moreover existing and potential investors in Nigerian stock markets are not publicly informed about important variables such as timely share prices (only in magazines, and delayed disposal of share prices), expected return, index of stock market. On the other hand, what publicly released information's are performance of companies in the previous years, late prices of shares, and many other information where the companies think would be helpful for their business. However, these information's are nonsense or useless for investors to make up-to-date decisions and judgments. Hence in developing a stock market there needs to be a comprehensive and fair legislation enshrined in the regulations enactments so that every participant will strictly follow and

adhere. Doing so it is possible to increase the efficiency of price settlement and enhance the market confidence in participants view. Generally having a stock market and enabling this stock market to enshrine comprehensive legislations regarding the information disclosure requirements would enable to increase number of participants as well as enable participants of a security market to rely on informed and accurate decisions.

Along with public information disclosure, ensuring the transparency of transactions in a stock market is also important for the same reason in increasing the efficiency of price setting and confidence in the fairness of the market. Opaque trading procedures engender suspicion of market manipulation and may reduce the rate of investment. Conducting the buying and selling of shares through brokers or licensed dealing members (LDMs) who have the license to buy and sell shares on behalf of their clients on the exchange, opening trading to members of the public and adopting the call-over system, this way trading on the Ghana Stock Exchange has been noticed quite transparent. More over through acquiring a monitoring unit in the trading place and adopting a slip form to be filled by participant on each transaction. Kenya, Uganda and South Africa also been appraised for good enforcement and adherence of a transparent transaction.

4.1.3. Accounting and auditing standards and Transaction costs

Users of accounting information include the government, the regulatory agencies, the financial community, professional organizations, chartered accountants and accounting firms, the investing public, industry association, and the general public.

These users may have both coinciding and conflicting needs for the various types of financial statements and reports. In meeting these needs, accountants and auditors prepare

a single set of general purpose financial statements and reports that present objective, unambiguous and complete economic facts of the existence and operations of the enterprise. In order to narrow the areas of differences and minimize the dangers of bias, misinterpretation, inexactness and ambiguity, accountants and auditors have adopted generally accepted accounting and auditing principles or standards. These standards allow financial statements and reports to be reasonably compared between enterprises and between accounting periods.

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Kofi A. Osei (1998), accordingly described the Council of the Institute of Chartered Accountants of Ghana adopts the Statements of Accounting Standards of the International Federation of Accountants (IFAC). Since accounts of listed companies are prepared by reputable firms, accounts submitted to the GSE can be expected to be of

internationally acceptable accounting and auditing standards. Interviews with officials of GSE confirm that this is the case. Similarly in Kenya, in order to maintain international standards, the Authority requires that auditors of public listed companies be members of the Institute of Certified Public Accountants and comply with the International Auditing Standards. Independent auditors are to be appointed by the shareholders at each annual general meeting. Also the audit committee should consist of at least three independent and non-executive directors who report to the board; the chairman of this committee should also be an independent and non-executive director; the board should disclose whether it has an audit committee and the committee's mandate in its annual report; the committee should obtain professional advice and invite or consult with outsiders with relevant experience; review the quarterly, half-yearly and year-end financial statements of the company (Grace Wambui Kibuthu, 2005).

Earlier we have seen how miserable is the information disclosure requirement and transparency of Nigerian stock exchange, almost a similar catastrophe are noticeable in regard to accounting and auditing standards too. The set of information supplied in the annual reports could be suitable for investment decisions if it satisfied the three criteria of objectivity, comparability and neutrality (Inanga, 1976). The only guarantee of objectivity in the published accounts as provided in the Companies Decree is the certification of the auditor to that effect. But even such certification is no more than an expression of professional opinion. The accounts can contain mistakes in spite of the certification. Such mistakes are allowed so long as they are neither material nor intended to mislead (Inanga, 1976).

In Nigeria, for companies seeking listing, the Securities and Exchange Commission (SEC) normally investigates the authenticity of the submitted accounts through site visits and independent appraisal of the operations of the companies. Information gathered from SEC indicates that in some instances, the claims in the company accounts differ from the site observations. This raises serious doubt about the objectivity of the annual reports of listed companies that are not subjected to verification after the auditors' certification. For example, banks liquidated in 1994 had reported profitable operations right up until the central bank declared them bankrupt. Moreover, when in 1989 the central bank compelled banks to provide for unrecoverable debt in their accounts, their profit levels dived. Consequently, the share prices of most banks fell drastically (Ino L. Inanga and Chidozie Emenuga, 1997).

In association with the accounting and auditing standards another thing to consider is the transaction cost of a certain stock market. The level of transaction costs in a market relative to others is one measure of the efficiency of that market. Inefficient markets have high transaction costs relative to efficient markets. From the point of view of companies, transaction costs cover the various expenses in the course of public offer of equity or loan stock. Hence, unreasonably high costs of transactions will affect market development since investors aim at minimizing cost to increase their returns.

For companies going public through share issue and subsequently seeking listing on the exchange, the main costs are: Kofi A. Osei (1998, pp11-12)

- *Underwriting fee*
- *Legal and accounting expenses*
- *Brokerage commissions*

- *Cost of printing and advertising prospectus*
- *Fees for the GSE (including listing fees, application fees, and annual fees)*

For individuals buying and selling shares on the stock exchange, the main cost is mostly brokerage commissions. A latent cost is the interest forgone when payment is made to the broker while the investor waits, sometimes for a couple of weeks or more, before the stock is purchased. It was interesting to note that no brokerage firm dealing on the Ghana Stock Exchange (for instance) paid any interest on client funds deposited with them while the clients waited for the purchase of shares by brokers on their behalf. This means that if clients wait for as long as one month before their shares are purchased, they earn no interest on the funds deposited with the broker. Interestingly, almost all the brokerage firms manage funds. There is therefore no reason why these brokerage firms should not pay interest on clients' unused funds. Based on that periods Treasury bill rate of about 45%, investors lose as much as 0.125% per day of their unused funds with brokers. It is expected that this practice would affect the development of the stock market, especially as clients become aware that brokerage houses invest such funds in short-term investments such as overnight money markets, treasury bills, etc.

In similar fashion, Ino L. Inanga and Chidozie Emenuga, (1997) point additional listing costs such as registration fee payable to the authority of securities, valuation fee, advertising, printing, sundry (postage distribution), solicitor to the issues, trustee and the company, reporting fees and vending fees.

In any stock market where these main costs are minimized the higher will be interests of many investors and/or firms willing to list on that particular stock exchange. However with the growing cost of listing on any particular stock exchange the influence cound endanger the involvement of enormous number of participants. More over a different feature of cost of listing between private and public listing is available from country to country. However, what was common is that the rate at which the cost of going public is lower when companies raise higher amounts of capital. This was evident from Ghana and Nigerian Stock exchanges (see Kofi A. Osei, (1998) and Ino L. Inanga and Chidozie Emenuga, (1997)).

As long as the listing cost are maintained to low level then it is cheaper for a company to make public offer of equity than debt in terms of transactions cost. In the contrary and not surprisingly, in the study of Bruce Hearn and Jenifer Piesse (2009), given the fragile and undercapitalized domestic business environment and the large informal sector prevalent in Mozambique, few companies have met the high listing costs. This small number of stocks is due partly to a lack of familiarity with international auditing and accounting techniques (Standard Bank, 2007) and also a reluctance by the state to diversify ownership and disclose information. Therefore, debt is a more attractive form of finance than equity and the stock exchange does act as an outlet for government debt. This secondary function attracts sufficient revenue for the exchange to remain economically viable and is increasingly important.

Remark for Accounting and auditing standards and Transaction costs in Ethiopia

Adopting an international accounting and auditing standards have been noticed in many countries assisting them provide a reasonable financial statements and reports in most of

stock markets. Hence in the development of stock markets it is really important to consistently adhere to the standards of international accounting and auditing standards. Moreover there is also great effort required in enforcement of the paper works to an executable level practically.

On the other hand, transactional costs exert great motivational effect on investors whether to participate in stock markets or not. The higher the cost of transaction in a stock market the lower will be the motivation of investors to participate, but reducing the cost will enable investors acquire confidence on the profitability of their investment. Moreover the lower the transactional cost of a stock market the higher will be the competition advantage over other alternative markets such as government T-bills. Hence all the mentioned accounting and auditing standards and transaction costs in the discussion above help to look for the optimum level of their implementations.

4.1.4. Delivery and settlement

On the development of a security or stock market, one of the fundamental concern will be how the market going to handle and perform the process of transactions, such as transactional clearance and settlement systems, securities transfer, registration, and custody. In most of the African countries this processes have been noticed to take longer time and the market perform each processes inefficiently. This particularly concern investors and other participants the problems associated in buying stocks but not receiving either the certificates or their dividends. In some cases it is also noticed that investors were receiving their dividends way after they have sold their shares/securities. All these and other associated problems pose a threat on the development and growth of a

given market through reducing the confidence of investors and other participants. In Ethiopia the sale of shares has been undertaken but their way of delivery and settlement does not have a clear cut or better to say not studied, since these transactions has a short lived history. Investors and participants must know and have the right to be acknowledged the exact way of delivery and settlement process with an effective means of achieving these promises. In most cases, even in African stock markets they face a common difficulty of timely delivery and settlement of transactions. The time delays involved in these markets differ from country to country and extending from 4-9 extra days beyond promised due date. Even some of the times it extends to years also.

It is normal to observe at the initial stage of a stock market development manual execution and transaction dealing will be adopted. This is highly associated with the markets capacity being low and given the start up potential of the market, employing a sophisticated delivery and settlement systems will require huge cost to incur. Case in points could be Ghana, Kenya, Swaziland, Uganda, Mozambique and Nigeria. Though trading on each of the aforementioned trading stock markets stipulates to complete a transaction within 5 to 14 days (depending on each countries trading status), many of the stock markets fail to do so because of several bureaucratic procedures and red tape handlings of the delivery and settlement process. Except Ghana, many of the surveyed stock markets fail to accomplish the respective procedures associated with handling the settlement processes. For instance, in Kenya Grace Wambui Kibuthu (2005) described, "Prior to 2004, the Nairobi Stock Exchange (NSE) used a manual delivery and settlement system. The system involved the exchange of share certificates between stockbrokers, NSE and the relevant shares registrars of listed companies before a trading transaction

could be completed and the buyer issued with a share certificate in his/her name. The delivery and settlement system was intended to take the T+5 cycle (day of trading plus five days). However, in practice it took an average of between eight (8) to fourteen (14) days". Similarly, in Uganda, an open outcry trading system was used, with trades being registered on a board. Also in Swaziland and Mozambique, delivery and settlement were handled through physical delivery at trade date plus five working days (T+5). However in all of the above markets the delivery and settlement process takes more than 10 days to be completed (See Andrea Bohnstedt, et al (2000), Bruce Hearn and Jenifer Piesse 2009). More severely the situation in Nigeria the delivery and settlement process gets worse than others. That is, at the initial stages of Nigerian Stoock Exchange (NSE), settlement process in the market is characterized by fraught with institutional impediments, delayed share transactions, irregular payments and dividends reaching only limited number of investors. From the investigations of Ino L. Inanga and Chidozie Emenuga (1997, pp7-8)

> *Given the call-over system on NSE, the post trading clearance, settlement and delivery are executed by stockbrokers. The process is expected to conform to the NSE settlement roster, which provides for completion of the process in three working weeks. But in practice the process takes far longer. The time lag between offer date and first trading day on selected public issues, on the average, it takes 9.4 months for the offer procedure to be completed. It also takes a minimum of a year for unsuccessful subscribers to a public issue to be refunded. Almost, every issue of the Nigerian weekly business newspapers carries a complaint by an investor who has either not received share certificates years after subscription or who has not been refunded the subscription deposit.*

As can be clearly learnt, in most cases the issue of delayed and irregular delivery and settlement are associated with the manual execution and settlement procedures. However through successive efforts to improve the delivery and settlement procedures of stock market transactions, almost all of the African countries preferred to transform and introduce an automated and centralized clearing system that would significantly improve upon the clearing and settlement procedures. Hence many of the African stock markets are on the way to launch an automated clearing, depository and settlement (CDS) system, where some of them had already employed the system, for instance Kenya, Ghana and others.

When Grace Wambui Kibuthu (2005) defined the central depository and settlement (CDS) said,

> *"The CDS is an automated clearing, settlement, depository and registry system that is for shares what a bank is for cash." A CDS is important because it provides a means through which the transfer of shares can be done in an efficient, safe and cost effective manner. This is in contrast to the problems associated with the use of physical certificates in the transfer of shares between sellers and buyers, which include:*
>
> - *Mutilation, theft or loss of share certificates while in the personal custody of the shareholder.*
> - *Loss of the certificates while in transit from seller to buyer during the process of verification, cancellation and issuance of a new certificate.*
> - *Delays during the movement of the certificates between the seller and buyer.*

- *Wrong deliveries of share certificates in the event that the address of the buyer is incorrect or unclear.*

However, despite the great desire to adopt the central delivery and settlement system, the associated huge financial cost, a sophisticated legislation for implementation of the system and issues of corporate governance has limited the extent to which countries prefer to launch the system. A good example could be Kenya, where it has taken more than ten years to bring the automated and computerized CDS system in to practice, in 2004 (See Grace Wambui Kibuthu, 2005).

CDS systems facilitate speedy transactions and introduce checks through an improved and automated computerized Stock exchange reporting, Stockbrokers bank (with appointed existing banks equipped with automated daily balance accounting system to provide on-line inter-firm reconciliation), Stock exchange back office system, depository system, Clearing house system, Registrars/company secretaries system (Ino L. Inanga and Chidozie Emenuga, 1997).

Remark for delivery and settlement process

In most of the countries this paper taken survey, the initial way of handling the transactional clearance and settlement systems, securities transfer, registration, and custody were manual and very challenging for all participants. The time delays and irregular settlement of transactions were the widely know problems associated with manual execution of the delivery settlements. In this regard Nigerian stock exchange time delays and irregular settlement of transaction are exceptionally bizarre. A given transaction may take over one year to be settled or refunded for unsuccessful transactions. However, hoping to reduce and remove all technical problems associated with manual

execution of delivery settlements, almost all African countries surveyed shown high interest over transformation to the automated centralized clearing system known as the central depository and settlement (CDS) system. This has been noticed improving the procedure of clearance and settlement of transactions in many of the countries adopting it. The idea of adopting a central depository and settlement system were not an easy task for the African stock markets. It took even more than ten years in some instances like Kenya. Usually what African countries face in this regard is lack of adequate legislation for implementation of a Central Depository System, inadequacy of funds and efforts to source financial support for the infrastructure, issues of corporate governance in the entity that owns the Central Depository System.

Hence in the development of a new stock market it is better to adopt the automated clearing and settlement system as soon as possible, which indirectly implicates a great deal of effort to exert at the start of a new stock market in regard to financial supports, provision of infrastructures, and adopting a good governance over the corporate administration of this system. Moreover it is mandatory to consistently enshrine legislation adequately for their implementation. In addition equipping and enhancing the capacity of banks to effectively absorb the new demands over sophisticated technologies. This highly questions the potential of our current banking systems. There needs to be lots of improvements in order to sustain and satisfy such demands.

4.1.5. Market structure

Under the market structures what concern us most is about the involvement of foreign investors and the associated regulations countries follow in order to maintain balance

between the infant domestic industries and/or investors with foreign investors. In most African countries foreign investors are allowed to participate freely. However, some allow a complete participation without any significant differences with the domestic investors, where as others consistently and appropriately design regulations over foreign investor's participation and the rest ban the participation of foreign investors at all. Basically complete relaxation of foreign investors to participate in a stock market requires a highly developed and potential domestic firms and individual investors, unless and otherwise the domestic economy will have to be dependent on foreigner's economy. It is highly rare finding a stock market with such relaxation, may be South Africa, Ghana and Egypt. Where the Johannesburg Stock Exchange is currently a public, unlisted company and as a result, any person is now entitled to purchase and hold shares in the JSE subject to a statutory prudential limitation of a 15 percent shareholding by any shareholder. Ownership of a JSE share is no longer a requirement for membership of the exchange (see Charles Amo Yartey, 2008). Similarly in Ghana, listed stocks are generally free to all foreign investors. Despite this fact, however, any one external resident portfolio investor whether individual or institutional can hold only up to 10% of any security approved for listing. Further, the GSE requires that the total holdings of all external residents in one listed security should not exceed 74% (see Kofi A. Osei, 1998). However the rest of African countries adopt a systematic way of allowing foreign participants and investors in the stock market. This has been practical through limiting the extent to which foreign investors are defined in the domestic territory such as through categorizing the investors in to local and foreign, resident and non-resident of a country or part of a continent (eastern, southern, northern, western, and etc), and generally

adopting quota structures where domestic and foreign investors should and need to participate in. in most of the African stock markets, 25% of a given listed companies security issued is exclusively endowed to local investors and the rest 75% to be shared both by domestic and foreign investors. In Kenya, further Foreign investors are allowed to acquire up to 49% of local stockbrokers and up to 70% of local fund managers to encourage the transfer of technology and skills. For as long as shares that are registered in the name of foreign or East African investors, they are to be held in the custody of an authorized depository unless they are transferred to a local investor (Grace Wambui Kibuthu, 2005).

Unlike the others, in Nigeria the involvements of foreign investors were under high supervision and regulations in the early stage of their stock market. Ino L. Inanga and Chidozie Emenuga (1997), described the Indigenization Decrees of 1972 and 1977 were the first legislation that restricted foreign investment in Nigeria. However through time Nigerians came to understand the need to allow foreign investors in their markets. Thus the provision of 1992 and 1997 were amended by the Nigerian Enterprises Promotion Decree No. 54 of 1989, which allowed 100% participation of foreigners in most enterprises. However, foreign interest in banking/insurance, petroleum prospecting and mining is still restricted to a maximum of 40% because of which the composition of foreign and domestic ownership of investment in the Nigerian capital market largely reflects the 40-60 ratio (NSE, 1992). The companies quoted in the second-tier securities market, however, are fully owned by Nigerians as required by law. The second-tier securities market provides softer listing conditions for small indigenous firms. Unlike the past when there was high limitation on repatriation with high levied taxes, foreign

shareholders are now free to repatriate their earnings and capital at any time and no tax is levied on repatriated income.

Moreover Ino L. Inanga and Chidozie Emenuga (1997) described the divestment by foreign investors mainly due to the falling foreign exchange value of investment income arising from the depreciating value of the naira (unit currency of Nigeria) since the introduction of the structural adjustment program in 1986. However with the Nigerian Enterprises Promotion Decree and the Exchange Control Act of 1962, those restrictions on the amount of foreign exchange that can be imported into Nigeria were removed and parallel to that liberalized the Nigerian capital market.

Remarks for Market structure

The structure of a market in an economy highly determines the potential advantage that could be ripped. Almost all African countries preferred to open their stock market free to foreign investors, but their involvement is one way or the other limited country to country. Excessive barriers especially to foreign investors hamper the development of any stock exchange. This was evident from Nigerian experiences, where they banned all foreign investors earlier times. However, they have changed their approach through time to a completely free permission of foreigners. The important lesson from this section is that there is no need to rush up on opening an economy or a market completely to a foreign investor; rather it is also possible to exploit the participation of foreign investors in a regulated and systematic manner so that the security of an economy will not be endangered with outsider economy. Currently there are a number of financial policies in Ethiopia which restricts the involvement of foreigners in many specialization areas, showing the apparent stand of our government regarding protection of infant industries

from huge and powerful companies all over the world. In the recent world economic forum held in Addis Ababa in May, 2012, Ethiopian prime minister were heard explaining the firm stand of the Ethiopian government in relation to foreign investors participation denial over many sectors such as banking, telecommunication and other highly vulnerable sectors. However as per the achievement of an economic growth and a capacity to handle sophisticated systems, then the prime minister admitted the fact that there is a possibility and willingness of the government to allow and relax regulations in regard to foreign investors, mentioning the experience of Ethiopian brewery and textile industries liberalization to private owners. Though there are a number of associated restrains which are presently adopted in order to protect infant industries and somehow for political reasons too, from many other African countries experience the limited participation of foreign investors could be a good way of balancing the momentum between the domestic investors and foreign investors in addition with a greater improvement in the performances of stock market development.

4.1.6. Public knowledge of securities markets

Above all, what makes knowledge of participants important in any market, is the fact that an appropriate implementation of regulations, the fundamentals of market properties/characteristics, wisely and informed decisions and many other could be fairly undertaken if the participant of that particular market are acknowledged and aware of the whole process of transactions. Similarly in a stock market too, it is not hard rule that only an educated person will make huge capital to invest in a financial market but also the illiterate farmer or machine man or handicraft worker or any other ordinary worker could

earn capital to invest on financial securities or stocks. Provided that there is a hetero mix over investors profile in a securities market, the awareness of the participants over the stock markets will be important aspects in the development of the market. Whether to implement working regulations or to direct investment projection to areas desired, or to enable participators make an informed and wise decisions and judgments about the market, or to attract potential investors into the market, all require the creation of awareness on the fundamental aspects of the market to participants or the public. In regard to this and emphasizing the newly developing stock exchanges in Ethiopia, I can hardly say there are efforts put in effect to acknowledge or create awareness to the public, except advertisement on sales or segregated and specific group panel discussions conducted on impact and benefits of stock market developments.

However having a stock market already, other African countries are able to organize short to long term introductory courses for the public and participants too. More importantly some stock markets in Africa are rich in profiles of participants so that they provide the panel discussions distinguishably for different levels of professions, education background and knowledge about securities market. A good lesson on this regard could be taken from Ghana (Ghana Stock Exchange) and Kenya (Nairobi Stock Exchange), who are working hard to create awareness over the participants and public too. Kofi A. Osei (1998) explained the fact that, being aware of the alarming lack of knowledge over the stock market by participants, the Ghanaian Stock Exchange had arranged short courses on a continuing basis throughout the year, designed to meet the needs of both professionals and non-professionals on various aspects of the securities industry, that are conducted about every month. The results were promising in educating

the participants about securities market. The courses were: Basic Securities, Advanced Securities, Securities Selling and Investment Advice, Securities Trading, and Directors Course.

Many African countries with stock markets had strongly advised each stock market to play an educational role and embark on a vigorous campaign to market itself and educate potential investors about the opportunities available in the market and how to effectively exploit them.[23]

4.1.7. Fiscal incentives and prudent macroeconomic policies

In order to encourage more investors and firms, and increase the interest of every participant in a stock market, special incentives in terms of fiscal subsidies or targeted policy supports are recommended. For instance the debt market in a given economy is an alternative market for investors and as well as to firms looking for financing. Hence those who may want to consider the benefits of investing on stock market or being listed on stock market other than in a debt market (or any other market where investors can invest and firms can finance their financial desires) need to be initiated and motivated. Hence government has to play its role by providing special fiscal incentives such as avoiding taxation on investment incomes of a stock market, etc. In Ghana, taxation of income was one of the factors that influence firms' choice of financing. Differences in effective tax rates on income from different financial instruments had influenced how individuals or corporate bodies make their financial and investment decisions (Kofi A. Osei 1998).

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[23] See recommendation of Grace Wambui Kibuthu (2005), Ino L. Inanga and Chidozie Emenuga (1997), Andrea Bohnstedt, Alfred Hannig, Ralph P. Odendall (2000), Bruce Hearn and Jenifer Piesse (2009)

Basically there should be conciliation on the distribution of fiscal incentives among government's targeted sectors. Therefore in the development of a stock market the fiscal incentives need to highly consider it not to unfairly direct investors in particular sectors only.

Chapter Five

5. Selected methodology and data analyses

In the previous chapters the paper attempted to meet its objective of drawing lesson on the frameworks of stock markets found in selected African countries with their associated experiences. In this section an attempt has been made to show the economic benefits of developing a stock market and the extent to which mobilization of capital through these markets has contributed to the growth of respective African economies. And finally a simulation model of a simple economic relationship that would have occurred in economic growth and the development of stock market in Ethiopia had also been attempted. Intending to show these economic relationships three models has been adopted in this section and three different economic modeling such as panel data model, dynamic panel data model and a simple Vector Auto Regression (VAR) models were employed.

The first two models directly strive to draw lessons over the benefits enjoyed by a sample of 11 African countries stock market selected basically based on sufficient data availability for analysis. Namely Botswana, Cote d'ivore, Egypt, Ghana, Kenya, Morocco, Namibia, Nigeria, South Africa, Swaziland and Zimbabwe stock markets has been included in the sample. And the third model is intended to complete the lessons we were trying to draw from African countries by bringing the picture of development of stock market in Ethiopia. It was made possible through a simulation made by approximating the levels of investment that would have been entertained as a result of an ideal stock market in Ethiopian economy.

Among many difficulties that were faced in the process of data collection and by which the paper was forced to use an option of taking an alternative variables in order to represent some important variables were;

First, according to the definition of World Bank Development Indicator (WDI), gross capital formation was assumed to replace the former definition of gross domestic investment in all the countries sampled. Hence the word gross capital formation is used to represent gross domestic investment data for all 12 countries (including Ethiopia)

Second, important countries such as Cameroon, Uganda and Tanzania and Zambia were intended to be included in the analyses. However data collection over eight variables became difficult to get for all this countries, thus the paper avoided the inclusion of these countries.

5.1. Model specification

The functional forms of the three econometric models adopted in this section are shown as follows;

Model 1

On the well known theoretical study of Levine (1991) who proposed investing in the stock market alleviates both the liquidity shock and the productivity shock that firms would otherwise face. Firms not facing liquidity shocks will have a higher level of investment leading to a higher growth rate. Based on this Hamid Mohtadi and Sumit Agarwal (2000) had adopted their developing countries investment (capital formation)

model as shown below, where this paper also taken their model for estimating the impact of stock market variables on Africa's investment (gross capital formation).

Gross capital formation $= f$ (MCR, STR, TR)

GCF - Gross capital formation

MCR- market capitalization ratio

STR- shares traded, and

TR- turnover ratio

In this first model a traditional panel data model of investment regressed on lagged stock market variables namely market capitalization ratio, shares traded and turnover ratio. Note carefully that this model is exclusive of Ethiopia; rather it only explains the relationship in regard to 11 sampled African countries. Basically from this model the estimated value of gross capital formation (or "fitted value of gross capital formation" in the jargon) sourced solely from stock market operation were computed.

In equation form the model is as follow;

$$GCF = \alpha_i + \gamma_t + \theta_1 (MCR_{it-1}) + \theta_2 (STR_{it-1}) + \theta_3 (TR_{it-1}) + \varepsilon_{it}$$

Basically the regression adopted panel data model regression where 11 samples of stock markets in Africa has been considered and all the explanatory variables have been lagged once in order to show the cumulative impact of stock market development on current investment (gross capital formation).

Model 2

Once the fitted value of the gross capital formation in those African countries computed from the first model above, thus the paper then regressed a dynamic panel data model growth on other explanatory variables including the fitted value computed already. I.e. taking the growth models of Hamid Mohtadi and Sumit Agarwal (2000) where their analysis focuses on the developing countries, this paper has reconstructed the model specification to fit a dynamic growth model particularly for African countries. And accordingly the growth model has been specified as follows[24]:

Growth $= f$ (gross capital formation predicted, other explanatory variables)

More specifically, the model could be illustrated as follows

Growth $= f$ (growth $_{(t-1)}$, $GDP_{(t-1)}$, FDI, S, LF, BC, GCFP)

Where;

Growth $_{(t-1)}$- lagged dependent variable of growth

$GDP_{(t-1)}$- lagged value of Gross domestic product

FDI- Foreign direct investment

S- Gross domestic saving

[24] See detailed reconstruction of the second model on Research Methodology section of chapter one in this paper

LF- Labor force

BC- Domestic bank credit

GCFP- Predicted value of gross capital formation

As it has been explained earlier in this model specification a dynamic panel data model has been employed to better explain the dynamic adjustments of many economic relationships such as growth and its determinants. That's why a lagged dependent variables of its own and gross domestic products were included in the model specification.

In equation form the model is;

$$Growth = \alpha'_i + \gamma'_t + \varphi_1(Growth_{it-1}) + \varphi_2(GDP_{it-1}) + \varphi_3(GCFP_{it}) + \varphi_4(FDI_{it}) + \varphi_5(S_{it}) + \varphi_6(BC_{it}) + \varphi_7(LF_{it}) + \varepsilon'_{it}$$

Model 3

Finally hoping to make sure the lesson drawn in the above two models from African neighbors are complete; a simulation of Ethiopia's investment sourced solely from stock market development has been made. This is in the sense of assuming "if there had been a stock market so far in Ethiopia and if it performs on average like all the other African countries stock market, what would have been its economic role in the growth of the country?". Doing so, the paper adopted a technique of manipulating an ideal gross capital formation data in Ethiopia which has sourced only from a stock market development. I.e. by multiplying the gross capital formation in Ethiopia with an

estimated parameters of shares traded in African countries (i.e. from the first model), a generated/potential gross capital formation in Ethiopia was obtained.

$EINV^* \theta_2 = GINV$

Where-

EINV- Gross capital formation in Ethiopia

θ_2- coefficient of shares traded in the first model of investment in Africa

GINV- potential (generated) contribution of stock markets in Ethiopia's Gross capital formation

Finally regress growth of Ethiopia on the newly generated gross capital formation and other determinants, to obtain the potential economic benefits what Ethiopia would have earned by developing a stock market.

In similar fashion with the second growth model for Africa, the third model also been restructured in accordance with Ethiopian growth context. However, apart reconstructing the growth model in Ethiopia, the paper adopted unstructured Vector Auto Regression (VAR) model for estimating the simulated growth model. The model has been limited to an unrestricted VAR model because, provided the fact that the model is a simulation, it is better to let the model itself determine the relationships between the variables other than determining it in our own way. Hence the unrestricted VAR is preferable in its flexible and basic outputs of the regression results and more specifically aiming only to show the impacts of stock market development on growth and complete the lesson the paper has been exploring so far, the unrestricted VAR model is fairly enough.

$$^{25}Growth = \alpha + \beta_1(GINV_{it}) + \beta_2(FDI_{it}) + \beta_3(BC_{it}) + \beta_3(LF_{it}) + \beta_4(S_{it}) + \varepsilon'_{it}$$

$$GINV_{it} = \alpha + \beta_1(Growth_{it}) + \beta_2(FDI_{it}) + \beta_3(BC_{it}) + \beta_3(LF_{it}) + \beta_4(S_{it}) + \varepsilon'_{it}$$

$$FDI_{it} = \alpha + \beta_1(GINV_{it}) + \beta_2(Growth_{it}) + \beta_3(BC_{it}) + \beta_3(LF_{it}) + \beta_4(S_{it}) + \varepsilon'_{it}$$

$$BC_{it} = \alpha + \beta_1(GINV_{it}) + \beta_2(FDI_{it}) + \beta_3(Growth_{it}) + \beta_3(LF_{it}) + \beta_4(S_{it}) + \varepsilon'_{it}$$

$$LF_{it} = \alpha + \beta_1(GINV_{it}) + \beta_2(FDI_{it}) + \beta_3(BC_{it}) + \beta_3(Growth_{it}) + \beta_4(S_{it}) + \varepsilon'_{it}$$

$$S_{it} = \alpha + \beta_1(GINV_{it}) + \beta_2(FDI_{it}) + \beta_3(BC_{it}) + \beta_3(LF_{it}) + \beta_4(Growth_{it}) + \varepsilon'_{it}$$

The first two models, which show the relationship of growth and/or GCFP with other economic variables, will be the interest of this paper.

5.2. Expected sign relationship (Hypothesis)

Model 1

Market capitalization (also known as market value) is the share price times the number of shares outstanding, is expected to have direct and positive impact on the process of capital formation. As more and more market potentials emerged from listed companies currently then it enables more investment and more funds to entrepreneurs. Hence capital formation will be enhanced. Similarly Shares traded referring to the total value of shares traded during a particular period it is expected to directly and positively

[25] Unlike the first growth model, this one is not a panel data model rather a simple Unrestricted VAR model on Ethiopia only

influence gross capital formation in an economy. In other words, total value of shares traded implicates the amount of investment made out of a stock market on different sectors in a particular period, which means an injection of more investment funds for the economy. Finally turnover ratio is also expected to influence the gross capital formation significantly and positively. Provided that Turnover ratio is the total value of shares traded during the period divided by the average market capitalization for the period, then a more liquid market is explained by a high turnover ratio indirectly it means high level of actual investment is made. Thus the more liquid a market is then the more will be investment.

Model Two

The gross domestic production of previous period is expected to affect the current growth rates positively. This is because previous periods performances of an overall production of any economy will determine the current years potential of production and hence growth of the economy too. Hence high gross domestic production in previous years is expected to bring high potential of production for the current year and improved growth rates too. Similarly predicted value of gross capital formation estimated from the first model indirectly affects growth positively. This is because when there is efficient stock market development then there is expected enhancement on investment thus leading to a great contribution on the growth of that particular economy. In similar fashion, foreign direct investment, gross domestic saving and bank credit are expected to affect growth positively. With a growing flow of foreign direct investment, better saving culture and bank access for loans, a country is beneficial

through enhanced investments and increased job opportunities, hence high contribution to growth. However it is expected that banks provision of credits for investors in Africa is limited so that its influence on the growth of these countries to be insignificant and more interestingly the paper believes there is fierce competition from stock market developments posed on banks credit provision for financing investments. Finally, increased labor force participation facilitates growth, specially in Africa, where most investments focus on labor intensive production system. Hence labor force participation affects growth positively.

Model three

For the same reasons described above for African countries, in Ethiopia too growth is positively affected by foreign direct investment, gross domestic saving, bank credit, labor force and the ideal gross capital formation that would have been realized if there had been stock market. However unlike the rest of African countries where fierce competition was posed by stock market, in Ethiopia the role of bank credit is expected to be highly significant. In addition, provided low saving culture in Ethiopia and low mobilization capacity and techniques of banks, the role of saving in Ethiopia's growth is expected to be insignificant.

5.3. Data source and description

All the data for those variables included in the econometrics analysis are all secondary data and gathered from World Banks World Development Indicator (WDI, 2011). Data ranges from 1991- 2010 and all are in millions of dollar (expressed in current US$ currency). Two dependent variables have been used namely investment in Africa and

growth in Ethiopia and Africa. Investment was· replaced as per the World Banks indicator definition to be gross capital formation in which it consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. On the other hand growth both in Africa and Ethiopia were defined as the annual percentage growth rate of GDP at market prices based on constant US$ currency.

Independent variables

To measure the market size of a stock market and through which their impact on gross capital formation, Market capitalization (also known as market value) has been used which is defined as the share price times the number of shares outstanding.

Stocks traded refer to the total value of shares traded during the period. Apart complementing the market capitalization ratio by showing whether market size is matched by trading, shares traded has been used to explain capital formation.

Turnover ratio which is the total value of shares traded during the period divided by the average market capitalization for the period also used to explain gross capital formation

To explain growth model in a dynamic panel data model, GDP has been included lagged once in which GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products (according to WDI's 2011 definition) has been used.

Gross domestic savings (calculated as GDP less final consumption expenditure (total consumption)) also included to explain growth model representing the domestic financial sources

Foreign direct investment were employed to represent external financial sources which and can be defined as the net inflows of investment which is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments in the reporting economy from foreign investors.

In determining the labors contribution on growth, Total labor force has been employed which comprises people ages 15 and older who meet the International Labor Organization definition of the economically active population: all people who supply labor for the production of goods and services during a specified period.

In explaining the financial sector development Domestic credit has been employed along with stock market developments. Bank credits are provided by the banking sector including all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net.

5.4. Estimation results

Model 1

Before reporting the results, some preliminary notes are necessary. First, all regressions were tested for random effect model (assuming individual effects are uncorrelated with regressors and error term) and fixed effect model (assuming individual effects correlated with regressors and error term). Results from the Hausman test favored the fixed effect model over the random effect as consistent and efficient estimation models. (See appendix 5.A for detailed explanation of Hausman test)

. xtreg GCF l.MCR l.STR l.TR,fe

Fixed-effects (within) regression Number of obs = 209
Group variable: id Number of groups = 11
R-sq: within = 0.5761 Obs per group: min = 19
between = 0.8263 avg = 19.0
overall = 0.7167 max = 19

F(3,195) = 88.32
corr(u_i, Xb) = 0.4156 Prob > F = 0.0000

GCF	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
MCR L1	1.17e+07	9953454	1.18	0.240	-7904695	3.14e+07
STR L1	2.55e+08	4.00e+07	6.37	0.000 *	1.76e+08	3.34e+08
TR L1	2.22e+08	5.75e+07	3.87	0.000 *	1.09e+08	3.36e+08
_cons	3.63e+09	6.53e+08	5.56	0.000 *	2.34e+09	4.92e+09

sigma_u | 5.575e+09
sigma_e | 5.254e+09
rho | .52963431 (fraction of variance due to u_i)

F test that all u_i=0: F(10, 195) = 16.40 Prob > F = 0.0000

* Significant at 1% level

** Significant at 5% level

*** Significant at 10% level

With a computed F value of about 16.40, and its p value being zero, the model is well specified. Where the F statistics test rejects the hypothesis that all the slope coefficients are simultaneously zero; that is, all the explanatory variables lagged MCR, lagged STR and lagged TR jointly have significant impact on the regressand. Moreover, giver the R^2 for the between (0.576), within (0.8263) and overall (0.7167), the models goodness of fit confirmed fair specification of the model and parallel to this the corr(u_i, Xb) = 0.4156 indicates the errors are correlated with the regressors suggesting the fixed effect model

(this results support the test given in appendix 5.A of the Hausman test). In addition, 52.9% of the variance fraction is due to differences across countries. From the above result, all the expected sign relationships match with what the paper earlier hypothesized. That is all the measurements of performance of a stock market variables (lagged MCR, STR, TR) positively influence gross capital formation in the sampled 11 African countries. This is empirically supported from the works of Hamid Mohtadi and Sumit Agarwal (2000). Despite the correct expected sign relationship, however, lagged market capitalization of the stock market does not significantly affect the gross capital formation in these African stock markets, this is mainly because last years market size (or basically the potential market size) in African stock market would not initiate further investment enhancement currently. Also for reasons such as market inefficiencies and lack of market confidence observed in most of the African stock markets (discussed in previous chapter), last year's market size potential would not be exploited fully in the current period's investment. Hence this lowers the impact of lagged market capitalization impact on investment (gross capital formation).

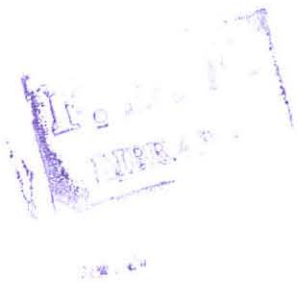
On the other hand, last year's shares traded (STR) and turnover ratio (TR) are important and statistically significant determinants of current investments by firms. This is consistent result with the works of Hamid Mohtadi and Sumit Agarwal (2000) where their work is however in developing countries. In addition to that see Levine (1991) also.

Model 2

For the dynamic panel data model specification in this sections the most widely accepted estimation techniques of Arellano and Bond Method[26] and Arrelano and Bover (1995) Systems Estimator of Dynamic Panel Data[27] were adopted.

Priory Note; the variable GCFP refers to the fitted (predicted) value of gross capital formation obtained from the first model.

With a computed F value of about 8.46, and its p value being almost zero (0.0761), the Wald (chi square) specification test rejects the null hypothesis at 10% level of significance that all the slope coefficients are simultaneously zero; in other words, all the explanatory variables lagged GDPR, lagged GDP, FDI, LF, BC, GDS, GCFP jointly have significant impact on the regressand. Hence the model is well specified.



[26] Arrelano and Bond (1991) proposed a generalized method of moments (GMM) procedure that is more efficient than Anderson and Hsiao (1981) methods, where Arrelano and Bond argue that additional instruments can be obtained in a dynamic model if one utilizes the orthogonality conditions that exist between lagged values of dependent variable and the disturbance error term, which the previous method did not take into account

[27] Arrelano and Bover (1995) and Blundell and Bond (1998) found that if the autoregressive process is too persistent, then the lagged levels are weak instruments. They suggested using additional moment conditions in which lagged differences of the dependent variable are orthogonal to levels of the disturbances

. xtabond gdpr l.gdpr l.gdp fdi lf bc gds gcfp, lags(2) noconstant

Arellano-Bond dynamic panel-data estimation
Group variable: id
Time variable: period

Number of obs = 99
Number of groups = 11

Obs per group: min = 9
avg = 9
max = 9

Number of instruments = 61

Wald chi2(4) = 8.46
Prob > chi2 = 0.0761

One-step results

gdpr	Coef.	Std. Err.	P>|z|	[95% Conf. Interval]	
gdpr					
L1.	-.1204099	.1070393	0.261	-.3302031	.0893832
L2.	-.3423378	.127144	0.007*	-.5915354	-.0931401
gdp					
L1.	-4.55e-11	2.97e-11	0.126	-1.04e-10	1.28e-11
fdi	5.96e-10	2.78e-10	0.032**	5.11e-11	1.14e-09
lf	6.85e-07	5.30e-07	0.196	-3.53e-07	1.72e-06
bc	-.0046379	.0267238	0.862	-.0570157	.0477398
gds	2.41e-10	1.46e-10	0.100***	-4.58e-11	5.27e-10
gcfp	-2.35e-10	1.31e-10	0.072***	-4.91e-10	2.07e-11

Instruments for differenced equation
GMM-type: L(2/.).gdpr
Standard: LD.gdpr LD.gdp D.fdi D.lf D.bc D.gds D.gcfp

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level

For a better suited instruments to be employed in the dynamic panel data model both Arellano-Bond estimator and Systematic panel data model offer an efficient outputs when the instruments are not correlated with the error term and furthermore when Arellano-Bond one step estimation fails to produce efficient estimation results the later estimation technique provide a better suited results in regard to the instruments, in other words, when autoregressive process is too persistent, then the lagged levels are weak

instruments. Hence Systematic panel data model suggested using additional moment conditions in which lagged differences of the dependent variable are orthogonal to levels of the disturbances. The result is shown below;

```
. xtdpdsys gdpr fdi gdp lf bc gds gcfp, noconstant lags(2) artests(2)

System dynamic panel-data estimation        Number of obs      =       110
Group variable: id                          Number of groups   =        11
Time variable: period
                                            Obs per group: min =        10
                                                           avg =        10
                                                           max =        10

Number of instruments =    70               Wald chi2(4)       =     16.69
                                            Prob > chi2        =    0.0022
One-step results
------------------------------------------------------------------------------
        gdpr |      Coef.   Std. Err.      P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        gdpr |
         L1. |    .1182287   .0908855     0.193    -.0599037    .2963611
         L2. |    .0252737   .1021249     0.805    -.1748875    .2254349
             |
         gdp |  -2.78e-11   2.78e-11     0.318    -8.22e-11    2.67e-11
         fdi |   6.41e-10   2.85e-10     0.024**    8.28e-11    1.20e-09
          lf |   2.81e-07   1.20e-07     0.019**    4.61e-08    5.16e-07
          bc |    .009808   .0222621     0.660    -.033825     .053441
         gds |   3.86e-10   1.75e-10     0.027**    4.36e-11    7.29e-10
        gcfp |  -3.91e-10   1.22e-10     0.001*    -6.31e-10   -1.52e-10
------------------------------------------------------------------------------
Instruments for differenced equation
        GMM-type: L(2/.).gdpr
        Standard: D.fdi D.gdp D.lf D.bc D.gds D.gcfp
Instruments for level equation
        GMM-type: LD.gdpr
```

* Significant at 1% level
** Significant at 5% level
*** Significant at 10% level

Still the model specification is well fitted looking at the computed F value of about (16.69), and its p value being almost zero (0.0022), the Wald (chi square) specification

test also rejects the null hypothesis at 10% level of significance that all the slope coefficients are simultaneously zero; in other words, all the explanatory variables lagged GDPR, lagged GDP, FDI, LF, BC, GDS, GCFP jointly have significant impact on the regressand. Hence the model is well specified.

The hypothesized sign relationships made earlier in this chapter that all explanatory variables will positively affect growth contradicted with the actual results obtained above (in both results). GCFP and GDP influenced growth negatively. However the influence of lagged GDP is statistically insignificant in both estimations. Furthermore, predicted gross capital formation GCFP (capital formation sourced solely from stock market performances) is found to have a statistically significant but negative influence on growth of the sampled African countries. This is basically expected to come from the fact that both shares traded (STR) and turnover ratio (TR) usually appear to be highly fluctuating in the sampled African countries. Since GCFP is a predicted value from these fluctuating but statistically significant variables (in model 1), thus the predicted variable GCFP is highly fluctuating from period to periods and thus negatively related with growth. This result is still highly consistent with the works of Hamid Mohtadi and Sumit Agarwal (2000) in their two staged growth regression on stock market variables such as MCR, STR and TR with other determinants of growth in developing countries and Matu Raphael Wahome (2009) in Kenya too. Moreover no matter how much capital is being mobilized in a stock market, the extent to which this mobilized capital is being invested currently is important, unless there is efficient way to direct funds to economically beneficial areas, it results in negative influence on growth. Thus, provided from the previous chapter of this paper (framework and experience overview), the fact that many

stock markets in Africa suffer from backward and inefficient execution of the market operations leads to in-active but high level of funds in the market, consequently pulls growth backward, despite their significant and positive effect on investment of firms in the economy. This way of reasoning the negative relationships existing between stock market development and growth can be empirically supported by the works of Rachelle Wouono Ognaligui, et al (2011) of Cameroon somehow. This is urgent warning for all the sampled African stock markets to maintain a sustainable growth in their stock market variables (STR and TR), which requires improvement in their current operation and administration of the markets, otherwise, the impact of stock market development will be limited in regard to enhancing capital formation only but through time the negative impact on growth may over weigh the better side of it and its economic role could be blurred or even banned in many economies. In other words, the message is that development of stock market is not an end by itself, rather a recursive and harmonized efforts towards improving and maintaining the development of the market is vital.

Lagged growth rate ($Growth_{(t-1)}$) explained the non-persistent nature of growth rates of African countries in the first estimation, but become insignificant in the second estimation. Furthermore, as expected foreign direct investment (FDI) and saving (S) affected growth in Africa positively and significantly in both the estimations. This is consistent result with Hamid Mohtadi and Sumit Agarwal (2000).

The more interesting result in both the estimations above is banks credit (BC) to be insignificant in affecting growth rates. As expected earlier in the discussions, banks credit is less effective in influencing growth relative to stock market in terms of entrepreneurs and institutions preferring to finance huge investments through stock market

developments, though the impact is negative for the later. However the negative relationship between growth and stock market development are described mainly because of market operation and administration problems not directly because stock markets generally poison the economy. In contrast to banks domestic credit and given the fact that stock markets offer enormous capital formation enhancement, in Africa it is better to exert much effort on the development of a stock market and strive to bring market efficiencies and operations so that economic growth will also get better with the development of the market.

Model 3

This model is specifically designed to show the ideal contribution of a stock market that would have been realized in Ethiopia if we had developed a stock market so far. As discussed earlier the simulation contains a manipulation of Ethiopia's gross capital formation that would have been realized if Ethiopia had developed a stock market and assumed to perform on average like the other already developed African stock markets. To do so the paper used the coefficients of shares traded (STR) of the first model (i.e. 2.55) and estimated the contribution of it on gross capital formation.

GCF*2.55 = GCFS

Where

GCF – gross capital formation of Ethiopia

GCFS – gross capital formation of Ethiopia simulated and sourced solely from a stock market development

Hence once the GCFS is obtained then Unrestricted Vector Auto Regression is applied to explain the economic relationships GCFS has with growth and other economic variables

such as saving, bank credit, labor force, foreign direct investment. Below there are tables for stationarity, optimum lag length criterion and estimation results of the model are shown;

Table5.1 Stationarity test (with intercept and trend)

variables	Level of significance			
	1% level of significance		5% level of significance	
	At Level	At 1st difference	At Level	At 1st difference
GDPR	✓			
FDI		✓		
GCFS				✓
BC				✓
LF				✓
S				✓

All the variables are individually and statistically stationary at 5% of level of significance but GDPR is stationary at level. Thus for the proceeding Unrestricted Vector Auto Regression model it is mandatory we regress the model while all the variables jointly are stationary or indirectly it means at their first differences.

Optimum lag length criterion test

VAR Lag Order Selection Criteria
Endogenous variables: D(GDPR,1) D(FDI,1) D(LF,1) D(S,1) D(BC,1) D(GCFP,1)
Exogenous variables: C
Date: 05/16/12 Time: 18:03
Sample: 1991 2010
Included observations: 18

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1513.118	NA	8.14e+65	168.7908	169.0876	168.8318
1	-1446.068	81.94903*	3.34e+64*	165.3409*	167.4185*	165.6274*

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

From the above results where five optimum lag length selection criterions have been employed, all of them chosen one lag of the variables jointly. Hence on the model to proceed, the paper adopted a one lagged Unrestricted VAR regression.

Estimation result

In the estimation of the Unrestricted VAR model below there were six model results. However, as per the level of importance for our discussion and since their appearance seems a bit crowded, the paper for the sake of convenience presented the results of two important models namely when lagged GDPR and GCFS are considered as a dependent variable (being major interest of the paper). However for more detail description of the result see appendix 5.B

Since the Adjusted R-square of the regression of GDPR on other determinants is negative, it indicates the model is poorly fitted; hence the paper avoids interpreting the model. However the Adjusted R-square of the regression of GCFS on other determinants is 0.65 (which is fair enough) where 65% of the model has been explained by the regressors. Accordingly the results on this model have offered an interesting conclusion in Ethiopia in connection with the previous two regressions conducted on sampled 11 African countries.

Vector Autoregression Estimates
Date: 05/15/12 Time: 14:49
Sample (adjusted): 1993 2010
Included observations: 18 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	D(GDPR,1)	D(FDI,1)	D(LF,1)	D(S,1)	D(BC,1)	D(GCFS,1)
D(GDPR(-1),1)	-0.278835	-	-	-	-	-73240856
	(0.30777)					(2.9E+07)
	[-0.90599]					[-2.50517]*
D(FDI(-1),1)	-9.83E-10	-	-	-	-	-0.583796
	(1.4E-08)					(1.32904)
	[-0.07028]					[-0.43926]
D(LF(-1),1)	4.28E-06	-	-	-	-	-486.6886
	(1.2E-05)					(1110.74)
	[0.36581]					[-0.43817]
D(S(-1),1)	3.23E-09	-	-	-	-	-3.637919
	(7.2E-09)					(0.68856)
	[0.44611]					[-5.28337]*
D(BC(-1),1)	0.210238	-	-	-	-	-1.49E+08
	(0.69433)					(6.6E+07)
	[0.30279]					[-2.25597]*
D(GCFS(-1),1)	-1.90E-09	-	-	-	-	0.655693
	(3.4E-09)					(0.31823)
	[-0.56643]					[2.06045]*
C	-1.452552	-	-	-	-	7.91E+08
	(10.0857)					(9.6E+08)
	[-0.14402]					[0.82547]
R-squared	0.166516	-	-	-	-	0.774635
Adj. R-squared	-0.288112	-	-	-	-	0.651708
Sum sq. resids	942.9267	-	-	-	-	8.51E+18
S.E. equation	9.258543	-	-	-	-	8.79E+08
F-statistic	0.366268	-	-	-	-	6.301607
Log likelihood	-61.16844	-	-	-	-	-391.8161
Akaike AIC	7.574272	-	-	-	-	44.31290
Schwarz SC	7.920527	-	-	-	-	44.65916
Mean dependent	1.044985	-	-	-	-	6.90E+08
S.D. dependent	8.157663	-	-	-	-	1.49E+09

Determinant resid covariance (dof adj.)	4.66E+63
Determinant resid covariance	2.43E+62
Log likelihood	-1446.068
Akaike information criterion	165.3409
Schwarz criterion	167.4185

* - significant at 5% level

Reminding ourselves with the negative relationship we have found on the growth and gross capital formation of sampled African countries in the second model of this paper and also with the works of Hamid Mohtadi and Sumit Agarwal (2000), still the relationship between lagged growth and gross capital formation is statistically significant and negatively related in Ethiopia too. This has to do mainly with the reverse reasoning of, the fact that fluctuating growth rate trends so far recorded in Ethiopia, it has led the ever increasing achievements that would have been realized in gross capital formation, to do nothing on it. Hence their relationships have been negatively associated.

Lagged FDI and lagged LF appeared to be statistically insignificant influencer if Ethiopia had so far a stock market (ceteris paribus). On the other hand, lagged saving negatively and significantly affects current capital formation that would have been enjoyed from developing stock market. This is because when the public tend to save funds in other forms of institutions (such as banks, bonds, T-bills) other than stocks/shares, then the more people saved in such manners the less would have been capital formation sourced from stock market development.

In similar fashion and more interestingly, the more people got loans and credits from banks the less will be their interest over stocks or shares. Hence they have negative relationships which are consistent with the above findings. This further shows the fierce competition developing stock market would enable an economy.

Finally, enhanced previous periods gross capital formation affected significantly and positively current capital formations. From the above table, lagged capital formation proved positive influence over the current period's capital formation.

Chapter Six

6. Conclusion and Policy Implications

6.1. Conclusion

The paper so far attempted to draw lessons from the performances of already developed stock markets of selected 11 African countries and their potential benefit for Ethiopian economic growth. In the due process efforts were made to define the concepts of stock market organization and operation, reviewed literatures, examined the frameworks adopted in the sampled stock markets and further employed an econometrics model in order to evidently show the practical economic relationships of development of a stock market and economic growth from both African and Ethiopian context.

Assessment of the institutional characteristics of the sampled 11 African countries stock market has been made in terms of; the legal and regulatory framework, Information disclosure requirements, Transparency of transactions, Accounting and auditing standards, Transaction costs, Delivery and settlement, Barriers to entry and exit, Market structure, Public knowledge of securities markets, Fiscal incentives and prudent macroeconomic policies.

Generally, no matter what form a given economy has in its economic structure, it is apparently important lesson to come up with a quick progress to set an organized stock markets and the associated legal and regulatory law enactment with prudent and strict security market regulations. This has been noticed so far in the discussion to increase the protection and security of investors in the market and also enhancing their participation.

Having no stock market at all, simply indicates how disorganized and scattered it will be for investors to acquire valuable information for making decisions regarding choice of stocks, price of stocks, resale of stock, and/or purchases. Thus apart the magnificent contribution a stock market would allow, it has been observed in Africa permitting economies to enshrine comprehensive and fair legislation enshrined in the regulations enactments so that every participant had to strictly follow and adhere. However this has never been without obstacles, Nigerian embezzlement and manipulation of information was the severe problem facing information disclosure requirements. Along with information disclosure requirement, important lesson had been drawn over ensuring the transparency of transactions in a stock market in order to maintain efficient pricing mechanism and enhance market confidence. On the other hand, adopting an international accounting and auditing standards have been noticed in many countries assisting them provide a reasonable financial statements and reports.

Transactional costs has put much motivational effect on investors whether or not to participate in stock markets. The higher the cost of transaction cost in a stock market the lower were the motivation of investors to participate, but reducing the cost enabled investors acquire confidence on the profitability of their investment. Moreover the lower the transactional cost of a stock market the higher will be the competition advantage over other alternative markets such as government T-bills. Ghanaian and Nigerian experience has revealed almost similar characterization of investor's reaction on the cost of transactions.

Facing time delays and irregular settlement of transactions associated with manual execution of the delivery settlements in the sampled African stock markets, almost all

African countries surveyed shown high interest of transformation to the automated centralized clearing system known as the Central Depository and Settlement (CDS) system. Technically it has been noticed improving the procedure of clearance and settlement of transactions in many of the countries adopting it, though the cost of adopting this system requires huge investment, sophisticated banking system, up-to-date information communication technology (ICT) and flexible management techniques.

Almost all African countries preferred to open their stock market free to foreign investors, but their involvement level is one way or the other, different from country to country. Excessive barriers especially to foreign investors noticed to hamper the development of many stock exchanges. This was evident from Nigerian experiences, where they banned all foreign investors from engaging in stock market investments at the early stage of their market. However, they have changed their approach through time to completely free involvement of foreigners to participate in stock markets and boost the economic transactions.

Many African countries with stock markets had strongly advised each stock market to play an educational role and embark on a strong campaign to market itself and educate potential investors about the opportunities available in the market and how to effectively exploit them.

As part of government's effort, in order to encourage more investors and firms, and increase the interest of every participant in a stock market, special incentives in terms of fiscal subsidies or targeted policy supports were observed. Specially, to reconcile the development of a new stock market with already developed alternative markets.

Finally, three econometric models have been adopted to show the economic benefits of stock market development on economic growth of 11 selected African countries and one of which was a simulation model for Ethiopia. Accordingly lagged Shares traded (STR) and Turnover ratio (TR) has been confirmed important determinants of investment (gross capital formation) and indirectly through estimated gross capital formation (investment solely sourced from stock market developments), had proven significant influence over growth too. Though both variables affected investment positively as expected, however their influence over growth has been negative. Basically this result is expected to occur since both Shares traded (STR) and Turnover ratio (TR) appeared fluctuating over time resulting in a fluctuating estimated gross capital formation and through which they have negatively influenced growth rates. In addition, inefficient operation of stock market and managements (evident from the experiences examined in this paper) resulted in low level of utilization of the mobilized capitals. Hence unless these funds were invested on productive sectors, they were inefficiently consumed or simply wasted. Hence the impact of stock market developments on growth revealed negatively associated. Similarly in the simulated model for Ethiopia, the result confirmed negative relationship over growth and gross capital formation that would have solely been sourced from stock market developments if Ethiopia had a stock market so far. This simply resulted from the fact that the simulation highly based on the assumption that if Ethiopia had performed on average similar to the collectively sampled African stock markets. Hence once we have got negative relationship on the African model, thus it's obvious that Ethiopia's growth will be negatively related with stock market developments.

Generally from the conclusion it is apparent that in order to entertain economic benefits from stock market development (or in other words, to avoid reverse impacts of stock market on growth than desired), once a stock market has been established and starts operation, the next fundamental task should be to make sure and maintain all the regulations and laws are strictly adhered. Furthermore ensuring a sustainable growth of the stock exchange market in terms of market capitalization, shares being traded and turnover ratio (market liquidity), will enable to completely enjoy the benefits a stock market would offer. From the econometric models, it has been observed unless these stock market variables are maintained sustainably to boost, their impact on growth of an economy could end up worse. It's worth noting that, there are many instances where the establishment of stock market had offered enormous positive contribution over growth, thought the collective assessment of stock market development in African countries as a whole appeared negatively related. Hence enjoying the fruits of developing a stock market in Ethiopia requires maintenance of sustainably enhanced stock exchange market.

Parallel to the above, there could also occur a false start as has been observed in many African countries when developing a stock market for the first time. Evidently from Ghanaian stock exchange and as well in Ethiopia too, where a false start experienced in the late 1950's. This however does not need to stop us thinking a second chance. These features of developing a new stock exchange market rather warn the need for strict and appropriate investigations over how to start up a stock market. Hence not to behave naive, this time[28] Ethiopia must accomplish a successful and great achievement on the

[28] This statement is made hoping there will be progress on the development of a new stock market in Ethiopia very soon

development of a new stock market. The development process needs to consider a number of appropriate researches over the frameworks and operation of stock market.

6.2. Policy Implication

With the ever increasing number of a stock/share based companies in Ethiopia, there are lots of home work Ethiopia vigorously needs to do regarding the improvements of administration of this type of companies in the economy.

First and for most, this paper highly stress the need for the establishment of a new stock market in Ethiopia. Even though stock markets which are already developed in Africa had shown a significant but negative influence over growth of the sampled countries collectively, it is worth noting the fact that the existence of a stock market by itself did not created such undesired influences. Rather the associated home works in regard to administration and operation of the market were not done satisfactorily. Thus it should not be confused with merits of stock market development and growth.

Furthermore, quick and appropriate responses from the government and other concerned bodies are required in regard to developing a new stock market;

Framework for new establishment of stock market in Ethiopia

- Above all, in developing a stock market there needs to be a comprehensive and fair[29] legislation enshrined in the regulations enactments so that every participant will strictly follow and adhere to it. Doing so it is possible to increase the

[29] To what extent an enshrined legislation should be "comprehensive and fair" can be examined relative to a comparable regulations of different countries discussed in chapter three. This could be one important concern for interested researchers to conduct further studies.

efficiency of price settlement and enhance participant's market confidence in Ethiopia.

- Making sure to enshrine comprehensive legislations regarding the information disclosure requirements of listed companies also should adhere too. This would enable to boost number of participants as well as enable participants of a security market to rely on informed and accurate decisions.

- Along with public information disclosure, ensuring the transparency of transactions in a stock market is also important for the same reason in increasing the efficiency of price setting and confidence in the fairness of the market. Unlike the current opaque trading procedures prevalent in Ethiopia which can engender suspicion of market manipulation and may reduce the rate of investment, there needs to be an authorized body in Ethiopia to oversee and enforce legal law and regulations on behalf of good governance of the newly growing financial activities. Hence to protect many investors in Ethiopia before they got prone to danger and to increase the transparency of newly establishment of stock market in Ethiopia we could adopt:

  - Conducting the buying and selling of shares through an organized stock market with brokers or licensed dealing members (LDMs) who have the license to buy and sell shares on behalf of their clients on the exchange,

  - Enabling trading activities to be open as much as possible to members of the public and adopting different mechanisms of conducting the trading activities

such as the call-over system so that transparency of pricing will be accomplished.

- Employing a monitoring unit in the trading place and adopting a slip form to be filled by participant on each transaction

- In the development of stock markets in Ethiopia, making sure to consistently adhere to the standards of international accounting and auditing standards is really important. Moreover there needs to be also great effort in enforcement of the paper works to an executable level practically.

- Through eliminating inefficient and unwise bureaucratic procedures in listings of companies in to stock markets, it is possible to reduce the associated transactional costs. This includes to highly minimize the cost of companies issuing share and subsequently seeking listing on the exchange market such as underwriting fee, legal and accounting expenses, brokerage commissions, cost of printing and advertising prospectus, fees for the Stock Exchange (such as listing fees, application fees, and annual fees).
- Not to entangle with the manual execution of delivery settlement processes in the exchange market, there should have to be a priory pavement for the transformation to the automated centralized clearing system known as the central depository and settlement (CDS) system as soon as possible. This includes preparation in terms of financial as well as technical aspects.

- The important lesson from our African stock markets is that, there is no need to rush up on opening an economy or a market completely to a foreign investor; rather it has been also possible to exploit the participation of foreign investors in a regulated manner so that the security of an economy will not be endangered with outsider economy. However, excessive barriers especially to foreign investors hamper the development of any stock exchange. Hence time to time, improvement on the relatively rigid regulations, what Ethiopia currently follows, needs to be addressed.

- Provided that there will be a hetero mix over investors profile in a securities market, creating awareness for the participants regarding the stock markets will be important task in the development of the market before and after establishment. This is the fundamental aspect missed by the current share based companies established in Ethiopia. However the establishment of an organized stock market in Ethiopia will solve the lack of incentive to educate and improve the knowledge of investors in regard to stock market operations. And improving the knowledge of participants about stock market is "a must to conduct not an option".

- To maintain balance between the development of a new stock market with already developed comparable markets such as bond markets, T-bill market and other financial institutions, special policy focus needs to be adopted. This includes cost of transactions, subsidies, policy instruments.

- Successive and timely researches in regard to operation and development of stock market are fundamental for healthy and sustainable results from the establishment of a stock market. This reminds also the need to undertake appropriate and successive

research on the establishment of a stock market, unlike the disconnected and loose researches conducted in Ethiopia.

- Moreover the paper highly urges the efforts expected from the private investors to develop a new and strong stock broking firms along with government efforts. This enables a highly competitive stock broking firms and allow our economy to enjoying an efficient stock market development in Ethiopia.

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Appendix 5.A

Hausman test between random effect and fixed effect model

The Hausman test is a general test procedure, which is used when we want to test the validity of an assumption that is necessary for efficient estimation in panel data model.

In the panel framework the test checks for the following;

H_0 : $Cor(\mu_t, x_{it}) = 0$ i.e. Random Effect Model is correct (individual specific effects are not correlated with the regressors and error terms)

H_1 : $Cor(\mu_t, x_{it}) \neq 0$ i.e. Fixed Effect Model is correct (i.e. individual specific effects are highly correlated with the regressors and error terms)

We begin by assuming that the true model is the random effects model with individual effects uncorrelated with regressors and error term. Thus the result below gives results of the random effect model.

```
. xtreg GCF l.MCR l.STR l.TR,re

Random-effects GLS regression              Number of obs     =       209
Group variable: id                         Number of groups  =        11
R-sq:  within  = 0.5757                    Obs per group: min =        19
       between = 0.8324                                   avg =      19.0
       overall = 0.7199                                   max =        19

Random effects u_i ~ Gaussian              Wald chi2(3)      =    319.01
corr(u_i, X)   = 0 (assumed)               Prob > chi2       =    0.0000
------------------------------------------------------------------------------
         GCF |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         MCR |
          L1. |   1.30e+07   9930335     1.31   0.192    -6496122    3.24e+07
              |
         STR |
          L1. |   2.54e+08   4.00e+07     6.34   0.000     1.75e+08    3.32e+08
              |
          TR |
```

```
       L1. |  2.60e+08   5.68e+07    4.58  0.000    1.49e+08   3.71e+08
           |
     _cons |  3.18e+09            1.22e+09    2.60  0.009    7.83e+08   5.58e+09
-------------+----------------------------------------------------------------
    sigma_u |  3.334e+09
    sigma_e |  5.254e+09
        rho |  .28713039   (fraction of variance due to u_i)
------------------------------------------------------------------------------
. estimates store re
```

Once we regressed the random effect model and its results have been stored for later use, then proceed to the second estimation of fixed effect model as follows:

```
. xtreg GCF l.MCR l.STR l.TR,fe

Fixed-effects (within) regression               Number of obs      =       209
Group variable: id                              Number of groups   =        11
R-sq:  within  = 0.5761                         Obs per group: min =        19
       between = 0.8263                                        avg =      19.0
       overall = 0.7167                                        max =        19

                                F(3,195)          =     88.32
corr(u_i, Xb)  = 0.4156                         Prob > F          =    0.0000
------------------------------------------------------------------------------
         GCF |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
         MCR |
          L1. |   1.17e+07   9953454     1.18   0.240    -7904695    3.14e+07
           |
         STR |
          L1. |   2.55e+08   4.00e+07     6.37   0.000    1.76e+08    3.34e+08
           |
          TR |
          L1. |   2.22e+08   5.75e+07     3.87   0.000    1.09e+08    3.36e+08
           |
       _cons |   3.63e+09            6.53e+08     5.56   0.000    2.34e+09    4.92e+09
-------------+----------------------------------------------------------------
      sigma_u |  5.575e+09
      sigma_e |  5.254e+09
          rho |  .52963431   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(10, 195) =    16.40                 Prob > F = 0.0000
. estimates store fe
```

Hence after storing the results of the fixed effect model then proceed to the Hausman test procedures to test the best model between fixed effect model and random effect model as follows:

The Hausman Test is basically

$H : (b-\beta)' [V(b) - V(\beta)]^{-1}(b-\beta)$ where; b – is estimated parameter of random effect model

B - is estimated parameter of random effect model

$H_0 : b-\beta = 0$ i.e. Random Effect Model is correct

$H_1 : (b-\beta) \neq 0$ i.e. Fixed Effect Model is correct

```
. hausman fe re
                 ---- Coefficients ----
      |        (b)          (B)          (b-B)     sqrt(diag(V_b-V_B))
      |         fe           re       Difference          S.E.
-------------+----------------------------------------------------------------
      L.MCR |   1.17e+07    1.30e+07    -1241430       678002.6
      L.STR |   2.55e+08    2.54e+08     1186528       1142496
       L.TR |   2.22e+08    2.60e+08    -3.77e+07      8887150
------------------------------------------------------------------------------
                b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

  Test:  Ho:  difference in coefficients not systematic

              chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)

                      =     20.01

            Prob>chi2 =     0.0002

            (V_b-V_B is not positive definite)
```

With the probability of the Hausman test being 20.01 or its P value being 0.0002, it highly rejects the null hypothesis that the difference in coefficients is not systematic (or in other words "random effect model"), hence the fixed effect model is accepted as best model over the random effect model.

Appendix 5.B

Vector Autoregression Estimates
Date: 05/15/12 Time: 14:49
Sample (adjusted): 1993 2010
Included observations: 18 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	D(GDPR,1)	D(FDI,1)	D(LF,1)	D(S,1)	D(BC,1)	D(GCFS,1)
D(GDPR(-1),1)	-0.278835	-1350978.	-398.4826	-20183595	0.129853	-73240856
	(0.30777)	(5650918)	(5923.33)	(6979142)	(0.13598)	(2.9E+07)
	[-0.90599]	[-0.23907]	[-0.06727]	[-2.89199]	[0.95495]	[-2.50517]
D(FDI(-1),1)	-9.83E-10	-0.352966	-3.54E-05	0.942252	5.73E-09	-0.583796
	(1.4E-08)	(0.25689)	(0.00027)	(0.31727)	(6.2E-09)	(1.32904)
	[-0.07028]	[-1.37402]	[-0.13149]	[2.96991]	[0.92688]	[-0.43926]
D(LF(-1),1)	4.28E-06	241.8145	0.840725	-569.5233	-3.97E-06	-486.6886
	(1.2E-05)	(214.692)	(0.22504)	(265.154)	(5.2E-06)	(1110.74)
	[0.36581]	[1.12633]	[3.73587]	[-2.14790]	[-0.76930]	[-0.43817]
D(S(-1),1)	3.23E-09	-0.030353	-0.000281	-1.301714	4.33E-10	-3.637919
	(7.2E-09)	(0.13309)	(0.00014)	(0.16437)	(3.2E-09)	(0.68856)
	[0.44611]	[-0.22806]	[-2.01268]	[-7.91932]	[0.13530]	[-5.28337]
D(BC(-1),1)	0.210238	3597927.	-4232.852	-41772805	0.412310	-1.49E+08
	(0.69433)	(1.3E+07)	(13363.1)	(1.6E+07)	(0.30677)	(6.6E+07)
	[0.30279]	[0.28222]	[-0.31676]	[-2.65308]	[1.34404]	[-2.25597]
D(GCFS(-1),1)	-1.90E-09	-0.075766	0.000109	0.148879	2.90E-10	0.655693
	(3.4E-09)	(0.06151)	(6.4E-05)	(0.07597)	(1.5E-09)	(0.31823)
	[-0.56643]	[-1.23179]	[1.68700]	[1.95979]	[0.19560]	[2.06045]
C	-1.452552	-1.61E+08	143817.3	4.37E+08	3.173984	7.91E+08
	(10.0857)	(1.9E+08)	(194110.)	(2.3E+08)	(4.45607)	(9.6E+08)
	[-0.14402]	[-0.86931]	[0.74091]	[1.91180]	[0.71228]	[0.82547]
R-squared	0.166516	0.370168	0.856450	0.891599	0.280194	0.774635
Adj. R-squared	-0.288112	0.026624	0.778149	0.832471	-0.112427	0.651708
Sum sq. resids	942.9267	3.18E+17	3.49E+11	4.85E+17	184.0644	8.51E+18
S.E. equation	9.258543	1.70E+08	178190.4	2.10E+08	4.090615	8.79E+08
F-statistic	0.366268	1.077497	10.93802	15.07918	0.713651	6.301607
Log likelihood	-61.16844	-362.2317	-238.7395	-366.0316	-46.46512	-391.8161
Akaike AIC	7.574272	41.02574	27.30439	41.44796	5.940569	44.31290
Schwarz SC	7.920527	41.37200	27.65065	41.79421	6.286825	44.65916
Mean dependent	1.044985	10212778	1056533.	-42672154	-0.415972	6.90E+08
S.D. dependent	8.157663	1.72E+08	378315.3	5.13E+08	3.878403	1.49E+09

Determinant resid covariance (dof adj.)	4.66E+63
Determinant resid covariance	2.43E+62
Log likelihood	-1446.068
Akaike information criterion	165.3409
Schwarz criterion	167.4185

Declaration

I the undersigned declare that this thesis is my original work and has not been presented in other Universities; all sources of materials used have been duly acknowledged.

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