

**RELATIONSHIP BETWEEN STOCK MARKET DEVELOPMENT AND  
ECONOMIC GROWTH IN KENYA.**

**BY**

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## **DECLARATION**

**This research project is my original work and has not been submitted for any award in any other University.**

**Signed:**

**Name:**

**Registration Number:**

**This project has been submitted for examination with my approval as University Supervisor.**

**Dr J. Aduda: Senior lecturer, School of Business University of Nairobi.**

**Sign:**

**Date:**

## **DEDICATION**

I hereby dedicate this paper to my Lord Jesus and my Family. Words cannot express how humbled I am to have them as pillars in my life.

## **ACKNOWLEDGEMENTS**

I would like to thank my Family for the support they have given me and also the support and direction that I have been given by my supervisor Dr Aduda over this project. I would also like to acknowledge my Lord and Savior Jesus Christ for increased favor in my life and graces that are abundant each day. Finally I would like to thank the University of Nairobi for the valuable professional skills that I have gotten from the institution which I shall use for the rest of my career and life.

## **ABSTRACT**

This study aimed at finding the causal relationship between stock market development and economic growth in Kenya. The development of a stock market is determined by a number of factors that include market capitalization, liquidity, regulation and trades. This paper sought to investigate the causal relation between stock market capitalization, turnover and economic growth. Previous studies done on African stock markets characterize them to be small and hindered by various factors such as thin trading and illiquidity. These studies also point out that countries with well developed financial markets have a better level of per capita income than those with less developed markets. This notion is also confirmed by theory which states that there is a big role that financial markets (stock markets) play in boosting economic activity through provision of long-term capital for projects and risk diversification.

There has not been a lot of work done on causal relationship between stock market development and economic growth in Kenya. Few studies show that traditionally the economy follows the stock market in terms of capitalization and there is some what lack of consensus on liquidity. The Kenyan stock market has made various strides in improving some of the aspects that are deemed to result in the development of the stock market and this has seen the increase in the number of listed firms on the bourse and also the improvement of regulatory laws that govern trading and disclosures. This study therefore aims to use the Granger test for causality on stock market capitalization to GDP ratio which represents the size of growth of the stock market, the stock market turnover ratio and GDP growth in Kenya over the period 1993-2012. The results show a strong positive relationship between stock market development and economic growth stemming from a one sided causal relation from market capitalization to economic growth while market liquidity (stock market turnover ratio) showed a non causal effect to economic growth. With the results found it is recommended that measures that boost the size of the stock market should be implemented so as to raise economic activity as the stock market in Kenya is seen to be forward looking and a proponent of long run economic growth.

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### **ABBREVIATIONS**

ADF.....Augmented Dickey Fuller



ATS.....	Automated Trading System
BSD.....	Bank credit to Local firms
CMA.....	Capital Markets Authority
CPI.....	Consumer Price Index
EXP.....	National expenditure
FTSE-NSE.....	Financial times Stock Exchange-Nairobi Securities Exchange
GDP.....	Gross Domestic Product
GNP.....	Gross National Product
IFC.....	International Finance Corporation
INDEX.....	NSE-20 Index
NASI.....	NSE All Share Index
NSE.....	Nairobi Securities Exchange
TRADE.....	Trade to Gross Domestic Product
TVR.....	Stock Market turnover ration to GDP
TVT.....	Total Value of shares Traded to GDP
VAR.....	Vector Autoregressive Model
VECM.....	Vector Error Correction Model
WAN.....	Wide Area Network

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background to the study**

#### **1.1.1 Economic growth**

Economic growth is seen as the increase in the welfare of an economy that comes from the increased amount of goods and services produced by an economy over a period of time. There are various theories that put into light the important factors that are factored in when an economy grows. The two common theories on growth are the Sollow-Swan model (Exogenous growth model) and the Endogenous growth model. Most of the basic growth models have three broad categories that is, the process of science and productive knowledge, growth of individual skills and incentives (Quah, 2001).

There are various ways in which the growth of an economy can be measured and the most common measure of economic being gross domestic product GDP and gross national product GNP. The GDP is defined as the total value of a country's output or simply put the market value of all final goods produced by the factors of production within the borders of that particular country (Quah, 2001). GDP is measured either with the expenditure approach or the income approach. GDP is considered the broadest

indicator for economic output and economic growth however there are a number of disadvantages to using GDP. The lack of timeliness of GDP is a problem as updates are done on a quarterly basis therefore resulting in large revisions that can at any point in time significantly change the percentage change in GDP hence economic growth outlook. GDP does not take into account the inflation factor which may inflate the extent of the growth of the economy hence real GDP is mostly seen as the more reliable measure of economic growth (Barnes, 2013).

Gross national product implies the market value of all goods and services produced in a given period of time applying factors of production that are owned by the citizens of a country. This implies that the factors do not need to be within the boundaries of the country but they have to be owned by the country's citizens.

### **1.1.2 Stock Market Development**

Stock market development and efficiency is influenced by a number of factors and according to Garcia and Liu (1999), it is a multifaceted concept which is measured by a number of factors namely, the stock market capitalization, liquidity, volatility, concentration, integration with world capital markets and the legal rule in terms of regulation and supervision in the market. The main measures of stock market development to be looked at in this paper are stock market liquidity and market capitalization. Stock market capitalization or market capitalization is the total market value of a company's outstanding shares. The market capitalization therefore is the total

value of domestic stocks. Stock market capitalization is used as a proxy of the size of a stock market and is one of the main indicators of stock market growth and development (Levine, 2003).

Stock market liquidity is the ease with which investors can buy and sell their stocks or share holdings on the stock exchange or on the stock market. It is usually measured in terms of the total value traded of the shares to GDP and the stock market turnover ratio to GDP. The ratio of total value of shares (domestic) traded to GDP measures the value of equities traded relative to the size of an economy, it does not measure the costs and uncertainties of buying and selling the securities at the prices posted. There is one shortfall with this measure as proxy to stock market liquidity in that when investors anticipate large profits in firms, their share prices will rise. This rise in price will increase the value of stock trades and thereby boosting the Total value traded to GDP (TVT/GDP) ratio (Levine, 2003). This therefore means that the liquidity indicator has increased without an increase in the number of transaction or even might increase with the number of transaction falling. The solution to this problem is to add the market capitalization to GDP ratio in the regression to try and look at the extent of the price effect. In essence the price effect affect both the total value traded and the market capitalization but the only variable that is directly related to the pricing effect is the value traded ratio (Levine, 2003).

### **1.1.3 Stock market performance and economic growth**

The relationship between financial markets and economic growth has been discussed at lengths with theory expecting the two variables to have a positive relation as financial markets (stock market indices in this case) play a vital role in intermediation between parties with savings and parties that need funds for productive projects. Financial markets also have a hand in removing problems of asymmetric information and thereby reduce the costs for lenders and borrowers, thereby ensuring that productivity through efficient allocation of resources. It has also been seen that countries with a well developed financial market system have been associated with a better per capita income level than countries that do not (Levine, 1991).

Financial markets play an intermediary role in an economy in terms of the allocation and flow of funds. There are various mechanisms in which funds for projects are available to the firms that need the funds. Banks mainly play a role of providing debt financing through access to lines of credit while equity financing is sourced through the stock markets. A well functioning and developed stock market ensures that there is economic development through the reduced costs capital or equity for companies and also boost domestic savings and increase the quality and quantity of investments (Levine, 1996).

Liquid Financial markets allow investors to save and invest in long term projects that have pay outs in the long term. As there is ease of entry and exit, an investor can sell

equity at any time and thereby increasing investor confidence in investing in long term projects. Stock markets provide a mechanism where there can be hedging of risks as they integrate, allowing investors to diversify risks. The other role a stock market plays in the economy is that resources are allocated to the most efficient places as investments mostly go to high risk, high return long term projects by government and the private sector. This ultimately results in economic growth (Levine, 1996).

#### **1.1.4 Stock market performance and economic growth in the Kenyan**

##### **Context**

There is a general consensus that in developing countries there is no relation between stock market performance and economic development to the extent that stock markets in these countries are called mere casinos. This is because most stock markets in developing countries face various constraints such as thin trading, liquidity issues and lack of a developed investor base (Yartey and Adjasi, 2007). Financial market development has modest but present in Africa with the continent having only 5 major indices in sub-Saharan Africa in the 1980s. This number has since grown to 16 stock market indices by 2007 with the total market capitalization (excluding the Johannesburg Stock Exchange, JSE) growing from 113 billion to 245 billion dollars in the period 1995-2005. There also has been growth in the number of companies listed on the stock exchanges in these countries, chief among them being South Africa, Zimbabwe, Kenya and Nigeria. Stock markets have become important sources of finance in these Africa countries and also a source of long term external financing. African stock markets have an impact on

economic growth as market capitalization to GDP tends to be significantly correlated with economic growth (Yartey and Adjasi, 2007).

The Nairobi securities exchange NSE has been one of the best performing and top stock market indices in Africa in recent history. Trading in Kenya started in the 1920s and there was no formal market as there were part time brokers that comprised of accountants and real estate agents. Officially the NSE was established in 1954 it has since developed and evolved from once being called the Nairobi Stock Exchange to now the Nairobi Securities exchange to incorporate other securities such as derivatives and debt instruments. The NSE has also seen a change in its regulatory policies from the situation before independence where there was little or no regulation on the trading that took place. There has been the formation of the capital markets authority in the 1990s, the CMA was set up with the aim of creating investor incentives for long term investments (The NSE website).

The NSE All Share Index was rated the best stock exchange in the world in 1994 in terms of performance with gains of up to 179% in dollar terms in that year. This shows significant growth of the Kenyan stock market. Other various developments on the NSE include the increase of the number of companies that have been listed, the creation of the NSE 20-Share index, the FTSE-NSE 25 index and also the introduction of the automated trading system ATS in 2006. The various strides that have been done have resulted in the NSE being transformed to become one of the top performing bourses on the African

continent. There is therefore need to assess how the NSE development has gone in terms of its impact on the Kenyan economy.

## **1.2 Research Problem**

The general consensus is that there is a positive relation between economic growth and financial development with Levine (1991) coming to the conclusion that countries with well developed financial markets have a better level of per capita income than those that do not have a developed financial market system. As Yartey and Adjasi (2007) mentioned, stock market liquidity is a problem with African stock markets were the markets are characterized by thin trading and also low levels of liquidity and this is brought about due to various factors such as a low investor knowledge base on the African stock markets and also trading access. This therefore impedes the growth of African markets and also the level of per capita income and hence economic growth.

There lies some lack of consensus among various authors on the role played by stock markets in the economy. Stiglitz (1985) argued that banks do a better job than stock markets in resource allocation and hence in impacting economic growth. Singh (1997) added on to say that the instability and volatility of stock markets leads to macroeconomic instability in the long run. Atje and Javanovich (1993) concluded that stock markets contribute positively to economic growth while authors like Jappeli and Pagano (1994), Boyd and Smith (1998) stressed the importance of both institutions.



Studies done on the causality between stock market and economic growth have also produced conflicting result that is; the expected relation or direction of causality has been different for one study and from the other (Owiti, 2012).

There has not been much study on this topic in Kenya with a handful of studies have been done using the Vector Autoregressive (VAR) technique (specifically the granger test for causality) to test for the causality direction and the relationship. The studies include Wahome (2010), Olweny and Kimani (2011) and Owiti (2012). These studies have looked at the NSE 20-Share index except Wahome (2010) who used the NSE All Share Index. The studies show that stock market size is correlated to growth but they produce conflicting results on the direction of causality between the NSE 20-Share index and economic growth and also conflicting results on variables of liquidity being correlated to economic growth. This paper therefore aims to explore how the development of the NSE index in terms of liquidity and market capitalization has impacted on economic growth in Kenya.

### **1.3 Objectives of the study**

The objective of this study will be to determine causality relationship between the stock market size (market capitalization), liquidity and economic growth in Kenya.

## **1.4 Value of the Study**

According to the recommendations given by Olweny and Kimani (2011), Owiti (2012) and Wahome (2010), government can use the findings of this paper in terms of policy direction and implementation. This study will provide some insight on savings development within the country and how that can go towards fostering development of investments and consequently economic growth.

Also the study will also be relevant to the investors as earlier Owiti (2012) and Wahome (2010) found a two way causality relationship it means that investors can and will be able to predict the future performance of the stock market by looking at the rate of economic growth in the country. Investors in the real economy will also benefit from the fact that they can predict future economic growth by looking at the performance of the stock market as confirmed by the two papers mentioned above.

This study is also relevant to social economists who can also predict future economic growth of Kenya looking at the performance of the NSE index with the purpose of determining the future level of per capita income of Kenya which can be used as proxy to a level of welfare of the general society. Finally the Study will be of great significance to empirical work on the topic as not much work has been done on the Kenyan case on relationship between Stock market and economic growth. There is also a lack of consensus on the relation as pointed out by Owiti (2012).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this section a review of the theories surrounding the topic is covered and also the various empirical studies that have been done on the relationship between stock market and economic development. The history of the Nairobi securities exchange is also discussed here in terms of growth and development and also looking at the various measures of economic growth and defining economic growth.

#### **2.2 Review of theories**

There is no one theory that looks exclusively on stock market indices and economic development, most growth theories factor in the need for some elements such as capital and the importance of financial intermediaries in the economy, some of these theories are discussed below.

##### **2.2.1 The Neoclassical Theory: The Exogenous Growth Theory**

The neoclassical exogenous growth theory is also called the Solow-Swan growth model and is built upon the basic neoclassical frameworks of long run economic growth. This framework explains economic growth using four main components namely, productivity, capital accumulation, population growth and technological progress. This theory states that the long run economic growth is exogenously determined, that is, economic growth is determined by factors outside the basic model specifications. The basic building block of this theory is the production function which has constant labor (L) and capital (K) which are reproducible. Therefore the equation is Output (Y) being a function of Capital (K).

The crucial aspect of the production function is the assumption of diminishing returns of capital accumulation. This means giving labor more capital goods without technological inventions will result in redundant investment of the new capital at a certain point. Another basic premise of the neoclassical growth model is that there tends to be a convergence to a steady state in the long run depending on the technological progress and rate of labor force growth. It states that a country that has higher savings than other will tend to grow faster than those with low savings. In the very long run the role of capital accumulation plays a smaller role in this model than technological progress as nations move to the steady state. The neoclassical growth model emphasizes mostly on the importance of technological innovation in the long run growth to offset the effects of diminishing returns that affect both capital accumulation and labor increases in the economy (Aghion and Howitt, 1998).

### **2.2.2 The Endogenous Growth Theory**

In the endogenous growth theory, economic growth is seen to be as a result of internal and not external forces, this means that households, investing in human capital and innovation play a significant role in the growth of an economy. This theory focuses on the positive externalities and spillover effects of a knowledge based economy which ultimately leads to economic development. It is in contrast to the exogenous growth model that emphasizes the role of technological processes as a scientific exogenous process that is not determined by economic forces. The main feature of the endogenous growth model is that the broad definition of capital stock is not subject to diminishing returns as with the exogenous growth model (Fry, 1997).

This therefore means that growth is a positive function of the investment ratio. It states that in the long run, economic growth will depend on the policy measures that are taken by different governments. This implies that policies that embrace openness, competition and innovation will promote growth (Aghion and Howitt, 1998).

### **2.2.3 Intermediation Theory**

Financial intermediation involves matching lenders with excess funds (savings) with borrowers who need the money and this is done by a third party agent such as a bank. The intermediation theory is built on models of resource allocation that are based on perfect and complete markets. The basis of complete perfect markets which this theory is based on comes from the basic assumptions of the neoclassical model that include lack of competitive advantages and little or no transaction costs in getting information as it is freely available to all participants in the market. These assumptions are however not realized in the real world due to various market imperfections such as asymmetric information which increases transaction costs and result in other having a competitive edge over others. Financial Intermediaries therefore exist to remove these imperfections and they do it in many ways. Intermediaries remove transaction costs by sharing or diversifying the evaluation of assets fixed costs, something individuals find difficult to do. This means that business is diversified by financial intermediaries such as banks and with that costs are able to be reduced through economies of scale.

Asymmetric information is removed through intermediaries as they act as delegated monitors for the lenders through collecting information on the borrower and also doing a number of screenings (for banks they look at credit worthiness of borrowers). Financial intermediaries also signal an informed position by investing in the assets they have particular knowledge of as they do extensive research about the market that some individuals can not readily and actively do. Intermediaries like banks also provide commitments to long term relationships with customers and thereby creating a relationship with the customer, removing the problem of adverse selection and moral

hazard (Gwilym, 2008). The intermediation theory however only recognizes the importance of financial intermediaries in the economy for the role of removing transaction costs and asymmetric information.

### **2.3 The Nairobi securities exchange history**

The Nairobi securities exchange (formerly the Nairobi Stock Exchange) has drastically evolved over the years to become one of Africa's biggest and most thriving stock market indices. In the 1920s the market was not formal and there were no rules and regulations to govern stock broking activities on the market. Stock broking was actually a side activity for some professionals such as accountants and real estate agents (The NSE website). According to the NSE website (2013) the Nairobi Stock exchange was established in 1954 as a voluntary stock broking association under the societies act with the aim to develop and regulate trading activities (Kemboi and Tarus, 2012).

Kemboi and Tarus (2012) states that the establishment of the NSE in 1954 saw the regulations enforced that were mainly borrowed from the London stock exchange as prior 1963 most of the traders on the stock exchange were foreigners. Some of the reforms on the NSE include the establishment of the CMA which became operational in 1990 through the Capital Markets Authority Act with the mandate to develop capital market and create various incentives to investors to encourage long term investments.

Due to some of the developments that took place the NSE grew to become rated the best performing index in the world in 1994 (NSE 20 index) by the IFC. Further efforts to

ensure the depth of the capital market saw the CMA initiate a lot of measures such as the establishment of an investor compensator fund in 1995 and also standards for disclosure requirements for listed firms in 1998. In 2000 the central depository system was put in place, this greatly increased the liquidity in the market and also boosted efficiency in the trading system by reducing the period of delivery and settlement (Kemboi and Tarus, 2012).

The NSE website, (2013) also states that live trading on the ATS was implemented in 2006 and also trading hours were increased from 2-3 hours from 10:00-1pm as they moved away from the traditional open outcry system of trading. More improvements were made namely the use of WAN that allowed brokers to work from their offices and not be required to send dealers on the trading floor. In 2008 the NSE All share index was introduced to act as an indicator for the overall market performance while the NSE 20 index was used as a barometer for the market. The NSE All share index focus is on market capitalization rather than price movements of selected counters. Also in 2008 the ATS for government bonds was established and this greatly increased the depth of the NSE and also liquidity. In 2011 it became known as the Nairobi securities exchange, a move in line with plans to incorporate trading clearing and settlements of equities, debt, derivatives and other instruments.

With all the developments that have been made, Kemboi and Tarus (2012) state that the Kenyan stock market is still in its infancy but looking at the growth of the market capitalization, it shows tremendous strides have taken place. The market capitalization



grew from 80 billion Shillings in 1994 to 240 billion in 2003 and 1 trillion in 2008 (Kemboi and Tarus, 2012). The Nairobi securities exchange is now worth an average of 1.2 trillion Shillings according to NSE (2013) and also looking at the number of listed counters on the NSE, the number has grown to 60 companies spanning across 11 sectors (The NSE website).

## **2.4 Economic growth and measurement**

The Study by Quah (2001), states that economic growth is the increase in the welfare of an economy. This sustained increase in welfare comes hand in hand with the continuous change in the economy's industrial, public health, literacy and demographic structures and also the income distribution. The study documents the key measurement facts about economic growth and tries to bring out the fact that as economic transformation happens in the long run so shall social transformation occur as well.

Quah (2001) brings out the fact that there are many measures that are used synonymously with economic growth such as gross domestic product GDP and gross national product GNP have been used as synonymous with the measure of economic growth. According to Case, Fair and Oster (2012), GDP is the total value of a country's output or the market value of all final goods and services produced within a given time period by the factors of production located within a nation. GDP can therefore be measured in two ways that is the expenditure approach and the income approach. Case et al, (2012) also term real GDP as nominal GDP adjusted for price changes. GNP is also defined as the market value of

all final goods and services produced in a given time frame employing factor of production owned by a nation`s citizens.

Another measure used for measuring economic growth is gross national Income per capita which is the per head measure of the total value of the goods and services that would have been produced by an economy. To arrive at the per capita income one can use the GDP or GNP of a country and divide it by the number of the population within that country to come up with the income per capita that shows the level of welfare in that nation and also used to compare nations Case et al, (2012). Ray (1998) says that most economists use per capita income is the preferred measure of economic growth since it shows or is associated with levels of life expectancy, literacy and infant mortality. But Quah (2001) argues the fact that there is an obvious shortcoming of this measure of economic growth in that it does not account for income inequality.

## **2.5 Review of Empirical Studies**

Allen and Santomero (1997) noted that financial intermediation is not only restricted to removal of market imperfections but also risk transfer and finding innovative ways of dealing with complex financial instruments and markets. Schumpeter (1911) also believed that financial intermediation had a big role to play in economic growth and Rogers (2003) pointed out the fact that there are many factors that affect economic growth. In addition to various macroeconomic factors that promote economic growth like inflation rates and interest rate, financial intermediaries such as stock markets are equally

as important. Bagehot (1962) also supported the notion that the financial sector has a role to play as it had a major role to play also in the industrial revolution in England in the 19<sup>th</sup> century while Hicks (1969) pointed out the role of the financial sector in resource mobilization and facilitation. New endogenous growth theorists such as Greenwood and Jovanic (1990) include financial intermediation. They came to the conclusion that financial intermediation and economic growth is endogenously determined as research, information collection and analysis allows resources allocation to be enhanced leading to economic growth.

Bencivenga and Smith (1991) and Levine (1991) acknowledged that not much work had been done of the role of financial intermediaries on economic growth and therefore they formulated a model in which equilibrium behavior of the competitive intermediaries such as banks affected resource allocation, financial markets diversity, liquidity and investment risk to attract more savings that go into productive sectors. King and Levine (1993) termed financial development as consisting of financial depth (overall size of the financial system), institutions (mainly bank deposits) and distribution of assets which would bring economic growth through rate of physical capital accumulation and increase in efficiency with which capital is allocated.

On the other hand Robinson (1952) played down the importance of the mechanisms that allocate and distribute funds towards long term projects. The paper reflected that enterprise leads and finance follows and as economic development advances, it causes an increase in the demand for finances and then the financial sector responds. Lucas (1988)

and Chandavakar (1992) criticized economists for overemphasizing the role of financial factors in economic development and going to the extent of not recognizing it.

Most of the empirical work focused on the role of banks as the main important financial intermediary in the economy but new work shows the increasing role of stock markets as another intermediary that plays a pivotal role in the economy. The studies mostly seek to find if there is any relation or correlation at all and then the direction of causation. Levine (1991) looked at the liquidity of stock markets and economic growth from 49 countries. The method used here was a cross country growth regression looking at the period 1976-1993. Levine (1991) looked at the total value traded shares to GDP (per capita GDP) as the liquidity of the stock markets and set partial control factors such as initial real per capita GDP, inflation rate and government expenditures. The results show that there is a strong relationship between long run economic growth and stock market liquidity.

Levine and Zervos (1996) built upon the work done by Levine (1991) and their study looked also at a cross country growth regression from forty one countries over two periods that is 1976-85 and 1986-1993. They looked at measures of stock market development such as size (ratio of market capitalization to GDP and liquidity that was measured in two ways that is, total value traded to GDP and ratio of total trades on the stock exchange relative to the market capitalization. From their results it shows that there was a significant and positive correlation between a predetermined level of stock market development and real per capita GDP growth.

Another study that focused on multiple countries is one done by Caporale, Howells and Soliman (2004), their aim was to address whether stock market development caused economic growth. Their focus was on seven countries namely Chile, Greece, Korea, Malaysia, the Philippines and Portugal. The study covered the period 1997:1-1998:4. The measures for stock market development used were the market capitalization to GDP and the value traded ratio (total value traded to GDP, which is the measure for liquidity). The testing method used was the causality test of VARs as suggested by Toda and Yamamoto (1995). The initial tests were done on a bivariate context (financial development and economic growth) showed that there was only evidence of causality in two countries out of the seven in terms of domestic credit causing economic growth and three out of the seven countries showed a positive relation in terms of bank deposits and economic growth.

Causality was also tested in a trivariate context to factor in the effect of financial development, stock market development on economic growth, the results showed that five out of the seven countries showed causality between financial development and economic growth, a result consistent with previous studies mentioned above by Levine and Zervos (1996). Causality between domestic credit and economic growth was found in Greece, Korea and the Philippines when the trivariate system was used. These results show that the bivariate test was misleading because it was affected by the omission of the stock market variable and its inclusion therefore corrected the results Caporale et al (2004).

The paper by Emmanuel (2002) looks testing causality between financial intermediaries, stock market development and economic growth and stresses the fact that the work done before him by Levine and others mainly focused on the banking sector and therefore produced results that were not concrete. He also pointed out to the fact that the cross country regression model that was used had its limitations namely that the results were sensitive to conditioning information set and the omission of the effect of stock markets rendered the studies biased. Emmanuel (2002) therefore employed a time series analysis on 26 countries extending study done by Demetriades and Hussein (1996), which focused on the time series model but for the financial development in the banking sector mainly credit offerings. The study by Emmanuel (2002) defined financial development into stock market development and financial intermediary development. He used unit root tests, cointegration and causality tests based on the error correction models on the data collected and results show that both stock market development and financial intermediaries boost economic growth. The results go further to show that stock market development does a better job in boosting economic growth in countries that have liberalized their financial sectors such as Greece, Korea and Malaysia Emmanuel (2002).

Looking at a more concentrated study on two nations is Arestis and Demetriades (1997) who focused on explaining the relationship between economic growth and financial development in Germany and the United States. They emphasize the fact that using or carrying out a cross country regression is overly simplistic as they do not reflect country specific factors such as the structure of the financial system. Arestis and Demetriades (1997) used quarterly data from the periods 1979 (Quarter 1)-1991(Quarter 4). The

variables that they used to assess this relationship were logarithm of real GDP per capita, stock market capitalization and the index of the stock market volatility. They used a time series analysis to carry out unit root tests, VAR and test for cointegration using a trace statistic. The results show that in Germany there is a positive relation between real GDP per capita and the banking system while there is a negative relation between the GDP per capita to the stock market volatility.

The results also show that stock market capitalization only affects GDP in Germany through the banking system. In the USA there was no significant evidence to show that financial development causes economic development but there was sufficient evidence that economic growth causes financial development Arestis and Demetriades (1997).

Taking our focus closer to home we focus on the empirical work that has been done on the African continent and mainly Kenya. Ndako (2010) did a study that focused on the causality relationship between stock market, banking and economic growth in South Africa using quarterly time series data from the period 1983q1:2007q4. He used the vector error correction models VECM to test the data on financial development and economic growth. He used bank credit to private firms as a proxy to financial intermediaries' development and for the stock market he used the turnover ratio and the total value traded ratio. Other variables in the regression include the investment ratio (Gross fixed capital formation/GDP) and the real GDP. The results show a long run bi directional relation between financial development (banking sector) and economic growth in South Africa. For the stock market development causality relationship the

results showed a unidirectional relationship between stock market and economic growth that moves in the direction of economic growth causing stock market development. An interesting factor to note from this study is that South Africa also has in recent history just liberalized its markets but the unidirectional relation of economic growth and stock market growth is in different directions from what Emmanuel (2002) found for newly liberalized markets.

Osamwonyi and Kasimu (2013) focused their study on three African countries namely Kenya, Ghana and Nigeria. The study aimed to find a causal and direction of relationship using five variables or indicators that is market capitalization, stock turnover ratio, stock trade value, number of listed securities and the index against the real GDP as the proxy for economic growth. They used the granger test for causality on the five variables mentioned above for the period 1989-2009 and the results showed that for the Nigerian and Ghanaian economies, there is no causal relationship between their stock markets and the economic growth in both those countries. For Kenya there was a causal relationship that was found and it was both unidirectional and bidirectional. The unidirectional causality that moved from Stock market to GDP was found in market capitalization and number of listed securities. The bidirectional causality was found in stock turnover ratio and GDP awhile a strong negative relation was found between stock value traded and GDP.

Wahome (2010) used the vector autoregressive technique to test the long term relationship between stock market development and economic growth in Kenya. The



variable used as proxy to economic growth was the GDP growth rate while stock market growth was broken into size (market capitalization to GDP) and liquidity (total value traded to GDP). The results showed that stock market size has a two way causality and positive relation with economic growth while liquidity does not show a positive relation with economic growth. Olweny and Kimani (2011) studied the relationship between the NSE 20 index and the economic growth for the period 2001-2010 with the data being quarterly secondary data. The variables in the regression of the study were the NSE 20-Share Index, the GDP (used as proxy for economic growth) and the CPI. The results showed that there is a unidirectional causality in the direction of NSE 20 index to economic growth.

Finally Owiti (2012) looked at GDP and the NSE 20 index, performing the granger test over the period 1990-2010 and a two way relation between stock market and economic development. This shows that there is lack of consensus on the direction of causality between stock market and economic growth in emerging markets as shown by results from Owiti 2012, Olweny and Kimani 2011, Ndako (2010) and Soliman (2004).

## **2.6 Conclusions**

From this section we have seen that the basic premise of the growth theories did not put much focus on financial intermediation and its role on economic growth. The neoclassical and endogenous growth theorists however fail to explain why over the long run some economies perform better than. As new research is done by various endogenous

growth theorists who factor in financial intermediation, part of the question was answered as to why some economies perform better than others. Moving on to the empirical work we see that there is lack of consensus over the direction of causality between stock market performance and economic growth.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This section highlights the design of the study which is going to take the form of a causality test relation between the Stock market size, liquidity and economic growth in Kenya. This section also looks at the population for the study in question which is the all the companies listed on the stock exchange and the Kenyan economy. Data will be mainly collected from the World Bank for the period 1993-2012. The Model to be used is the VAR model utilizing the granger test of causality over the SPSS Package.

#### **3.2 Research Design**

The study will adopt a test of causation in order to look at the relationship between Stock market development and economic growth in Kenya over a twenty year period from 1993-2012. The reason for this method is that in business, the cause and effect relationship is often ambiguous and there is therefore need to improve understanding on the relationship in question so as to better explain, predict and control the variables in question (Cooper and Pamela, 2006). The overall aim to aid investors, government and

all other stakeholders involved in making informed decisions on policy directions and predictions on both the stock market and economy using the variables in question.

### **3.3 Population**

All companies listed on the Nairobi Securities Exchange and the Kenyan economy will make up the population to be looked at for this paper.

### **3.4 Data Collection**

Secondary data is collected for the period 1993-2012 as mentioned above and the sources of the data will be the World Bank statistics website. The data to be collected from the World Bank will be for both measures of stock market development and also the Kenyan GDP. All of the results are on an annual basis as provided by the World Bank (World Bank website, 2013).

### **3.5 Data Analysis**

The model will be based on the work that has been done by Kemboi and Tarus (2012), Levine (2003) and also Osamwoyni and Kasimu (2013). Kemboi and Tarus (2012) and Osamwoyni and Kasimu (2012) both used the VAR model to determine the relationship between stock market development and economic growth while Levine (2003) used cross country regression models which included various control variables. The model will be as follows:

$$GDP_t = \alpha X + \beta_0 GDP_{t-1} + \beta_1 MktCap_t + \beta_2 TVR_t + \mu_t \quad (1)$$

The variables captured in the X part of the regression above include some of the control variables that have an effect on economic growth. The variables captured in X are namely the Gross national expenditure to GDP (EXP), Banking Sector Credit to local firms (BSD), inflation (CPI), and current account to GDP ratio (Trade). Growth is represented by the GDP growth rate while MktCap is the market capitalization to GDP ratio and TVR the stock turnover ratio. Levine (2003) points out that the initial secondary school enrollment and initial per capita income can be used to factor in human capital's contribution to economic growth in the long run, however there is no adequate data on the secondary school enrollment in Kenya to warrant this measure to be included as a control variable. In Order to measure the variables consistently, the data will be put to natural logs and this follow what Kemboi and Tarus (2012) did in their study. The model will therefore be transformed as follows:

$$GDP_t = XGDP_{t-1}^{\beta_0} MktCap_t^{\beta_1} TVR_t^{\beta_2} e^{u_t} \quad (2)$$

$$\text{Log } GDP_t = \text{Log } X + \beta_0 \text{Log } GDP_{t-1} + \beta_1 \text{Log } MtkCap_t + \beta_2 \text{Log } TVR_t + \mu_t \quad (3)$$

This will in turn therefore be transformed into:

$$\begin{aligned} \text{Ln } GDP_t = & \alpha + \alpha_1 \text{Ln } Trade + \alpha_2 \text{Ln } CPI + \alpha_3 \text{Ln } BSD + \alpha_4 \text{Ln } EXP + \beta_1 \text{Ln } GDP_{t-1} + \beta_2 \text{Ln } MktCap \\ & + \beta_3 \text{Ln } TVR + \mu \end{aligned} \quad (4)$$

According to Granger (1969), when a relationship is existent between two variables it means the variables can be used to predict each other. Granger suggested that in a case of a two variable series namely X and Y, we can say that X causes Y if Y can be better predicted using the historical values of both X and Y rather than only using historical values of Y. In this study, the economic growth is measured by the GDP growth rate and stock market development is measured by market capitalization and the market turnover ratio, the granger test for causality model will be as follows:

$$\text{Ln (GDP)}_t = \beta_0 + \sum \beta_k \text{Ln(GDP)}_{t-k} + \sum \alpha_1 \text{Ln(INDEX)}_{t-1} + \mu_t \quad (5)$$

$$\text{Ln (STOCK)}_t = Y_0 + \sum \delta_k \text{Ln(STOCK)}_{t-k} + \sum y_1 \text{Ln(GDP)}_{t-1} + V_t \quad (6)$$

Where STOCK: represents a proxy to the two measures of stock market development that is the market capitalization to GDP ratio and the stock market turnover ratio. Other tests that will help in the results being unbiased will be the Unit root test for stationarity of the data collected using the Augmented Dicky Fuller test (ADF) to make sure that the results are not spurious. There will also be a test to determine if stock market development and economic growth in Kenya portray a long-term relationship; the test in question will be a Jansen co-integration test.

## CHAPTER FOUR

## **DATA ANALYSIS**

### **4.1 Introduction**

This chapter looks at the various tests used to determine the relationship between stock market development and economic growth. These tests include the unit root tests done using the Augmented Dickey Fuller and also normality tests using the Jarque-Bera test. These two tests will be done in section 4.2 while the Jansen Co-integration test for long-run relationship testing will be done in 4.3 with section 4.4 having the main test that is the granger test for causality on the proxies for stock market development (market capitalization to GDP and stock turnover ratio) and economic growth. Section 4.5 looks at the results of the tests and also discussions.

### **4.2 Descriptive Statistics and Unit Root Testing**

The descriptive statistics of the data gathered in this study aim to test firstly the normality of GDP, Market Capitalization, Turnover and the control variables. Therefore the Jarque-Bera Test for normality will be used on the time series data collected. The Jarque-Bera test uses the classical skewness and the kurtosis coefficient (Brys, Hubert and Stryf, 2004). The hypothesis for the normality testing for this test is written as follows:

H0: Data is sampled from a normal distribution (JB=0).

H1: Data sampled is not from a normal distribution ( $JB \neq 0$ ).

The Jarque-Bera will therefore test whether stock market development and economic growth follow a normally probability distribution on an individual basis. The Jarque-Bera test is a large sample test and uses the test statistic (which includes skewness and kurtosis as mentioned earlier):  $JB = N [S^2/6 + (K-3)^2 /24]$ .

Where: N- is the sample size, S is the skewness coefficient and K- is the kurtosis coefficient. According to Olweny and Kimani (2011), a normally distributed variable has,  $S=0$  and  $K=3$  in a sample that is over 50 observations, our sample contains a significantly less number of observations so we expect the coefficients to be lower especially on the kurtosis coefficient. The test was therefore done on the variables and the descriptive statistics are shown on Table 1 below:

Table 1: Summary Statistics, using the observations 1993 - 2012

	L_BSD	L_CPI	L_EXP	L_GDP	L_MKTCAP	L_TRADE	L_TVR
Mean	3.766624	2.219120	4.685425	0.939141	3.139726	4.118718	1.685822
Median	3.707908	2.281080	4.687870	1.260326	3.259345	4.143396	1.638728
Maximum	3.965362	3.828182	4.763844	1.944950	3.923156	4.298780	2.683242
Minimum	3.617477	0.441043	4.554416	-1.040729	2.089899	3.875199	0.500757
Std. Dev.	0.128455	0.804749	0.051507	0.934420	0.587685	0.136505	0.587506
Skewness	0.565308	-0.326793	-0.955350	-1.023761	-0.280154	-0.246349	-0.113510
Kurtosis	1.660699	3.434627	4.055339	2.673987	1.720217	1.800675	2.074451
<b>Jarque-Bera Probability</b>	<b>2.560017</b> <b>0.278035</b>	<b>0.513396</b> <b>0.773602</b>	<b>3.970430</b> <b>0.137351</b>	<b>3.582191</b> <b>0.166777</b>	<b>1.626492</b> <b>0.443416</b>	<b>1.400944</b> <b>0.496351</b>	<b>0.756816</b> <b>0.684951</b>
Sum	75.33249	44.38240	93.70850	18.78282	62.79451	82.37437	33.71644
Sum Sq. Dev.	0.313513	12.30480	0.050407	16.58967	6.562102	0.354041	6.558094
Observations	20	20	20	20	20	20	20



Looking at the various probability values of the variables, we use the general rule in financial econometric modeling in that when the P-value is less than 5% (0.05), we reject the null hypothesis. All of the p-values are above the 5% level so we fail to reject the null and conclude that all variables are normally distributed (Brookes, 2008).

The next step is to carry out tests for stationarity (unit root testing). A stationary series is one that has a constant mean, variance and constant auto covariance for each given lag. For a stationary series, unexpected behavior changes in variables or the error terms will gradually be done away with. The reason why data is tested for stationarity is so that spurious regressions are avoided (Brookes, 2008). The early work on testing for unit roots was done by Dickey and Fuller (1979), the general equation for the unit root tests is:

$$Y_t = \alpha Y_{t-1} + \mu + \lambda t + \mu t$$

The hypothesis for a unit root is as follows:

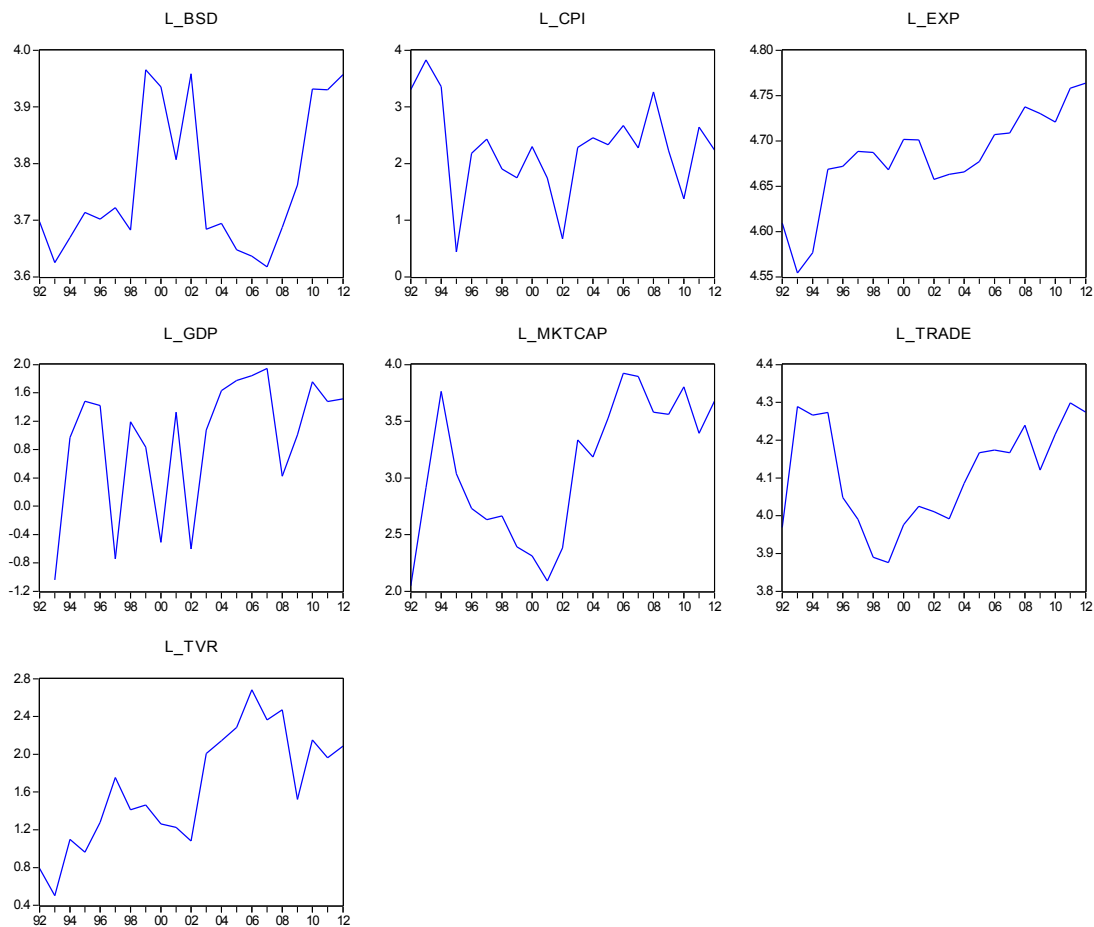
$$H_0: \alpha = 0 \text{ (non stationary: unit root)}$$

$$H_1: \alpha \neq 0 \text{ (stationary: no unit root)}$$

If the null hypothesis is rejected it means that the time series data is stationary. The decision criteria used here is that the ADF statistic should be significantly bigger (in relative terms) than the MacKinnon critical values for the rejection of the unit root, if this is the case we reject the null hypothesis. If the results show a negative value then the ADF statistic needs to be more negative than the critical values shown by E-views results

for us to reject the null hypothesis (Brokkes, 2008). We can also be guided by the p-values as well. The more the p-values are closer to zero the more significant the results are and the less chances of making errors (Olweny and Kimani, 2011). Before carrying out the Augmented Dickey fuller test, there is need to determine whether the variables follow random walks with or without drifts (have a trend or not). This is decided by looking at the graphs of the various variables as shown below in figure 1.

Figure 1: Graphs showing trends in the variables (L\_GDP, L\_MKtCap, L\_TVR, L\_CPI, L\_Trade, L\_Exp and L\_BSD)



We therefore carryout the augmented Dickey Fuller test on the variables above using both trend and intercept with the results of the tests shown in the tables 2 and 3 below.

Table 2: ADF Test at Level Difference

Variable	ADF statistic	Critical value	Lags	Inference
L GDP	-3.308706	-3.690814	1	I(1)
L MktCap	-2.193234	-3.658446	4	I(1)
L TVR	-3.568986	-3.733200	4	I(1)
L CPI	-3.655334	-3.658446	4	I(1)
L_BSD	-2.975252	-3.690814	1	I(1)
L_Exp01	-2.418534	-3.658446	4	I(1)
L_Trade	-1.870866	-3.658446	4	I(1)

Table 3: ADF Test at 1<sup>st</sup> Difference

Variable	ADF statistic	Critical value	Lags	Inference
L GDP	-6.806251	-3.673616	0	I(0)
L MktCap	-3.972177	-3.673616	0	I(0)
L TVR	-6.523271	-3.673616	0	I(0)
L CPI	-5.887362	-3.673616	0	I(0)
L BSD	-5.464351	-3.673616	0	I(0)
L Exp01	-4.907726	-3.673616	0	I(0)
L Trade	-5.615013	-3.673616	0	I(0)

The ADF tests show that all of the variables are stationary at first difference.

### 4.3 Long-term Relationship Testing (Co-Integration)

To test the long run relation of any time series data, the variables should at least be at level difference or have a unit root. As time progresses due to the relation between the variables, the results should show stationarity in the long run. The most common method

of testing for a long run relationship or co-integration is the Johansen test. The null hypothesis for testing for co-integration is that there would be no co-integration relation to the alternative of there being one (Brookes, 2008). One important point to note as highlighted by Olweny and Kimani (2011) is that the choice of lag length is very important and E-views has an automatic criteria which uses the Akaike Information Criteria (AIC) and the Schwartz Information Criteria (SIC) that it uses or the user can manually put the lags. The lag length as recommended by the above mentioned criterion is therefore  $k = 4$  (Brookes, 2008).

Figure 2: Johansen co-integration tests

Date: 11/07/13 Time: 20:28  
 Sample (adjusted): 1995 2012  
 Included observations: 18 after adjustments  
 Trend assumption: Linear deterministic trend  
 Series: L\_MKTCAP L\_GDP L\_TVR  
 Exogenous series: L\_TRADE L\_EXP L\_CPI L\_BSD

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.945474	74.09149	29.79707	0.0000
At most 1 *	0.700930	21.72819	15.49471	0.0050
At most 2	4.28E-05	0.000771	3.841466	0.9786

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.945474	52.36330	21.13162	0.0000
At most 1 *	0.700930	21.72742	14.26460	0.0028
At most 2	4.28E-05	0.000771	3.841466	0.9786

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

From the above figure we can see that both the Trace and the Maximum Eigen values are high when the probabilities are closer to zero. The null hypothesis shows 3 possibilities that is ( $\alpha = 0, 1$  or  $2$ ) against a general alternative hypothesis. The Trace results from the above figure suggest that there is at most 2 co-integrating vectors as the trace statistics for the  $\alpha = 0, 1$  hypotheses are rejected at the 5% level. These results are also boosted by the Maximum Eigen Value as it also rejects the null that  $\alpha = 0, 1$ , or  $2$  at the 5% level. This shows that there are two co-integrating vectors. These results are significant because according to Engel and Granger (1987), it rules out the possibility of having spurious correlation and brings out the possibility of having more than one direction in a granger test of causality.

#### 4.4 Granger test for Causality

According to Olweny and Kimani (2011) the decision rule for the causality test states that if the p-values of the estimates are higher than the 10% level then we fail to reject the null hypothesis and when the p-values of the estimates is below the 10% significance level we reject the null hypothesis. The results of the granger test for causality on GDP, MktCap, TVR and control variables are therefore shown below shown in the Table below.

Table 4: Granger test for causality

Null Hypothesis:	Obs	F-Statistic	Prob.	Findings
L_MKTCAP does not Granger Cause L_GDP	19	11.9017	0.0033	causality
L_GDP does not Granger Cause L_MKTCAP		1.66131	0.2158	no causality

<b>L_TVR does not Granger Cause L_GDP</b>	<b>19</b>	<b>2.71077</b>	<b>0.1192</b>	<b>no causality</b>
<b>L_GDP does not Granger Cause L_TVR</b>		<b>0.73364</b>	<b>0.4044</b>	<b>no causality</b>
L_BSD does not Granger Cause L_GDP	19	0.47525	0.5005	No causality
L_GDP does not Granger Cause L_BSD		1.8398	0.1938	No causality
L_CPI does not Granger Cause L_GDP	19	0.39539	0.5384	No causality
L_GDP does not Granger Cause L_CPI		0.00053	0.9819	no causality
L_EXP does not Granger Cause L_GDP	19	0.02481	0.8768	no causality
L_GDP does not Granger Cause L_EXP		2.51306	0.1325	no causality
L_TRADE does not Granger Cause L_GDP	19	3.36305	0.0853	causality
L_GDP does not Granger Cause L_TRADE		1.20915	0.2878	no causality
L_TVR does not Granger Cause L_MKTCAP	20	0.00614	0.9385	no causality
L_MKTCAP does not Granger Cause L_TVR		1.19626	0.2893	no causality
L_BSD does not Granger Cause L_MKTCAP	20	0.20602	0.6556	no causality
L_MKTCAP does not Granger Cause L_BSD		0.18734	0.6706	no causality
L_CPI does not Granger Cause L_MKTCAP	20	1.12728	0.3032	no causality
L_MKTCAP does not Granger Cause L_CPI		0.00969	0.9227	no causality
L_EXP does not Granger Cause L_MKTCAP	20	0.37582	0.548	no causality
L_MKTCAP does not Granger Cause L_EXP		13.5662	0.0018	Causality
L_TRADE does not Granger Cause L_MKTCAP	20	1.76291	0.2018	no causality
L_MKTCAP does not Granger Cause L_TRADE		0.62081	0.4416	no causality
L_BSD does not Granger Cause L_TVR	20	0.00823	0.9288	no causality
L_TVR does not Granger Cause L_BSD		0.02801	0.8691	no causality
L_CPI does not Granger Cause L_TVR	20	2.58442	0.1263	no causality
L_TVR does not Granger Cause L_CPI		0.07332	0.7898	no causality
L_EXP does not Granger Cause L_TVR	20	0.00813	0.9292	no causality
L_TVR does not Granger Cause L_EXP		3.69026	0.0717	Causality
L_TRADE does not Granger Cause L_TVR	20	0.21734	0.647	no causality
L_TVR does not Granger Cause L_TRADE		0.01693	0.898	no causality
L_CPI does not Granger Cause L_BSD	20	0.00722	0.9333	no causality
L_BSD does not Granger Cause L_CPI		0.25741	0.6184	no causality
L_EXP does not Granger Cause L_BSD	20	2.91629	0.1059	no causality
L_BSD does not Granger Cause L_EXP		0.11683	0.7367	no causality

## 4.5 Results and Discussion

The results from the figure above are done on a granger test for causality on data spanning 20 years from 1993-2012 on the variables GDP, MKtCap, Turnover and control

variables (national expenditure, banking sector credit to local firms, trade in relation to GDP and inflation) . From the results we see that there is a one-sided causality between economic growth and stock market development in Kenya. The direction of this causality runs from Stock market development (stock market capitalization to GDP ratio) to economic growth (GDP growth rate). These results are in line with what other researches have also found in particular in relation to the forward-looking characteristic of the stock market (Fama, 1981). Other significant results also show no relationship between the Stock market turnover ratio and the GDP growth rate in Kenya, which confirms the findings by Osamwonyi and Kasimu (2013).

These results prove that there is a long run relationship between stock market development and economic growth in Kenya. The granger test of causality also confirmed the results from the Jansen co-integration test that there were two co-integrating vectors signaling a long term relation. The Jansen co-integration test showed that there were at most 2 long term relations on the tested variables and these have since been shown to be uni-directional relationships from MktCap to GDP. The data also underwent unit root testing namely the Augmented Dickey Fuller test to make sure that the results that are derived are not spurious. With the above mentioned results it implies that the Nairobi securities exchange is a forward looking stock market and should therefore be looked at seriously as one of the major sources of growth in Kenya.

## **CHAPTER FIVE**

### **SUMMARY**

#### **5.1 Summary**



The aim of the study was to determine the causality relationship between the NSE market capitalization, turnover and economic growth. Theory has highlighted how the stock market impacts the economy through provision of funds for long-term projects for the real economy. NSE market capitalization to GDP and turnover ratio represented the development of the NSE in terms of size and liquidity. While African stock markets have been characterized by weak trading and liquidity constraints, the stock exchange in Kenya has seen growth over the years to try and address these issues and in the process modernize operations. This has resulted in the NSE automating its trading in 2006, improving regulation laws and integrating the NSE with international markets in a bid to boost stock market development.

Stock market development being in itself affected by measures such as improved regulation and liquidity will eventually reap benefits for the economy as investor become willing to invest in long term projects and also have the peace of mind of easy exit of their investments in the market. As such the measures put in place by the CMA to enhance the capital markets in Kenya have seen the Stock exchange develop to become one of the best performing bourses on the African continent and also one of the biggest in terms of size. This should translate to increase level of economic activity and hence formed the basis for the study, using the notion by Levine (1991) that nations with well developed financial markets are associated with a better per capita income level.

The study therefore took a causal relationship approach in analyzing stock market development and economic growth in Kenya using the VAR technique namely the

granger test for causality. The study also sought to answer the question of the direction of the causal relation as well. The granger test for causality showed that there is a long run relationship between stock market development and economic growth in Kenya and also that there is a causal relation between the two with the direction of causality being one sided moving from stock market development to economic growth. This therefore means that the stock market in Kenya is forward looking.

## **5.2 Conclusion**

The Study found a one sided causality direction between market capitalization to GDP and economic growth while there was no causal relation between stock market turnover and economic growth (GDP growth rate). This shows that stock market development in terms of size (market capitalization) has a big role to play in boosting economic activity. These results also show that future economic activity can be forecasted or predicted by looking at both performance and development of the NSE. These results are in line with the studies done by Olweny and Kimani (2011) and Osamwonyi and Kasimu (2013) who found the NSE 20 Share index to predict the economic growth in Kenya.

## **5.3 Recommendations**

The results of this study show that stock market development is an important aspect of economic growth in Kenya and hence it is recommended that the Capital markets authority CMA continue to find way to ensure that the bourse continually integrates into the global markets and also open up more foreign investor trading. The NSE also needs to

work in tandem with the CMA on this regard. Some noteworthy projects that have been put in the pipeline by the NSE are the financial derivative market proposal and also the proposal to allow for online trading.

Online trading will ensure that international investors are able to trade on the equities listed on the NSE anywhere in the world and this has potential to not only boost the daily turnover but also the market capitalization of the bourse which will have positive long term impact on the Kenyan economy. Financial derivative markets offer a new and innovative way to investments in the country as opposed to only Equities and Bond markets. Increased regulation by the CMA will also impact positively on the country's credit ratings in light of the new opportunities that high growth African countries face in the Euro-Bond markets which Kenya is also looking to exploit (Business daily, 2013).

These measures are of utmost importance in pushing economic activity in the country and also government should also provide support to these institutions so that by growing the investor trading and base with online trading and access to derivative markets, the Kenyan economy can further advance to reach the intended goal of Kenya becoming a middle income economy. On the research front it is therefore recommended to look at the benefits or the impact of online trading and the financial derivative markets at a time when they are already functioning in the country.

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