"EFFECT OF STOCK MARKET DEVELOPMENT ON ECONOMIC GROWTH: A CASE OF NAIROBI SECURITIES EXCHANGE, KENYA."

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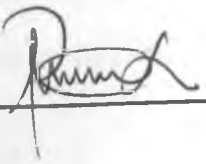
DECLARATION

This research paper is my original work and has not been presented for the award of a degree in any other university.

Signature  Date 12 / 11 /2012

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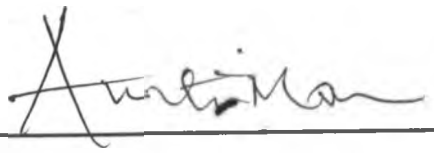
Signature  Date 12 / 11 / /2012

Mr.L. Maurice Awiti

DEDICATION

I dedicate this work to my family for the support, understanding, allowing me to have humble time to study, supportive advice and commitment towards my masters degree; all this to me acted as an encouragement to work hard.

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ABBREVIATIONS AND ACRONYMS

ADF	Augmented Dickey Fuller
ARDL	Autoregressive Distributed Lag
ASEA	African Stock Exchanges Association
CBK	Central Bank of Kenya
CMA	Capital Market Authority
ECM	Error Correction Model
ETS	Electronic Trading System
FDI	Foreign direct investment
GDP	Gross Domestic Product
GOK	Government of Kenya
GSE	Ghana Stock Exchange
KNBS	Kenya National Bureau of Statistics
NASI	Nairobi Stock Exchange All Share Index
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Squares

VAR	Vector Autoregression
WAN	Wide Area Network

OPERATIONAL DEFINITION OF TERMS

Gross Domestic Product — This is the market value of all officially recognized final goods and services produced within a country in a given period of time, usually one year.

Investment — This is the increase in the amount of the country's capital over a given period of time. Investment is the amount purchased per unit time of goods which are not consumed but are to be used for future production.

Market Capitalization — This is the total value of the issued shares of the publicly traded company and it is equal to the share price times the number of shares outstanding.

Total Value of Shares Traded — This is the total number of shares traded multiplied by their respective matching prices during a given period of time, usually a day.

Equity Turnover — This is the total number of shares traded over a period of time divided by the average number of equity outstanding for the same period of time. .

University Student Enrollment — This is number of students admitted in all universities both public and private in Kenya.

ABSTRACT

Nairobi securities Market has not been performing to the expectation of many Kenyan investors. The weak management has manifested itself after the collapse of two stock brokers almost at the same time. This happened in 2008 and 2009 causing a lot of anxiety among the individual investors. As a result there has been under subscription of initial public offer and right issues for instance in the case of Cooperative Bank of Kenya, British American Insurance and Kenya airways. This is a clear sign of deterioration in performance and loss of goodwill in this important institution.

The main objective of the study was to investigate the relationship between stock market development and economic growth. Stock market development indicators were market capitalisation, total shares traded and equity turnover. The specific objectives were to examine the effect and direction of stock market capitalisation on economic growth, to determine the effect of total value of shares traded on economic growth, to establish how the equity turnover in the securities market had influenced economic growth and to examine the effect of investment and university enrolment on economic growth. The study carried an empirical investigation using quarterly time series data for the period 1996 to 2010, to establish the short run and long run effects of each indicators of stock market development on economic growth. The study adopted the Harrod-Domar growth model and used the Ordinary Least squares (OLS) Method to estimates the effect. ECM was used to estimate the short run dynamics.

The short run analysis revealed that investments, market capitalisation and equity turnover had positive effect on economic growth while total value of shares traded, equity turnover and university enrolment had positive effects on economic growth in the long run. The result implies

that it is pertinent to increase investment within the economy because in the short run investments showed a strong and positive relationship with GDP. More investment in the economy means higher capital formation. High capital formation in turn calls for human capital to be in place for it to be fully utilised depending on the level of technology employed by the economy. In addition, the results showed that there was a positive long run relationship between human capital and GDP.

The market capitalization showed little effect on economic growth either in long run or short run. This means that market capitalisation is not a good indicator for stock market development. The total shares traded revealed a strong and positive impact on economic growth in long run, while equity turnover showed that it impacted positively on economic growth in both the short run and long run although its coefficient was not statistically significant.

The study concluded that more coherent effort from the government towards developing Nairobi Securities Market is required and should be particularly geared towards improving stock market developing indicators like investments, market capitalisation, turnover, total shares traded and human capital development. This can be done through public awareness on the importance of saving and investments, incentives for companies to be listed in NSE, reducing transaction cost at NSE, investing on human knowledge and skills on securities. This is because stock market development indicators have positive effects on economic growth.

CHAPTER ONE

INTRODUCTION

1.1 Background

In 1990s there had been great interest in stock market worldwide due to the rising need to mobilize funds to finance investments and ventures. This was a period of dynamics in global financial markets which called for stock markets to grow in response to demand for funds (Matu, 2007). The endogenous growth literature of previous decade had pointed out the need of financial development in economic growth and showed clearly without finance, even with the best invention at hand, there could be no impact on economic growth. Financial market liquidity is very much critical as Hicks (1969) puts it, that new technologies inventions by themselves did little to industrial revolution in England, but till the time when there were more developed financial markets that was able to inject large amount of capital to develop long turn projects which later were referred as industrial revolution. This means industrial revolution had to wait for financial revolution. Securities market is one of financial markets where there was mass recognition of its important role to economic wellbeing worldwide.

This period also was a turnaround in political and economic ideologies and policies which favours the free markets and capitalism leading to greater demand for capital which needed a quick solution. Most of developed world promoted stock exchange as a cornerstone for their economic progress. In developing countries, the need for privatization and liberalization of state owned enterprises pushed the stock market to the threshold as a tool of economic growth (Matu, 2007). The equity financing (Share finance) has been in increase in the current world due to its numerous advantages. In Kenya there have been a number of initial public offerings (IPOs) in

recent past, in which over ninety percent has been oversubscribed. This shows that Kenyan do practice the shares financing for the firms ,but still Kenya faces some challenges hence part of business sector has depended mainly on short-term financing such as overdrafts to finance even long-term capital. Based on the maturity matching concept, such financing is risky. If all firms have to grow and be competitive in free market there is need to have an appropriate mix of short- and long-term capital (Ngugi, 2003).

The capital market consists of the primary and the secondary markets. The primary market is the one in which underwriters help companies raise capital in the form of IPOs or by issuing seasoned stocks and bonds to investors. The secondary market is the one in which shareholders can resell their shares to other interested buyers on the stock exchange or the over-the counter market. There is need to develop financial markets and attracts the foreign portfolio inflows and some countries have introduced regulatory reforms to allow capital market development. There has been hardly little and up to date empirical study on the important of stock market development to short and long run economic growth for the third world. King and Levine (1998) found positive and significant correlation between stock market development and economic growth but used cross-sectional approach. The cross-sectional approach has several drawbacks such as inability to sort country specific effects (Matu, 2007).

Stock market development increases the level of investment in the economy through mobilization of saving which in turn lead to growth .Positive real interest rate increases the level of financial depth due to high savings hence high productivity of capital.

1.2: History of Nairobi Securities Exchange market

The Nairobi Securities Exchange (NSE) is the principal stock exchange of Kenya. The NSE began in the early 1920s while Kenya was considered a colony under British control. It was an informal marketplace for local stocks and shares. By 1954, a true stock exchange was created when the NSE was officially recognized by the London Stock Exchange as an overseas stock exchange and permitted it to carry out business in Kenya. After Kenyan independence from Britain, the stock exchange continued to grow and become a major financial institution. The facilities have modernized since the original "handshake over coffee" method of trading. The NSE has recently adapted an automated trading system, to keep pace with other major world stock exchanges.

Nairobi Securities Exchange is a member of the African Stock Exchanges Association (ASEA).There are about 20 exchanges in the ASEA. The ASEA was incorporated in 1993 in the Republic of Kenya. ASEA's aim is to provide a formal framework for the mutual co-operation of stock exchanges in the African region. Its functions include the exchange of information and assistance in the development of member exchanges. There are 29 exchanges in Africa, representing 38 nations' capital markets. 21 of the 29 stock exchanges are members of ASEA.

Kenya is proud for owning Nairobi Securities Exchange and sometimes it is referred to as the Heart of Business in Kenya because it is the fourth largest stock exchange in terms of trading volumes, and fifth in terms of market capitalization as a percentage of GDP in Africa It works in cooperation with the Uganda Securities Exchange and the Dar es Salaam Stock Exchange, including the cross listing of various equities (Ngugi, 2003).

The exchange has pre-market sessions from 09:00am to 09:30am and normal trading sessions from 09:30am to 03:00pm on all days of the week except Saturdays, Sundays and holidays declared by the Exchange in advance. There are more than 50 businesses and companies listed in the Nairobi Securities Exchange, including Sasini Tea and Coffee Ltd., Kenya Airways, Jubilee Insurance, Kenya Commercial Bank Ltd, KenGen Ltd and many others. This is very small number compared other countries like China with 945 (Matu, 2007). Most of the businesses in the exchange are in the financial or industrial sectors, though agriculture and other commercial services are also represented. Also listed are treasury bonds issued by the Government of republic of Kenya. Occasionally, there are also privately issued corporate bonds as well.

The NSE has its official head office and trading floor at the Nation Centre along Kimathi Street. Trading is done in a modernized ways through the use of Electronic Trading System (ETS) which was commissioned in 2006. Another modern method in use is A Wide Area Network (WAN) platform which was implemented in 2007 Trading is now mainly conducted from the brokers' offices through the WAN. The use of this sophisticated method has successfully eradicated the need for brokers to send their staff (dealers) to the trading floor to conduct business. However, brokers under certain circumstances can still conduct trading from the floor of the NSE.

Two indices are popularly used to measure performance. The NSE 20-Share Index has been in use since 1964 and measures the performance of 20 blue-chip companies with strong fundamentals and which have consistently returned positive financial results. This index primarily focuses on price changes for these 20 companies.

In 2008, the Nairobi Securities Exchange All Share Index (NASI) was introduced as an alternative index. It measures an overall indicator of market performance. The Index incorporates all the traded shares of the day. Its attention is therefore on the overall market capitalization rather than the price movements of selected counters.

There is however a third Index; the AIG 27 Index that compares price movements of 27 companies identified as relatively stable. The rationale behind the index compares to that of the NSE 20-Share Index is whereas the AIG is primarily defined by the AIG Company (a financial service company and part of the AIG Group), the 20-share Index is from the NSE itself.

The African Alliance Kenya Securities report said that this year-to-date the local stock market performance went down by 21.9 per cent NSE not exempted, in US dollar terms compared to North African countries, which faced uprisings earlier in the year. The report attributed this to high cost of living and a fast depreciating shilling (Musau, 2010).

Also the report warned that equities in Kenya will continue to under-perform generally for the rest of the year especially for foreign investors who will take a hit on the exchange rate, and therefore no expectation for the currency to strengthen in the short-term. Performance has been declining week-on-week whereby turnover declined to Sh1.15 billion from Sh1.94 billion early June to late June 2011. NSE 20 Share Index was down by 0.40 per cent during the period to stand at 3969.03 points (Musau, 2010)

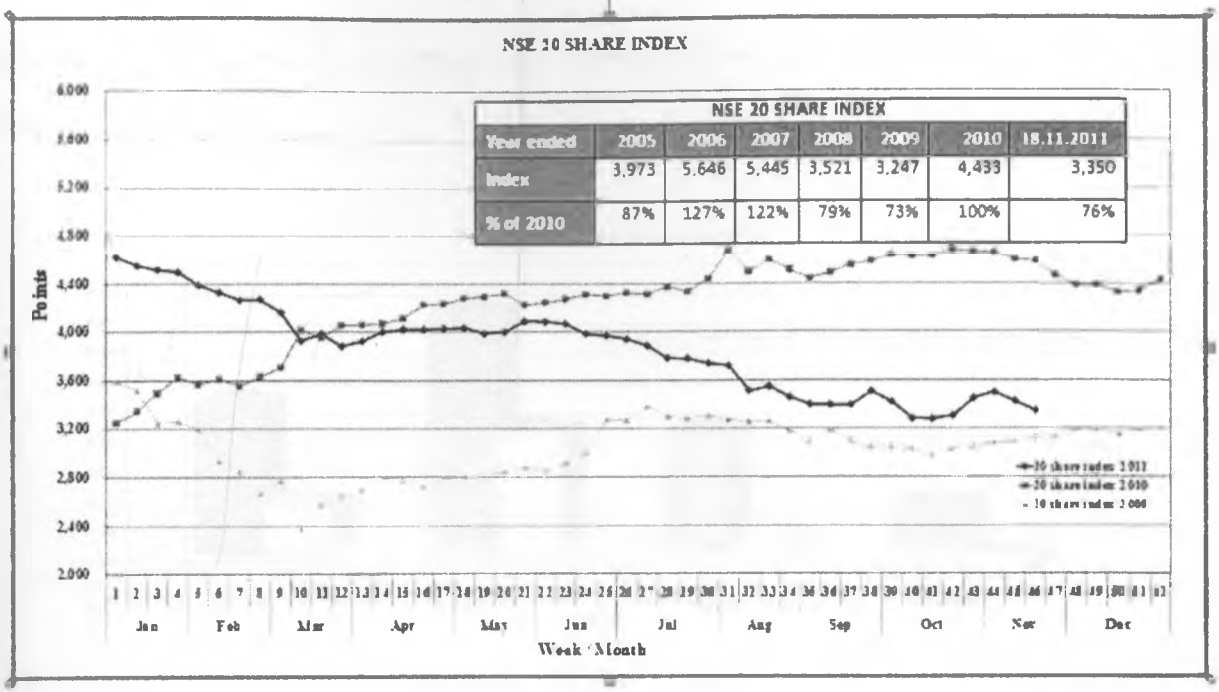

Figure 1.1 NSE 20 Shares Index

Source: Nairobi Securities Exchange

Figure 1.1 shows how the NSE 20 share index has been performing in the last three years each year plotted separately. From the figure it is evident that 2010 the market was performing well as compared to 2011. This finding was explained by Musau, (2010).The market was doing the best in terms of 20 share index on 2010 around September to November. Since the beginning of 2011 the market has been dipping and if the trend continues it may go below the performance in 2009.This calls for a turnaround whereby CMA and policy maker need to come with a renewed strategy and efforts to bring back the market to its position.

1.3 Trends of Economic Growth in Kenya

Kenyan was doing well in the periods immediately following independence up to the beginning of the 1980s.

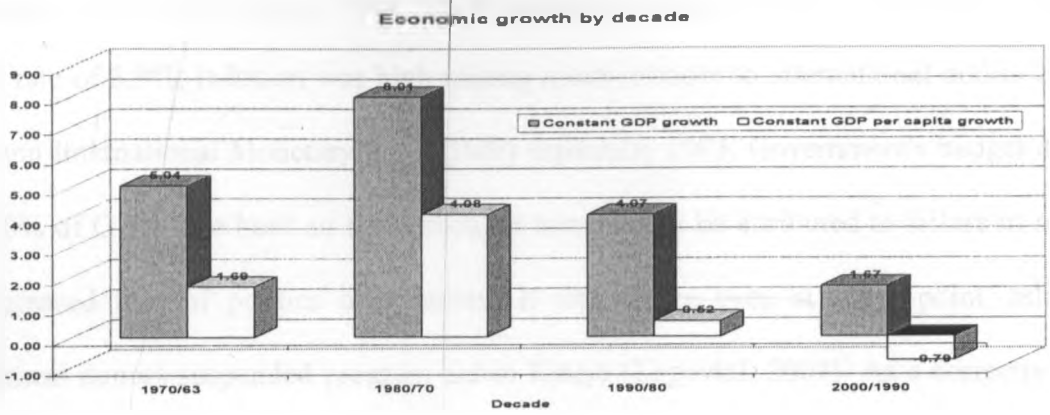

Figure 1.2 Economic Growths by Decade

Source: (Legovini, 2002), Kenya Macroeconomic Resolution since Independence

From the period between 1963 to the beginning of the 1980s the economy was characterized by strong economic performance and huge gains in social outcomes (Legovini, 2002). This was so because after independence, Kenya embarked on rapid economic growth through public investment, encouragement of smallholder agricultural production, and incentives for private (often foreign) industrial investment. GDP grew at an annual average of 6.6% from 1963 to 1973. In terms of sectoral growth Agricultural production was leading with by 4.7% annually during the same period, stimulated by redistributing estates, diffusing new crop strains, and opening new areas to cultivation.

This steady growth slowed down between 1974 and 1990, due to policies like inward-looking policies of import substitution and rising of oil prices which made Kenya's manufacturing sector

uncompetitive. Other factors were like the government massive intrusion in the private sector, lack of export incentives, tight import controls, and foreign exchange controls made the domestic environment for investment even less attractive. From 1991 to 1993, Kenyan economic performance went down than before, GDP stagnated, and agricultural production shrank at an annual rate of 3.9%, inflation was high raising much concern to international bodies like World Bank and International Monetary Fund (IMF) especially 1993. Government's budget deficit was over 10% of GDP. The heart of this structural break could be attributed to failure to reform and the increased role of politics over policy. It was worse even at some point, bilateral and multilateral donors suspended program aid to Kenya (Legovini, 2002). As a corrective measure in 1993, the Government began a major program of economic reform and liberalization of economic measures with the assistance of the World Bank and the (IMF).The reforms aimed at eliminating price controls and import licensing, removal of foreign exchange controls, privatize a range of publicly owned companies, reducing the number of civil servants, and introducing conservative fiscal and monetary policies. The economy recovered and from 1994 to 1996, real GDP growth rate averaged just over 4% a year but in 1997 the economy entered a period of slowing or stagnant growth because of adverse weather conditions and reduced economic activity prior to general elections in December 1997.

In 2003 after the change in government regime the GDP growth started to improve with much more reform in governance and transparency in government offices. In early 2004 real GDP growth picked up to 2.3 percent and to nearly 6 percent in 2005 and 2006, compared with a sluggish 1.4 percent in 2003 (Republic of Kenya, 2007)

Then economy was hit by post election violent crisis of 2007/2008 and global financial crisis of 2008 and real GDP growth rate went down from 7.0 percent report in 2007 to 1.5 percent in

2008.But it is recovering with much investment in physical infrastructure. In 2010, economic prospects were positive with 4-5% GDP growth but real growth landed to 5.6 percent because of expansions in tourism, telecommunications, transport, construction and a recovery in agriculture. The government, generally perceived as investment friendly, has enacted several regulatory reforms to simplify both foreign and local investment. Five factors are creating a positive momentum: the new constitution, EAC integration, ICT innovations, strong macroeconomic management, and recent investments in infrastructure. ICT has been the main driver of Kenya's economic growth over the last decade, growing on average by 20 percent annually, and propelling the combined transport and communications sector into the economy's second largest (after agriculture). Without ICT, growth in 2010 would have been a lackluster 2.8 percent similar to the population growth rate and income per capita would have stagnated. Over the last three decades Kenya has experienced only two short episodes when economic growth exceeded five percent and was sustained for at least three consecutive years: 1986-88 and 2004-2007.

Economic growth in 2011-12 has been projected by world bank to range between 5.3 and 6.0 percent assuming no shocks will occur but so far internal and external shocks have hit the economy so badly in that Kenyan economy may grow by low percentage. Public sector investments in infrastructure are expected to stimulate and drive this growth forward. However, the timely implementation of the constitutional reforms would also be necessary to help boost business confidence (World Bank, 2010).

Much of literature has talked about the relationship between stock market and economic growth in most of countries but theoretically the link between the two is the financial sector. The stock market helps the economy to accumulate funds and make readily available for to investors for investment and capital creation. With capital and more investment in production of consumable

Goods and services the GDP grows and economic growth rate increases. Levine and Zevros' (1998) found that with an optimistic framework stock market development and financial liberalization may produce high interest rates and savings hence induce higher and quality investments and then as a result promote economic growth. Matu (2007) pointed out that the relationship between stock market development and economic growth may be direct and indirect through real and financial variables such as interest rates, private investment as a ratio of GDP. King and Levine (1998) suggested the level of banking development represented by Bank loans to private enterprise ratio to GDP are good predictors of economic growth.

1.4 Statement of problem

Studies on the relationship between stock market development and economic growth are numerous and varied (Goldsmith, 1969; McKinnon, 1973; Agarwal, 1999; Ngugi, 2003 and Odhiambo, 2010). Changes in the world economy such as the 2008 financial crisis, changes in the country's political climate, exchange rate fluctuations, among other macro-economic shocks which have had their effects on economic growth have their effects on the stock market.

The Vision 2030 (Republic of Kenya, 2007), the country's long-term development plan aspires for GDP growth rate of at least 10 percent, while enhancing financial sector development and stability of which the Stock market is a vital institution (Schumpeter, 1912). The Vision foresees Kenya as a regional financial hub for financial services in the entire East African Community. With this in mind, a robust and developed financial sector will remain critical. Indeed, the Vision appreciates the need for a complimentary growth relationship between financial sector development and economic growth. Until before the recent restructuring of the market, the level of activity in the in the bourse was quite low. This has caused for years, the business sector to

depend mainly on short-term financing such as overdrafts to finance even long-term capital (Odhiambo, 2010).

If the country is to achieve the growth targets of 10 percent per annum as envisaged in the Vision 2030 (Republic of Kenya, 2007), it will need to boost the level of savings and investments both in the Private and public sector, an opportunity guaranteed by a developed stock market. Therefore, there is a need for a empirical study based on the country's stock market which takes into account these current developments within the country and how they affect `economic growth. This is the gap in the literature that this study filled. This has been done through the up to date study on Nairobi Securities development and its effect on economic growth.

1.5 Research Questions

The research questions were as follows.

i. What is the effect of stock market capitalisation on economic growth?

ii. What is the effect of total value of shares traded on economic growth?

iii. How does the equity turnover in the stock market influence economic growth?

iv. What is the effect of investment and university enrolment on stock market development?

v. What are the policy implications from the study result?

1.6 Objectives of the study

The general objective of this study is to investigate the relationship between stock mark development and economic growth in Kenya.

Specifically, the study was intended to achieve four objectives;

i) To examine the effect and direction of stock market capitalisation on economic growth.

ii) To determine the effect of total value of shares traded on economic growth.

iii) To establish how the equity turnover in the securities market has influence on economic growth.

iv) To examine the effect of investment and university enrolment on economic growth.

v) To draw policy recommendations from the research findings (i) to (iv).

1.7 Significance of the study

In relation to these issues addressed on statement of the problem and objective of the study above, this study attempted to gather information, analyse it and give recommendation to policy maker for strategic planning and policy formulation. The study has pointed out the areas that will assist the potential investors in the Nairobi Securities market .The study has looked into incentives for small and medium enterprises to be listed by NSE. The study too has proposed the improvement on management of the NSE and CMA to revamp the operations at NSE so has not to go back to the 2008. The study has enriched the existing literature on this area with the aim to have significant impact if put into practice.

1.8 Scope of the study

The study is structured as follows. Chapter one provides a background to the study especially on NSE market and Kenyan economy. This chapter also highlights the research problem, research objective and significance of the study paying attention to the research problem. Chapter two concentrates on reviewing the current state of knowledge as well as theoretical studies done so far on the link between stock markets development and economic growth. The methodology

section is well demonstrated in chapter three highlighting data types, sources, and the theoretical framework. This has easily lead itself to the model specification.

Finally chapter four and five of the paper presents the findings of the study, conclusions and policy prescriptions for implementation.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, the focus is on reviewing of both theoretical and empirical literature carried out to examine the link between the stock market and economic growth.

2.2 Theoretical Literature

The theoretical literature adopted the endogenous growth theory which dates back to Ramsey (1928). An endogenous growth model is one in which the long-run growth rate of output per worker is determined by variables within the model, not an exogenous rate of technological progress as in a neoclassical growth model such as those following from Ramsey (1928) and Solow (1956). Endogenous growth economists believe that improvements in productivity can be linked to a faster pace of innovation and extra investment in human capital. This means there is a central role for knowledge as a determinant of economic growth. Therefore the proxy for both human capitals development and investment is crucial for this study.

Endogenous growth theorists stress the importance for government and private sector institutions and markets which nurture innovation, and provide incentives for individuals to be inventive. The theory also don't take the rate of technological progress as a given in a growth model which imply that appropriate government policies can permanently raise a country's growth rate particularly if they lead to a higher level of competition in markets and a higher rate of innovation.

There endogenous growth theory takes that there are potential increasing returns from higher levels of capital investment in a given economy and therefore emphasizes that private investment in Research and Development is the central source of technical progress. Not only does the theory points out the important of protection of property rights and patents that can provide the incentive to engage in Research and Development but also the need for investment in human capital (education and training of the workforce) as an essential ingredient of growth. For any institution that encourages investments, such as stock markets and banks are important in promoting economic growth. It is logical to expand this linkage between better education and improved productivity as a benefit for the economy as a whole. The key scholars in growth models are Romer, (1986), Lucas, (1988), and Rebelo (1991) who have concluded that Endogenous growth models show that economic growth performance is related to financial development, technology and income distribution. The other scholars are Swan (1956), Robinson, (1956), Kaldor (1957) and Barro (1991) who made contribution to the growth theories.

2.3 Empirical Literature

Empirical investigation of the link between financial development in general, and stock markets in particular have been limited. Most of the subsequent studies have adopted the growth regression framework in which the average growth rate in per capita output across countries is regressed on a set of variables controlling for initial conditions and country characteristics as well as measures of financial market development.

Osei (1998) under took an analysis of factors affecting the development of an emerging capital market in Ghana stock market. The study analysed the institutional factors affecting the development of the Ghana stock market. The study took a closer analysis on the impact of the

listing of Ashanti Goldfields Corporation on the development of the Ghana stock market. Whereby the study establishes that the institutional factors particularly the legal and regulatory framework that ensure the protection and security of investors are in place, and that the call-over system of transactions is very transparent.

Osei (1998) further found that the delivery and settlement of transactions are performed satisfactorily by brokers; however the introduction of a centralized clearing system would significantly improve upon the clearing and settlement procedures. Analysis of the structure of the GSE shows that many of the local investors can be described as low income investors. A sizeable percentage has no formal education and the knowledge of local investors about the capital market is quite poor.

Osei (1998) used the law of one price and the random walk test and establishes that the GSE is "weak-form" inefficient. The study also finds that the listing of AGC has had tremendous impact on the GSE in many ways including improving market liquidity and market turnover.

This study was only about the factors affecting the development of Ghana stock exchange but no how it is linked economic growth.

Filer, Hanousek and Campos (1999) studied on whether financial development in anyway causes economic growth or it is a just a consequence of increased economic activity. The study made use of a causality framework and took Granger-causality tests to provide evidence of a positive and significant causal relationship going from stock market development to economic growth, particularly for less developed countries. The study found evidence that stock markets, especially in more developed economies, incorporate expected future growth into current prices, a result that is consistent with efficient market hypotheses. But a strong relationship between stock

market activity and future economic growth for the low and lower middle income countries in our sample but not in higher income countries with more developed alternative financial mechanisms. There was evidence that no impact of increased equity market activity on growth in developing economies where there is lack of a proper institutional framework (as evidenced by excessive corruption or government interference in financial markets) hence hampering the ability of these markets to function well.

Filer, Hanousek and Campos (1999) findings were similar to that of Jalloh (2009) with a slight different in that the latter was more specific to Sierra Leone stock exchange roles on financial markets. Filer, Hanousek and Campos (1999) were interested in comparing the role of stock markets in developing countries and developed countries therefore there is a need for the study on Kenyan stock market development and how it causes economic growth.

Osinubi (2001) study examined whether stock market promotes economic growth in Nigeria by employing ordinary least squares regression (OLS) using the data from 1980 to 2000. The results indicated that there is a positive relationship between economic growth and all the stock market development variables used. With 99 percent R-squared and 98 percent adjusted R-squared, the result showed that economic growth in Nigeria is adequately explained by the model for the period between 1980 and 2000.

The results of the study, which established positive links between the stock market and economic growth, suggests the pursuit of policies geared towards rapid development of the stock market. Also, all sectors of the economy should act in a collaborative manner such that the optimum benefits of linkages between stock market and economic growth can be realized in Nigeria.

Zhu, Ash and Pollin (2002) investigated study on Stock Market Liquidity and Economic Growth which is a form of a critical appraisal of the Levine-Zervos model, whereby Levine and King (1998) presented cross-country econometric evidence showing that, in a sample of 47 countries, stock market liquidity contributed a significant positive influence on GDP growth. The study shows that the Levine-Zervos (1998) results are not robust to alternative specifications because of the incomplete manner in which they controlled for outliers in their data. They showed that when one property controls for outliers, stock market liquidity no longer exerts any statistically observable influence on GDP growth.

The study explores the literature on how the Asian tigers operated with strong government-administered systems of credit allocation and financial regulation, which played a major role in establishing credit flows to productive investments. The study pointed out that Asian financial market model did also operate with heavily traded stock markets, though these markets were less important than the system of administered credit allocation in affecting the flow of funds for investment. This system did not last beyond early 1990s leading to the 1997-98 Asian financial crises. From the replication of the Levine-Zervos (1998) model suggest that this unique financial structure was the primary force establishing the positive and significant correlation that the study observed between stock market turnover and GDP growth in the overall 47-country sample. To some point the study results lead to the conclusion that, at least for the period under consideration, no statistically reliable relationship operated at all between the level of stock market turnover within the countries in the sample and these countries aggregate economic performance as measured by GDP growth. The study has explored enough on one of the variables to be used on cross sectional investigation. The study is similar to that of Ngugi (2003)

on Nairobi securities exchange turnover which was seen as a factor for stock market development.

Ngugi (2003) studied Liquidity of the stock in Nairobi Securities Exchange. Liquidity is very vital for the market to play a significant role in the development and facilitating mobilisation of long-term capital. The study invoke the microstructure theory in empirical analysis testing for market response to the following main changes: shifts in trading system, tightening of the regulatory system, reform of taxation policy, and relaxation of capital controls. The study used descriptive statistics and simple regression analyses and found that the level of stocks returns influence to a large extent the volume of trading activities given high quality of information while volatility is partially attributed to information asymmetry and adequacy of the market microstructure infrastructure including the tightness of disclosure rules. The study studies much on one of the variable of this study about the liquidity of the stock market and its role on stock market development in Kenya and not through which mechanism the stock market generates economic growth in Kenya. This is the area this study will explore.

Caporale, Howells and Soliman (2003) examined the hypothesis of endogenous growth models which asserts that financial development causes higher growth through its influence on the level of investment and its productivity. They exploited techniques recently developed to test for causality in VARs. The evidence obtained from a sample of four countries suggests that investment productivity is the channel through which stock market development enhances the growth rate in the long run. This study has examined the hypothesis that stock market development affects economic growth through its impact on investment. The study further has utilised an appropriate econometric technique to test for the causality linkage between stock markets, investment, and economic growth. They established that in line with the recent

endogenous growth models for financial development, investment productivity is the channel through which stock markets enhance the growth rate in the long run. Therefore the study shows that stock market development enhances economic growth through its impact on investment productivity in the long run. Caporale, Howells and Soliman (2003) study was more proving the hypothesis of endogenous growth models and how stock market development affects economy through investments and its linkages.

Ngugi and Njiru (2005) explored the development of the Nairobi Securities Exchange primary market since its inception in 1953 by use of a historical perspective approach. The study attempted to capture the factors surrounding the development of the market, using a sample of 20 firms that had made public offers since 1980.

The study found that the market has witnessed slow growth in the number of listed firms and there are very few locally owned Firms. Again they found there has been a significant number of delisting of firms. The study noted that however, NSE has not attracted more entrants, may be because firms do not understand the benefits of going public or the cost of doing so. This call for Mass education at firm level on the benefits of going public is important, with clear examples from those who have managed to reap benefits.

Ngugi and Njiru (2005) further highlighted a number of factors that affect the IPO market such as political change in Kenya and in the East African region has played a significant role in shaping the growth of the IPO market. The breakup of the East African Community reduced the market scope for the NSE with the delisting of firms incorporated in Uganda and Tanzania. It also squeezed the market for government stocks, but present there have attempts to revive the

East African Community and integrate the stock market at the completion will facilitate the expansion of the market, especially with cross-border listings from the region.

There have been many efforts to create conducive policy environment, for example tax incentives and also tightening the institutional infrastructure, but little has been achieved in terms of attracting the private sector to use the market to raise long term capital.

The study suggested a further and in-depth study at the explicit and implicit costs of listing to ensure that a comprehensive approach to reducing the listing barriers is dealt with. Ngugi and Njiru (2005) found that in the post- listing period, most of the listed firms indicated improved performance, which implies that the listed firms tend to meet their targeted development goals. For these small and medium enterprises to be taken into the board we need to encourage and initiate business groups as is the practice in India. The study has talked a lot on more on primary markets in Kenya which is a subset of stock market but not the importance of stock markets as a whole to the economic growth in Kenya.

Nieuwerburg (2005) empirically investigated the long-term relationship between financial market development (Stock Market Development) and Economic Growth in Belgium. The study used a new data set of stock market development indicators to argue that financial market development substantially affected economic growth. Nieuwerburg (2005) established that there is strong evidence that stock market development caused economic growth in Belgium especially in the period between 1873 and 1935.Nieuwerburg (2005) study has examined well the long run relationship between financial markets developments and economic growth but the study was done outside Kenya.

Nyakerario (2007) examined the empirical relationship between Stock Market Development and Investment Efficiency. The study was done in Africa using the recently developed dynamic panel data estimators. Nyakerio (2007) used two samples, categorized as relatively developed stock markets and relatively underdeveloped stock markets. The study suggested that investment efficiency is crucial for stock market development in relatively developed stock markets in Africa while in relatively underdeveloped stock markets, no consistent results are obtained. Further the study found that African stock markets can boost investment efficiency by enhancing privatization and diversifying financial instruments. The study explored the stock market development and investment efficiency in Africa but did not handle the linkages of investments efficiency in promoting economic growth the area this study intends to handle.

Matu (2007) using VAR the results suggested that stock market development in Kenya has positive and significant impact on economic growth in long run. The study used Vector Autoregression (VAR) model. The findings were consistent with that of Levine, and Zervos (1996) and Nyakerario (2007). But this study employs ordinary least squares regression (OLS) using the quarterly data from 1996 to 2010 and has incorporate more variables for stock market development using Gross Domestic Product (GDP) as a proxy for economic growth.

Ngugi, Amanja and Maana (2008) investigated Capital Market, Financial Deepening and Economic Growth in Kenya taking in mind the positive hypothesis that financial sector plays a crucial role in economic development. The study found that the depth of the financial sector has generally promoted economic growth while a well functioning capital markets increases economic efficiency, investment and growth. The study established that Kenya's capital market have been described as narrow and shallow since the stock market and private bond market have been raising less than 1% of growth financing. The study tries to establish whether the vision

2030 development plan which aims to achieve an annual economic growth of 10% with an investment rate of 30% to be financed mainly from mobilization of domestic resources is achievable with help of development of capital development. The study indicated that there are significant relationship between economic growth and capital market and banks variable but not with the non-banking variable whereby, banks and bonds are highly significant. It was noted that when we consider the access and depth in financial sector there exist significant relationship with the overall measure of financial access and also with the financial market sophistication and availability of venture capital.

Further the study established that the economic growth model performs better when included other factors like the non-financial factors that showed significant relation which include the infrastructure, cost of doing business and investment. The study shows the higher the level of investment the higher the level of economic growth, hence keeping cost of doing business low and strengthening the infrastructure might increase economic growth. Correlation between the financial sector and the institutional and business environment factors show significant relationship with the various factors. Regression analysis indicated that the infrastructure and cost of doing business play a key role in development of the market. The various factors include the human capital factors which include the quality of labor force. Infrastructure is also significant and it shows the ability to reduce the cost of transaction. The other factor is the legal and regulatory issues and the domestic financial sector liberalization in which Kenya we are doing well. The stock markets in developing countries Kenyan have several common features such as small size, limited opportunities for risk diversification, severe illiquidity and lack of institutions to support development of their undercapitalized informal business sectors. The domestic economy cannot gained as whole from the establishment of the stock exchange, which

has failed to provide a means of raising capital through new listings such as IPO's, or by attracting foreign portfolio investment or FDI to supplement the low level of domestic savings. The study emphasized much on financial deepening and economic growth and less on stock markets as opposed to this study which investigated more on stock markets developments and economic growth in Kenya.

Jalloh (2009) studied the role of Sierra Leone stock exchange, as part of financial market, on economic growth and the results were that the Financial Market plays critical role in promoting economic growth through mobilizing savings for productive investment and facilitating capital inflows. Further it stimulates investment in both physical and human capital, channels savings to more productive uses by collecting and analyzing information about investment opportunities, by doing this it creates an efficient mechanism for transactions in long term financial instruments. Finally the study pointed out that the financial markets, provides a wide range of wealth creating opportunities for the Government, Corporations, Private, individuals, and other financial institutions. The study is more of financial markets in general and specifically the role of stock market on financial markets development. With all this the study expounded the importance of finance in an economy instead of stock market and how it relates to economic growth.

Odhiambo (2010) examined, the dynamic causal relationship between stock market development and economic growth in South Africa using the ARDL-Bounds testing procedure. The study used the 1971-2007 data sets, whereby the empirical results shows that the causal relationship between stock market development and economic growth is sensitive to the proxy used for measuring the stock market development. Odhiambo (2010) found when the stock market capitalisation is used as a proxy for stock market development, the economic growth is found to Granger-cause stock market development. However, when the stock market traded value and the

stock market turnover are used; the stock market development seems to Granger-cause economic growth. In overall, the study finds the causal flow from stock market development to economic growth to predominate irrespective of whether it is in the short-run or in the long-run.

Bitok *et al.* (2011) investigated the determinants of investor confidence for firms listed at Nairobi Securities Exchange (NSE) for the period 2001 to 2008. The study assumed the two models, that is, the EMSI model and the Calderon–Rossell model and regressed together in a multiple linear regression model. The paper gathered information on stock market volatility based on news and events at NSE and macroeconomic factors. The study noted that news and events are found to affect the stock market as captured by the changes in the prices and also as measure of investor sentiment that is capable of explaining a significant proportion of the changes in the stock market index. The study further shows that political/economic stability, economic growth, and stock market liquidity play a key role in stock market development the point which agrees with most of the literature.

The study went further to conclude that daily price movements on the NSE are significantly related to investor sentiment hence; investors' psychology is a potential explanation for stock price movements. Stock market growth is determined by economic growth as given by stock market capitalization and stock market liquidity while total shares traded and turnover are important indicators for the investor confidence.

The study fully investigated the factors determining the investors 'confidence for firms listed in NSE but it did little on the relationship between stock market development and economic growth which this study has embark on.

2.4 Overview of Literature.

From the theoretical and empirical literature reviewed, studies have shown divergent views on the importance of stock market development and economic growth. On one side, most of the literature established that stock market development has positive effect on economic growth irrespective of the status of the economy as either poor or rich (Osinubi, 2001). But on the other hand, stock market development is a consequence of economic growth. Empirical work by Goldsmith (1969), Nieuwerburg, (2005) and McKinnon (I973) illustrated the close relationship between financial markets development and economic growth in some countries, but agree that Stock market development simply follows economic growth. Lucas (1997) terms the relationship between financial and economic development "over-stressed." The direction of causality moves from stock market depth to economic growth as shown by Ngugi, Amanja and Maana (2008) while a well functioning capital market increases economic efficiency, investment and growth and promotes liquidity of financial markets. (Ngugi, 2003; Zhu, Ash and Pollin, 2002) argue that Liquidity is very vital for the financial market to play a significant role in financial development and facilitating mobilisation of long-term capital. Ngugi and Njiru (2005) contend that primary market in Kenya has been growing slowly in a number of listed firms and more specifically on locally owned Firms. A much recent work by Jalloh (2009) reveals that stock market help to stimulate investments in both physical and human capital. King and Levine (1993) pointed out that stock market development affects economic growth in developing countries but the study did not point clearly the channels through which stock markets can cause economic growth. Traditional growth theory notes that, growth rate is a positive function of exogenous technical progress (Matu, 2007)

Growth theories too have inspired a lot of interest on the importance of capital accumulation in economic growth. These are the Harrod-Dommar and neoclassical growth theory by Solow (1956) and Lucas (1997). Endogenous growth theories argue that the accumulation of capital plays a very key role in determining the growth and steady–state of the economy. Developing countries faces capital accumulation deficiency therefore they need a well developed financial sector so has to fund their public and private projects. The answer to this biting problem in developing countries is the stock markets which enable firms and savers to have access to the investment opportunity. The returns from stock market is much high than interest rates from banks and non banking financial institutions (Matu, 2007)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter has dwelled on mathematical approach used in analyzing the linkages between the stock markets and economic growth. The analysis was based on endogenous growth models.

3.2 Theoretical Framework

The theoretical model goes back to neoclassical growth model whereby capital is believed exhibits the diminishing marginal returns in the production process (Matu, 2007). The fact is that poor countries don't seem to grow faster than the rich countries has it is expected from the model. The financial markets are there to pool together the funds and raise savings and investments and through various linkages promote economic growth rate. A financial market does that by diversifying economy's liquidity and investment risk and attracting more savings into productive investment. With the help of financial markets physical capital invested in long term projects is sustained till maturity.

New growth theories broadly intend to relax the assumption of diminishing return to capital in the neoclassical growth models. They view all production inputs as some form of reproducible capital (Romer, 1987) called it "state of knowledge." Along with these approaches a simple model was developed by Robelo (1991) and called it AK model.

$$Y_t = AK_t \quad \text{---------- (3.1)}$$

Where: K_t is a broad measure of capital that is a composite of physical capital and human capital stock and A denotes state of technology. The production function is linear and does not yield

diminishing return to capital and hence the steady-state growth rate can be shown as equation (3.2).

$g = sA - \delta$ ---------- (3.2)

g -denotes steady-state growth rate

δ -denotes depreciation of capital.

s -denotes saving rate (marginal propensity to save MPS) which is assumed to be equal to investment.

This implies that the steady-state growth rate is positive (given sA greater than δ) whereby the level of income per capita will rise without limit. This means that the increase in saving rate permanently will increase growth rate per capital. AK model also suggests that the poor nations whose production process is at similar degree of technological progress will always grow at the same rate as rich nations regardless of their initial level of income (Solow model)

McKinnon (1973) introduced a vigorous formulation between financial factors and growth but it was until the endogenous growth theories came into practice this formulation was used.

The theories noted that not all savings is invested some fraction is lost in what is called disintermediation activities (u) in order to come up with equation (3.3)

$usy_t = I_t$ ---------- (3.3)

Then given some saving is lost and technology (A) has constant return to scale to capital, steady-state growth rate per capital will be as shown in equation (3.4)

$g = suA - \delta$ ---------- (3.4)

This implies that financial development may increase saving rates due to confidence with savers and availability of investment opportunities attributed to resource allocation which is a key role of financial markets. Equation (3.4) implies that financial development may increase the marginal productivity of capital stock and also it implies that financial development will increase the proportion of savings that goes to investment by reducing disintermediation activities ($ui.e(I-u)=s$) hence increasing saving rates. This mean if financial development is increased the efficiency in managing savings is enhanced and intermediation activities are reduced which further reduces the loss in savings.

3.3 Model Specification

The theoretical adopted from Harrod-Domar growth model has emphasized on saving and investment and how the investment may never equal to saving. The capital and capital depreciation has been incorporated in the model and how to replace the capital after depreciation. The economic growth is the end result. The steady-state growth rate was too a key result to the growth model. The model specification for the study has borrowed much from the theoretical. Economic growth and investment are the key variable of the study.

The model used in this study is based on the principles of some earlier studies like Osinubi (2001) who examined how stock market promotes economic growth in Nigeria using ordinary least squares regression method . The general model equation takes the following functional form:

$Y = f(MC, ST, TO, INV, UE)$ ---------- (3.5)

Y: Represents economic growth proxied by GDP

MC: Market capitalization

ST: Total Shares Traded

TO: Turnover

INV: Investment

UE: University student enrollment

The specific model equation is as the equation (3.6)

$$GDP = \beta + \alpha MC + \alpha_1 ST + \alpha_2 TO + \alpha_3 INV + \alpha_4 UE + \varepsilon \text{ ----------(3.6)}$$

The model is a one-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 (Solow, 1956).

3.4. Definition and Measurement Variables

The definition of variables and their sources is summarised on table 3.1.The variables are measured in monetary values except university enrolment which is measured on numbers.

Table 3.1: Definition of Variable and Source

Description	Unit of Measurement	Source
Gross Domestic Product	Kenya shillings	Economic Survey
Market Capitalization	Kenya shillings	CMA/NSE
Equity Turnover	Kenya shillings	CMA/NSE
Total shares Traded	Kenya shillings	CMA/NSE
Investment	Kenya shillings	MoF-StatistalAnnex
University Student Enrollment	Numbers of students	Statistical Abstract

Market Capitalization (MC): This is the value of listed shares. The assumption behind this measure is that overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy-wide basis.

Total Value of Shares Traded (ST): This is the total value of equities traded on the stock market exchange. The total value traded measures the total values in terms of Kenya shillings for organized trading of firm equity and therefore should positively reflect liquidity on an economy-wide basis. The total value traded complements the market capitalization, although a market may be large, there may be little trading.

Turnover (TO): This is the value of total shares traded. Though it is not a direct measure of theoretical definitions of liquidity, high turnover is often used as an indicator of low transaction costs. The turnover complements the market capitalization. A large but inactive market will have a large market capitalization but a small turnover. Turnover also complements the total value traded. A small liquid market will have a high turnover ratio but a small total value traded.

Gross Domestic Product (GDP): This was used as a proxy for economic growth (endogenous variable in OLS model) since GDP is a good measure of economic growth though may not be good measure of economic development.

Investment (INV): This measured the amount of Kenyan shillings which is saved from the economic GDP for the purpose of investment .This variable is also used as a control variable because investment is an important determinant of economic growth.

University Student Enrollment (UE): University students' enrollment is used as a proxy for knowledge and human capital development. This is the number of students enrolled by all universities both public and private in the country. Human capital is deemed to be an important determinant of economic growth.

3.5 Data Types and Sources

The study employed secondary quarterly time series data for the period between 1996 -2010 . Market Capitalisation, Total Shares Traded, and Equity Turnover data is obtained from the Nairobi Securities exchange market, whilst Investment, gross domestic product and University student Enrollment is obtained from Kenya National bureau of statistics (KNBS) publications and Ministry of finance publications for the period 1996 to 2010.

The study considers individual several indicators of stock market development as opposed to choosing one indictor to act as a proxy for stock market development. The rationale behind adopting disaggregated indicators is to capture the different effects between stock market development indicators and economic growth more feasibly rather than adopting a single indicator that would focus on a single aspect (Levine and king, 1998).

3.6 Data Analysis

Most of macroeconomic time series are non-stationary hence ordinary least squares (OLS) regression between such series are spurious. Single Variable may be non-stationary but a linear combination of such variable may be stationary therefore such variables are said to be co integrating and a meaningful Long-run relationship exists. Consequently the estimation procedure with time series data first must consider the following time series data tests.

3.6.1 Testing for Unit Roots (Stationary Test)

When analyzing time series data, it is advisable first to determine whether the series is stationary or not that is whether it has constant mean and variance over time. To do this it involved testing for unit roots to correctly test hypothesis concerning the variables having unit roots (integrated of at least order one).The test is therefore whether the time series are 1(1) which is a necessary condition. The Augmented Dickey Fuller (ADF) and Phillips-Perron. The two tests which give almost same results can be used to test whether a time series is stationary or not. The ADF equation to test unit root in time series can be written as follows.

$$\Delta y_t = \theta + \beta_1 y_{t-1} + \beta_2 T \sum_{i=1}^{k} \gamma_i \Delta y_{t-i} + \varepsilon_t \quad \text{---------- (3.7)}$$

Whereby Δy_t and y_t are the level and first difference of the relevant time series, T is the time trend variable and $\theta, \beta_1, \beta_2 and \gamma$ are parameters. ε_t is error term with zero mean and constant variance.

3.6.2 Co integration Test

Once the variables after differencing attains I (1) status is one of the crucial position to determine whether there is a stable non –spurious (co integrated) relationship in long run. The Granger and Engel (1987) (E-G) approach is one of best and commonly used to analyse the stationary of

residuals from levels regression. It is assumed that in long run the error term of regression equation should be zero. The cointegration test is based on the following specific equation.

$$\varepsilon_t = \beta + \alpha\varepsilon_{t-1} + \alpha_1 T + \sum_{j=0}^{m} \gamma\Delta\varepsilon_{t-1} + \mu_t \quad \text{---------- (3.8)}$$

Where ε denotes the residuals from the co integrating regression of empirical equation (3.8). The null hypothesis is that α equals to 0 and alternative is α less than 0.

3.6.3 Error Correction models (ECM)

Error Correction Model (ECM) is the mechanism which is used to show how faster could the economy adjust itself to long run equilibrium if the current state tends to deviate .The characteristic involved are fed to into its short-run dynamics by a dynamical system.ECM is used to test short run dynamics, that measure any dynamic adjustment between the first difference of the variable (endogenous variable and exogenous variables). Even if co integration is confirmed in the short-run there might be disequilibrium between actual values of the variables and the long run equilibrium values.

The long run relationship between two variables for instance y_t and x_t, the static model can be as follows.

$$y_t = \alpha x_t + \varepsilon_t$$

Then ECM can be defined as:

$$\varepsilon_t = y_t - \alpha x_t$$

α is a co integrating coefficient and ε_t is the errors from a regression of y_t and x_t.

ECM can be used tested by using generated residual and testing its stationarity normally.

CHAPTER FOUR

EMPIRICAL RESULTS AND INTERPRETATION

4.1 Introduction

This chapter the focused on the empirical analysis of the data employed in this study aiming to investigate the link between the stock market developments indicators on economic growth in Kenya.

4.2 Descriptive statistics

Table 4.1 Summary of Descriptive Statistics

Table 4.1 shows the descriptive statistics of the data employed in the study in terms of mean, maximum and minimum.

	Mean	Maximum	Minimum	Observations
GDP	282,186,799	385,602,000	217,781,185	60
Investments	61,002,223	127,797,990	24,587,492	60
Market Capitalisation	1,162,508,892,862	3,558,010,000,000	243,397,003,740	60
Turnover	8,733,973,622	35,293,545,603	442,576,348	60
Total Shares traded	370,885,702	2,526,290,000	18,094,647	60
University Enrolment	17,906	32,154	9,810	60

From table 4.1 it is observed that in each variable the data has been spread too much from the mean, for instance Market Capitalization has a mean of 1,162 billion with the minimum observation of 243 billion and the maximum being 3,558 billion. This is expected since the macroeconomic time series data are generated by a stochastic process. This also shows how the internal or external shock has been hitting the country.

The graphical presentation of each variable (see annex 2) revealed an important upward trend in most of the variables apart from equity turnover and University student enrolment. This showed the possibility of observation being stationary. Equity turnover and total shares traded showed a trend which is not smooth. This means that these variables are sensitive to shocks. In 2008 Nyaga stock brokers and Discount stock brokers collapsed and were brought under statutory management under the CMA. Around this time total shares traded and equity turnover shoot up quickly and this could have been as result of the panic amongst the shareholders who resorted into selling of the shares from different listed companies which further lead to dipping of the prices hence causing farther panic. This explains the possible shooting up of the equity turnover and total shares traded at NSE from 2008 to 2010

4.3. Stationarity Test and other Distributional test results

Stationarity test was carried out together with other time series data tests.

(a) Stationarity Test Results

Despite the fact that graphical presentation (see Appendix Fig.A1.) has shown presence of stationarity in most of the variables and OLS result also (See Table.4.5) has shown no possibility of spurious regression, it was still important to carry a stationarity test to prove the graphical and OLS results. More so this study employed the time series variables, therefore it is quite necessary to carry out a time series test beginning with stationary test in all variables. The co- integration test was run to determine the possible number of integrating equations at levels or after differencing and then investigate the long run relationship between the measures of stock market development and economic growth.

Unit root test was run in all variables to test stationarity using augmented Dickey Fuller test (ADF). The Schwarz information criterion (SIC) was used to determine p.values and the judgment was based on probability values at 5 percent significant level. The summary of results are tabulated in table 4.2

Table 4.2 Summary of Unit Root Test Result-Augmented Dickey Fuller test (ADF test)

Variable	In levels	In 1st differences	I(d) at level
	ADF (SIC) P.values	ADF (SIC) P.values	
Gross Domestic Products	0.8924	0.0202	I (1)
Investments	0.9521	0.0000	I (1)
University Enrolment	0.2637	0.0922	I (2)
Market Capitalization	0.8608	0.0028	I (1)
Total shares traded	1.000	0.8763	I (2)
Equity Turnover	0.1897	0.0000	I (1)

Table 4.2 shows the summary of result of the unit root test by use of ADF Test. The result of stationarity test showed that all variables except Market Capitalization and University student enrolment became stationary after first difference at 5 five percent significance level which implies that they are integrated of order one [I(1)] at levels. Both Market Capitalisation and university student enrolment became stationary after the second difference at 5% significance levels implying that the two variables are integrated of order two [I(2)] at levels.

Since all the variables employed by this study are not stationary at levels next was to test co integration for long run co integrating equations. This is because the macroeconomic time series

data are produced by a stochastic process hence the data set is regarded as a realization of the underlying stochastic process and any regression among the observations may result to spurious results.

(b) Co integration Test Results

The stationary test concluded that most of the series are integrated of order one i.e I (1) and this allowed for the analysis of co integrating relationship among the variables (Matu, 2007). Most of the macroeconomic time series data are non stationary since are generated through a stochastic process and this is the reason as to why a stationarity test is necessary before running regression. The test for unit root revealed the presence of Unit root hence need to difference each of the variable once ,except Market Capitalisation and university enrolment variable which both becomes stationary after second differencing. It is important to have in mind that differencing of the time series data lead to the loss of long run relationship because the economic theory gives equilibrium values in levels and not in the form of differences. When a group of time series data of which the individual series is non stationary, then integration of these series can be stationary. The main interest in testing co integration is to investigate the long run relationship (equilibrium) among the variables (dependent variable and independent variables). The co- integration test was done by obtaining residuals by running ordinary least squares. The residual was tested for stationarity using ADF test (Engle - Granger two step-Procedure) whereby the results revealed that the residuals became stationary after differencing twice, with probability values of 0.5782 and 0.000 at first and second differencing respectively.

The co integration resulted showed that the time series data employed by this study are co integrating hence the null hypothesis is that the residual has a unit root is rejected at the 5 percent

significance level. This reveals the existence of a long run relationship between stock market development and economic growth in Kenya. This is in line with the a priori expectation and earlier literature findings of Matu, (2007), Osinubi, (2001) and Odhiambo, (2010).

Table 4.3 shows the results of the possible co integrating equations using Trace and Max -Eigen. The trace test and Max –Eigen values shows that there are four co integrating equations that can be adopted for long run equations and are indicated by asterisk.

Table 4.3 Test for Co integrating Equations results

Hypothesized	Max-Eigen	Trace
No. of Co integrating Equation(s)	Prob.	Prob.
At most 1 *	0.0000	0.0000
At most 2 *	0.0000	0.0000
At most 3 *	0.0040	0.0006
At most 4 *	0.0359	0.0489
At most 5	0.5307	0.5307

From the result tabulated in table 4.3 it is possible to deduce that the co integration so far is proven to strongly exist amongst the variables and therefore it is possible to have the long run relationship specified. Table 4.4 shows the results for the best co integrating equation for the long run relationship among the four possible co integrating equations.

Table 4.4 Long Run Results

GDP	Investments	Market Capitalization	Total Shares traded	Equity Turnover	University Enrolment
coefficient	-2.249854*	-0.0000367	0.104486*	0.000233	493.8568
t-statistic	(-10.46)	(-0.50)	(10.30)	(0.69)	(1.46)

*Implies that the coefficient is significant at 5 percent significant level.

Table (4.4) shows a long run relationship between the NSE and economic growth in Kenya. There is strong and positive long run relationship between GDP variable and stock market development variables such as totals shares traded, equity turnover and human capital. Human capital which is proxied by university enrolment had shown strong long run relationship with economic growth. The coefficients with asterisk are statistically significant and different from zero. This is consisted with the Solow growth model theory. The total shares traded and equity turnover have revealed a strong and positive long run relationship with economic growth, same result were obtained by Filer, Hanousek and Campos (1999) when they investigated the role of stock market in developing countries.

Investment and market capitalisation showed a negative long run relationship with economic growth in Kenya. This can be explained by structural form of Kenya's securities market and nature and structure of the economy. This result about long run relationship between economic growth and investment was not consisted with priori expectation or theoretical relationship.

4.4 Regression Results

Since the study employs Ordinary Least Square method to analyse the linkages between the stock market development indicators and economic growth in Kenya, and time series data tests and analysis has already been done, it is important to carry out an OLS at this point and analysis its results comparing with different tests results. Table 4.6 summarises the OLS results.

Table 4.5 Summary of the Ordinary Least Squares Results

Dependent Variable: Gross Domestic Products

Variable	Coefficient	t-Statistic	Prob.
Investment	0.9655 *	4.1059	0.0001
Market Capitalisation	0.0000	0.7802	0.4387
Total shares traded	-0.0123*	- 2.5532	0.0135
Equity Turnover	0.0007	1.5627	0.1240
University enrolment	1,190	1.6402	0.1068
Constant	191,000,000 *	27.159	0.0000
Adjusted R-squared	0.948		
Prob(F-statistic)	0.000		
Durbin-Watson stat	1.864		

* Implies that the coefficient is significant at 1 and 5 percent significant level.

From the results above, the adjusted R-squared of 94.8% shows that economic growth is highly influenced by stock market development in Kenya. This is a necessary but not sufficient condition to prove whether or not there was a presence of spurious regression and therefore it is important to compare adjusted R-squared and Durbin –Watson. The results showed that Durbin-Watson is greater than Adjusted R-squared implying that there is no possibility of spurious regression. F-stat of 0.00 is reasonable to shows that the model fits well the sample data set employed in the study. Durbin-Watson statistics of 1.8 which when rounded off to whole number becomes 2 together with probability values against each variable, was a necessary condition which implies that generally the coefficients of the variables are statistically significant and different from zero. This means that the null hypothesis that all coefficients are not statistically different from zero was rejected. This was consistent with findings of Osinubi, (2001) and Matu, (2007).The residual was generated and its coefficient was found to be negative and statistically significant at 5% level with P .value of 0.000.

4.5 Error Correction Mechanism (ECM) Results

Error correction model is an important innovation in time series econometrics to investigate the presence of equilibrium or disequilibrium between short run dynamics and long run equilibrium values of the same, even after co integration is confirmed. This dynamic system works in a way that the deviations of the current status from its own long run relationship are fed into its short run dynamics.

In order to carry out ECM, the residual from the long run equation was lagged once and included in the set of lagged independent variables as proposed by Breausch and Wicken (1988). In this mechanism, it is possible to estimate both the short-run and the long-run in a single equation. The optimal number of lags used was 5 .The optimal lag length of 5 was suggested by Schwarz info criterion (SIC) and Hannan quinn creteion(HQ) while Akaike info criterion(AIC) suggested 2 lags. The Error Correction model results are shown on table 4.6 and for the two and three lags see Appendix Tables A1 and A2

Table 4.6 Error Correction Mechanism (ECM) results

Dependent Variable: D(GDP)			
Variable	**Coefficient**	**t-Statistic**	**Prob.**
D(Investments)	1.32482*	3.633101	0.0006
D(Market Capitalization)	0.0000157	1.266364	0.2110
D(Total shares traded)	-0.016376*	-2.361916	0.0220
D(Turnover)	0.000628	0.967115	0.3380
D(University Enrolment)	-1233.108	-0.796136	0.4296
U(-1)-Residual	-0.907675*	-5.756609	0.0000
Constant	81827.26	0.049017	0.9611
Adjusted R-squared	0.491569		
F-statistic	10.34609		
Prob(F-statistic)	0.000000		
Durbin-Watson stat	1.978104		

*Implies the coefficient is significant at 5 percent significant level.

From table 4.5, the adjusted R-squared of 49.2% with probability of F-stat of 0.00 is reasonable result to enable the study conclude that stock market development indicators cause economic growth and the model fits well data series employed in the study. Durbin-Watson stat of 1.99 which is approximately 2 taken together with Probability value against each coefficient is at the threshold to reveal that the coefficients are statistically significant and different from zero. This means that the null hypothesis that, all the coefficients are not statistically different from zero is rejected. This is consistent with findings from Osinubi (2001) and Matu (2007). The residual coefficient is negative and statistically significant at 5% level as shown by probability value 0.000. This coefficient represents an error correction term that ensures once the system has deviated from the long run equilibrium it is possible to revert to the path in the medium and long run. This is important characteristic for the model to be termed as fit for sample data. The P-value result of 0.000 is the best result as it indicates that once the systems of the economy in short run deviates from the long run equilibrium it is likely to go back quickly.

Unlike in long run where Investments and market capitalisation has negative effect to economic growth, here it is opposite. Investment had positive effects with the P.values of 0.0006 showing that the coefficient is statistically significant and different from zero. A 1% increase in Investments leads to 133% increase on GDP in short run, Ceteris paribus. This result is in line with a priori expectations and the results of Caporale; Howells and Soliman (2003). The coefficient for Market Capitalization is not statistically significance at 5% level but positively influences economic growth. This is expected because Market capitalization is a measure of the size of the stock market and more less a measure of the stock market developments. The major link between the stock market and economic growth is the investment and market capitalisation;

therefore this model is consistent with the economic theory. The size of the stock market may be following the economic growth, and might not by itself cause economic growth as earlier been found by Goldsmith, (1969) and Filer, Hanousek and Campos (1999).

The total share shaded is a complement of market capitalisation; the results on this showed that it had negative impact on economic growth in short run but a positive impact on the long run. The equity turnover and human capital has shown a positive effect but it was not significant in short run.

4.5 Discussion of Estimated Results

The study had attempted to answer the question on the effect and direction of stock market capitalisation on economic growth on both short run and long run (see Table 4.4 and 4.5) .The co integration test for long run relationship between market capitalisation and economic growth was negative. This could be explained by structural form of Kenya's securities market and nature and structure of the economy. This showed that market capitalisation is more of a measure of market growth rather than market development. Market capitalization having negative effects to economic growth showed similar results to those obtained by Odhiambo, (2010) whereby market capitalisation was alone used as proxy for stock market development and the findings were that stock market had negative causal effect on economic growth. The result revealed that 1% change in market capitalisation lead to 0.00367% change in GDP in opposite direction but in short run 1% change leads to 0.00157% change in GDP in the same direction.

Error correction model was estimated (see table 4.5) and market capitalisation was found to positively influence economic growth in short run. The coefficient for Market Capitalization indicated that it was not statistically significance at 5% level but positive. This is consisted with

the findings of Goldsmith, (1969) and Filer, Hanousek and Campos (1999) that the size of the stock market may be following the economic growth and not really cause economic growth.

In short run and long run the study attempted to find out the effect of the total shares traded at NSE on economic growth in Kenya. The data analysis revealed that the Total shares traded had a strong and positive long run relationship with economic growth, (see table 4.4) same result were obtained by Filer, Hanousek and Campos (1999) when they investigated the role of stock market in developing countries. The total shares traded effect on economic growth specifically was that 1 % change in total value of shares traded will lead to 10.5% change in GDP in the same direction.

The equity turnover has positive but not significant coefficient in short run, see table 4.5. It had a coefficient of 0.000628 implying that a 1% change in equity turnover leads to 0.063% change in GDP in the same direction. An investigation into a long run effect of equity turnover on economic growth revealed similar results to that from short run thus a 1 % change in equity turnover leads to 0.0233% change in GDP in the same direction. These results were consisted with those obtained by Filer, Hanousek and Campos (1999) when they investigated the role of stock market in developing countries.

The empirical investigation into the effect of investment and human capital showed strong and positive impacts on economic growth in Kenya, see table 4.4 and 4.5. The priori expectation was that the major link between the stock market and economic growth is the investment. There is strong and positive short run relationship between GDP and investment while human capital strongly influences economic growth in the long run. University enrolment had a coefficient of 493.8568 in long run. This is consisted with the Solow growth model theory. A 1% change in

human capital leads to 49385% change on GDP in same direction. In short run investment had a coefficient of 1.32482 implying that 1% change in investment will trigger a 132.5% change in economic growth in same direction.

CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.1 Introduction

In this chapter much effort was focused on the conclusion of the findings of the study on effects and linkages of stock market development on economic growth in Kenya and lastly the chapter has put forth the possible policy implication.

5.2 Summary

Nairobi Securities Market has not been performing to the expectation of many Kenyan investors for a long period of time. The collapse of two stock brokers almost at the same time caused a lot of anxiety among investors. This affected both existing and potential investors in this crucial market. These issues surrounding NSE together with the under subscription of initial public offer and right issues for example for Cooperative Bank of Kenya, British American Insurance and Kenya Airways, was clear sign of deterioration of Nairobi Securities Market in winning investors' trust and performance.

This study carried empirical investigation mainly to establish the short run and long run relationship between stock market development and economic growth using the effect of each indicators of stock market development. The results of the study show that there was a positive relationship between stock market development and economic growth.

The long run relationship between market capitalisation and economic growth was negative but positive in the short run. The equity turnover showed positive effect on economic growth but the

coefficient wasn't significant in both the long run and the short run. The results revealed that the total shares traded had a strong and positive long run relationship with economic growth.

The empirical investigation into the effects of investment and university enrolment showed that they had a strong and positive impact on economic growth both in long run and short run. Specifically, there was positive short run relationship between GDP and investment and human capital revealed a strong effect on economic growth in the long run.

5.3 Conclusion

This study has examined the hypothesis that stock market development has positive effect on economic growth in Kenya. Stock market development indicators were capital market capitalisation, total shares traded and equity turnover. The result for each indictors of the stock market development showed different magnitudes of impact on economic growth. Each parameter showed different ability to influence economic growth. Investment and proxy for human capital revealed the highest ability to influence the economic growth, investment dominating the short run while human capital dominated the long run relationship. These results show how important it is to increase investment because in short run it has shown a strong and positive relationship with GDP. More investment in the economy means higher capital formation. If the capital formation is high, it in turn calls for human capital to be in place in order to make best use of capital stock. The results showed that there was a positive long run relationship between human capital and GDP.

The market capitalization showed little impact on economic growth either in the long run or in the short run. This shows that Market capitalisation is not a good indicator for Stock market development, therefore market capitalisation should not be used alone to concluded about the

relationship between stock market development and economic growth. The Total shares traded revealed a strong and positive impact on economic growth in the long run but not in the case of the short run where it had a negative effect on GDP. Turnover had a positive effect on economic growth both in the short run and the long run but its coefficient was not significant.

5.4 Policy Implications

It is pertinent for government of Kenya to have concerted efforts towards enhancing the investments among the individual persons and companies. This can be done through public awareness on the importance and values of saving and investments at the grassroots. This is because the study has shown that investment has positive impact on economic growth in the short run.

The policy makers should come up with a policy that makes sure that more efforts is geared towards improving efficiency, lowering transaction cost and increasing liquidity in the Nairobi Securities Market with an objective to improve equity turnover. This is because the link between the stock market and economic growth through equity turnover was positive in both the short run and the long run. The same policy too will improve total share traded which had a strong and positive effect on economic growth in Kenya in the long run. This will make the NSE vibrant in its operation and volumes of transactions due to ease of transaction within the market.

There is need for policy makers to strategize on how to improve the human capital and skills on securities market and the portfolio dynamics through an introduction of securities studies at early stages like in secondary schools. This should be geared towards improving knowledge on securities amongst young investors. This will improve securities market knowledge hence more

investors and ventures in future because human capital has shown strong and positive impacts on economic growth in long run.

The NSE need to increase the number of listed companies from the current position. The authorities should look into measures which will encourage small and medium companies to get listed in Nairobi Securities market. This should be done through coming up with some incentives for new listed companies like tax holidays or preferential corporate (reduced) tax rate below 30% for a period of not less than 10 years and a special incentive for sovereignty bonds. Lastly authorities may consider setting a low limits for capital base as minimum requirement for the small companies to be allowed to be listed with NSE. This is because market capitalisation had showed positive relationship with economic growth in the short run.

5.5 Areas of further Study

There is need for a future study on regulations by authorities and entire management of NSE, assets pricing and incentives for investor to invest in NSE. A panel data analysis need be carried out in this area in future.

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APPENDIX 1.

Table A.1 Raw Data

	Total shares traded	Equity Turnover	Market Capitalisation	Gross Domestic	Inestments	University Enrolment
Year	TS	TO	MC	GDP	INV	UE.
1996-1	18,094,647	805,400,215	292,856,071,234	223,385,629	25,461,828	11,076
1996-2	29,076,775	889,167,777	295,910,395,312	217,781,185	24,587,492	11,076
1996-3	32,363,033	979,993,575	302,543,780,720	235,648,093	26,380,898	11,076
1996-4	33,138,713	1,287,833,942	292,399,257,017	241,290,108	26,795,569	11,076
1997-1	41,311,303	1,832,587,551	341,366,954,155	223,988,960	28,768,879	10,350
1997-2	40,591,806	1,754,995,058	375,364,019,040	218,369,379	27,780,982	10,350
1997-3	34,345,374	1,478,137,884	377,465,942,501	236,284,542	29,807,321	10,350
1997-4	27,272,763	1,082,735,188	342,229,601,537	241,941,796	30,275,850	10,350
1998-1	26,073,642	1,198,102,841	363,022,144,226	231,504,734	35,031,714	9,810
1998-2	21,306,047	986,935,022	345,725,299,958	225,696,592	33,828,757	9,810
1998-3	29,806,842	1,224,661,923	342,679,869,026	244,212,884	36,296,219	9,810
1998-4	34,324,683	1,174,168,295	343,221,200,646	250,059,963	36,866,745	9,810
1999-1	45,750,567	1,643,575,184	376,450,544,000	236,378,733	34,722,066	9,988
1999-2	45,571,097	1,593,757,110	353,600,000,000	230,448,309	33,529,742	9,988
1999-3	41,928,338	1,285,458,460	340,900,000,000	249,354,436	35,975,394	9,988
1999-4	24,237,071	635,335,368	316,800,000,000	255,324,616	36,540,876	9,988
2000-1	40,466,653	921,111,267	333,570,000,000	243,956,000	41,572,456	10,102
2000-2	41,813,388	968,315,493	329,750,000,000	230,417,000	40,144,896	10,102
2000-3	36,711,193	927,650,275	322,930,000,000	244,785,000	43,073,056	10,102
2000-4	22,656,915	814,892,202	321,971,000,000	257,176,000	43,750,104	10,102
2001-1	35,435,374	1,100,866,901	297,490,000,000	248,990,000	47,285,830	13,047
2001-2	32,236,188	925,219,781	283,740,000,000	244,856,000	45,662,077	13,047
2001-3	28,209,010	616,681,391	273,850,000,000	260,682,000	48,992,659	13,047
2001-4	22,630,147	479,110,866	265,084,449,073	265,474,000	49,762,755	13,047
2002-1	22,298,478	442,576,348	259,403,720,181	259,267,000	38,660,988	16,042
2002-2	36,475,603	529,315,220	243,397,003,740	245,412,000	37,333,405	16,042
2002-3	18,408,789	789,104,511	259,515,192,090	254,233,000	40,056,495	16,042
2002-4	58,567,605	1,120,658,551	299,898,953,886	266,673,000	40,686,127	16,042
2003-1	61,533,733	1,769,560,788	392,194,029,471	257,854,000	46,012,769	17,091
2003-2	59,592,796	3,830,653,358	521,558,378,941	246,466,000	44,432,732	17,091
2003-3	105,436,666	3,983,095,456	653,107,657,888	270,865,000	47,673,646	17,091
2003-4	101,085,442	3,859,348,099	884,298,963,325	280,468,000	48,423,009	17,091
2004-1	190,745,723	8,576,201,978	1,044,817,143,737	275,763,000	53,708,583	17,932
2004-2	128,620,000	3,927,920,275	863,970,000,000	258,815,000	51,864,279	17,932
2004-3	165,440,000	5,130,000,000	862,970,000,000	279,578,000	55,647,248	17,932
2004-4	115,930,000	4,610,000,000	941,220,000,000	295,389,000	56,521,945	17,932
2005-1	112,770,000	4,600,000,000	987,840,000,000	281,288,000	59,062,111	20,450
2005-2	197,350,000	7,890,000,000	1,130,670,000,000	277,822,000	57,033,972	20,450
2005-3	337,330,000	11,750,000,000	1,332,330,000,000	303,028,000	61,194,017	20,450
2005-4	226,710,000	12,260,000,000	1,373,000,000,000	312,996,000	62,155,901	20,450
2006-1	280,900,000	13,510,000,000	1,435,200,000,000	298,176,000	71,830,050	20,925
2006-2	382,880,000	22,760,000,000	1,724,900,000,000	295,130,000	69,363,472	20,925
2006-3	387,700,000	26,440,000,000	2,010,800,000,000	327,868,000	74,422,828	20,925
2006-4	398,555,691	32,499,743,573	2,369,750,000,000	328,297,000	75,592,650	20,925
2007-1	345,650,000	24,730,000,000	2,188,500,000,000	319,181,000	86,047,866	25,103
2007-2	362,330,000	16,610,000,000	2,155,570,000,000	319,564,000	83,093,061	25,103
2007-3	655,200,000	25,500,000,000	2,385,600,000,000	348,661,000	89,153,850	25,103
2007-4	510,260,000	21,130,000,000	2,401,320,000,000	349,442,000	90,555,223	25,103
2008-1	576,610,000	22,380,000,000	2,388,000,000,000	323,207,000	100,015,567	26,621
2008-2	2,464,770,000	34,610,000,000	3,056,000,000,000	327,085,000	96,581,123	26,621
2008-3	1,960,000,000	28,560,000,000	3,173,000,000,000	357,685,000	103,625,729	26,621
2008-4	855,000,000	11,980,000,000	2,410,000,000,000	349,299,000	105,254,580	26,621
2009-1	544,000,000	6,680,000,000	2,077,000,000,000	341,497,000	113,196,418	27,901
2009-2	902,000,000	9,770,000,000	2,198,000,000,000	330,664,000	109,309,356	27,901
2009-3	809,000,000	9,960,000,000	2,384,000,000,000	360,322,000	117,282,356	27,901
2009-4	914,000,000	11,760,000,000	2,442,000,000,000	360,691,000	119,125,870	27,901
2010-1	1,601,000,000	18,890,000,000	2,815,000,000,000	356,451,000	121,436,885	32,154
2010-2	1,696,000,000	23,890,000,000	3,244,000,000,000	346,313,000	117,266,853	32,154
2010-3	2,526,290,000	35,293,545,603	3,452,772,000,000	382,150,000	125,820,272	32,154
2010-4	1,357,350,000	25,410,000,000	3,558,010,000,000	385,602,000	127,797,990	32,154

APPENDIX 2

Figure A1 Graphical Presentation of Data

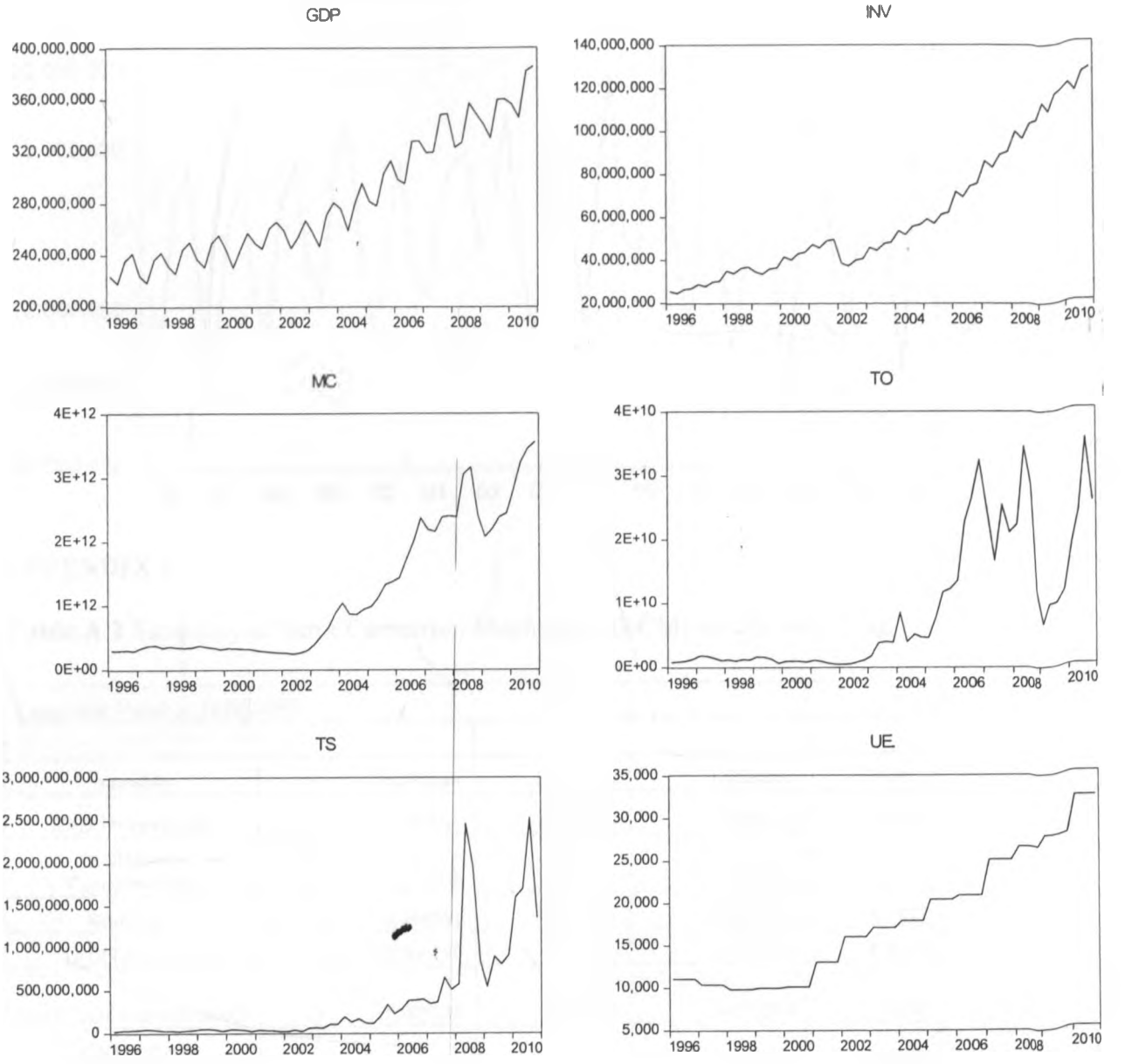
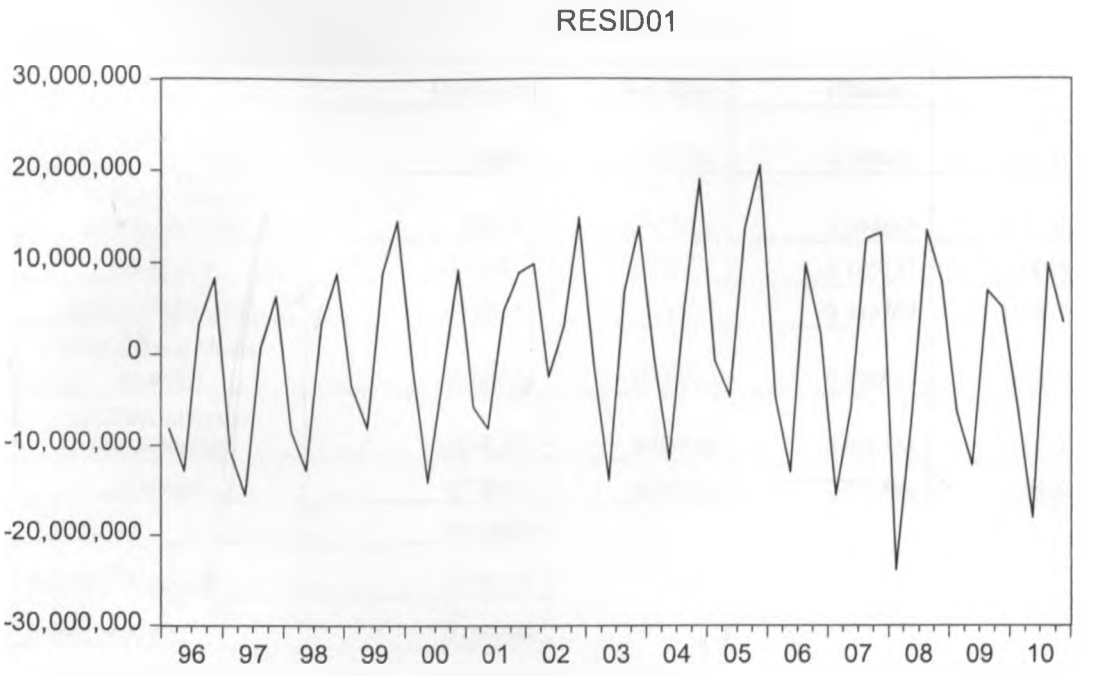


Figure A 2 Graphical Presentation of Residual



APPENDIX 3

Table A 2 Summary of Error Correction Mechanism (ECM) results with 2 lag

Dependent Variable: D(D(GDP))				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(D(Investment))	1.527061	0.436385	3.499346	0.001
D(D(Market Capitalisation))	0.000023	0.000018	1.566969	0.1233
Residual-2	0.344931	0.257109	1.341577	0.1857
D(D(Turnover))	-0.000199	0.000826	-0.240743	0.8107
D(D(Total Shares traded))	0.005245	0.008376	0.626234	0.534
D(D(University Enrolment))	-4321.935	1820.302	-2.374296	0.0214
Constant	-20254.97	2537646	-0.007982	0.9937
R-squared	0.307414			
Adjusted R-squared	0.225933			
Prob(F-statistic)	0.003487			
Durbin-Watson stat	2.315464			

Table A 3 Summary of Error Correction Mechanism (ECM) results with 3 lag

Dependent Variable: D(D(D(GDP)))				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(D(D(Investmen)))	1.46643	0.342191	4.285407	0.0001
D(D(D(Market Capitalisation)))	0.00003	0.00002	1.604662	0.1149
Residual-3	-1.183321	0.376161	-3.145787	0.0028
D(D(D(Turnover)))	-0.000371	0.000679	-0.545769	0.5877
D(D(D(Total Shares traded)))	0.005452	0.006818	0.799625	0.4277
D(D(D(University Enrolment)))	-1046.525	1619.616	-0.646156	0.5211
Constant	-272343.4	3634150	-0.07494	0.9406
R-squared	0.418888			
Adjusted R-squared	0.349154			
Prob(F-statistic)	0.000088			
Durbin-Watson stat	2.455622			