

THE RELATIONSHIP BETWEEN ECONOMIC GROWTH AND STOCK
MARKET DEVELOPMENT: THE CASE OF NAIROBI STOCK EXCHANGE

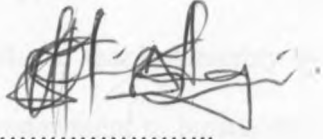
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RESEARCH PROJECT SUBMITTED IN THE IN PARTIAL FULFILMENT OF
REQUIREMENT FOR THE DEGREE OF MASTER IN BUSINESS
ADMINISTRATION (MBA), SCHOOL OF BUSINESS, UNIVERSITY OF
NAIROBI.

2011

DECLARATION

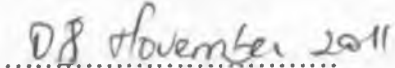
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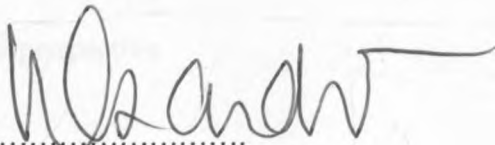
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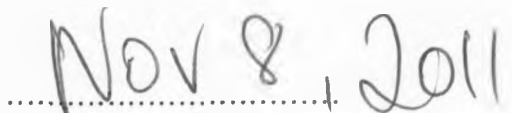
This research project has been submitted for examination with my approval as University Supervisor



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ACKNOWLEDGEMENT

This project could not have been successful without the spiritual, technical and moral support from all those I interacted with in the process of its compilation. First I would like to thank Almighty God for bringing me this far. His protection, blessings and endowment to pursue this study to the end is much appreciated. I pride in his name because he means well for me all the time.

My profound thanks and appreciation goes to my experienced supervisor, Ms. Winnie Nyamute for her patience, commitment and guidance during this study. Her constructive, professional input and suggestions made this study worth the time and response.

My appreciation goes to my family for their encouragement and moral support throughout the course. Finally I would like to acknowledge colleagues who graciously shared their ideas and assisted me in this research. You unknowingly shaped my ideas and perspective.

DEDICATION

I dedicate this project to my family. Without their encouragement, understanding, support and love, completion of this study could not have been possible

ABSTRACT

The stock market is a common feature of a modern economy and performs functions which are thought to promote the growth and development of the economy. It plays an important role in the growth of commerce and industry which ultimately affects the economic growth of the host country to a larger extent. However, the nature and direction of relationship between stock market development and a country's economic growth rate is doubted and debated in economic literature. Therefore, the purpose of this study was to explore the nature of the relationship between stock market development and Kenya's economic growth.

The study employed a regression model complemented by a granger causality test. The relationship was investigated by using two measures of stock market development, namely; size of the market and liquidity. These two measures were regressed against economic growth rate. The study defines Stock market size as the share of market capitalization over GDP (referred to as market capitalization ratio); and , market liquidity as volume of share traded over GDP (referred to as value of shares traded ratio) and volume of shares traded over market capitalization (referred to as turnover ratio). The study used data from the year 2000 quarter two (2) to 2010 quarter one (1), that is, a ten years period.

The result indicates that there is a positive relationship between economic growth and stock market development in Kenya. The granger causality test indicated that the nature of the relationship is from stock market development to economic growth. The study findings also indicated that stock market liquidity, as opposed to stock market size, promotes economic growth; a unit increase in the turnover ratio would lead to

increase in GDP % by factors of 325.56. On the other hand, a unit increase in market capitalization ratio would lead to decrease in GDP % by factors of 3.102. However, with 14.9% R-squared, the current results indicate that economic growth in Kenya is inadequately explained by the model. By implication 14.9% variation in the growth of economic activities is explained by the independent variables employed in the model. The recommendation therein is for policy makers come-up with ways to promote stock market liquidity and the necessary enabling stock market development environment.

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ABBREVIATION

CDS	Central Depository System
CMA	Capital Market Authority
DASS	Delivery and Settlement System
EAC	East Africa Community
GDP	Gross Domestic Product
IFC	International Finance Corporation
IPOs	Initial Public Offerings
KCB	Kenya Commercial Bank
KES	Kenya Shilling
NSE	Nairobi Stock Exchange
SMDI	Stock Market Development Indicator
SSA	Sub-Sahara Africa
SPSS	Statistical Package for Social Sciences
USD	United State Dollar

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Stock markets are institutions that deal in exchange of securities issued by publicly quoted companies and governments (Reilly, 1997). They are part of the broader market referred to as financial market and their major role in many economies is promoting a culture of thrift (Fabbozi, 1995). Considerable debate exists on the relationships between the financial systems and economic growth. The available literature is ambiguous about whether stock markets help or hurt economic growth. The relationship between stock market development and economic growth generate considerable debate in academic cycles and dates back to as early as the early twentieth century (Deb, 2008). Academic literature provides conflicting views about both the importance of overall financial sector development on economic growth and about the separate effects of stock markets on economic growth (Irving, 2000).

The nature and direction of causality between stock market development and a country's economic growth rate is doubted and debated in economic literature. Irving (2000) noted that some literature points to the positive effects while others considers the link between stock markets and overall economic development to be tenuous, non-existent or even harmful. The theoretical debate revolves around two major questions; is there a relationship between stock market development and economic growth? And second, if any relationship exists, what could be its nature and direction? That is, does stock market development foster economic growth or does economic growth foster stock market development? According to Deb (2008) research findings and views expressed by different researchers, in attempting to answer these questions, are generally conflicting in nature.

Generally, three views concerning the potential importance of stock market development in economic growth can be picked from survey of literature; First of these views considers stock market development as a critical ingredient of economic growth. Substantial economic literature, dating back to Bagehot (1873) and Schumpeter (1911), has placed much importance on the positive contributions of financial systems to economic growth by highlighting when such systems can actively spur innovation and future growth through identifying and funding productive investments.

A model developed by Levine (1991) and Bencivenga (1995) showed that more liquid stock markets can create long-term investment and thus, economic growth through lower transaction cost. Rajan (1996) established that stock market size is related to growth of financial dependent firms while Levine (1998) found that stock market liquidity positively predicts aggregate economic growth. According to Demirguc-Kunt (1996), a liquid stock market may make it easier for firms to raise capital for investments. In the words of Levine (1991, 1997), without a liquid stock market, many profitable long-term investments would not be undertaken since savers would be reluctant to tie up their investments for long periods of time. Investments in profitable projects require long-run commitment of capital, yet investors are generally reluctant to relinquish control of their savings for long periods. Liquid stock markets ease this tension. By making long-run investments more attractive, liquid stock markets may boost investments in the long-run and thereby enhancing the prospects for long-term economic growth. Ezeoha (2009) argues that through this catalyst role, the stock market is able to influence investment and economic growth in general.

Second views regard stock market development as a relatively unimportant factor in economic growth and they may be having no real effect on growth. Singh (1999) argue that stock markets are unimportant in small economies, like those found in most of Sub-Sahara Africa (SSA), and development could be achieved by reforming existing credit markets. This view is supported by citing of successful bank-based development experiences of countries like Germany and Japan (Osei, 2005).

Proponents of bank-based systems note that: In highly liquid stock markets, information is quickly revealed to investors at large, creating a free-rider problem; Small outside investors are unable to exert corporate control due to superior information of managers and the likely collusion between managers and a few powerful members of the board; and lastly, Liquid markets make it easy for concerned stockholders to simply sell their shares rather than coordinate pressure against management. Khan (2000) argues that the combination of all these market failures leads to an inefficient allocation of savings.

Singh (1990) contend that stock markets are not necessary institutions for achieving high levels of economic development in SSA economies. In a case study on NSE, its history and role in the Kenyan economy, Munga (1974), argued that NSE had failed as a vehicle for mobilizing capital for development thereby resulting to its failure to perform successfully the classical functions of a stock exchange. This would mean that NSE as an institution is unimportant to Kenya's economic growth and development.

After comparing the market capitalization ratios globally, Parkinson (2008) concluded that while the role of stock markets generally is on a growth trajectory everywhere, including Africa, the NSE plays a comparatively minor role in the economy of Kenya. This observation

was inferred after examining NSE in context of Kenya's economic development. This emphasizes the view that NSE is unimportant as a tool of economic development for Kenya. Singh (1997), while assessing the causality between financial systems, industrialization and economic development, concluded that stock markets are symbols of capitalism but without which capitalism would flourish better.

The third view on the role of stock market in economic growth focuses on the potential negative impacts of stock market development on economic growth. For instance Stiglitz (1994) and Bhide (1993) note that stock markets can actually impair economic growth. They argue that due to their liquidity, stock markets may hurt growth since saving rates may reduce due to externalities in capital accumulation. Diffuse ownership may negatively affect corporate governance and invariably the performance of listed firms, thus impeding the growth of stock markets. Singh (1999) and Singh (1998) argue that stock markets are likely to harm economic growth and development due to their susceptibility to market failure. A market failure is often manifested through the volatile nature of stock markets often found in many developing countries. The typical lack of liquidity in most African stock markets, compounded by often inadequate government regulation and lack of transparency, increases noise and price volatility, which in turn, diminishes the market efficiency (Adjasi, 2006).

Providing both theoretical analysis and empirical evidence from both developed and developing countries, Singh (1999) contented that for many African countries stock market development would be a costly irrelevance which they can ill afford; and, for others, it is likely to do more harm than good. They argue that stock markets could expose already fragile developing economies to the destabilising effects of short-term speculative capital flows.

Despite these alternative views, empirical studies of the effects of financial sector development on economic growth have produced mixed evidences. Specifically, some evidences support no role view or positive relationship view. Kenny (1998) argues that stock markets operational activities generate positive effects which far outstrip any negative effect. Levine (1996) argues that the speed of economic growth hinges on active and developed stock markets and banks.

Although there is a long history of stock exchanges in African nations their growth rates have generally been slow, or sometimes stagnant, and their role in capital mobilisation appears, in many cases, to have been negligible. According to Allen (2011), African Stock markets faces serious challenges in terms of depth, measured by market capitalisation and listing, and liquidity as measured by turnover ratios.

According to Adjasi (2006), most studies on stock markets in Africa emphasizes on testing for market efficiency, development of stock markets and the impact of economic variables on stock markets. Previous research in respect to NSE have assessed the Efficient Market Hypothesis (EMH), Dickinson and Muragu (1994), and with interest in testing technical efficiency. On the other hand, Parkinson (1987) and, Parkinson and Waweru (2008) examined NSE in the context of economic development in Kenya. They noted that NSE has failed to satisfy savers' demands and in its primary role of helping investors raise capital.

In light of the aforementioned conflicting views, this study seeks to assess the relationship between stock development in SSA and growth; and specifically assess causality between NSE and Kenya's economic growth. The underlying objective of this study is twofold; first, to explore the presence of a casual relation between stock market development and economic

growth, and second, to understand the nature and exact direction of this relationship, if it exists.

1.2 Statement of the Problem

One of the major constraints to market growth and development in Sub-Sahara Africa (SSA) is lack of long-term investment capital. This problem can be traced to the underdevelopment of capital markets, such as stock and security markets, and financial institutions that serve capital markets (Osei, 2005). Therefore, the existence of stock exchanges in SSA and their subsequent operational activities should provoke considerable academic curiosity and interest about their importance to development process.

One of the dimensions of any stock exchange globally is its relationship to the economy in which it operates. According to Irving (2000) the proliferation of stock markets in Africa indicates that a number of countries consider them as one facet of a wider strategy for developing national, and even regional, economies. Further, Adjasi (2006) noted that stock markets have assumed a developmental role in global economics and finance following the impact they have exerted in corporate finance and economic. However, Singh (1999) argues that stock markets are unimportant in small Africa economies, due to sheer scarcity of economic development resources in Africa, and instead countries should concentrate in improving existing credit markets and banking systems. Singh (1990) contend that stock markets are not necessary institutions for achieving high levels of economic development in SSA countries and setting up or expanding stock markets at this stage would be “costly irrelevance”.

According to Pardy (1992), Stock markets can play a role in inducing growth in less-developed countries and therefore empirical investigations into the link between stock market development and economic growth is important. Specific studies addressing the dynamic causal relationship between stock market development and economic growth, especially in developing countries, are very scant. Even where they exist, the empirical findings on the direction of causality between stock market development and economic growth have been largely inconclusive, and evidence suggests that the outcome between the two sectors differs from country to country and overtime. There is need, therefore, for an in-depth study of the SSA countries situation to ascertain the role stock markets play in economic growth and development by assessing the causality between stock market development and economic growth.

In light of the aforementioned conflicting views, this study seeks to assess the relationship between stock development and growth; and specifically assess causality between NSE and Kenya's economic growth. The underlying objective of this study is twofold; first, to explore the presence of a causal relation between stock market development and economic growth, and second, to understand the nature and exact direction of this relationship, if it exists. The aforementioned views on failure of NSE, as noted by Munga (1974) and Parkinson (2008), raises critical questions for this research; what contribution do stock exchanges make to economic development? What is the relationship between stock market development and economic growth?

To analyse the problem, the study tested the following two hypotheses:

H₀: There is a significant relationship between Kenya's economic growth and stock market development.

H_A: There is no significant relationship between Kenya's economic growth and stock market development.

1.3 Objectives of the Study

To establish the nature of the relationship between economic growth and stock market development in Kenya.

1.4 Importance of the Study

This study sought to contribute to both theoretical and empirical literature on the impacts of stock markets development in Africa's growth and development. This study analysed the relationship between Kenya's economic growth and the stock market development by using chosen development indicators of NSE. The finding of this would be of interest to:

1.4.1 Academics: The research information provides vital data to researchers and academics to assist them to do further research on the impact of stock markets development on host economic growth.

1.4.2 Government: Improved understanding may provide key information for designing effective and efficient stock market development strategies, policies and procedures by CMA, Central Bank, Ministry of Finance policy makers and planners, and other stakeholders.

1.4.3 Development practitioners: The study generated knowledge and information which will improve understanding of the relationship between stock market development and a host country's economic growth.

CHAPTER TWO

LITERATURE REVIEW

The stock markets are a major component of the financial market. Irving (2000) suggested that stock markets can promote private enterprises expansion and thus boost national economic growth. They perform a wide range of functions while offering trading, investment, speculation, hedging, and arbitrage opportunities. They also serve as mechanisms for price discovery, information dissemination and provide vehicles for raising finances for companies through corporate bonds floatation and initial public offerings (IPOs). According to Lee (1998) governments use stock markets to implement privatization programs.

2.1 Theoretical Review.

2.1.1 Models Linking Stock Market and Economic Growth

2.1.1.1 Endogenous Growth Model: Endogenous growth theories identify two major factors driving economic growth, human capital and technological progress (innovations). The human capital reflects the educational level of the workforce and it is assumed that as one becomes more specialized and trained, their productivity increases (Abu-Sharia, 2003). On the other hand, innovations reflect scientific development, development of new production techniques and the creation of entirely new goods and services. According to Hansson (1997) the significance of both of these forces, as drivers of economic growth, may depend on the depth, the structure and the functioning of the financial system. The model suggests that development of stock market may affect the growth process through: first, the improvement of capital productivity with better resources allocation; second, the channelling of more savings to investment; and lastly, through an increase of the saving rate.

2.1.1.2 Other Growth Models: The basic neoclassical and Harrod-Domar growth models reveal that stock markets and finance sector in general, affects growth through savings and investment. One of the assumptions of Harrod-Domar growth model is that savings and investments are important for growth and are increasing functions of income. Stock markets boost economic growth by encouraging a culture of saving and investing. The model argues that capital accumulation and formation, which is needed for growth, arise from savings. The neoclassical growth model takes the same analysis as the Harrod-Dormar model but assumes that capital and labour are substitutable.

Other simplified growth models includes; a simple (AK) endogenous growth model suggested by Pagano (1993) which assumes a closed economy with no government, but with costs of intermediation such that capital market equilibrium is achieved when gross savings (excluding transaction costs) equal gross investment. The model suggests the need to reduce transaction costs. In addition, this model hypothesis that stock market development affects economic growth through saving rate, proportion of savings channeled for investment, and the social marginal productivity of investment. However, Pagano (1993) points out that the relationship between stock market development and economic growth could be ambiguous depending on the channel of interaction.

Atje and Jovanovic (1993) offer an extension of the basic AK model. This model hypothesis that, stock markets promote economic growth through increase in the amount of savings available for investments. In general, stock markets can influence growth by encouraging more efficient allocation of resources by bringing about changes in ownership and composition of firms. Stock markets facilitate efficient allocation of resources by

intermediating between savers and investors. Further, stock markets provide increased incentives to save and invest thereby inducing an increase in the rate of capital accumulation.

2.1.2 Stock Market Development and Economic Growth

How do stock markets promote economic growth? According to Levine (1996) stock market development might boost long-run economic growth. Empirical studies support the view that access to liquid stock market promotes long-term economic growth by boosting long-run investments, that is, making long-run investments more attractive and thereby more profitable activities.

Ezeoha (2009) showed that stock market development, in Nigeria, over the years was able to spur growth in private investment flows. Abu-Sharia (2003) noted that earlier researches emphasized the role of the banking sector in economic development; however, recent research has begun to focus on the linkage between the stock markets and economic growth.

The proponents of the market-based financial systems assert that the stock-market system is better than the bank system in that it generates efficient information about the performance of firms, reflecting the market fundamentals in the real sector. Merton (1995) suggests that the primary role of stock markets is to facilitate the allocation of resources in an uncertain environment across space and time. They transfers funds from dispersed households and allocate them to dispersed entrepreneurs (Merone, 2003). This mitigates the effects of information and transaction costs; thereby affecting saving and investment allocation decisions in ways that influence economic growth.

Stock markets can be an effective way of pooling the savings of single households and transform them into large investment projects. Better savings mobilisation may increase the rate of savings; if efficient stock markets enable savings to be allocated to investment projects with higher yields, the rate of return to savers increases, making savings more attractive. In addition, higher returns to stocks could also diminish the needs for keeping national interest rates high in order to retain valuable domestic money inside the country. Therefore, stock markets might ultimately contribute to lowering the costs of borrowing thereby boosting investments and trade.

Stock markets may play a number of different beneficial roles in the economy. Schumpeter (1911) argued that the services provided by stock markets – mobilising savings, evaluating projects, managing risk, monitoring managers, and facilitating transactions – stimulate technological innovation and economic development. According to Levine (1996), stock markets influences economic growth through a number of channels; liquidity, risk diversifications, acquisition of information about firms, corporate governance and saving mobilisation.

In theory, the stock markets can promote economic growth through: Increasing savings and investments; improving the productivity of investments; and lastly, raising the profitability of existing capital stock. The figure (1) below shows the possible positive effect of stock markets and intermediaries on economic growth as suggested by Levine (1997).

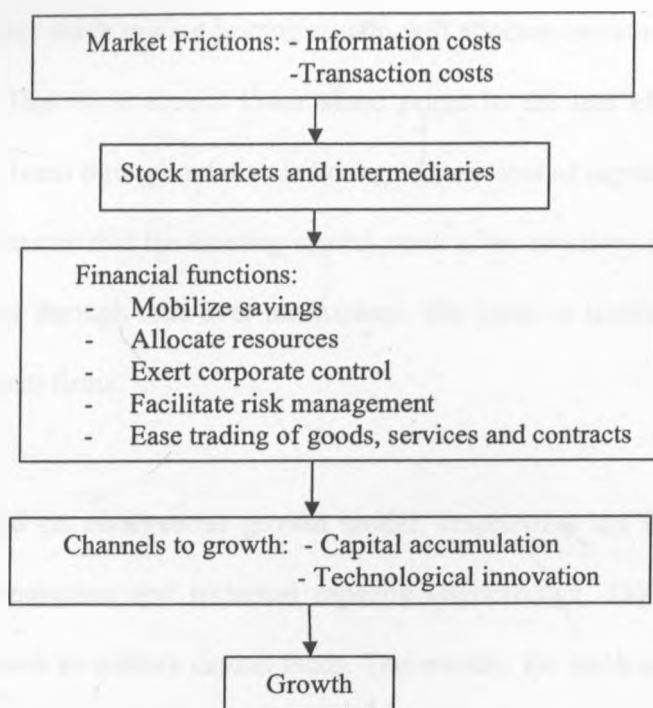


Figure 2.1 Effect of stock markets and intermediaries on economic growth (Levine, 1997)

Stock markets may raise an economy's savings and investment rates through two different mechanisms. Stock markets provide new saving instruments which may meet liquidity requirements of some households or firms, and which may lead to more savings than before. Secondly, stock markets help to gather together small savings of thousands of individuals and convert them into funds for large investment projects. Ezeoha (2009) showed that stock market development, in Nigeria, over the years was able to spur growth in private investment flows. Therefore, stock market provides mechanism of risk sharing which enables economic agents to finance and own a small portion (shares) of firms. In addition, stock market performs the functions of screening and monitoring investment projects, thereby enabling risky projects to be undertaken.

Stock markets can help improve the productivity of investments. This is partly through more efficient allocation of investment resources and partly through promoting technical changes

(Levine, 1996). A perfect stock market pricing system will allocate investment funds to their most profitable uses. That is, it accord lower share prices to the less efficient firms and rewards more efficient firms through relative lowering of their cost of capital. In addition, the stock market can also ensure that the existing capital stock of an economy is most profitably utilized. It achieves this through take-over mechanism; this leads to inefficient firms being acquired by more efficient firms.

Theoretical work, based on endogenous growth model, emphasizes the capacity of stock markets to promote innovation and technical capacity (Bencivenga, 1995). This is done practically by devices such as venture capital funds. Technically, the stock market provides a mechanism whereby market participants utilize their collective knowledge to assess competing new technological inventions. In theory, therefore, stock markets are in a better position to finance the most profitable investment venture as compared with banks which do not have the collective wisdom of numerous participants. However, in practice, the validity of this theoretical argument is dependent on: the nature of prevailing stock market's pricing mechanism; and finally, take-over mechanism.

The theoretical view on stock market prices is that they are probably "efficient" (Singh, 1997). The market is assumed to consist of many well-informed dealers who are dealing in a homogenous product. The market, therefore, is assumed to be a perfect market which can be expected to generate efficient prices. An alternative Keynesian view is that price formation on the stock market is inevitably subject to speculation and, since we live in an uncertain world, it is difficult to ascertain the long-term prospects of an investment project. The Keynesian view is that stock pricing mechanism is based on market participants trying to

speculate the “next move” of the other participants and therefore, market prices are not efficient since markets are not perfect.

There are also divergent views about the efficacy of take-over mechanism. Take-over mechanism may not work perfectly as suggested in theory; this could be due to transaction costs or inadequate information. According to Singh (1999), take-over mechanism may not only be ineffective in disciplining inefficient or unprofitable firms but it may also produce perverse results. In attempting to make quick profits to avert the danger of fall in share prices and hence of being acquired, the stock market may reward managers to be myopic through take-over mechanism.

One of the roles of the stock market is to provide liquidity. Stock market liquidity could be broadly described as the willingness of stock market participants to engage in trades. Stock markets' liquidity is vital if they are to play a significant role, by facilitating mobilization of long-term capital, in economic growth. Liquidity makes investment less risky and more attractive for investors. Ultimately, by making investment less risky and more profitable, liquidity enhances mobilization of savings and investment growth and therefore prospects for long-term economic growth. For instance Adjasi (2006) noted that stock markets, due to their liquidity, enable firms to acquire capital quickly, hence facilitating capital allocation, investment and growth. However, market liquidity could also mean that investors have no commitment to the firms whose shares they own. This could lead to serious problems of corporate governance with implications for the economy.

2.2 Stock Markets in Africa

In Africa, the development and growth of stock markets have been rampant and their number in African countries has increased dramatically over the last ten years (Merone, 2003). Kenny (1998) notes that, the emergence and expansion of Africa stock markets represents a significant trend toward attracting private capital investment and integration into the global financing marketplace. The performance of Africa's stock markets has also been remarkable: Within the continent itself five bourses; Uganda, Kenya, Egypt, Mauritius and Nigeria were among the best performers in 2003-2004 (Allen, 2011).

African stock markets are fairly young, with the oldest exchanges in Egypt, South Africa, Kenya and Zimbabwe. With the exception of the established markets in South Africa and Egypt, the most apparent feature of these African stock markets is their small size both in relative and absolute terms (Kenny, 1998). Most of African markets share similarities; a limited number of listings, market capitalisation are a small percentage of GDP, value traded is a small percentage of GDP, turnover is low, the concentration of firms is low and few bonds are listed. The exchanges are small relative to their own economies and the total value of African stocks, outside South Africa, is only a small percentage of all emerging market stocks (Allen, 2011). This is despite the rapid growth of the stock exchanges in Africa over the last two decades.

They are illiquid, that is, shares are rarely traded (Adjasi, 2006). This lack of liquidity is demonstrated in large gaps between buy and sell orders. Despite the size and illiquid nature of most African stock markets, their continued existence and development could have important implications for economic activities. For instance, Pardy (1992) has argued that stock markets can play a critical role in inducing growth even in less-developed countries.

As a result of their small size, illiquidity and often unstable political and economic environments, the Africa's emerging stock markets have been extremely volatile. Because of these problems, Allen (2011) suggests that African stock markets remain relative cheap. Despite their small sizes and low turnover, African stock markets are rapidly growing and liquidity is improving. This is indicated by the growth in market capitalization for the various African Stock markets. This could be attributed to the liberalization of regulations on foreign ownership and income repatriation from diaspora in various African countries (Kenny, 1998).

A particular important outgrowth of the extensive financial sector reforms in Africa has been a surge of interest in the establishment of stock exchanges, particularly in Sub-Sahara Africa (Allen, 2011). Stock Markets in Africa are viewed as both a tool in and a symptom of the ongoing process of economic reforms. According to Kenny (1998), operational financial markets are one way of building credibility with investors and signalling a country's new private sector emphasis. Stock markets, therefore, are seen as important in raising savings and investment rates, as well as attracting foreign investment.

The stock markets in East Africa region are not well established as many countries in the region either do not have a stock exchange or have recently established one (Allen, 2011). Rwanda is the newest country in the region to set-up a stock market. The stock markets in this region have not gained full momentum yet. According to Allen (2011), the liquidity of the East African stock markets is abysmally low; in most cases the value of stock traded is less than 1% of GDP. This is a reflection of minimal trading activities. The other added challenge, experienced by other SSA stock exchanges, is the concentration of trade in a few stocks and the dominance of a few firms on some exchanges.

2.2.1 The Kenya Stock Market

According to Allen, (2011), Kenya has the most well established stock market among the East African countries; it is the fourth (4th) largest exchange in Africa in terms of volume and the fifth (5th) largest in terms of market capitalisation. Kenya stock market operates in the city of Nairobi and is referred to as Nairobi Stock Exchange (NSE). Having been established in 1954, NSE is the oldest and most active stock exchange in Eastern and Central Africa, and it is the only stock exchange in the region to have an index (Allen, 2011). In Africa, NSE is among the oldest stock exchanges, only South Africa (1887) and Zimbabwe (1896) are older.

2.2.2 The Historical Perspective of NSE

The stock exchange, in Kenya, was established with the help of the British in the 1920s as an informal market for the Europeans when the country was still a British colony (Allen, 2011). There was no formal market, no rules and no regulations to govern stock brokerage activities. Trading took place on gentleman agreement in which standard commissions were charged and clients were obliged to honour their contractual commitments of making good delivery and settling relevant costs (Ngugi, 2003a). Stock brokerage was a side-line business conducted by accountants. Auctioneers, estate agents and lawyers who met to exchange price over a cup of coffee.

In 1951, Francis Drummond, an estate agent, established the first professional stock brokerage firm. In 1953, the stock brokerage firms impressed upon Sir Ernest Vasey the idea of setting up a stock exchange and the London officials accepted to recognise the setting-up of the NSE as an overseas stock exchange (Muga, 1974). The NSE was constituted as a voluntary association of stock brokers registered under the societies Act in 1954 (Allen,

2011). Dealing in stock was by then confined to resident European community since Africans and Asians were not permitted to trade in securities until after the attainment of independence in 1963. At the dawn of independence, stock market activities slumped due to uncertainty about the future of an independent Kenya (Muga, 1974). Subsequent development of the stock market has seen an increase in the number of stockbrokers, introduction of investment banks, establishment of custodial institutions and credit rating agencies.

The growth of the exchange was halted in 1972 when the oil crisis introduced inflationary pressures in the economy which depressed share prices. In 1975, a 35% capital gains tax was introduced (later suspended in 1985). This capital gain tax inflicted further losses to the exchange, in addition to it losing of the regional character following the nationalisation of exchange controls, other inter-territorial restrictions introduced in neighbouring Uganda and Tanzania, and the eventual collapse of the EAC. In 1976 Uganda compulsory acquired a number of companies, which were either quoted or subsidiaries of companies quoted on the NSE.

NSE is an important component of the capital market in Kenya; it provides a useful environment for domestic resource mobilization and allocation. With steady economic growth in the early years of independence, the NSE grew at a faster rate with a number of oversubscribed public issues. However, the growth rate slumped in 1970's due to: the oil crisis which introduced inflationary pressures, loss of the exchange's regional character, exchange controls, and other restrictions introduced in Tanzania and Uganda. As a result of the continuous poor performance in the 1980's the government put across various policies to revitalize the NSE.

The trend changed in the early 1990's with the onset of financial liberalization and extensive modernization especially the adoption of the open outcry system of trading. The second decline began in the mid 1990's and continued until the end of 2002. Factors responsible for the downward performance of the NSE include: unstable macroeconomic environment, inadequate product innovation, insufficient and weak regulatory framework leading to low investor protection, poor governance and lack of integration with other stock exchanges within the region. The key causes of the decline in the performance at the NSE are generally attributed to poor formulation and inadequate implementation of policies.

Ngugi (2003a) notes that although the policy environment has consistently improved over the years, the stock market has not grown significantly. Key policy challenges identified are: lack of stock market integration to achieve risk diversification, non-consistent and non-predictable macroeconomic environment, lack of proper legal and regulatory framework, little demand of securities from individual investors, low supply of securities, poor market infrastructure, underdeveloped local investment vehicles and lack of adequate positioning to seize the market advantages arising from globalization. Additionally, many players regulate the Kenyan capital market. They are: the Central Bank of Kenya, Retirement Benefits Authority, Capital Markets Authority and the Commissioner of Insurance. They enact policies that are non-coordinated and sometimes conflicting leading to poor performance of NSE. Weak investor confidence, politics of privatization and parastatal reform have also inhibited growth of the NSE (Ngugi, 2003b).

The structural reforms in the Kenya's financial market commenced in the 1980s. The 1984 study on "Development of Money and Capital Markets in Kenya", by IFC and Central Bank of Kenya, became a blue print for structural reforms in the financial markets which

culminated in the formation of a regulatory body. The CMA was established in 1989 to assist in the creation of a conducive environment for the growth and development of the capital markets. Ngugi (2003b) notes that stock markets revitalization has led to shifts in trading systems to enhance transparency in the price discovery process. In 1991 NSE was registered under the companies Act and phased out the “call over” trading system in favour of the floor based open outcry system (NSE, 1997). In addition, extensive modernisation exercise was undertaken, including a move to more spacious premise at the Nation Centre in July 1994 and setting up a computerised delivery and settlement system (DASS) and a modern information centre.

The Kenyan Government relaxed restrictions on foreign ownership in locally controlled companies and foreign investor participation was introduced in 1995. The entire Exchange control Act was repealed in December 1995 seeing more stock brokers licensed to bring the number of licensed brokers to twenty. In 1996 the largest share issue in the then history of NSE, the privatisation of Kenya Airways, came to the market and more than 110,000 shareholders acquired a stake in the airline. The Kenya Airways privatization team was awarded the World Bank award for Excellence in 1996 for being a success story in the divestiture of state owned enterprise. In 1998, KCB was privatised through the NSE after the Kenya Government successfully sold 20% of its holding in the Bank. In 1998 the government expanded the scope for foreign investment by introducing incentives for capital markets growth including the setting up of tax-free venture capital funds, and the removal of Capital Gains Tax. Subsequently, listed companies split shares at NSE while others issued bonus.

In 2001, NSE was restructured to give rise to three market segments; the Main Investment Market Segment (MIMS), the Alternative Investment Market Segment (AIMS) and the Fixed

Income Securities Market Segment (FISMS) (Parkinson, 2008). The MIMS is the main quotation market and the AIMS provide an alternative method of raising capital to small, medium sized and young companies that find it difficult to meet the more stringent listing requirements of the MIMS. The FISMS provides an independent market for fixed income securities such as treasury bonds, corporate bonds, preference shares and debenture stocks, as well as short term financial instruments such as treasury bills and commercial papers. In November 2004 the Central Depository System (CDS) was introduced; this automated statements of transactions at NSE. The automation has led to greater transparency in the placement of bids and offers improvements in market surveillance. Transmission is almost real time and trading information relating to index movements, price and volume movements of traded securities is released on a timely basis.

2.3 Empirical Review

Studies on the link between stock markets and growth have varied in methods and results. The following are some of the empirical/ analytical models employed by different researchers to assess the relationship between finance and growth.

2.3.1 Cross-Sectional Regressions Analysis

Cross-sectional regression analysis is mostly used by researchers studying the causality relationship across countries. The country of study is usually more than one. Cross-sectional data may not satisfactorily address the country-specific issues. The problem of using a cross sectional method is that by grouping together countries that are at different stages of financial development, the country specific effects of stock market development on economic growth and vice versa are not addressed. Empirical studies support the view that stock market

development causes economic growth by encouraging a culture of savings and creating mechanisms for channelling those savings into wealth creation activities (NSE, 1997).

Atje (1993) using cross-sectional regressions conclude that stock markets have long-run impacts on economic growth. Harris (1997) also shows within a cross-sectional framework that stock markets promote economic growth, though this occurs only for developed countries. Regression analysis suggests that stock market liquidity helps forecast economic growth even after accounting for such nonfinancial factors as inflation, initial income, political stability, investment in education, the black market exchange premium, and the efficiency of the legal systems (Allen, 2011). Examining a cross-section of about 80 countries for the period 1960-89, King (1993a) found that various measures of financial development are strongly associated with both current and later rates of economic growth.

2.3.2 Time Series Analysis

Rousseau (2000) found that stock markets influence growth through value traded of shares, while Artis (2001) using time-series on five industrialised countries also indicates that stock markets play a role in growth. Empirically, it has been shown that the level of financial intermediation is a good predictor of long-run rates of economic growth, capital accumulation, and productivity improvements (King, 1993b).

Deb (2008) employed time-series econometric model in his study, “Does stock market development cause economic growth? A time series analysis for Indian Economy”. This involved use of Granger causality test and its subsequent improved version Toda Yamamoto approach for analysis. Toda Yamamoto approach was used to assess the direction of causality between stock market and economic growth. The research finding was

that there is a strong causal flow from the stock market development to economic growth. A bi-directional causal relationship was also observed between market capitalization ratio and economic growth.

Recent studies on emerging markets suggest that although there is a positive correlation between stock market development and economic growth (Bekaert, 1998), it is not clear whether a causal nexus exists and what shape it might take. Singh (1999) argues that the development of stock markets in many African countries at their current stage of economic development is costly and largely irrelevant. Further, he argues that these countries would do better if they used their scarce human, material, and institutional resources to improve their banking system rather than attempt to promote the development of stock markets.

2.3.3 Dynamic Panel Data Modelling

Adjasi (2006) using a dynamic panel data modelling setting on 14 African countries found that stock markets seems to only play a significant casual role in economic growth within high income countries. Their income grouping of countries was based on the World Bank classification of low income, low middle income and upper middle income countries. However, not many African countries are in the upper middle income classification bracket of the World Bank grouping. This would imply that most African stock markets play little or no role in economic growths in their respective countries.

Most of the studies have focused largely on developed countries, and for the one that touches on developing countries the emphasis has not been exclusively on Africa (Adjasi, 2006). These studies usually adopt a methodology that requires a certain quality and quantity of data

that strongly bias them toward the study of countries with a high level of development. This implies that small African economies are outside such studies.

2.3.4 Ordinary Least Square Estimation Method (OLS)

Guryay (2007) in his study “Financial development and economic growth: Evidence from Northern Cyprus” employed OLS model. He employed also Granger causality tests to assess the nature and direction of relationship between financial development and growth. The finding was that there was a negligible positive effect of financial development on economic growth. The Granger causality test showed that financial development does not cause economic growth; however, there was evidence of causality from economic growth to the development of financial intermediaries.

2.4 Conceptual Framework

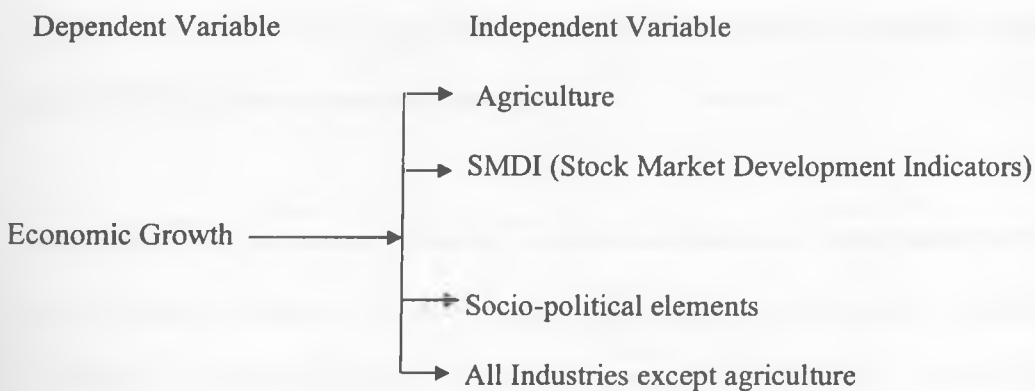


Figure 2.2 Conceptual Framework

2.4.1 Agriculture and All Industries except Agriculture

Agriculture and all industries except agriculture are used as the control variable for the study.

The conceptual view of the researcher is twofold; first, Kenya’s economic growth and development is highly pegged on the performance of the agricultural sector and its

performance would affect the overall Kenya's economy. Second, the total investment in the Kenya's economy is channelled through agriculture and all industries except agriculture. This means that all investment into Kenya's economy, mobilised through the stock market, would be reflected the incremental effect of both agriculture and all industries except agriculture.

2.4.2 Stock Market Development Indicators

The stock market development indicators that have been used by different researchers include market capitalization, which shows the performance of the market; market capitalization ratio, which relates the size of the market to the whole economy; turnover ratio, which shows the liquidity of the market; as well as volume of trade and value of trade.

In this study, market capitalization ratio, turnover ratio and value traded ratio will be used as indicators of stock market development in Kenya. These chosen indicators are hoped to provide a case-study-based insight into the nature and direction of causality between stock market development and economic growth.

2.4.2.1 Liquidity Indicators: Liquidity is one of the measures of stock market development. Of the various measures of stock market development, only market liquidity – the opportunity to easily buy and sell equity in the economy's corporations – is closely associated with future economic growth (Levine, 1996).

Contrary to what pundits sometimes suggest, greater stock price volatility does not forecast poor economic performance. Moreover, regression analysis suggests that stock market liquidity helps forecast economic growth even after accounting for such nonfinancial factors as inflation, initial income, political stability, investment in education, the black market

exchange premium, and the efficiency of the legal systems (Allen, 2011). Demirguc-Kunt (1996) found that countries with very liquid stock markets in 1976 grew much faster, on average, over the next eighteen years than countries with illiquid or very illiquid markets. This finding suggests that market liquidity boost both the quantity and the quality of Investment and thereby boosting economic growth.

Two related measures to gauge the liquidity of stock market will be employed. First is the value traded ratio (TVT). This is a measure of market's trading activity relative to the size of the economy. TVT ratio is equal to the total value of shares traded on the stock exchange divided by GDP (Levine, 1996). According to Adjasi (2006), the TVT ratio is indicative of both size and liquidity of the stock market. In their study of 14 African stock markets, they found that an increase in stock market activity through higher liquidity augments GDP growth significantly.

Second is a measure of "turnover ratio" (TOR). This is computed as total value of domestic shares traded divided by the total market capitalisation (Levine, 1996). This indicator measures the domestic market's overall trading activity relative to the size of the market itself. High turnover ratio is often used as an indicator of low transactions costs. Liquidity is not always proportional to market size; that is, a large stock market is not necessarily liquid market. An inactive large market will have a large market capitalisation ratio but a small turnover ratio.

Turnover and TVT ratios differ; in that, while TVT captures trading relative to the size of the economy, turnover measures trading relative to the size of the stock market. Therefore, a small, liquid market will have a high turnover ratio but a small TVT ratio. These two

measures do not directly measure stock market liquidity. The direct indicators of the stock market liquidity would have been the ease with which investors can acquire and dispose-off securities at posted prices. Allen (2011) noted that these two standard measures can be thought of roughly as measures of overall trading activities relative to the size the economy and the stock market.

2.4.2.2 Size Indicator: The market capitalisation ratio measures the size of stock market and is also used as an indicator of market development (Levine, 1998). Market capitalisation ratio is computed as market capitalisation (value of listed shares) divided by GDP; this is the size of the market relative to the economy. This indicator is a poor predictor of future economic growth (Demirguc-Kunt, 1996). Market capitalisation, as a measure of stock market performance, is used to measure market movements. This is achieved by measuring the total value of stocks in a market by aggregating the market value of the quoted stocks.

2.4.3 Socio-Political Elements

The term “socio-political elements”, for purposes of this study, will be limited to the general elections and referendums held in Kenya. The study will focus on the impact of general elections on Kenya’s economic growth. The general elections of interest, for purposes of this study, are those that took place between years 2000 and 2010 quarter one.

Among the many factors influencing performance of the economy, and therefore economic growth, the main ones among these are the government activities and the general socio-political events in the country. According to Mendelson (1976), events such as war, political upheavals within or outside a country, or general political election produces changes in the business environment that lead to uncertainties and increase in risk premium for investors.

This increased risks and business environment's uncertainties impacts negatively on the economic growth of the host country. Wars and political upheavals are generally associated with capital and investors flight out of the country in search of secure and conducive business environment elsewhere.

2.5 Summary of Literature Review

Abu-Sharia (2003) noted that earlier researches emphasized the role of the banking sector in economic development; however, recent research has begun to focus on the linkage between the stock markets and economic growth. Studies on the link between stock markets and growth have varied in methods and results. In Africa, the development and growth of stock markets have been rampant and their number in African countries has increased dramatically over the years. The emergence and expansion of Africa stock markets represents a significant trend toward attracting private capital investment and integration into the global financing marketplace.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter addresses the research design of the study. It discusses the population, sample size, research design and research procedures. A method of pretesting used is reviewed and so are the methods of data collection and data analysis used.

3.2 Research Design

The study used inferential statistics and descriptive survey that investigates in depth relationship between economic growth and stock market development in Kenya. Descriptive research portrays an accurate profile of persons, events, or situations.

3.3 Population and Sample

The population for the study was NSE as an organisation. Data was obtained from the NSE, Central Bank and Kenya Central Bureau of Statistics. Since it is a case study, there was no sampling. The study used secondary data and the target population was based on available data and statistics at the time of undertaking the study but it also relied on logic.

3.4 Data Collection

The study used secondary data in the form yearly economic growth rates, stock market liquidity and capitalisation ratios, and investment statistics covering a period of ten years (from 2000 quarter 2 to 2010 quarter 1). This data was obtained from the NSE, the Central Bureau of Statistics, Kenya Investment Authority, Central Bank of Kenya and the World Bank's Financial Structure database.

3.5 Data Analysis

The study used a regression model to estimate the impact of stock market development on Kenya's economic growth. In addition, the ANOVA analysis was employed to test the hypothesis and Granger Causality test was used to indicate the direction of the relationship.

Below is summary of both tools of analysis:

3.5.1 Regression Model: This was used to estimate the association or link between stock market development and economic growth. The model was as follows below:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \epsilon$$

Where:

y = economic growth rate

β_0 = Constant Term

$\beta_1 \dots \beta_4$ = Beta coefficients

X_1 = Agriculture and forestry

X_2 = All industries excluding agriculture

X_3 = SMDI_{*i*} - that is, the Stock Market Development Indicators,

X_4 = Socio-political element

ϵ = error term

The stock market development indicators (SMDIs) that were used are: turnover ratio, total value traded ratio and lastly, Market capitalisation ratio. The aim was to ascertain if the stock market-growth linkage varies according to any of the chosen SMDI indicative ratios and therefore, each of the ratios enters the model separately, to determine which stock market development indicator is the best channel through which stock market influences economic

growth. Therefore, Data analysis involved four regression models (one regression per each of the three market development indicator and one combining the three indicators) as follows:

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 SMDI_1 + \epsilon \dots\dots\dots \text{(Model 1)}$$

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 SMDI_2 + \epsilon \dots\dots\dots \text{(Model 2)}$$

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 SMDI_3 + \epsilon \dots\dots\dots \text{(Model 3)}$$

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 SMDI_1 + \beta_5 SMDI_2 + \beta_6 SMDI_3 + \epsilon \dots\dots\dots \text{(Model 4)}$$

Where, SMDI₁ represents TVT (Total Value Traded) Ratio,

SMDI₂ represents market capitalization ratio,

SMDI₃ represents TOR (Turnover Ratio),

X₁ ... X₃ are control variables; agriculture, socio-political elements, and all industries excluding agriculture,

β₁ ... β₄ represents the Beta coefficients.

Y represents the economic growth rate

The socio-political elements were coded as dummy variables in the regression model. The reasoning is that it is impossible to measure level of socio-political elements for the purpose of this study; that is, there are no means known by the researcher to measure election. This study focused on the general elections and referendum that took place between years 2000 (Quarter 2) to 2010 (Quarter1). The year when general election took place was coded as “1” while other years were coded as “0”.

3.5.2 Granger-Causality Test: Traditionally Granger causality test is employed to test for the causal relationship between two variables. The test states that, if past values of a variable y significantly contribute to forecast the future value of variable x, then y is said to

Granger cause x. Conversely, if past values of x statistically improve the prediction of y, then we can conclude that x Granger causes y (Granger, 1969).

This was used indicate the direction of the relationship between stock markets development and Kenya's economic growth; that is, is it NSE's development that fosters Kenya's economic growth or it is Kenya's economic growth that fosters stock market development.

The causality could also be bi-directional; that is, causality could be both ways. The Granger-causality test is based on the following two regressions:

$$y_t = \beta_0 + \sum_{k=1}^m \beta_k y_{t-k} + \sum_{l=1}^m \alpha_l x_{t-l} + \epsilon \quad (1)$$

$$x_t = \gamma_0 + \sum_{k=1}^m \delta_k y_{t-k} + \sum_{l=1}^m \gamma_l x_{t-l} + \epsilon \quad (2)$$

Where: y_t and x_t are the two variables,
 ϵ is the error term in either case,
 t denotes the time period; and,
 k and l are the number of lags.

The null hypothesis is $\alpha_l = 0$ for all l 's and $\delta_k = 0$ for all k 's, versus the alternative hypothesis $\alpha_l \neq 0$ and $\delta_k \neq 0$ for at least some l 's and k 's.

If the coefficient α_l 's are statistically significant but δ_k 's are not, then x causes y; in the reverse case, y cause x. But if both α_l and δ_k and are statistically significant, then, causality runs both ways.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introduction

This chapter presents the research findings to establish the existence of a relationship between economic growth and stock market development in Kenya and to establish the nature of the relationship between economic growth and stock market development in Kenya. Secondary data was collected and analyzed using SPSS to generate various regression analyses as stipulated in the methodology. Data on agriculture and forestry, all industries excluding agriculture and socio-political elements was used as control variables.

4.2 Regression Analysis

4.2.1 Regression Model 1:

Table 4.1: Model 1 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.216 ^a	.046	-.063	1.76086

From the findings in the above table, R^2 is known as coefficient of determination and it tells us the variation in GDP % changes with changes in TVT (Value of shares traded ratio), Agriculture and Forestry, Socio-political elements and All industries excluding agriculture. From the above table there was 4.6% variation in GDP % changes with changes in TVT ratio, Agriculture and Forestry, Socio-political elements and All industries excluding agriculture. R is the correlation coefficient which shows the strength of relationship between the GDP % changes and TVT ratio, Agriculture and Forestry, Socio-political elements and All industries excluding agriculture. From the data there was a weak positive correlation between the GDP

% changes and TVT ratio, Agriculture and Forestry, Socio-political elements and All industries excluding agriculture as shown by correlation coefficient of 0.216.

Table 4.2: Model 1 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.365	3.127		.117	.908
	Agriculture and Forestry	-2.712E-6	.000	-.014	-.066	.947
	All industries excluding agriculture	3.235E-6	.000	.049	.199	.844
	Socio-political elements	-.711	.972	-.127	-.732	.469
	TVT ratio	26.979	39.592	.159	.681	.500

The coefficient table in table above was also used in coming up with the model below:

$$Y = 0.365 - 2.712E-6 AF + 3.235E-6 AI - 0.711 SP + 26.979 TVT$$

According to the model holding TVT ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at 0.365, a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factors of 2.712E-6 , a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 3.235E-6, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.711, further unit increase in TVT ratio would lead to increase in GDP % changes by factors of 26.979.

4.2.2 Regression Model 2:

Table 4.3: Model 2 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.184 ^a	.034	-.076	1.77238

From the result in the above table, R^2 is known as coefficient of determination and it tell us the variation in GDP % changes with changes in market capitalization ratio, Agriculture and Forestry, all industries excluding agriculture and Socio-political elements. From the above table there was 3.4% variation in GDP % changes with changes in market capitalization / GDP, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. R is the correlation coefficient which shows the strength of relationship between the GDP % changes and market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. From the data there was a weak positive correlation between between the GDP % changes and market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.184.

Table 4.4: Model 2 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-.594	4.897		-.121	.904
	Agriculture and Forestry	2.695E-6	.000	.014	.067	.947
	All industries excluding agriculture	7.370E-6	.000	.111	.223	.825
	Socio-political elements	-.704	.978	-.125	-.720	.476
	Market capitalization ratio	.066	.935	.034	.070	.945

The coefficient table in table above was also used in coming up with the model below:

$$Y = -0.594 + 2.695E-6 AF + 7.370E-6 AI - 0.705 SP + 0.066 MCR$$

According to the model holding Market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at -0.594, a unit increase in agriculture and forestry would lead to increase in GDP % changes by a factors of 2.695E-6 , a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 7.370E-6, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.704, further unit increase in Market capitalization ratio would lead to increase in GDP % changes by factors of 0.066.

4.2.3 Regression Model 3:

Table 4.5: Model 3 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.271 ^a	.073	-.033	1.73581

R² is known as coefficient of determination and it tell us the variation in GDP % changes with changes in Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. From the above table there was 7.3% variation in GDP % changes with changes in Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. R is the correlation coefficient which shows the strength of relationship between the GDP % changes and Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. From the data there was a weak positive correlation between the GDP % changes

and Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.271.

Table 4.6: Model 3 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.206	2.650		.078	.939
	Agriculture and Forestry	-1.000E-5	.000	-.052	-.245	.808
	All industries excluding agriculture	4.488E-6	.000	.067	.323	.748
	Socio-political elements	-.735	.958	-.131	-.768	.448
	Turnover ratio (TOR)	118.801	97.157	.236	1.223	.230

The coefficient table in table above was also used in coming up with the model below:

$$Y = 0.206 - 1.000E-5 AF + 4.488E-6 AI - 0.735 SP + 118.801 TOR$$

According to the model holding Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at 0.206 , a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factors of 1.000E-5, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 4.488E-6, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.735, further unit increase in Turnover ratio (TOR) would lead to increase in GDP % changes by factors of 118.801.

4.2.4 Regression Model 4:

Table 4.7: Model 4 Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.387 ^a	.149	-.005	1.71268

From the result in the above table, R^2 is known as coefficient of determination and it tell us the variation in GDP % changes with changes in TVT ratio , Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, all industries excluding agriculture and Socio-political elements. From the above table there was 14.9% variation in GDP % changes with changes in TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. R is the correlation coefficient which shows the strength of relationship between the GDP % changes and TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. From the data there was a weak positive correlation between the GDP % changes and TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.387.

Table 4.8: Model 4 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	-10.428	6.962		-1.498	.144
	Agriculture and Forestry	-4.275E-5	.000	-.223	-.937	.355
	All industries excluding agriculture	8.935E-5	.000	1.340	1.593	.121
	Socio-political elements	-.775	.946	-.138	-.820	.418
	TVT ratio	29.032	136.070	.171	.213	.832
	Market Cap ratio	-3.102	2.307	-1.588	-1.345	.188
	TOR (Turnover ratio)	325.556	237.625	.646	1.370	.180

The coefficient table in table above was also used in coming up with the model below:

$$Y = -10.428 - 4.275E-5AF + 8.935E-5 AI - 0.775 SP + 29.032 TVT - 3.102 MCR + 325.556 TOR$$

From table 4.8, most of the variables in regression model 4, except TVT ratio and socio-political elements, were not statistically significant. However, according to the model holding TVT ratio, Market Capitalization ratio, Turnover ratio, Agriculture and Forestry, all industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at -10.428, a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factors of 4.275, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 8.935E-5, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.775, unit increase in TVT ratio would lead to increase in GDP % changes by factors of 29.032, unit increase in Market capitalization ratio would lead to decrease in GDP % changes by factors of 3.102, further unit increase in Turnover Ratio would lead to increase in GDP % changes by factors of 325.556.

4.3 Granger Causality Wald Tests

Table 4.9: Granger causality wald tests

<i>Equation</i>	<i>Excluded</i>	<i>chi2</i>	<i>df</i>	<i>Prob > chi2</i>
GDP	Market development	14.108	35	0.007
GDP	GDP level	6.0917	4	0.192
GDP	all	19.279	39	0.013
Market development	GDP level	5.9199	35	0.205
Market development	Market development	5.4121	4	0.248
Market development	all	10.121	39	0.257

Granger causality tests is a statistical tests of causality in the sense of determining whether lagged observations of another variable have incremental forecasting power when added to a univariate autoregressive representation of a variable. The study thus concludes that Kenya's economic growth does not influence stock market development, whereas stock market development was found to influence Kenya's economic growth. The relationship is therefore unidirectional; that is, stock market development boosts Kenya's economic growth.

4.4 Hypothesis Testing

There is no significant relationship between Kenya's economic growth and stock market development.

There is a significant relationship between Kenya's economic growth and stock market development.

The data on various aspects of between Kenya's economic growth and stock market development was subjected to Anova test using SPSS (statistical package for social science) to help to test the hypothesis that there is no significant relationship between Kenya's economic growth and stock market development. The calculated values were compared with critical value to establish whether to reject or accept hypothesis. The Anova results are summarized in Table below:

Table 4.10: ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.932	4	0.483	3.353	.042
Within Groups	11.165	35	0.319		
Total	13.097	39			

Critical value from t-distribution table is 1.686

From the results the study found that calculated value was greater than the critical value ($F_c = 3.353 > F_o = 1.686$; and $\alpha_o = .042 < \alpha_o = .000$). Therefore, the hypothesis that there is no significant relationship between Kenya's economic growth and stock market development was therefore rejected.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collected, the following summary of findings, conclusion and recommendations were made. The responses were based on the objective of the study. The researcher had intended to establish the existence of a relationship between economic growth and stock market development in Kenya and to establish the nature of the relationship between economic growth and stock market development in Kenya.

5.2 Summary of Findings and Discussions

From the findings on the regression model (1) the analysis between GDP % changes and TVT ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements ,the study found that there was 4.6% variation in GDP % changes with changes in TVT ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. The study found that there was a weak positive correlation between the GDP % changes and TVT ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.216. The established regression analysis between GDP % changes and TVT, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements was found to be:

$$Y = 0.365 - 2.712E-6 AF + 3.235E-6 AI - 0.711 SP + 26.979 TVT$$

According to the model holding TVT ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would

stand at 0.365, a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factors of $2.712E-6$, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor $3.235E-6$, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.711, further unit increase in TVT ratio would lead to increase in GDP % changes by factors of 26.979.

In the regression model (2) the analysis between GDP % changes and market capitalization ratio, Agriculture and Forestry, all industries excluding agriculture and Socio-political elements , the study revealed that there was 3.4% variation in GDP % changes with changes in market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. The study also found that there was a weak positive correlation between between the GDP % changes and market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.184. The established regression analysis between GDP % changes and market capitalization ratio, Agriculture and Forestry, all industries excluding agriculture and Socio-political elements was:

$$Y = - 0.594 + 2.695E-6 AF + 7.370E-6 AI - 0.705 SP + 0.066 MCR$$

From the model it was revealed that holding Market capitalization ratio, Agriculture and Forestry, All industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at -0.594, a unit increase in agriculture and forestry would lead to increase in GDP % changes by a factors of $2.695E-6$, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor $7.370E-6$, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of

0.704, further unit increase in Market capitalization ratio would lead to increase in GDP % changes by factors of 0.066.

From regression model (3), it was found that there was 7.3% variation in GDP % changes with changes in Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements. The study also revealed that there was a weak positive correlation between the GDP % changes and Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.271. The established revealed that the established regression equation was:

$$Y = 0.206 - 1.000E-5 AF + 4.488E-6 AI - 0.735 SP + 118.801 TOR$$

It was revealed that holding the Turnover ratio (TOR), agriculture and Forestry, all industries excluding agriculture and socio-political elements to a constant zero, GDP % changes would stand at 0.206, a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factors of 1.000E-5, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 4.488E-6, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.735, further unit increase in Turnover ratio (TOR) would lead to increase in GDP % changes by factors of 118.801.

From regression model (4), the study revealed that there was 14.9% variation in GDP % changes with changes in TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements.

The study found that there was a weak positive correlation between the GDP % changes and TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, All industries excluding agriculture and Socio-political elements as shown by correlation coefficient of 0.387. The established regression analysis:

$$Y = -10.428 - 4.275E-5AF + 8.935E-5AI - 0.775SP + 29.032TVT - 3.102MCR + 325.556TOR$$

The study found that the TVT ratio, Market Capitalization ratio, Turnover ratio (TOR), Agriculture and Forestry, all industries excluding agriculture and Socio-political elements to a constant zero, GDP % changes would stand at -10.428, a unit increase in agriculture and forestry would lead to decrease in GDP % changes by a factor of 4.275E-5, a unit increase in all industries excluding agriculture would lead to increase in GDP % changes by a factor 8.935E-5, a unit increase in Socio-political elements would lead to decrease GDP % changes by factors of 0.775, unit increase in TVT ratio would lead to increase in GDP % changes by factors of 29.032, unit increase in Market capitalization ratio would lead to decrease in GDP % changes by factors of 3.102, further unit increase in Turnover ratio (TOR) would lead to increase in GDP % changes by factors of 325.556.

5.3 Conclusion and Recommendations

The study examined the relationship between Kenya's economic growth and stock market development. The study, from the regression results, confirms that there exist positive relationship between the economic growth and the measures of stock market development. From the above findings the study found that the market liquidity indicators (TVT and turnover ratios) have a strong relationship with economic growth as compared to market size

indicator (market capitalization ratio). The value of control variables (agriculture and Forestry, socio-political elements and all industries excluding agriculture) was seen to vary depending on the Factor being investigated. The hypothesis test rejected the hypothesis that there is no significant relationship between stock market development and Kenya's economic growth.

The notion that stock market development promotes economic growth in Kenya is not in doubt. By using some notable stock market development indicators, the relationship between stock market development and economic growth was found to be positive. The study thus concludes that there exist a strong positive relationship between economic growth and stock market development in Kenya.

The research recommends a similar study be carried-out using different control variables. With between 4.6% and 14.9% R-squared, the current results indicate that economic growth in Kenya is inadequately explained by the model for the period between 2000 and 2010. By implication, between 4.6% and 14.9% of the variation in the growth of economic activities is explained by the independent variables in the model.

From the findings, the study recommends that in order for the country to realize positive economic growth through the stock market, there is need for the policy maker to come with ways to enhance the stock market liquidity. Stock market liquidity indicators (TVT and turnover ratios) were found to have a strong relationship with economic growth as compared to market size indicator (market capitalization ratio). This suggests that for a significant economic growth through stock market the focus of policy maker should be on measures to promote growth in stock market liquidity.

5.4 Limitations of the Study

The model used was limited: The current results indicate that economic growth in Kenya is inadequately explained by the model for the period between 2000 and 2010. The model did not adequately explain the relationship between economic growth and the independent variables chosen.

The control variables used did not help in providing a clearer picture on the relationship between economic growth and stock market development. Perhaps, this could be attributed to the short period of reference.

The researcher had difficulties accessing information from the some institutions; some managers were suspicious of the researcher's intentions. The researcher assured them confidentiality on information collected.

No single organization can be representative of all others even in the same sector. To resolve this problem may require more research on other institutions in the financial sector.

5.5 Suggestions for Further Research

Similar case study on Nairobi Stock Exchange should be carried out using different model. An interesting model would be applying time series analysis on the endogenous growth model. The results would be compared with the results obtained using the regression model.

Similar study should be carried out using different control variables like investment and Foreign Direct Investment (FDI) and for a longer time period; perhaps twenty (20) years.

This might provide a different result and different understanding of the relationship between Kenya's economic growth and stock market development.

Since no single organization can be representative of all others, even in the same sector, a study on the relationship between banks and stock market development on economic growth should be carried out. This would provide the financial sector relationship with economic growth in Kenya.

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APPENDICES

Appendix I: Introduction Letter

To whom it may concern

Dear Madam/ Sir,

RE: INTRODUCTION LETTER

Thank you very much for agreeing to participate in this study.

The researcher is a student at University of Nairobi carrying out a research project as part of the course requirement for Masters in Business Administration. The study seeks to analyse the impact stock market development on Kenya's economic growth.

The questions are meant to assist the researcher obtain information that will enable him to conduct the study. Kindly respond to the issues in questions as honestly as possible. The findings will be confidential, strictly for academic use and at no time will your name or name of your company be mentioned anywhere in the report. Your honest participation will be highly appreciated.

Thank you for your cooperation.

Yours faithfully,

David Ndung'u.

Appendix II: Research Budget

	Items	Cost (KES)
1	Proposal development – Internet, Typing, Printing and Stationery	8,000
2	Data collection: i) Research assistant fees ii) Stationery and printing iii) Transport expenses	40,000 5,200 12,000
3	Data analysis and report: i) Printing and stationery ii) Transport	7,600 6,000
4	Miscellaneous	5,000
	TOTAL BUDGET	86,800

Appendix IV

Market Capitalization (in KShs millions)											
Quarter /Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	111,687	101,149	86,468	130,731	348,945	330,796	478,373	748,404	795,838	692,537	938,401
2	109,365	94,643	81,132	173,879	287,385	376,395	574,959	701,736	1,018,477	732,748	1,081,911
3	107,149	90,813	86,505	218,528	285,886	444,113	670,151	794,051	1,057,982	794,555	1,150,784
4	107,120	88,361	99,966	292,286	287,529	457,652	789,979	800,453	803,282	813,879	1,185,684
GDP at market prices (in KShs millions)											
Quarter /Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	244,052	249,485	261,337	257,855	275,761	281,287	298,188	319,085	323,262	341,264	356,451
2	229,921	246,730	243,677	246,467	258,812	277,819	295,138	319,476	327,191	330,274	346,313
3	244,779	259,988	253,502	270,863	279,575	303,029	327,868	348,569	357,816	359,669	382,150
4	257,585	263,805	267,068	280,467	295,386	312,998	328,265	349,744	349,372	361,624	385,602
Market Cap/ GDP											
Quarter /Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
1	0.4576	0.4054	0.3309	0.5070	1.2654	1.1760	1.6043	2.3455	2.4619	2.0293	2.6326
2	0.4757	0.3836	0.3330	0.7055	1.1104	1.3548	1.9481	2.1965	3.1128	2.2186	3.1241
3	0.4377	0.3493	0.3412	0.8068	1.0226	1.4656	2.0440	2.2780	2.9568	2.2091	3.0113
4	0.4159	0.3349	0.3743	1.0421	0.9734	1.4622	2.4065	2.2887	2.2992	2.2506	3.0749

Appendix V

Periods		Dependent Variable	Independent Variables					
Year	Quarter	GDP % change (seasonally adjusted)	Agriculture and Forestry	All industries excluding agriculture	Socio- political elements	Value of shares traded/ GDP	Market Cap/ GDP	Value of shares Traded/ Market Capitalization
2000	1		63,498.00	152,113.00		0.001258	0.4576	0.0027
2000	2	(0.60)	54,167.00	149,327.00	0	0.001403	0.4757	0.0029
2000	3	0.70	64,038.00	152,274.00	0	0.001263	0.4377	0.0029
2000	4	1.30	69,469.00	158,220.00	0	0.001054	0.4159	0.0025
2001	1	0.40	67,652.00	154,862.00	0	0.001463	0.4054	0.0036
2001	2	3.40	60,318.00	157,034.00	0	0.001265	0.3836	0.0033
2001	3	0.60	73,821.00	157,661.00	0	0.000743	0.3493	0.0021
2001	4	(1.20)	75,801.00	159,711.00	0	0.000605	0.3349	0.0018
2002	1	1.50	67,968.00	161,585.00	0	0.000581	0.3309	0.0018
2002	2	(0.50)	57,658.00	158,767.00	0	0.000724	0.3330	0.0022
2002	3	(2.50)	69,628.00	158,953.00	0	0.001076	0.3412	0.0032
2002	4	1.90	73,816.00	164,814.00	1	0.001396	0.3743	0.0037
2003	1	0.90	65,494.00	165,692.00	0	0.002288	0.5070	0.0045
2003	2	0.30	58,961.00	161,158.00	0	0.005181	0.7055	0.0073
2003	3	3.00	73,999.00	167,131.00	0	0.004902	0.8068	0.0061
2003	4	0.80	77,633.00	171,688.00	0	0.006736	1.0421	0.0065
2004	1	3.10	70,233.00	173,693.00	0	0.010367	1.2654	0.0082
2004	2	(1.90)	59,042.00	168,666.00	0	0.005061	1.1104	0.0046
2004	3	0.70	72,067.00	175,196.00	0	0.006228	1.0226	0.0061
2004	4	3.50	79,176.00	180,668.00	0	0.005185	0.9734	0.0053
2005	1	0.20	69,697.00	177,213.00	0	0.005462	1.1760	0.0046
2005	2	2.70	64,209.00	177,100.00	0	0.009518	1.3548	0.0070
2005	3	1.20	80,727.00	186,273.00	0	0.012941	1.4656	0.0088
2005	4	2.00	85,165.00	189,607.00	1	0.013059	1.4622	0.0089
2006	1	0.60	69,627.00	190,507.00	0	0.014791	1.6043	0.0092
2006	2	2.20	67,544.00	189,227.00	0	0.025684	1.9481	0.0132
2006	3	2.70	85,982.00	198,974.00	0	0.026914	2.0440	0.0132
2006	4	(0.30)	89,772.00	196,458.00	0	0.033011	2.4065	0.0137
2007	1	2.50	75,894.00	199,927.00	0	0.026358	2.3455	0.0112
2007	2	3.00	68,909.00	206,449.00	0	0.017369	2.1965	0.0079
2007	3	0.70	85,878.00	215,917.00	0	0.024477	2.2780	0.0107
2007	4	0.70	89,742.00	213,302.00	1	0.020155	2.2887	0.0088
2008	1	(2.80)	72,042.00	205,147.00	1	0.023075	2.4619	0.0094
2008	2	3.80	69,146.00	214,619.00	0	0.035252	3.1128	0.0113
2008	3	0.80	81,507.00	225,492.00	0	0.026606	2.9568	0.0090
2008	4	(1.50)	84,661.00	215,943.00	0	0.011433	2.2992	0.0050
2009	1	2.40	71,060.00	222,058.00	0	0.006528	2.0293	0.0032
2009	2	(0.60)	66,213.00	218,468.00	0	0.009854	2.2186	0.0044
2009	3	0.10	78,710.00	230,337.00	0	0.009229	2.2091	0.0042
2009	4	1.50	83,465.00	225,332.00	0	0.010839	2.2506	0.0048
2010	1	3.40	75,056.36	231,739.13	0	0.017673	2.6326	0.0067
2010	2		68,302.34	229,075.06		0.029555	3.1241	0.0095
2010	3		85,515.31	244,467.62		0.030790	3.0113	0.0102
2010	4		89,507.78	241,915.40		0.021975	3.0749	0.0071

Appendix IV

Periods

Dependent Variable

Independent Variables

Year	Quarter	GDP % change (seasonally adjusted)	Agriculture and Forestry	All industries excluding agriculture	Socio- political elements	Value of shares traded/ GDP	Market Cap/ GDP	Value of shares Traded/ Market Capitalization
2000	1		63,498.00	152,113.00		0.001258	0.4576	0.0027
2000	2	(0.60)	54,167.00	149,327.00	0	0.001403	0.4757	0.0029
2000	3	0.70	64,038.00	152,274.00	0	0.001263	0.4377	0.0029
2000	4	1.30	69,469.00	158,220.00	0	0.001054	0.4159	0.0025
2001	1	0.40	67,652.00	154,862.00	0	0.001463	0.4054	0.0036
2001	2	3.40	60,318.00	157,034.00	0	0.001265	0.3836	0.0033
2001	3	0.60	73,821.00	157,661.00	0	0.000743	0.3493	0.0021
2001	4	(1.20)	75,801.00	159,711.00	0	0.000605	0.3349	0.0018
2002	1	1.50	67,968.00	161,585.00	0	0.000581	0.3309	0.0018
2002	2	(0.50)	57,658.00	158,767.00	0	0.000724	0.3330	0.0022
2002	3	(2.50)	69,628.00	158,953.00	0	0.001076	0.3412	0.0032
2002	4	1.90	73,816.00	164,814.00	1	0.001396	0.3743	0.0037
2003	1	0.90	65,494.00	165,692.00	0	0.002288	0.5070	0.0045
2003	2	0.30	58,961.00	161,158.00	0	0.005181	0.7055	0.0073
2003	3	3.00	73,999.00	167,131.00	0	0.004902	0.8068	0.0061
2003	4	0.80	77,633.00	171,688.00	0	0.006736	1.0421	0.0065
2004	1	3.10	70,233.00	173,693.00	0	0.010367	1.2654	0.0082
2004	2	(1.90)	59,042.00	168,666.00	0	0.005061	1.1104	0.0046
2004	3	0.70	72,067.00	175,196.00	0	0.006228	1.0226	0.0061
2004	4	3.50	79,176.00	180,668.00	0	0.005185	0.9734	0.0053
2005	1	0.20	69,697.00	177,213.00	0	0.005462	1.1760	0.0046
2005	2	2.70	64,209.00	177,100.00	0	0.009518	1.3548	0.0070
2005	3	1.20	80,727.00	186,273.00	0	0.012941	1.4656	0.0088
2005	4	2.00	85,165.00	189,607.00	1	0.013059	1.4622	0.0089
2006	1	0.60	69,627.00	190,507.00	0	0.014791	1.6043	0.0092
2006	2	2.20	67,544.00	189,227.00	0	0.025684	1.9481	0.0132
2006	3	2.70	85,982.00	198,974.00	0	0.026914	2.0440	0.0132
2006	4	(0.30)	89,772.00	196,458.00	0	0.033011	2.4065	0.0137
2007	1	2.50	75,894.00	199,927.00	0	0.026358	2.3455	0.0112
2007	2	3.00	68,909.00	206,449.00	0	0.017369	2.1965	0.0079
2007	3	0.70	85,878.00	215,917.00	0	0.024477	2.2780	0.0107
2007	4	0.70	89,742.00	213,302.00	1	0.020155	2.2887	0.0088
2008	1	(2.80)	72,042.00	205,147.00	1	0.023075	2.4619	0.0094
2008	2	3.80	69,146.00	214,619.00	0	0.035252	3.1128	0.0113
2008	3	0.80	81,507.00	225,492.00	0	0.026606	2.9568	0.0090
2008	4	(1.50)	84,661.00	215,943.00	0	0.011433	2.2992	0.0050
2009	1	2.40	71,060.00	222,058.00	0	0.006528	2.0293	0.0032
2009	2	(0.60)	66,213.00	218,468.00	0	0.009854	2.2186	0.0044
2009	3	0.10	78,710.00	230,337.00	0	0.009229	2.2091	0.0042
2009	4	1.50	83,465.00	225,332.00	0	0.010839	2.2506	0.0048
2010	1	3.40	75,056.36	231,739.13	0	0.017673	2.6326	0.0067
2010	2		68,302.34	229,075.06		0.029555	3.1241	0.0095
2010	3		85,515.31	244,467.62		0.030790	3.0113	0.0102
2010	4		89,507.78	241,915.40		0.021975	3.0749	0.0071

Regression model 1:

Periods		Dependent Variable	Independent Variables			
Year	Quarter	GDP % change (seasonally adjusted)	Agriculture and Forestry	All industries excluding agriculture	Socio-political elements	Value Traded ratio (TVT)
2000	2	(0.60)	54,167.00	149,327.00	0	0.001403
2000	3	0.70	64,038.00	152,274.00	0	0.001263
2000	4	1.30	69,469.00	158,220.00	0	0.001054
2001	1	0.40	67,652.00	154,862.00	0	0.001463
2001	2	3.40	60,318.00	157,034.00	0	0.001265
2001	3	0.60	73,821.00	157,661.00	0	0.000743
2001	4	(1.20)	75,801.00	159,711.00	0	0.000605
2002	1	1.50	67,968.00	161,585.00	0	0.000581
2002	2	(0.50)	57,658.00	158,767.00	0	0.000724
2002	3	(2.50)	69,628.00	158,953.00	0	0.001076
2002	4	1.90	73,816.00	164,814.00	1	0.001396
2003	1	0.90	65,494.00	165,692.00	0	0.002288
2003	2	0.30	58,961.00	161,158.00	0	0.005181
2003	3	3.00	73,999.00	167,131.00	0	0.004902
2003	4	0.80	77,633.00	171,688.00	0	0.006736
2004	1	3.10	70,233.00	173,693.00	0	0.010367
2004	2	(1.90)	59,042.00	168,666.00	0	0.005061
2004	3	0.70	72,067.00	175,196.00	0	0.006228
2004	4	3.50	79,176.00	180,668.00	0	0.005185
2005	1	0.20	69,697.00	177,213.00	0	0.005462
2005	2	2.70	64,209.00	177,100.00	0	0.009518
2005	3	1.20	80,727.00	186,273.00	0	0.012941
2005	4	2.00	85,165.00	189,607.00	1	0.013059
2006	1	0.60	69,627.00	190,507.00	0	0.014791
2006	2	2.20	67,544.00	189,227.00	0	0.025684
2006	3	2.70	85,982.00	198,974.00	0	0.026914
2006	4	(0.30)	89,772.00	196,458.00	0	0.033011
2007	1	2.50	75,894.00	199,927.00	0	0.026358
2007	2	3.00	68,909.00	206,449.00	0	0.017369
2007	3	0.70	85,878.00	215,917.00	0	0.024477
2007	4	0.70	89,742.00	213,302.00	1	0.020155
2008	1	(2.80)	72,042.00	205,147.00	1	0.023075
2008	2	3.80	69,146.00	214,619.00	0	0.035252
2008	3	0.80	81,507.00	225,492.00	0	0.026606
2008	4	(1.50)	84,661.00	215,943.00	0	0.011433
2009	1	2.40	71,060.00	222,058.00	0	0.006528
2009	2	(0.60)	66,213.00	218,468.00	0	0.009854
2009	3	0.10	78,710.00	230,337.00	0	0.009229
2009	4	1.50	83,465.00	225,332.00	0	0.010839
2010	1	3.40	75,056.36	231,739.13	0	0.017673

Appendix VI - Regression 2

Regression model 2

Periods		Dependent Variable	Independent Variables			
Year	Quarter	GDP % change (seasonally adjusted)	Agriculture and Forestry	All industries excluding agriculture	Socio-political elements	Market Cap ratio
2000	2	(0.60)	54,167.00	149,327.00	0	0.4757
2000	3	0.70	64,038.00	152,274.00	0	0.4377
2000	4	1.30	69,469.00	158,220.00	0	0.4159
2001	1	0.40	67,652.00	154,862.00	0	0.4054
2001	2	3.40	60,318.00	157,034.00	0	0.3836
2001	3	0.60	73,821.00	157,661.00	0	0.3493
2001	4	(1.20)	75,801.00	159,711.00	0	0.3349
2002	1	1.50	67,968.00	161,585.00	0	0.3309
2002	2	(0.50)	57,658.00	158,767.00	0	0.3330
2002	3	(2.50)	69,628.00	158,953.00	0	0.3412
2002	4	1.90	73,816.00	164,814.00	1	0.3743
2003	1	0.90	65,494.00	165,692.00	0	0.5070
2003	2	0.30	58,961.00	161,158.00	0	0.7055
2003	3	3.00	73,999.00	167,131.00	0	0.8068
2003	4	0.80	77,633.00	171,688.00	0	1.0421
2004	1	3.10	70,233.00	173,693.00	0	1.2654
2004	2	(1.90)	59,042.00	168,666.00	0	1.1104
2004	3	0.70	72,067.00	175,196.00	0	1.0226
2004	4	3.50	79,176.00	180,668.00	0	0.9734
2005	1	0.20	69,697.00	177,213.00	0	1.1760
2005	2	2.70	64,209.00	177,100.00	0	1.3548
2005	3	1.20	80,727.00	186,273.00	0	1.4656
2005	4	2.00	85,165.00	189,607.00	1	1.4622
2006	1	0.60	69,627.00	190,507.00	0	1.6043
2006	2	2.20	67,544.00	189,227.00	0	1.9481
2006	3	2.70	85,982.00	198,974.00	0	2.0440
2006	4	(0.30)	89,772.00	196,458.00	0	2.4065
2007	1	2.50	75,894.00	199,927.00	0	2.3455
2007	2	3.00	68,909.00	206,449.00	0	2.1965
2007	3	0.70	85,878.00	215,917.00	0	2.2780
2007	4	0.70	89,742.00	213,302.00	1	2.2887
2008	1	(2.80)	72,042.00	205,147.00	1	2.4619
2008	2	3.80	69,146.00	214,619.00	0	3.1128
2008	3	0.80	81,507.00	225,492.00	0	2.9568
2008	4	(1.50)	84,661.00	215,943.00	0	2.2992
2009	1	2.40	71,060.00	222,058.00	0	2.0293
2009	2	(0.60)	66,213.00	218,468.00	0	2.2186
2009	3	0.10	78,710.00	230,337.00	0	2.2091
2009	4	1.50	83,465.00	225,332.00	0	2.2506
2010	1	3.40	75,056.36	231,739.13	0	2.6326

Appendix VII		Regression model 3					
Periods		Dependent Variable	Independent Variables				
Year	Quarter	GDP % change (seasonally adjusted)	Agriculture and Forestry	All industries excluding agriculture	Socio-political elements	Turnover ratio (TOR)	
2000	2	(0.60)	54,167.00	149,327.00	0	0.0029	
2000	3	0.70	64,038.00	152,274.00	0	0.0029	
2000	4	1.30	69,469.00	158,220.00	0	0.0025	
2001	1	0.40	67,652.00	154,862.00	0	0.0036	
2001	2	3.40	60,318.00	157,034.00	0	0.0033	
2001	3	0.60	73,821.00	157,661.00	0	0.0021	
2001	4	(1.20)	75,801.00	159,711.00	0	0.0018	
2002	1	1.50	67,968.00	161,585.00	0	0.0018	
2002	2	(0.50)	57,658.00	158,767.00	0	0.0022	
2002	3	(2.50)	69,628.00	158,953.00	0	0.0032	
2002	4	1.90	73,816.00	164,814.00	1	0.0037	
2003	1	0.90	65,494.00	165,692.00	0	0.0045	
2003	2	0.30	58,961.00	161,158.00	0	0.0073	
2003	3	3.00	73,999.00	167,131.00	0	0.0061	
2003	4	0.80	77,633.00	171,688.00	0	0.0065	
2004	1	3.10	70,233.00	173,693.00	0	0.0082	
2004	2	(1.90)	59,042.00	168,666.00	0	0.0046	
2004	3	0.70	72,067.00	175,196.00	0	0.0061	
2004	4	3.50	79,176.00	180,668.00	0	0.0053	
2005	1	0.20	69,697.00	177,213.00	0	0.0046	
2005	2	2.70	64,209.00	177,100.00	0	0.0070	
2005	3	1.20	80,727.00	186,273.00	0	0.0088	
2005	4	2.00	85,165.00	189,607.00	1	0.0089	
2006	1	0.60	69,627.00	190,507.00	0	0.0092	
2006	2	2.20	67,544.00	189,227.00	0	0.0132	
2006	3	2.70	85,982.00	198,974.00	0	0.0132	
2006	4	(0.30)	89,772.00	196,458.00	0	0.0137	
2007	1	2.50	75,894.00	199,927.00	0	0.0112	
2007	2	3.00	68,909.00	206,449.00	0	0.0079	
2007	3	0.70	85,878.00	215,917.00	0	0.0107	
2007	4	0.70	89,742.00	213,302.00	1	0.0088	
2008	1	(2.80)	72,042.00	205,147.00	1	0.0094	
2008	2	3.80	69,146.00	214,619.00	0	0.0113	
2008	3	0.80	81,507.00	225,492.00	0	0.0090	
2008	4	(1.50)	84,661.00	215,943.00	0	0.0050	
2009	1	2.40	71,060.00	222,058.00	0	0.0032	
2009	2	(0.60)	66,213.00	218,468.00	0	0.0044	
2009	3	0.10	78,710.00	230,337.00	0	0.0042	
2009	4	1.50	83,465.00	225,332.00	0	0.0048	
2010	1	3.40	75,056.36	231,739.13	0	0.0067	