THE RELATIONSHIP BETWEEN DOMESTIC INVESTMENT ACTIVITY AND MARKET RETURNS AT THE NAIROBI SECURITIES EXCHANGE

PETTERSON KITOO MUTUA

D61/60148/2011

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS

UNIVERSITY OF NAIROBI

OCTOBER 2015

DECLARATION

This research is my original work and has not been presented for a degree in any other University

Sign …… Date ……..

Petterson Kitoo Mutua

D61/60148/2011

This project has been submitted for examination with my approval as university supervisor

Signature ……..…… Date …….

Supervisor; Dr. Iraya.

Senior Lecturer,

Department of Finance and Accounting

University of Nairobi

ACKNOWLEDGEMENT

I am thankful to the Almighty God for enabling me reach this far. I am also greatly thankful to my supervisor Dr. Cyrus Iraya who was available whenever I needed guidance on my project; his support and contributions have enabled me to complete my research project successfully.

DEDICATION

Mr. Ben Muchemi and my Uncle Muteti Nganda, I truly appreciate your concern towards my project and your support throughout my studies will be forever appreciated.

ABSTRACT

Domestic investor activity is key to spur growth in the stock market in a country. Domestic investors in a country's stock exchange are necessary to cushion the bourse against the uncertainties that are associated with foreign capital flight that occurs when the returns in the bourse are not satisfactory to the foreign investors. A good understanding on the role that domestic investors play is important to a local market in order to gauge their capacity to stabilize the market in the event that foreign investors are no longer stimulated by the return that the local market generates. Due to the numerous risks and the fragile nature of stock markets in the emerging markets, their appetite for investments is seasonal and the foreign investor will pull their investments out if the markets do not generate satisfactory returns. Thus there is need for a robust domestic investor base to sustain the momentum in the stock market and help to mitigate against the shocks that are associated with foreign capital flight. This study used a descriptive research design since the study was seeking to determine the relationship between domestic investment activity and market returns at the NSE. The domestic investment activity was measured by the monthly domestic investor trade turnover for the period 2010-2014. In this research a dynamic econometric model was employed to assess the relationship between foreign investment activity and market return at NSE. The study found that domestic investor participation has a negative relationship with market returns. There is a negative correlation between the NASI and the domestic investment activity in the market. Although the correlation is negative, it is moderate and though the number of domestic investors has risen steadily over the years, the monetary impact at the bourse is still low. Given the importance domestic investors in any local market, there is need to broaden the investor base in the country. Broadening of investor base will increase demand and push the price the prices up and hence lead to higher returns and stock market growth.

TABLE OF CONTENTS

LIST OF ACCRONYMS AND ABRREVIATIONS

APT: Arbitrage Pricing Theory

CAPM: Capital Asset Pricing Model

CMA: Capital Market Authority

EMH; Efficient Market Hypothesis

GDP: Gross Domestic Product

GDR's: Global Depositary Receipts

IPO's: Initial Public Offerings

LOF: Liabilities of Foreignness

MPT: Modern Portfolio Theory

NASI: Nairobi All Share Index

NSE: Nairobi Securities Exchange

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Stock markets have grown considerably in developed and developing countries over the last two decades. Several factors have aided in their growth, importantly, improved macroeconomic fundamentals, such as monetary stability and higher economic growth. General economic and capital market specific reforms, including privatization of state-owned enterprises, financial liberalization, the establishment of stock exchanges and bond markets, and an improved institutional framework for investors, have further encouraged capital market development. Financial globalization has also advanced in the last two decades with increased cross-border capital flows, tighter links among financial markets, and greater commercial presence of foreign financial firms in countries around the world (Barber & Odean, 2000).

An important element of the globalization trend has been the increase in the stock exchange activities that take place abroad, most notably for emerging markets, but also for developed countries. Many firms now cross-list on international exchanges, with depositary receipts being a particularly popular instrument to access international markets. Going forward, many expect these globalization trends to continue as access to information improves standards (concerning corporate governance, listing, accounting, and others) become more harmonized, technology advances, and inter-market linkages further increase (Mishkin & Eakin, 2007).

According to Reilly and Brown (2006) investment is commitment of funds for a period of time in order to derive a rate of return that will compensate the investor for the period during which the funds are invested, for the expected rate of inflation during the investment horizon and for the uncertainty involved. An investment decision is a tradeoff between immediate consumption and

deferred consumption so as to enjoy greater consumption in future. In traditional finance theory, which derives from neo-classical economic theory, investors are assumed to be rational and competent (Popescu, 2008). The market actor makes decisions according to the axioms of expected utility theory. According to the expected utility theory, a person is risk averse and the utility function is concave. Prices are set by rational investors and consequently rationality based equilibrium is achieved. In this equilibrium, securities are priced according to the efficient market hypothesis (EMH). According to the EMH security prices incorporate all available information and prices can be regarded as optimal estimates of true fundamental values at all times (Barberis & Thaler, 2003). EMH is based on the notion that investors behave rationally, maximize expected utility accurately and process all available information (Shiller, 1998).

The returns at the Nairobi securities exchange have been very good, over the last three years, the Nairobi Securities exchange has been the top-performing bourse in Africa. In 2013 it was third best performing stock exchange in Africa, after the Ghana and Malawi stock exchanges, with a yearly return of 52% (Africastrictlybusiness.com, 2014). In 2014, it was the fourth best performing bourse in Africa with a return of 19.20%, (Asoko Insight 2015). Its cumulated return is 113% in the last three years and 80% return in the last five years. As at March 2015, the Year to date return of the Nairobi securities exchange was 5.4% (Africastrictlybusiness.com, 2015)

1.1.1 Domestic Investment Activity

Domestic investment activity is the investment by local companies or individuals in the domestic market. This is done either through initial public offer (IPO), a rights issue or when investors buy shares through stockbrokers or investment banks in the secondary market. Due to the high returns in the securities markets as compared to other alternative investment avenues in the

country, domestic investors have been attracted to invest in the Nairobi securities exchange. In 2013, the Nairobi securities exchange had better returns than the real estate sector, the fixed deposits and government securities (Investing in Africa, 2015). In the last 3 years the bourse has had a average cumulative return of above 50% year on year (Africastrictlybusiness.com, 2015), making a very attractive investment vehicle to the local investors This has led to domestic investor to be attracted to the bourse due to the high returns that have been witness in the past years.

The stock exchange market is a secondary market in which already issued shares are bought and sold. The market is important as it provides a ready market for those who want to buy and those who want to sell thus making financial instruments liquid. The market publishes useful information in statistical and summary form about various companies for guidance. It keeps an eye on the financial affairs of every company whose shares are bought and sold through it. In Kenya the only organized stock market is the Nairobi stock exchange (NSE). The Nairobi stock exchange has a long history, which can be traced back to the 1920s when it commenced as an informal way of dealing in shares. Now it is quite advanced with the creation of the capital market authority (CMA) and introduction of the central depository system (NSE,2008).

The Nairobi Securities Exchange (NSE) market has lately witnessed even the ordinary in society flocking its corridors for business. The oversubscription in initial public offerings (IPOs) in the recent past highlights the fact that the Kenyan people are now aware of equity securities as an investment asset and an alternative to real estate and other ventures. One cannot buy shares or invest anywhere else unless one has some disposable income. According to Irungu (2011), the Kenya Electricity Generating Company (KenGen) IPO in 2006 opened the door for retail

investors at the NSE, raising their number to nearly 500,000 from just about 80,000 before the issue. Between 2006 and 2008, a number of companies have listed at the bourse including Scangroup, Safaricom, Cooperative bank, Kenya Re, Equity Bank and Eveready East Africa. For the first time, the number of individual investors passed the one million mark, with Safaricom alone bringing in 860,000 new accounts in 2008.

Uptake of IPOs was not very rosy after the Safaricom IPO. Many people who took part in the IPO saw the share plummet to 2.50 in 2009 but the share, over the years has surged and touched a an all time high of 17 shillings in March 2015 (NSE, 2015). In contrast, inventors in KenGen bought shares at Kshs11.90 per shared during the IPO and some sold them at Kshs. 63. In the past four years, individual investors have sold nearly half of their stocks at the NSE, leaving institutional investors (who dominated trading before the 2006 KenGen share sale) firmly in control of the market. According to the capital markets regulator, individual investors cut their investments in equity from a peak of 27% of the market capitalization in 2008 to 14% in 2010. Two thirds of NSE listed companies have recorded net exits of individual shareholders, leaving room for institutional investors to increase their stake (Mulwa, 2011).

The NSE domestic investment activity is measured by the daily transactional activities during trading periods, which can be measured by the total purchases and sales on different counters at the securities exchange.

1.1.2 Market Returns

Stock Market Returns are the returns that the investors generate out of the stock market. This return could be in the form of profit through trading or in the form of dividends given by the

company to its shareholders from time-to-time. Stock Market Returns can be made through dividends announced by the companies. Generally at the end of every quarter, a company making profit offers a part of the kitty to the shareholders. This is one of the source of stock market return one investor could expect. The most common form of generating stock market return is through trading in the secondary market. In the secondary market an investor could earn stock market return by buying a stock at lower price and selling at a higher price (economywatch.com, 2015)

Stock market indexing is one of the most widely used measures of stock performance. Investors hold portfolios of many assets but it is cumbersome to follow progress on each security in the portfolio. Thus it is prudent to observe the entire market under the notion that their portfolio moved in the same direction as the aggregate market. The market index such as the NSE All Share Index is used to observe total returns for an aggregate market and these computed returns are to judge performance of individual portfolios. The stock composite index is found to be significant in explaining markets price movements, which are also affected by inflation rate and hot money inflows (Zhang, 2009). Quan and Titman (1999) argue that a number of earlier researchers have utilized stock price indices in determining the return of the stock market assets.

Most economies in Africa such as Kenyan economy are fragile and resilient to both external and internal shocks hence macroeconomic factors are more likely to influence African stock returns. The relationship between macroeconomic variables and stock returns has emerged due to the fact that the Capital asset Pricing Model (CAPM) assumes that the uncertainty about future prices of securities is the only risk that the investors are concerned with (Sharpe, 1964). However, investors are also concerned about other risks that affect their investment opportunities and

investment returns. For example, the uncertainty about macroeconomic variables such as Gross Domestic Product, inflation, exchange rates, money supply, and interest rates, are other risks other than the market risks.

The main measures of market returns include; stock market indexing, market capitalization and stock turnover, In Kenya, the market index such as the NSE All Share Index is used to observe total returns for an aggregate market and these computed returns are to judge performance of individual portfolios. According to Simiyu (1992) as cited in Kariguh (2014) the assumption is that randomly selecting a large number of stocks from the total market should enable the investor to generate a rate of return comparable to the market. An Index number effectively summarizes hundreds of price movements. There are both price and volume index (Kariguh, 2014)

1.1.3 Domestic Investments Activity And Market Returns

A domestic investor refers to any person or corporate organization that is domiciled in a country in which it conducts it investment activities. It is an entity that seeks to conduct business operations in the country it is domiciled with the aim of creating profits and maximizing shareholder wealth using resources and manpower largely drawn from the domiciled country. Optimal insider ownership theory states that the upper bound on foreign ownership through equity is determined by the optimal size of insider ownership, this may lead to home bias. With weak governance, concentrated insider leadership is optimal (Warnock *et al,* (2006) Large ownership of equity to local insider investors translates to a lower percentage of foreign ownership to the stock, this thus indicate that the local investor activity will largely determine the direction of market and hence determine the market returns at the bourse.

Over the last ten years, over nineteen companies have been listed in the Nairobi securities exchange, this period has marked the most aggressive listing period in the history of the Bourse, the listings done in the last 10 years represent 30 percent of the total listed companies in the bourse, the most notable listings are the Kengen listing which saw the government sell 30 percent of its stake through a successful offer that received over 280,000 applications, this was the most publicized Initial public offer (IPO) at the bourse in the last ten years, it saw the number of domestic investors increase tremendously as the public became aware of how the stock market functions, as a result the IPO was oversubscribed by 337 percent, most of the investors were domestic investors who got full allocation of their application

This heralded a new era of domestic investor participation in the market, and thereafter most listings that soon followed thereafter were oversubscribed by very big margin, most notably the scan group IPO which was oversubscribed by 500 percent and the Safaricom IPO which was oversubscribed by 532 percent, it raised a demand worth 226 Billion Kenya shillings although only 51.75 Billion shillings was being raised from the offer, (Reuters, 2008).

Several studies; Kalev *et al*. (2006) Tan *et al.* (2007) Lee *et al.* (2013) and Stulz *et al.* (2005) have established that domestic investors perform better than foreign investors in stock market, this has been attributed to information asymmetry were the local investors better understand the market more than the foreign investors, liabilities of foreignness (LOF), when the investors are from countries higher institutional distance, unfamiliarity and cultural differences. This difference in profitability has also been attributed to higher transactional costs for the foreign investors. The studies done in different markets around the globe have found that local investor activity is associated with higher returns in the stock market. Jithendranathan (2000) found that

foreign investors, who hold global depositary receipts, estimated the expected returns at a lower level than the domestic investors do in India. While Lee (2013) they found that a change in foreign institutional ownership is negatively related to future returns, while this relation does not exist for domestic institutional ownership.

African markets returns however remain low, in real money as compared to markets in other parts of the world. A study done by Senbet and Otchere (2010) noted that though integration of African stock markets with the rest of the world has increased following periods of reforms, these markets remain thin and illiquid, causing a barrier to financial globalization despite the high returns they record. The major challenges affecting stock markets in Africa are that only few stocks are traded and such stocks form a larger proportion of total market capitalization.

1.1.4 Nairobi Securities Exchange

The background of Nairobi Securities Exchange (NSE) can be traced to the 1920's when it commenced trading in shares while Kenya was still a British colony (IFC/CBK, 1984). While share trading was initially conducted in an informal market, there was a growing desire to have a formal market that would facilitate access to long-term capital by private enterprises and also allow commencement of floating of local registered Government loans. The NSE was constituted in 1954 as a voluntary association of stockbrokers registered under the Societies Act. The newly established stock exchange was charged with the responsibility of developing the stock market and regulating trading activities (NSE, 1998a).

Wagacha (2001) describes NSE as a market that provides financing through sale of stocks and securities of Public quoted firms and Government to investing public. Nairobi Stock Exchange

started dealing in shares and stocks in the 1920's as a voluntary association of stock brokers but trading was not formal. In 2002 the Central Depository and Settlement Corporation (CDSC) was introduced. In July 2011, the Nairobi Stock Exchange Limited changed its name to the Nairobi Securities Exchange Limited reflecting the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. In September 2011 the Nairobi Securities Exchange converted to a company limited by shares. Types of Indices used NSE 20 share Index, NSE All Share Index (NASI) and FTSE NSE Indices. By 2011 60 firms were listed at the NSE categorized as main investment segment and alternative segment grouped into sectors of manufacturing and allied, commercial and service, agricultural, construction and allied, energy and petroleum, telecommunication and technology, banking, insurance and investment.

Returns at the Nairobi stock exchange over the last three years have been positive, they have been inflation-beating returns and the returns have also been better than the Treasury bills, which is usually the risk free rate, and the treasury bonds returns, this has seen the Nairobi securities exchange emerge as one of the best performing bourses in Africa. Year to date return at the bourse was 5.4% as at March 2015 (Investing in Africa, 2015). In 2013, the Nairobi securities exchange had better returns than the real estate sector, the fixed deposits and government securities.

1.2 Research Problem

With the increase in participation of the local investors at the NSE in the last ten years, robust growth has been witnessed; the NSE20 share index has risen from 3094 in January 2005 to 5400 in December 2014. This period has also been a period were numerous IPO's were done bringing many local investors to the bourse, the percentage of investors in the market as at June 2014 was at 52.4% local investors and 24.3% of the holdings were held by local corporate institution, this meant that local investors accounted for 76.7% of the market holdings (Business Daily, 2014). This meant that local investors had the capacity to swing volumes and drive the market, in such a case, domestic investor activity is important as a determinant of market returns and any variation and reversal of domestic investment may alter the market performance.

With the rapid development od the stock markets in the emerging markets, the returns of these markets have been attractive, the Nairobi stock exchange, for instance has been on a bull run since 2012, after smarting from a bear in 2011 and part of 2012, the returns registered by the bourse in 2013, saw the NSE 20 share index gain 18.89% and the NASI gain 41.18%, the NSE was ranked as one of the top five best performing bourse in the world, despite a slowdown in 2014, the bourse still made gains in 2014 with the NASI advancing 15.72% during the trading period of the year, (Business Daily, 2014).

With the increase of domestic investors in the Nairobi securities exchange, the financial strength of the domestic investor has increased tremendously, active investors in the first three months of trading in 2014, increased from 820,000 investors to 1.67M driven by the continuing bull run, most of the investors were local investors who accounted for 52% of the traders with foreign

corporate investors accounting for 21.5% down from 39.8% as at the end of 2013, the Nairobi All Share Index (NASI) was up 10 points during the same period. This indicates that the domestic investment activity is a key driver to market returns at the Nairobi securities exchange (Business Daily, 2014).

This indicates that domestic investors have become major players in the market, and able to move the market volumes and indices, thus influence market returns to a certain extend, unlike the years before 2006. There exists a gap on the study about the impact and influence of domestic investor activity on the Nairobi securities exchange. A study on the behavior and the impact of domestic investors to the returns in the market is therefore a way to understand and determine their degree of influence to the market.

Studies on the relationship between the domestic investor activities and the market returns have been are very few. The scholarly work has largely been concentrated in investigating the effects of foreign investor activity, foreign direct investments (FDI, s) and impact on the development and performance of stock markets across the world. Even when the studies of domestic investment activities have been done the results have been inconclusive, Kim (2000) in studying to analyze the extent to which information asymmetry and investor sophistication affect the performance of different investor groups (foreigners, local institutions, and local individuals), using a daily transaction data from the Korea Stock Exchange over a three year period (1997 ~ 99), found that in large stocks, where information asymmetry problem is small, foreigners and local institutions outperformed local individuals, reflecting the degree of investor sophistication. In small stocks, where information asymmetry problem was grave, however, foreigners and local institutions under-performed local individuals. This study was however limited to the number of

variables and didn't incorporate all the variables that may affect stock returns, the study was also done fifteen years ago, foreign participation was low.

A study done by Tong *et al*. (1999) on the effect of market segmentation on stock prices in China, in their study, they found that Class B shares; open only to foreign investors; traded at a discount relative to Class A shares which are open to only local investors, this was contrary to other markets with similar segmented market structure. This was however due to the existence of H-share and "red chip" markets in Hong Kong which provided a good substitute for B-share market, when more H-shares were listed in Hong Kong, the B-share discount became larger.

According to Bekaert and Harvey (2000) foreign investor inflows lower the cost of capital in emerging markets and help in financing their growth. However, the change in investor composition affects equity prices when foreign investors buy shares to lower risk premium and by foreign investors offering domestic investors an inducement to sell. This compensation only affects prices in the short-run and its size depends on the liquidity of the market. Foreign investor portfolios are however reversible and tend to leave as fast as they come in an economy. Due to this, foreign flows may have a drastic impact on the economy and on the value of shares of companies in which foreign investors offload their holdings and ultimately the returns at the stock markets, hence there is need to study whether the domestic investor activity is significant enough to sustain the market and prevent short-term instability that maybe witnessed in the event foreign investors offload their holdings at the bourse.

A study done by Agarwal *et al*. (2008) on performance of domestic investors and foreign investors at the Indonesian stock market, the study found that the foreign investors underperform

domestic investors. This study showed that their inferior performance is attributable to non-initiated orders. Foreign investors actually performed better than domestic investors in initiated orders. In addition, their performance was also mixed when trades are classified depending on who the counterparties are, while Kang and Stulz (1997) using annual data for 18 years find no evidence that foreign investors outperform domestic investors in Japan. This study has been in stock exchanges that are far more advanced than the Kenyan securities exchange. Also, having been done in different continents, the variables that affect the market returns in Asian markets maybe different from African markets, hence the need for this study in an African market.

Very few studies have been done on developing markets especially in Africa to show how domestic investor's activities are affecting the returns on the listed stocks. This gap of literature together with the identified gaps in the above studies, are the motivation factors towards studying the relationship between domestic investment activity and market return at the Nairobi Securities Exchange.

1.3 Research Objective

The objective of this study was to determine the relationship between domestic investment activities and stock returns at the Nairobi Securities Exchange.

1.4 Value of the Study

The information generated from this study will be of value to scholars and academicians in understanding the dynamics of domestic investment activities and market returns in order to provide knowledge upon which further studies and research can be undertaken to explain the

phenomena and create models and theories that can adequately explain this area of study as well as other related areas.

The study will provide domestic investors with better insights on domestic investment activity and market returns and how to maximize stock returns in order to contribute to the growth of domestic investment activities.

This study will also assist policy-makers to implement new sets of policies relating domestic investment activities to ensure continuous economic growth. Capital Market Authority as regulator of listed firms should ensure that good corporate governance maintained to promote the value and interest of stakeholders ensuring that full disclosure and compliance with international financial standards adopted by the country.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This section presents the theoretical framework in relation to domestic investment and stock returns, the review of literature, empirical review and finally a summary of the literature review.

2.2 Theoretical Review

The theoretical section of this paper will try to uncover whether or not existing theories suggest that there exists a relationship between domestic investment activity and market returns.

2.2.1 Modern Portfolio Theory

Modern Portfolio Theory (MPT) is a sophisticated investment approach first developed by Professor Harry Markowitz of the University of Chicago, in 1952. Markowitz (1952) described how to combine assets into efficiently diversified portfolios. He demonstrated that investors failed to account correctly for the high correlation among security returns. It was his position that a portfolio's risk could be reduced and the expected rate of return increased, when assets with dissimilar price movements were combined. Holding securities that tend to move in concert with each other does not lower your risk.

Diversification, he concluded "reduces risk only when assets are combined whose prices move inversely, or at different times, in relation to each other." Diversification reduces volatility more efficiently than most people understand. The volatility of a diversified portfolio is less than the average of the volatilities of its component parts. While the technical underpinnings of MPT are

complex, and drawn from financial economics, probability and statistical theory, its conclusion is simple and easy to understand. A diversified portfolio, of uncorrelated asset classes, can provide the highest returns with the least amount of volatility (Markowitz, 1991).

MPT is the philosophical opposite of traditional asset picking. It is the creation of economists, who try to understand the market as a whole, rather than looking for what that makes each investment opportunity unique. The asset allocation problem is one of the fundamental concerns of financial theory (Cohen & Natoli, 2003). Asset allocation and risk are vital components in the MPT. Investments are described statistically, in terms of their expected long-term return rate and their expected short-term volatility. The volatility is equated with "risk", measuring how much worse than average an investment's bad years are likely to be. The goal is to identify the acceptable level of risk tolerance, and then find a portfolio with the maximum expected return for that level of risk (Elton & Gruber, 1997).

2.2.2 Market Segmentation Theory

Segmentation of international markets may be due to a variety of factors. Stutz, **(**1981b) has defined market segmentation as the condition where ‘‘two assets which belong to different countries but have the same risks with respect to some model of international asset pricing without barriers to international investment have different expected returns’’. The possible reasons for market segmentation are: direct investment barriers such as restrictions on capital movements and tax differentials, Inability of a group of investors to transact, implications of exchange rate risk on international asset-pricing**,** and percent foreign ownership limits **(**Bailey & Jagtiani, 1994)

Market segmentation can results to different pricing of the same share in different markets when the stock is cross-listed. As long as foreign investors have a relatively inelastic demand on domestic shares, the firm can successfully price-discriminate by charging foreign investors a higher share price. This results to foreigners paying more for the same stock and hence lower returns in real terms. Several companies in the Nairobi Securities Exchange have cross-listed in different markets, in accordance with the market segmentation theory; it would infer that investors pay a higher price in the cross-listed markets and that will realized lower returns as compared to domestic investors domiciled in Kenya. In market segmentation, In a country where restrictions on foreign equity ownership exist; Stulz and Wasserfallen, (1995) show that demand function for domestic shares differs between domestic and foreign investors and, as a result, foreign investors might pay a higher price for the shares than domestic investors, In Kenya 25% of the shareholding is reserved for local investors, while the rest is open to all classes of investors (Ngugi, 2000). The maximum shareholding of foreign investors is capped at 40% of share capital. (CMA, 2010)

In a study to investigate barriers to international investing and market segmentation in India, Jithendranathan *et al*. (2000) used a theoretical and empirical model developed along the lines of Hietala; (Hietala, 1989). Their model looked at a specific type of market segmentation in India, where capital flow barriers were such that domestic investors are allowed to invest only in domestic securities, while the foreign investors can invest in dollar-denominated Indian GDRs as well as other foreign securities. Tests on these GDRs indicated that foreign investors, who hold these depositary receipts, estimated the expected returns at a lower level than the domestic investors do. This led to the GDRs being priced at a premium over the exchange rate adjusted prices of the underlying Indian securities. GDR index returns were affected by both domestic and

international factors, while the underlying Indian securities were affected only by domestic variables.

2.2.3 Information Theory

Shanon (1948) developed the entropy theory of information; to determine how much information a communication system can receive from the source of information. This theory was expanded into an economic theory (Chen, 2003, 2005). The basic idea of this theory is to assert that information is the reduction of entropy, not only in a mathematical sense, as in Shannon's theory, but also in a physical sense. The physical cost of information is highly correlated with economic cost of information. This information theory provides natural measures of the cost of obtaining information and of information asymmetry. In a recent work, Ivkovic and Weisbenner (2005) questioned whether investor performance should be interpreted primarily as a behavioral phenomenon or information driven.

They conclude, at least in their sample, that information is the primary reason of investment performance. Empirical results also suggest that superior performance of investors trading local securities and geographically proximate analysts is due to an information advantage over others Kacpercyzk, Sialm and Zheng (2005) documented that, mutual funds whose portfolios are highly concentrated in industries where the fund managers have informational advantages perform better than mutual funds with well-diversified portfolios. The empirical evidences suggest we should explore an information-based theory of market behavior. However, theory offers little guidance in identifying informed investors and in distinguishing between securities with scarce information and those with widely available information (Coval & Moskowitz, 2001).

The ability to understand information depends on the background knowledge of investors. This indicates that investors will earn higher rate of return if they choose to invest in securities that they are familiar with. This is supported by some recent empirical investigations. Professional managers' and individual investors' local investments outperform their remote investments. Ivkovic and Weisbenner (2005) provides evidence that local analysts are significantly more accurate than other analysts in forecasting and recommendations. Investors take longer time to understand information from sources they are less familiar with. Hong, Lim and Stein (2001) empirically confirm that information from small firms, from firms with low analyst coverage and from firms with bad news, which managers are reluctant to release, generally diffuse slower. From Hvidkjaer (2001) the selling pressures on losers generally are stronger and last much longer than buying pressures on winners, suggesting information processing is less efficient on bad news. Since insiders understand information much better than others, they can and will take advantage of this information asymmetry to pursue certain corporate activities (Ang & Zheng, 2002).

Domestic investors, investing at the Nairobi Securities Exchange, will thus use the information advantage they have over the foreign investors. Using the advantage in information, they will act in accordance with the information acquired long before the foreign investors act and will hypothetically be expected to have higher returns.

2.2.4 Efficient Market Hypothesis

Fama (1970) explains that in an efficient market stocks will always trade at their fair market value in the securities exchange reflecting all available information, making it almost impossible for investors to purchase undervalued shares or sell shares at inflated prices. In reality individuals do not think rationally, are instead led by emotions, subjective thinking, and at times by the herd mentality (Shah & Oppenheimer, 2008). The EMH has steadily become deficient to explain market behavior, subsequently leading to a shift in thinking, with the understanding that the market consists of human beings whose behavior cannot be understood solely through mathematical or economic studies (Ozerol *et al,* 2011). In making decisions to invest individuals behaviors will therefore be driven by personal frames, including availability of financial information to guide their selection decision. Behavioral theorists' postulate that investment decisions are to some extent influenced by personal prejudices and perceptions that fall short of the criteria of rationality as proposed in the EMH. The contemporary capital markets are therefore being analyzed from a new perspective of behavioral finance, a theoretical model applying the principles of psychology and sociology to finance (Pompion, 2008).

The IPO pricing in Kenya is inconsistent with the EMH, as evidenced by the under and overpricing phenomenon observed in Kenya. Kiplangat *et al*. (2010) examine determinants of investor confidence in Kenya, the study revealed that price movements in the NSE are significantly related to investor sentiment since the Equity Market Sentiment Index (EMS) captured capital market related news and events. It is therefore probable that investors' psychology is a potential explanation for stock activity movements. EMH has steadily become

deficient to provide explanation for the market behavior, more dramatically perhaps, the drastic drop in United States share prices by over 30 per cent during a two-month period that preceded the crash of October 1987 (Mosomi & Ghayekhloo, 2011). Subsequently, there has been a shift in thinking, with the understanding that markets consists of human beings whose behavior cannot be understood solely through mathematical or economic studies (Ozerolet *et al*, 2011).

2.2.5 Pricing to Market Phenomenon

The pricing-to-market (PTM) refers to the phenomenon that the same securities are priced differently for different investors. The premium and discount when assets are priced to market are determined by (I) the severity of restrictions imposed on foreigners and (ii) foreigners' ability to mitigate the effect of these restrictions using their own domestic securities. In Kenya restrictions imposed to foreign investors regard to the maximum shareholding for individual and institutional investors at 5% and 40% respectively. The withholding tax of foreign investors is 10% for foreign individuals while the same is 5% for local investors. This differential in restrictions applied on the two sets of investors creates a discount for the local investors due to the lower tax regime and hence they may realize higher returns at the bourse, (CMA, 2010).

2.3 Determinants of Stock Returns

Market returns are generally considered to be the reflector of financial and economic conditions of a country. A number of factors have been found to explain the correlation between domestic purchases and stock returns depending on how domestic investment activities affect domestic stock prices.

2.3.1 Market Capitalization

Changes in market capitalization occur due to fluctuations in share prices or issuance of new share prices or issuance of new shares and bonus issues. This implies that high activity at the stock market may signal more investments in the stock markets. Market turnover indicates inflows and outflows in the stock market and is based on the actively traded shares. A change occurs due to the actively traded shares and to fluctuations in share prices or number of shares traded in a given day.

Otuke (2006) examined that market capitalization as another measure of stock market return. This indicator is used to measure market movements by measuring the total value of stock in a particular stock market and aggregating the market value of the quoted stocks.

Subeniotis *et al.* (2011) examined how market capitalization, industrial production, economic sentiment indicator inflation affect stock markets in Europe. The study was done in 12 countries for a period of five years; the empirical results reveal a strong effect of the first three factors, while inflation has a negative but not statistically significant coefficient. Further, the variables that affect the stock markets positively are market capitalization and the economic sentiment indicator.

2.3.2 Interest Rates

The relationship between stock prices and interest rates has received considerable attention in the literature. Fama (1981) argues that expected inflation is negatively correlated with anticipated real activity, which in turn is positively related to returns on the stock market. Therefore, stock market returns should be negatively correlated with expected inflation, which is often proxied by

the short-term interest rate. On the other hand, the influence of the long-term interest rate on stock prices stems directly from the present value model through the influence of the long-term interest rate on the discount rate. Rather than using either short-term or long-term interest rates, Campbell (1987) analyzed the relationship between the yield spread and stock market returns. He argues that the same variables that have been used to predict excess returns in the term structure also predicts excess stock returns, deducing that a simultaneous analysis of the returns on bills, bonds and stock should be beneficial. His results support the effectiveness of the term structure of interest rates in predicting excess returns on the US stock market. Kaul (1990) studied the relationship between expected inflation and the stock market, which, according to the proxy hypothesis of Fama (1981) should be negatively related since expected inflation is negatively correlated with anticipated real activity, which in turn is positively related to returns on the stock market. Instead of using the short-term interest rate as a proxy for expected inflation, Kaul (1990) explicitly models the relationship between expected inflation and stock market returns.

Recent work by Ryan and Worthington (2004) and Korkeamaki (2011) suggests that interest rate exposure has declined over time primarily due to the increased availability of improved tools for managing interest rate risk. The extraordinary growth in interest rate derivative markets and the expansion of corporate bond markets may have played a critical role in this context. The sensitivity of stock returns to movements in long-term interest rates is substantially greater than the sensitivity to changes in short-term rates (Bartram, 2002). Nonfinancial firms in regulated or highly indebted industries such as Utilities, Electricity, Real Estate and Technology and Telecommunications are commonly recognized as the most interest rate sensitive (Sweeney & Warga, 1986).

2.3.3 Investment Activity

The capital markets play a fundamental role in providing a platform for investment and stimulating economic growth and development through mobilization of resources in an economy (Yartey & Adjasi, 2007). The markets facilitate the exchange of financial assets (stocks and bonds), following established regulations to provide continuous liquidity in the market.

According to Easley *et al.* (2010), when forming an intention to participate in investment activities, individual investors normally begin with assessment of companies financial positions based on some objective measures such as return on equity or earning per share. Subsequently, their emotional perceptions of such evaluations may come into effect as they try to justify their investing decisions in a given company's stocks. Chong and Lai (2011) explain that in making an investment decision, rational individuals are likely to seek information on performance as well as the behavior of other investors. The timing and delivery of the information about the market had substantial effect on how investors made their decisions (Hughes, 2008).

2.3.4 Valuation Ratios

Although the market efficiency theory says that the stock market returns are not predictable, still the valuation ratios play an important role in predicting future equity returns. Valuation ratios are believed 'to extract information in prices about risk and expected returns (Keim 1988 in Fama and French, 1992, p.428). On the other hand, Fama and French (1992) also argue that most of valuation ratios are scaled versions of price and therefore are redundant for describing average returns. They argue that valuation ratios mimic the underlying common risk factors in equity returns and according to the asset-pricing model should be no more than proxies of ß. However,

the empirical findings point out that valuation ratios capture risk factors, which are missed out by the beta of the capital asset-pricing model.

2.3.5 Inflation

The majority of studies show that there is a negative relationship between inflation and expected returns in developed countries and that the Fisher hypothesis does not hold in the stock markets Only recently Boudoukh and Richardson (1993) find that nominal stock returns and inflation are negatively correlated in the short term, but positively correlated in the long term. However, in contrast to the latter statement, Erb, Harvey and Viskanta (1995) do not find a positive relation between long-term inflation and long-term average returns. Erb, Harvey and Viskanta (1995) extended their sample to 41 developed and emerging stock markets and found a significant negative relation between inflation and stock returns in most of the countries.

2.3.6 Country Ratings

There has been a substantial amount of research on country credit ratings and their role in determining or influencing stock market returns in emerging markets. According to Kaminsky and Schmukler (1992) sovereign ratings have a direct impact on emerging financial markets, affecting not only bonds but also equity prices. According to Kaminsky and Schmukler (1992) sovereign ratings not only considerably affect bond and equity markets, they also cause cross-country contagion and spillover effects with less transparent economies affected most. They support the idea that sovereign downgrades usually occur during downturns and hence significantly contribute to the instability in emerging markets,

2.3.7 Country Default Risk

The vulnerability of emerging markets to financial crises raises serious considerations for foreign investors. The empirical evidence show that financial crises have a drastic effect on the stock markets causing dramatic drops in stock market indices in emerging countries. For instance, the Mexican stock market index dropped by 38.7% during the Mexican peso crisis (December, 1994 - February, 1995), Thai stocks fell by 48.4%, Indonesians by 81.7%, Malaysians by 58.4%, Philippines by 49.2% and Koreans by 63.1% during the Asian crisis (July - February, 1998). The Russian stock market collapsed, losing 41.3% in August 1998. Hence, the impact, caused by financial crises raises questions whether the international investors price the country default risk in emerging equity markets and how the probability of financial crises occurrence might affect the stock market performance (Clark & Kassimatis, 2005).

2.4 Empirical Review

Tuomas, Ricardo and Isabel (2011) investigated the factor basics, financial, and dynamic investment in emerging markets. The study used the methodology of the direction of the gradient regression (PVAR) to analyze the adaptation of private investment in the short term to shocks to the fundamental factors and financial in emerging market economies, the researchers concluded that: The investment adapts slowly with shocks of these investments; GDP and shocks in stock prices has a positive impact and significant investments in the financial market; and that the investment response to developments in the credit market will be driven by demand. In addition, the events indicate that the effects of vibrations on the stock prices are identical in emerging Asia and Latin America, but the emotion, the credit is more important in Latin America.

Moreover, the impact of the lending rate will be very clear and negative in the European emerging markets, and finally show that the stock market bubbles may be an incentive in real investment in nineties. Boyer and Filion (2011) undertook a study on the impact of investment flows on stock returns in the stock market, the main objective of the study was to analyze the relationship between stock market index returns and cash flows (net purchases of shares) for a large number of investment groups in the United States during a period of 1952-2004, the study found a strong relationship between the automatic quarterly flows of different investment groups and between the stock prices, and existence of a close relationship between stock market returns and the cash flow of investment funds and foreign investors.

Zubi (2000) conducted a study to determine the impact of variables on stock prices and trading volume in Amman Stock Exchange for the period (1978-1998). The main objective of this study was to investigate the effect of macroeconomic variables on the Amman Stock Exchange index, the study revealed that the Amman Stock Exchange index responded to macroeconomic variables together, and there was no any relationship between each independent variable of variables selected separately and the dependent variable only when the general index of the financial market slowed down.

A study by Billmeier and Massa (2008) on the macroeconomic determinants of stock market had an objective of assessing the macroeconomic determinants of stock market in 17 markets from emerging countries in the Middle East and Central Asia in addition to the markets of countries with rich natural resources. The study used many traditional variables in assessing the determinants of macroeconomic and its impact on market shares in the markets. The findings of

the study revealed that the variables had institutional impact on the shares of the market, while the traditional variables and institutional relationship were strong in the markets with poor natural resources. It was concluded that the main factor that affected the determinants of stock prices in the countries with rich natural resources was affected mainly by the price of oil.

Ndiege (2012) examined the factors influencing investment decision in equity stocks at the Nairobi stock exchange among teachers in Kisumu Municipality. The study noted that majority of the investors preferred to invest in real estate as opposed to investment stocks in which only small proportion of 28 per cent of the respondents invested. The study findings also show that decisions to invest in equity stocks were influenced by expected dividends, capital appreciation and affordability of shares. The herd mentality was also found to play a role as explained by investment decisions based on shares in high demand and friends and co-workers recommendation.

Kipngetich, Kibet, Guyo and Kipkoskey (2011) investigated determinants of IPO pricing in Kenya. They explored the extent to which investor sentiment, post-IPO ownership retention, firm size, board prestige and age of the firm affect IPO pricing of firms listed at NSE. Secondary data (1st January 1994 to 31st December 2008) was used and analyzed using multiple regression analysis and presented using descriptive statistics. Average under-pricing of 49.44 percent was observed in Kenyan IPOs for the period under study and all the variables tested were found not to significantly influence IPO offer price at the 5 percent level of significance. The study concluded that public information disclosed in the prospectus was insignificantly mirrored in IPO offer prices and that rational theory cannot explain the effect of investor sentiment in IPO market in Kenya given that investor sentiment and board prestige were negatively related to IPO

offer price. Further research is needed on the role of regulatory authorities, especially as regards disclosure requirements, in protecting potential investors as the publicly available information provided in the prospectus may not reflect all pertinent facts to inform sound investment decisions.

Gatua (2013) sought to analyze the share price determinants at the Nairobi securities exchange, the study was to analyze share performance of seven firms listed at the Nairobi Securities exchange from the period, 2008-2012, the results revealed that there is no one model that can determine share prices at the NSE, this was consisted with the findings in literature that selected determinants had little effect on the share price.

Okumu (2013), sought to investigate the impact of microstructure changes on market efficiency at tha Nairobi Securities Exchange, The results indicated that mean market returns in the post automation period were higher and more volatile than those in the pre automation period. This higher market returns can be attributed to improved price discovery process, while the higher volatility may be due to changes in market microstructure through the trading system. The results from normality tests showed that market returns are not normally distributed in both the period. In addition, the runs test results revealed that market returns were more random in the period following automation than the prior period, implying that the market had improved in efficiency.

Waweru (2010) sought to establish if there exists a relationship between stock prices and news of an IPO at NSE. Secondary data (2004 to 2009) was obtained and analyzed using the Comparison Period Return Approach (CPRA). The mean portfolio daily return was calculated for the IPO within the window period. The study found that issuing of IPOs at NSE had both positive and negative effects on daily mean returns. Negative effects (declining mean daily returns) were on

the days nearing the IPOs events which were the result of buyer and seller expectation in the market so as to capitalize on the new issue while positive effects (normalcy is restored) were in the days after the IPOs events which were the result of buyer-seller initiated trading.

Olowoniyi and Ojenike (2012) investigated the determinants of stock returns of listed firms in Nigeria. Panel econometric approach was used to analyze panel data (2000 to 2009) obtained from 70 listed firms. The Fixed Effect, Random Effect and Hausman-test based on the difference between fixed and random effects estimators were conducted. Stock return (dependent variable) was measured by dividend layout, expected growth was measured by capital expenditure divided by total assets, size was proxied by logarithm of firms' total assets, profitability was proxied by ratio of earnings before interest, tax and depreciation on total assets, tangibility was measured by total fixed assets divided by net profit after tax while leverage was measured by ratio of book value of total debt to total assets. The findings suggested that with the exception of profitability and tangibility (which were significantly and negatively related to stock return), all the independent variables were positively and significantly related to stock return. The findings of this research implied a need to further assess how tangibility and profitability can be improved upon to raise the level of stock return.

Kithinji *et al.* (2014) looked at the effect of rights issue on firm share performance in the Nairobi securities exchange. The research adopted a descriptive study to evaluate the effect of rights issue on firms subsequent trading prior to and after the issue. This study adopted the market model, which provides a linear specification of the return of the given stock to the return of the market portfolio. This model is preferable because it reduces the variance of abnormal returns by removing the portion of the stock return that is related to variation in the market return. The

results obtained showed that rights issue announcements have no significant effect on investor's reaction and that there is a relationship between rights issue and company's share performance

Kariguh (2014) investigated the relationship between foreign investment activity and market return at the Nairobi securities exchange. In this research a dynamic econometric model was employed to assess the joint relationship between foreign investment activity and market return at NSE. The study found that increased foreign investor participation in the stock market is likely to push up share prices and result in increased returns. The NASI Index to foreign investor's turnover is positively correlated to the market return. An increase in foreign investor turnover shows that foreign investors have a reasonable level of confidence in the domestic market and this pushes market return up. This was consistence with the base broadening theory.

Kalev *et al*. (2006) examined the trading profitability of local and foreign investors on the Helsinki Stock Exchange for the period 1999 to 2004. Based on unique ownership data, they are able to capture precisely the per-transaction profit of any investor's type without making assumptions about the investors' initial holdings. They found some evidence in support of the of information asymmetry hypothesis between foreign and local investors. Foreign investors tended to choose stocks with an international profile and transparent information. They significantly outperformed local investors in global stocks such as Nokia. Excluding Nokia, local investors gained more. This evidence was strongest in intra-month and longer periods.

Tan *et al*. (2007) did a study to examine whether analysts resident in a country make more precise earnings forecasts for firms in that country than non-resident analysts. Using a sample of 32 countries, they found an economically and statistically significant local analyst advantage even after controlling for firm and analyst characteristics. The local advantage was high in countries where earnings were smoothed more, firms disclosed less information and firm idiosyncratic information explained a smaller fraction of stock returns. It was negatively related to whether a firm has foreign assets and to market participation by foreign investors and by institutions, and positively related to holdings by insiders.

Stulz *et al.* (2005) in a study to investigate whether domestic investors have an edge over foreign investors in trading at the Korean stock exchange. Using data from Korean stock exchange, they found that foreign money managers pay more than domestic money managers when they buy and receive less when they sell for medium and large trades. The sample average daily trade-weighted disadvantage of foreign money managers was 21 basis points for purchases and 16 basis points for sales. There was also some evidence that domestic individual investors have an advantage over foreign investors. This was because price moved more against foreign investors than domestic trades before trades.

Lee *et al.* (2013) using the US market as a case study sought to examine whether foreign institutional investors face liabilities of foreignness (LOF) in the U.S. stock market. They found that foreign institutional investors preferred low information asymmetry stocks more than domestic institutional investors and this preference for low information asymmetry stocks is particularly strong among foreign institutional investors from countries with high LOF. More important, using a lagged OLS regression analysis they found that a change in foreign

institutional ownership is negatively related to future returns, while this relation does not exist for domestic institutional ownership. The negative relation between the change in foreign institutional ownership and future returns is more pronounced when investors face a greater LOF in the U.S. stock market, for instance, when they are from countries with higher institutional distance, information asymmetry, unfamiliarity, and cultural differences.

.

The theories provide foundations for building portfolios that are robust and closely aligned with an investors stated risk and return preferences. Modern Portfolio Theory for example holds that diversification of assets may increase returns at given risk levels or at least provide the same results at a reduced risk level. Applications of the theory use volatility of returns implied by market price fluctuations as the composite of risks. It is most certainly the dominant theory in portfolio strategies. Efficient Market Hypothesis on the other hand has steadily become deficient to provide explanation for the market behavior, more dramatically perhaps, the drastic drop in United States share prices by over 30 per cent during a two-month period that preceded the crash of October 1987 (Mosomi & Ghayekhloo, 2011).

The empirical review reveals that liabilities of foreignness, information asymmetry and investor background play an important role in investment inclinations. Local investors will tend to have a slight information advantage over foreign investors, this advantage could impact on the overall differences in market return comparison between local and foreign investors, studies highlighted above indicate that local investors tend to perform better in some markets while there is no marked difference in market performance between local and foreign investors.

Despite the increase of local investors to the Nairobi Securities Exchange, there exists no literature work on the impacts of local investment activities and their impact on the returns at the bourse, it is evident that the local investors now have the ability to influence market direction and to a certain extend the movement of the indices at the Nairobi Securities exchange. This study seeks to determine whether the local investment activity has any significance to market returns at the Nairobi Securities Exchange.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research procedures that were used in carrying out the study. It describes the research design, data collection and data analysis techniques that were used.

3.2 Research Design

This study used a descriptive research design since the study was seeking to determine the relationship between domestic investment activity and market returns at the NSE. Descriptive research design is a scientific method, which involves observing and describing the behavior of a subject without influencing it in any way. According to Kothari (2004) descriptive study is concerned with finding out the what, where and how of a phenomenon.

3.3 Population of the study

The proposed study was designed to target quoted companies at the Nairobi Securities Exchange from the year 2010 to 2014. During this period there were an average of 60 listed companies at Nairobi Securities Exchange.

3.4 Data Collection Methods

The study used secondary data. The data was collected from the Nairobi Securities Exchange. The use of secondary data is justified on the basis that some of these sources have information that is very vital to this study and has been vetted and accepted. Data on the market trading activity and returns was obtained from the Nairobi Securities exchange; this is the most reliable source of information, because the information will be obtained at the source.

Data about interest rates was obtained from the Central bank of Kenya; this is the most reliable source of information for the study as it is the institution that sets short term interest rates. The data was collected through acquisition of historical data on the Market activity and returns from the Nairobi securities exchange portal, other than the Nairobi Securities Exchange, data on the domestic investor activity was obtained from the CMA quarterly statistical bulletins.

3.5 Data Analysis

The researcher collected data on the monthly domestic investment trade turnover from 2010 to 2014. The domestic investment activity was measured by the monthly domestic investor trade turnover.

In this study a linear regression model was employed to assess the relationship between domestic investment activity and stock market return at NSE. The model was as follows:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + E$ Where: -

Y = Market Return (Dependent variable)

$$\text{Market Return} = \frac{NASI_t - NASI_0}{NASI_0}$$

$NASI_0$ = NSE All Share Index for period $_0$

$NASI_t$ = NSE All Share Index for period t

α =constant. It defines the level of market return without inclusion of predictor variables

E = Unexplained Variation i.e. error term, it represented all the factors that affected the dependent variable but were not included in the model either because they were not known or were difficult to measure.

X_1 = Domestic Investment Activity

$$\text{Domestic Investor Turnover} = \frac{\text{Domestic Trades Turnover (KShs.)}}{\text{Equity Market Turnover (KShs.)}}$$

X_2 = Interest rates

$$\text{Interest Rate} = \frac{R_t - R_0}{R_0}$$

R_0 = CBK MPC Mean Interest rate for period $_0$

Rt = CBK MPC Mean Interest rate for period t

X_3 = Market Capitalization

$$\text{Market Capitalization} = \frac{\text{Market Capt} - \text{Market Cap}_0}{\text{Market Cap}_0}$$

Market Cap0 = Market Capitalization (Kshs.) for period $_0$

Market Capt = Market Capitalization (Kshs.) for period t

β_0 = Constant. It defines the level of market return without inclusion of predictor variables.

β_1, β_2, β_3, = Regression Co-efficient. Defined the amount by which Y is changed for every unit change of predictor variables. The significance of each of the co-efficient was tested at 95 percent level of confidence to explain the variable that explains most of the problem

The test of significance for the econometric model is based on the null hypothesis H0: Market return is Y (0) and Domestic Investor Turnover is $X_1(0)$

H0: $Y= X_1 = 0$

H1: $Y\neq X_1 \neq 0$

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the data findings on the relationship between domestic investment activity and market returns at the NSE in the period 2010 to 2014. The data was collected from the secondary sources of CMA Quarterly bulletins of 2011-2014 and economic surveys of 2010 to 2014. The study collected data on the NASI, domestic turnover, interest rates and Market Capitalization during the period under study giving 60 months results.

4.2 Descriptive Statistics

From the descriptive statistics, the means of all variables indicate a positive trend; as depicted by the standard deviation; the variables are not highly dispersed from the mean. The highest dispersion is that of the interest rate at 12.89% compared to those of other variables. This indicates although the month on month return has been less than 2% the increase has been steady and over the long term, investors have realized huge margins in terms of returns.

Similarly, the study found that domestic investment activity turnover had a mean increment of 0.619% and a standard deviation of 10.144%, while return of securities exchange market measured by NASI Index was 1.48 and a market capitalization increase rate of 1.81% per month. The mean increase of interest rate over the period was 1.07% indicating that over the period interest rate have been on an upward trend, this could be attributed to unfavorable foreign exchange rates that necessitated the increase in interest rates in a effort by the Central Bank of Kenya to defend the shilling from further slide against the major world currencies.

Table 4.1: Descriptive Statistics

Column1	NASI	CAP	INT	DIA
Mean	0.01481	0.01813	0.01069	0.00619
Standard Error	0.00587	0.00592	0.01665	0.0131
Median	0.02434	0.02168	0.	0.0006
Standard Deviation	0.0455	0.04585	0.12899	0.10144
Sample Variance	0.00207	0.0021	0.01664	0.01029
Kurtosis	3.2631	3.17246	11.91697	6.16426
Skewness	-0.71101	-0.32118	1.84121	-0.3242
Range	0.19978	0.21384	0.96032	0.6646
Minimum	-0.09689	-0.09477	-0.38889	-0.385
Maximum	0.10289	0.11907	0.57143	0.2796
Sum	0.88868	1.08785	0.64113	0.3713
Count	60	60	60	60
Confidence Level	0.0208	0.023	0.01078	0.04131

NASI Nairobi All Share Index
CAP Market Capitalization
INT Interest Rates
DIA Domestic Investor Activity.

From the above analysis, there is need to have a test of the stationarity of the variables that affect domestic investment activity including interest rates, inflation rates and GDP growth rate in the next section.

4.3 Macro Economic Financial Analysis

The study finding in Table 4.2 on the macroeconomic financial activities that affect domestic investment found that GDP growth which is very central to domestic investment within that period of 2010 and 2014 stood at 5.16, while the annual inflation rate was 8.0215 with the interest rate averaging 10.457.

Table 4.2 Macro Economic Financial Data

Year	GDP Growth Rate	Annual Inflation (%)	Annual average Interest rate (%)
2010	4.9	3.8675	7.89
2011	5.8	13.97	6.56
2012	6.4	9.64	9.60
2013	7	5.75	16.50
2014	1.7	6.88	6.0
Mean	**5.16**	**8.23**	**10.0457**
Min	**1.7**	**3.18**	**6.0**
Median	**5.8**	**6.685**	**9.6410**
Max	**7**	**19.72**	**16.54431**
STDEV	**2.083985**	**4.625**	**1.126379**

4.4 Correlation Analysis

In order to relate the variables after using descriptive statistics, a correlation analysis was done and results indicated as in Table 4.3. From the results, there is indication that the NASI Index has a negative correlation with domestic investment activity as well as with market capitalization. The negative return is brought about by the irrationality, and herd mentality associated with local individual investors, hence even though the domestic investor participation has increased over the years, the buying part ten of local individual investor is un informed and speculative based and this leads to negative correlation. The dependence between domestic

investment activity and market returns is however moderate. Even though the Increased market capitalization also indicates that the market is expanding and becoming more active.

Since the NASI Index is negative to the Domestic Investment activity, the local investment participation has improved but the local investor realizes low to moderate returns. However without any high correlation between explanatory variables, there is no multicollinearity leading to the next test, which is regression to explain the variable relationships.

Table 4.3: Correlation Analysis

Correlation	NASI	CAP	DIA	INT
NASI	**1.**			
CAP	**0.90197**	**1.**		
DIA	**-0.27806**	**-0.23221**	**1.**	
INT	**-0.14786**	**-0.18703**	**0.1547**	**1.**

4.5 Regression Analysis

In order to investigate the statistical properties of the model, a regression test was carried out with the results indicated in Table 4.4. From the results, the models of the study are well specified with the variables explaining 81.9 per cent of the dependent variable in the model as indicated by the R^2 value

Table 4.4: Regression Analysis

Regression Statistics	
R	0.90531
R Square	0.81959
Adjusted R Square	0.80993
S	0.01983
Total number of observations	60

4.5.1 Model Summary

From the results of the regression, the study investigates relationship between domestic investment activity and equity market return. The adjusted R square statistic from Table 4.4 is 81.9 percent. Which implies that the about 82 percent of the equity market is determined by domestic investor participation and market capitalization while the remaining percentage is determined by other factors such as foreign investor participation and other variables at 19.1 percent. The correlation coefficient of determination denoted by R^2 is 81.9 or approximately 82 per cent meaning that variability in equity market can be explained by domestic investment, interest rates and market capitalization.

4.5.2 Analysis of Variance

From the results of ANOVA in table 4.5 using Stat Plus software, the information on confidence levels support the estimate for p-value which 0.001 less than the alpha value of 0.05 indicating that there is considerable significance at 95% level of confidence. This indicates a strong association between the variables.

Table 4.5: ANOVA Table

ANOVA					
	d.f.	***SS***	***MS***	***F***	***p-level***
Regression	**3.**	**0.10009**	**0.03336**	**84.80276**	**0.001**
Residual	**56.**	**0.02203**	**0.00039**		
Total	**59.**	**0.12212**			

4.5.3 Model Coefficients

From the empirical results in Table 4.6, the coefficients of domestic investment activity is negative showing that as domestic investment activity rises there is a corresponding decrease in market returns by 2.85% The coefficient for market capitalization is also positive with a 86.7% increase implying that for every unit increase in market capitalization, there is a corresponding increase in market returns. This implies that as the market increases in size, the returns increase correspondingly, this indicates a support for base-broadening hypothesis that as the investor base increases, the demand for stocks increases hence that pushes the prices up, leading to higher returns. The coefficient for interest rate is negative 1.12% implying that a unit change in interest rate causes a decrease in market returns at the Nairobi Securities Exchange, thus indicating the crucial role-played by interest rates in determining the market returns. Even though Kenya's GDP has been increasing, the relatively high interest rate has played negative role on the investment opportunities by domestic investor. The model can thus be summarized in the following model in Table 4.6.

NASI = 0.0146 + 0.8672 * CAP – 0.0285 * DIA – 0.0112 * INT

Table 4.6: Regression of Returns on Variables

	Coefficients	*Standard Error*	*LCL*	*UCL*	*t Stat*	*p-level*
Intercept	0.01457	0.01306	-0.0116	0.04074	1.11522	0.26952
CAP	0.86716	0.06107	0.74483	0.9895	14.199	0.
DIA	-0.02846	0.02323	-0.075	0.01808	-1.2250	0.2257
INT	-0.01116	0.01937	-0.04995	0.02763	-0.5762	0.56677

4.6 Discussion of Research Findings

From the results, there is a negative relationship between domestic investor activity and the returns in the Nairobi securities exchange, this could be attributed to the limited number of informed local investors in the country, most of the accounts opened by the local investors are not more than seven years old, this indicates that local individual investors, who hold the bulk of the local accounts lack the expertise in trading in the stock market. Between 2010 and 2012, the NASI had a negative year on year return, yet the domestic investor activity over the same period was higher than 50% indicating that majority of the local investors had a negative return over the same period (CMA bulletin, 2012)

In the year 2013 and 2014, the NASI had an average positive return of 50% and 24.5% respectively; over the same period foreign investors dominated the market with their participation totalling more than 50% in the two years (CMA bulletin, 2014).

In the first eight months 2015, the foreign investors were net sellers and that coincide with the fall of the NASI from 165.8 in January to 142.8 in August the same year. This indicates foreign investors were profit taking having had a positive return on their investments over the last two years. (CMA Q2 bulletin, 2015)

The lack of understanding of how stock markets operate, has led to local investors having a negative return as they buy high, during the period of bull euphoria and then sell low when the pessimism and negative news hit the market, this is line with herd mentality, where investors buy into an expensive stock without investigating the underlying fundamentals of the stock. Some local investors are speculators who buy into a stock hoping that it will go up; speculators on the long term tend to lose more than the long-term buyers. This explains the negative relationship.

Studies done in other markets produced similar results. A study done by Agarwal *et al*. (2008) on performance of domestic investors and foreign investors at the Indonesian stock market, the study found that the foreign investors underperform domestic investors. This study showed that their inferior performance is attributable to non-initiated orders. Foreign investors actually performed better than domestic investors in initiated orders. In addition, their performance was also mixed when trades are classified depending on who the counterparties are, while Kang and Stulz (1997) using annual data for 18 years find no evidence that foreign investors outperform domestic investors in Japan.

Macroeconomic factors are also significant in determining the stock market performance. The interest rates in a country determine the cost of borrowing money, as the cost of borrowing money increases, the disposable money for investment diminishes and the economic growth of country slows down. The study found a negative relationship between interest rates and market

returns. This suggests that as the interest rates go up, local investors find it hard to acquire money for investment as the cost of funds is high, the already existing credit facilities become more expensive and the hitherto disposable income is channelled towards servicing the loan facilities to avoid defaults.

These results are in agreement with other studies done in other markets, Uddin and Alam (2007) examined the linear relationship between share price and interest rate as well as share price and changes of interest rate. In addition, the also explored the association between changes of share price and interest rate and lastly changes of share price and changes of interest rate in Bangladesh. They found for all of the cases that interest rate has significant negative relationship with share price and changes of interest rate has significant negative relationship with changes of share price.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the findings from the previous chapter with respect to each variable as discussed in earlier chapter. The chapter concludes by giving a set of recommendations derived from the conclusions and highlights the limitations in the study as experienced by the researcher.

5.2 Summary of Findings

The focus of the study was to determine the relationship between domestic investment activity and market return at the Nairobi Securities Exchange between the 5-year periods of 2010 to 2014. Data was collected from the NSE, KNBS and CBK from where descriptive statistics and a regression model were used to establish the relationship. The dependent variable was the market returns while domestic investor activity; market capitalization and interest rates were the independent variables.

The means of the variables were all positive and not highly dispersed with the highest dispersion being 12.89% for market capitalization. The skewness of the variables indicated negative values but interest rate showed a positive value. Although the average domestic investor participation has been increasing over the last five years, their participation have not impacted the returns in the market as it should, the study showed a negative association between market returns and domestic investor returns. This could be attributed to the lack of experience among local investors on investing in the stock market. Again, local investors tend to be irrational and impatient and will sell their stocks at a loss whenever they don't realize a positive return within a

short time. Investors in Kenya opt for land estate and transport industries; which the investors believe; have better returns. In the long term however, stock market has better returns than the two investment vehicles.

The macroeconomic factors examined such as inflation rates and GDP are a factor that worries the domestic investor and hence cannot be neglected when making a study of the stock market returns. The rise in cost of living however as shown by the inflation can have a negative effect on the market as domestic people will have very little money left that can be invested on the stock market implying that the inflation can play a negative role on the market returns. Similarly, high interest rates means that the domestic investor has very little money left that can be invested on the stock market.

5.3 Conclusion and Recommendations

The stock market acts as a financial intermediary where the people who have money to save lend money to those who need it through corporate bonds, rights issues and IPO's. The investors also help in lowering the cost of capital and help spur economic growth. A vibrant stock market is an indicator of a robust economic growth in a country. Local investors participation help drive the stock market up and attract foreign capital. Consideration should be given to improving local investor participation and ensure macroeconomic stability as these will improve confidence in the stock market. There is also need for investor education on how to invest in the stock exchange for maximum returns. As local investors realize the positive returns, more investors will be attracted to the bourse. An active and robust local investor base is key to a country's stock exchange to mitigate against the shocks that are associated with foreign capital flight

5.4 Limitations of the Study

As an empirical study, the researcher encountered several obstacles that limited a quick completion of the market study. Access to market results and data remains very confidential in Kenya and hence the need to have openness which was not easy to overcome leading to use of average monthly returns as opposed to the preferred daily returns. This study also had an inherent limitation since it was dealing with historical data that could be subject to inaccuracies and that the implication of such data could perhaps be applicable on in the period when the data was collected as opposed to being used to make recommendations for the present and future market situations.

This clearly affects the quality of research results and creates scepticism among the market players leading to increased market information asymmetry that does not help the unsuspecting local investor. The lack of information in openness means that the domestic investor as this research found out might not be having enough information to understand the securities market on the NSE.

The costly acquisition of data from the three bodies is prohibitive to a researcher, it is advisable that data for research purposes be made more available and less costly to encourage more people who may want to be involved in studying different aspects of the Nairobi securities exchange as pertains to returns, participants, demographics and type of investors that invest at the Nairobi securities exchange.

5.5 Suggestions for Further Studies

The first observation from the study was that domestic investment was very significant and should be encouraged. This prompts the study to recommend further research on information flow on the domestic level concerning securities. There is need for studies that will look at both the effect of foreign investment activity and domestic activity on the market returns at Nairobi securities exchange and to what percentage does either of the investors outperform the other. In addition there is need to control for other variables that may affect domestic activity including government expenditure thus further establishing the relationship between domestic investment activity and market returns at NSE.

REFERENCES

Alshogeathri, G. (2011). The role of securities commissions in emerging stock capital markets. In Sam Mensah: *African capital markets: contemporary issues.* Rector Press, p142-160.

Agarwal S., Faircloth S., Liu C., & Rhee G.S., (2008), Why do foreign investors underperform domestic investors in trading activities? Evidence from Indonesia, *Journal of Financial Markets*

Arestis, P., Demtriades, P., & Luintel K. (2001). Financial development and economic growth: The role of stock markets. *Journal of Money, Credit and Banking*, 33, 16-41.

Ashaolen, J.O. (2000). The Impact of Automation on The Nigerian Stock Exchange, *Nigerian Journal of Banking and Financial Issues,* 3(1):91-100.

Baik B, Kang J.K, Kim J. M & Lee J, (2013). The liability of foreignness in international equity investments: evidence from the U.S. Stock market *Journal of International Business Studies* 43; 107-122.

Bailey, W., & Jagtiani, J., (1994). Foreign ownership restrictions and stock prices in the thai capital market, Journal *of Financial Economics* 36, 57–87.

Bekaert, G, and Campbell R. H. (1995). Time-varying world market integration, *Journal of Finance* 50, 403--444

Bekaert, G, & Campbell R. H. (1997). Emerging equity market volatility, *Journal of Financial Economics* 43, 29-78

Bekaert, G, & Campbell R. H. (2000), Foreign speculators and emerging equity markets, *Journal of Finance* 55, 565-614.

Barber, B.M & Odean, T. (2000). Trading is hazardous to your health: The common stock investment performance of individual investors. *Journal of finance*,773-806

Barber, H.,& Thaler, F., (2003). Cross-border listings, capital controls, and equity flows to emerging markets. International Finance Discussion Papers 2003-770, Federal Reserve Board.

Barberis, N. & Robert T. (2003). A survey of behavioral finance, in *Handbook of the economics of finance*, edited by G. Constantinides, M. Harris and R. Stulz

Bartram, S.M. (2002). The interest rate exposure of nonfinancial corporations. *European Finance Review,* 6, 101–125.

Bowie, A. & Unger, D. (1997). "*The politics of open economies: Indonesia, Malaysia, the Philippines, and Thailand*." Cambridge University Press

Boudoukh, J & Richardson, M. (1993). 'Stock returns and inflation: a long-horizon perspective'. *The American Economic Review*, 83(5), 1346-1356

Campbell, J.Y. (1987). Stock returns and the Term Structure. *Journal of Financial Economics*, 18, 373-399

Chen, R., Roll, D. & Ross, J. (1986). *Are women conservative investors*? *Gender differences in participated-directed pension investments*. Philadelphia. University of Pennsylvania Press.

Chen, Jing, (2004). Generalized entropy theory of information and market patterns, *Corporate Finance Review*, 9 (3), 23- 32.

Chen R (2007). Information theory and market behavior

Choe, H., Kho, B.-C., & Stulz, R. (2005). Do domestic investors have an edge? The trading experience of foreign investors in Korea. *Review of Financial Studies* 18; 795-829.

CMA Q4 bulletin, (2014). Retrieved from www.cma.or.ke on 22 September 2015

CMA handbook, (2010). Retrieved from www.cma.or.ke on 16 May 2015

CMA Q2 bulletin, (2015). Retrieved from www.cma.or.ke on 22 September 2015

Clark, E. & Kassimatis, K. (2005). Country default risk and the determinants of foreign direct investment, *Middlesex University working paper*

Clark, E. & Kassimatis, K. (2003). Country financial risk and stock market performance: the case of Latin America. *Journal of Economies and Business*, 56(1), .21-42

Clark, E. & Lakshmi, G. (2005). Eurobond prices and the Mexican currency crisis of 1994-95. *Journal of International Finance*

Coval, J. & Tobias M. (2001). The geography of investment: Informed trading and asset prices, *Journal of Political Economy* 54, 1-39.

Kent D., Grinblatt M., Titman S., & Wermers R. (1997). Measuring mutual fund performance with characteristic-based benchmarks, *Journal of Finance* 52, 1035-1058.

Deb, G, & Mukherjee, J. (2008). Does stock market development cause economic growth? A time series analysis for Indian economy. *International Research Journal of Finance and Economics*, Issue 21.

Dicle, F., M. & Beyhan, A. (2010). Market efficiency and international diversification: evidence from India. *Elsevier,* 313-339.

Durham, J. (2002). The effects of stock market development on growth and private investment in lower-income countries. *Emerging Markets Review*, 211-232.

Elly, D. E., & Oriwo, E. A. (2013). The relationship between macro economic variables and stock market performance in kenya. *DBA Africa Economic Review, 3*(No 1), 38-49

Erb, C , Harvey, C. & Viskanta, T. (1995). Country risk and global equity selection. *The Journal of Portfolio Management*, 21(2), .74-80

Errunza, V. & Losq, E. (1985). International asset pricing under mild segmentation: Theory and test. *Journal of Finance* 40, 105–124.

Fama, E. F. (1970). Efficient capital markets: a review of theory and empirical. *Journal of Business,* 25 (2), 383 -417.

Fama, E.F. Fisher M, Jensen & Roll R. (1969). The adjustment of stock prices to new information. *International Economic Review*, 10(1), 1–21.

Fama, E.F. (1981). Stock returns, real activity, inflation and money. *The American Economic Review*, 71, 545-565

Fama, F. & Schwert, W (1977). Asset returns and inflation. *Journal of Financial Economics* 5, 115-146

Fama, E. & French, K. (1988). Dividend yields and expected stock returns. *Journal of Financial Economics*, 22, 3-25

Fama, E. & French, K. (1992). The cross-section of expected stock returns. *The Journal of Finance*, 42 (2)

Hvidkjaer, S. (2001). A trade-based analysis of momentum, Working paper.

Irungu, J.(2011). Kenya's retail investors could shun IPOS. Nairobi Business daily, retrieved from http://www.reuter.com.

IFC/CBK (1984). *Development of money and capital markets in Kenya*. Nairobi: Government Printer.

Ivkovic, Z. & Scott W. (2005). Local does as local is: Information content of the geography of individual investors' common stock investments. *Journal of Finance*, 60, 267-306.

Jithendranathan T. Nirmalanandan T. & Tandon K. (2000). Barriers to international investing and market segmentation: Evidence from Indian GDR market, *Pacific-Basin Finance Journal* 8, 399–417

Jorion, P. & Schwartz, E. (1986). Integration vs. segmentation in the Canadian stock market. *Journal of Finance* 41, 603–614.

Junkin, P. (2012). Stock market liberalization, economic reform, and emerging market equity prices. *Journal of Finance* 55, 529–564.

Kacperczyk, M. Sialm C. & Zheng L. (2005). On the industry concentration of actively managed equity mutual funds, *Journal of Finance*, 60, 1983-2011.

Kalev P. Nguyen A. & Oh N. (2006). Foreign versus local investors; who makes more? *NBER Working paper*

Kaminsky, G. & Reinhart, C. (1998). Financial crises in Asia and Latin America: then and now'. *AEA Papers and Proceedings*, 88(2), 444-448

Kaminsky, G. & Schmukler, S. (1992). Emerging market instability: Do sovereign ratings affect country risk and stock returns?' *The World Bank Economic Review*, 16(2), 171-195

Kang, J. & R. M. Stulz, (1997). Why is there a home bias? An analysis of foreign portfolio equity ownership in Japan, Journal *of Financial Economics,* 46, 3-28.

Kariguh W. B. (2014). *The relationship between foreign investment activity and market return at the nairobi securities exchange,* Nairobi: Unpublished University of Nairobi.

Kee-H B. Stulz, R. M & Tan H. (2007). Do local analysts know more? A cross-country study of the performance of local analysts and foreign analysts. *NBER Working Paper Series*

Kiplangat, A. P. Bitok, J. Tenai, J. & Rono, L. (2010). *Determinants of Investor Confidence for Firms Listed in Nairobi Stock Exchange*. Eldoret: Unpublished Moi University.

Kithinji J. Oluoch, W. & Mugo R. (2014). What is the effect of rights issue on firms share performance in the nairobi securities exchange? *Journal of Finance and Accounting;* 5, p 1-9

Kho B. Stulz R. & Warnock, F. (2006). Financial globalization, governance, and the evolution of the home bias. *NBER Working Paper Series*,

Korkeamäki, T. (2011). Interest rate sensitivity of the European stock markets before and after the euro introduction. *Journal of International Financial Markets, Institutions and Money*, 21, 811-831.

Malloy, C. (2005), The geography of equity analysis, *Journal of Finance*, 60, 719-755.

Markowitz H (1952). Portfolio selection *The Journal of Finance*, 7(1) 77-91

Markowitz H. (1991). Foundations of Portfolio Theory, *Journal of finance*, 46,(2) 469-477

Mishkin, R. & Eakin, J. (2007). Is the market microstructure of stock markets important? *Economic Bulletin*,77 (3):123-132.

Mosomi, S. R., & Ghayekhloo. (2011). Consequences of human behavior in economics; the effect of behavioral factors in investment decision making at Teheran stock exchange. *International Conference on Business and Economics* , (1), 234-237.

Mulwa, F., (2011). Small investors cutting back their investments in equity. *Nairobi Business Daily,* 18.4.2011, Retrieved from http://www.africa.com.

Muradoglu, E. (2000). Fractal market analysis: applying chaos theory to investment and economics. John Wiley & Sons.

Mwaniki C (2014). Active investors at stock market hit 1.67 million. *Business Daily* Retrieved on June 13, 2014, from http://businessdaily.com

Ngugi, R.W. (2000). Development of the Nairobi Stock Exchange: A historical perspective, *KIPPRA*, *Discussion Paper No. 27*. KIPPRA.

NSE (1998). Press release on progress on Broker Back Office (BBO) system for the Kenyan market, Nairobi, 21st April. Accessed 10th December 2012.

NSE (2011). NSE 20 Share Index review. http://www.nse.co.ke. Accessed 17th February 2013.

NSE (2012a). History of the organization. Available Online at http://www.nse.co.ke

Odhiambo, S. (2011). Developing the management and ownership structures of African stock exchanges. *African Management Development Review*,.10 (1): 35-66.

Ozerol, H. Camgoz, M. & Karan, E. (2011). Determining the performance of individual investors; the predictive role of demographic variables and trading strategies. *International Journal of Business and Social Science* , 2 (18), 86-90.

Pal, P. (2006). Foreign portfolio investment, stock market and economic development: a case study of india. *Promoting Development in a Globalized World*.

Patrick, H. (2005). Financial development and economic growth in underdeveloped countries. *Economic Development and Cultural Change*, 174-189.

Petersen, M. & Rajan, R. (2002). Does distance still matter? The information revolution in small business lending, *Journal of Finance* 57, 2533-2570.

Popescu, S. (2006). Testing for nonlinearity and modelling volatility in emerging capital markets: the case of Tunisia, *International Journal of Theoretical and Applied Finance,* 9, 1021–1050.

Reilly, F. & Brown, K. (2006). *Investment analysis and portfolio management*. USA. Thomson South West

Ross, G.,(2008). *Expectations of risk and return among household investors; are their sharpe ratios countercylical?* Chicago: Federal Reserve Board.

Ryan, S. & Worthington, A. (2004). Interest rate and foreign exchange rate risk in Australian banking: A GARCH-M approach. *International Journal of Applied Business and Economic Research*, 2, 81-103.

Senbet, Lemma W. & Isaac Otchere (2010). African stock markets – opportunities and issues, in marc quintyn and Genevieve verdier (eds.), *african finance in the 21st century*, Palgrave Macmillan, international monetary fund.

Shannon, C. (1948). A mathematical theory of communication. *The Bell System Technical Journal*, 27, 379-423, 623-656.

Shannon, C. (1956). The Bandwagon (Editorial), *IEEE Transactions Information Theory*, 2, .3

Shannon, C. & Warren W. (1949). *The mathematical theory of communication*, Urbana: The University of Illinois Press

Sharpe, W. (1964). Capital asset prices: a theory of market equilibrium under conditions of risk, *Journal of Finance*, 19, 425-442.

Sharpe, S. (2002). Re-examining stock valuation and inflation: the implications of analyst's earning forecast. *Finance and Economic Discussion Series 2001-32, Board of Governors of the Federal Reserve System (U.S), 84*(4),. 632-648.

Shiller, R. (1998). Human behavior and the efficiency of financial systems. *Working Paper No. 6375*, National bureau of economic research, Cambridge.

Solnik, B. (1974). Equilibrium of the international capital market. *Journal of Economic Theory* 8, 500–524.

Stulz, R.M., (1981a). A model of international asset pricing. *Journal of Financial Economics* 9, 383–406.

Stulz, M. (1981b). On the effects of barriers to international investment. *Journal of Finance* 36, 923–934.

Stulz, R. (1995). Globalization of capital markets and the cost of capital: The case of Nestle´. *Journal of Applied Corporate Finance* 8, 30–38.

Stulz, R., & Wasserfallen, W., (1995). Foreign equity investment restrictions, capital flight and shareholder wealth maximization: Theory and evidence. *Review of Financial Studies* 8, 1019-1057.

Subeniotis D. & Tampakoudi A. (2011). How inflation, market capitalization, industrial production and the economic sentiment indicator affect the eu-12 stock markets; *European Research Studies,* 14, (1)

Sweeney, R. & Warga, A. (1986). The pricing of interest rate risk: evidence from the stock market, *Journal of Finance*, 41, 393-410.

Wangacha, T. (2011). The effects of macro-economic factors on stock return volatility in the Nairobi stock exchange, Kenya. *Economic and Finance Review, 1*(10), 34-48.

Wagacha M, (2001). Kenya‟s capital market: to list or not to list – a survey of enterprise attitudes IPAR *Discussion Paper 28*, 2001.

Qian S. & Tong W. (1999). The effect of market segmentation on stock prices: The China syndrome, *Journal of Banking & Finance 24, 1875-1902*

Yan, S. & Zhang, Z. (2009). Institutional investors and equity returns: are short-term institutions better informed? *Review of Financial Studies* 22, 893-924.

APPENDICES

Appendix 1; Change in NASI, change in Market Cap, Interest rates, change in Interest rates, Domestic investor activity and change in investor activity.

	Change in NASI	Change in CAP	INT RATES	Change in INT RATES	DIA	Change in DIA
1	0.090871022	0.093997572	7	0	0.279	-0.026
2	0.013179782	0.013230478	7	0	0.481	0.202
3	0.066304622	0.043652257	6.75	-0.035714286	0.668	0.187
4	0.067511548	0.103594476	6.75	0	0.557	-0.111
5	0.023299678	0.010357815	6.75	0	0.613	0.056
6	0.031117858	0.033550792	6.75	0	0.773	0.16
7	0.027760252	0.030658251	6.75	0	0.758	-0.015
8	-0.018518519	-0.006124234	6.75	0	0.782	0.024
9	0.03116856	0.033450704	6.75	0	0.397	-0.385
10	0.034775576	0.04088586	6.75	0	0.388	-0.009
11	-0.042497069	-0.043371522	6	-0.111111111	0.376	-0.012
12	-0.001938578	-0.001710864	6	0	0.437	0.061
13	0.01226743	0.021422451	5.75	-0.041666667	0.7166	0.2796
14	-0.023833569	-0.012583893	5.75	0	0.7501	0.0335
15	-0.074074074	-0.073916737	6	0.043478261	0.6947	-0.0554
16	0.052290503	0.059633028	6.25	0.041666667	0.6785	-0.0162
17	-0.010299427	-0.00952381	6.25	0	0.6434	-0.0351
18	-0.019847656	-0.020104895	6.25	0	0.6974	0.054
19	-0.077057793	-0.063425513	6.25	0	0.6329	-0.0645
20	-0.096892789	-0.094770931	6.25	0	0.6734	0.0405
21	-0.08890348	-0.069023569	7	0.12	0.6998	0.0264
22	0.047996541	0.047694394	11	0.571428571	0.5993	-0.1005
23	-0.08774584	-0.077993528	16.5	0.5	0.6303	0.031
24	0.025629429	0.013455013	18	0.090909091	0.6325	0.0022
25	0.013376452	0.015816209	11	-0.388888889	0.57	-0.0625
26	0.04467653	0.045346062	13	0.181818182	0.5415	-0.0285
27	0.020133296	0.02283105	16.5	0.269230769	0.6031	0.0616
28	0.046821832	0.046875	18	0.090909091	0.473	-0.1301
29	0.02041347	0.015940705	18	0	0.4791	0.0061
30	0.028924567	0.048071157	18	0	0.5075	0.0284
31	0.031083591	0.04786879	16.5	-0.083333333	0.5495	0.042
32	0.016814797	0.016835017	16.5	0	0.5066	-0.0429
33	0.032128514	0.026758547	13	-0.212121212	0.4812	-0.0254
34	0.050354772	-0.026409832	13	0	0.4477	-0.0335
35	0.00457616	0.119068935	11	-0.153846154	0.5355	0.0878

36	0.028850325	0.0176	11	0	0.4046	-0.1309
37	0.091081594	0.091194969	11	-0.136363636	0.5354	0.1308
38	0.03294686	0.045389049	13	0	0.4391	-0.0963
39	0.102890282	0.102687802	16.5	0	0.5217	0.0826
40	0.001356967	0	18	0	0.5733	0.0516
41	0.073939189	0.08125	18	-0.105263158	0.5759	0.0026
42	-0.082728707	-0.069364162	18	0	0.4386	-0.1373
43	0.05631502	0.041776398	16.5	0	0.4137	-0.0249
44	-0.023604102	0.002623326	16.5	0	0.479	0.0653
45	0.061603868	0.064929891	13	0	0.4436	-0.0354
46	0.046250491	0.046262948	13	0	0.4426	-0.001
47	0.059516662	0.054064151	11	0	0.5516	0.109
48	-0.032018134	-0.027493671	11	0	0.4201	-0.1315
49	-0.014562752	-0.011297964	8.5	0	0.4897	0.0696
50	0.047452844	0.032648763	8.5	0	0.4737	-0.016
51	0.020134704	0.021927588	8.5	0	0.4792	0.0055
52	0.050316214	0.050938124	8.5	0	0.4216	-0.0576
53	-0.006153643	-0.006846843	8.5	0	0.455	0.0334
54	0.001131824	0.00718568	8.5	0	0.4371	-0.0179
55	0.008778347	0.00883851	8.5	0	0.4428	0.0057
56	0.041202452	0.042939618	8.5	0	0.5543	0.1115
57	0.034886666	0.034702265	8.5	0	0.5408	-0.0135
58	-0.025818293	-0.019747198	8.5	0	0.4605	-0.0803
59	0.025372103	0.026287697	8.5	0	0.4347	-0.0258
60	-0.002327433	-0.002687123	8.5	0	0.6763	0.2416