THE EFFECT OF SOME MICROECONOMIC VARIABLES ON LONG- RUN CAPITAL MARKET RETURNS ON EQUITY OFFERING FIRMS AT THE NAIROBI SECURITIES EXCHANGE

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The Effect of Some Microeconomic Variables on Long- Run Capital Market Returns on Equity Offering Firms at the Nairobi Securities Exchange

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DECLARATION

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

Signature**……..……..**Date**…….……..……**

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This research thesis has been submitted for examination with our approval as the university supervisors

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DEDICATION

This Thesis is dedicated to my former Secondary School teacher at Homa Bay High School Mr. Brian Charles Hurst. I shall always remember his immense contribution to my education.

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ABBREVIATIONS AND ACRONYMS

ADR	American Deposit Receipts
AMEX	American Stock Exchange
ANOVA	Analysis of variance
ASE	Amman Stock Exchange
AT	Agency Theory
ATS	Automated Trading System
BHAR	Buy and Hold Average Return
CMA	Capital Markets Authority
CAPM	Capital Asset Pricing Model
CAR	Cumulative Average Return
CDS	Central Depository System
CDSC	Central Depository Settlement Corporation
CEO	Chief Executive Officer
CHU	Complaint Handling Unit
CPI	Consumer Price Index

CRSP	Center for Research in Security Prices
EMT	Efficient Market Theory
FE	Foreign owned shares
FEM	Fixed Effects Model
FGLS	Feasible generalized least squares
FZ	Firm Size
GLS	Generalized Least Squares
HML	High Minus Low
IPO	Initial Public Offering
IS	Institutional Shareholders
IRR	Internal rate of return
KNBS	Kenya National Bureau of Statistics
KPSS	Kwiatkowski- Philip- Schmidt Shin
LM	The Standardized turnover adjusted number of zero daily trading volumes over the prior month.
LM12	Is the turnover adjusted number of zero daily trading volumes over previous 12 months,

MR	Market Return
MMR	Moderated Multiple Regression
MTT	Market Timing Theory
NASDAQ	National Association of Securities Dealers Automated Quotations
NSE	Nairobi Securities Exchange
NYSE	New York Securities Exchange
OLS	Ordinary Least Squares
PCC	Pearson's Correlation Coefficient
REIT	Real Estate Investment Trust
REM	Random Effects Model
RWT	Random Walk theory
SD	Standard Deviation
S&P	Standard and Poor
SEO	Seasoned Equity Offering
SIC	Standard Industrial Classification
SIP	Share Issue Privatization

SMB	Small Minus Big
SOE	State Owned Enterprises
SP	State Share Ownership verses Private Share Ownership
SPSS	Statistical Package for Social Sciences
SR	Stock Return
ST	Stock Turnover
USA	United States of America
VECM	Vector Error Correction Model
VIF	Variance Inflation Factor
WRI	Wealth Relative Index

DEFINITION OF KEY TERMS

Buy and hold abnormal return	The return obtained by subtracting from the corresponding average buy and hold return of matching firm (Kooli & Suret, 2004)
Capital market	Place where shares and bonds are traded. (Kara, 2015)
Concentrated ownership	Is a percentage of shares held by top five shareholders (Wahla, Shah & Hussain, 2012).
Weighted average return	The expected return implicit in the price of a stock that should be commensurate with the risk. Plyakha, Uppal & Vilkov, 2015)
Equity market timing	The practice of issuing shares at high prices and repurchasing at low prices, (Baker & Wurgler, 2002; Larrain & Urzua, 2013)
Equity market	A place where stocks and shares of companies are traded (Kara, 2015).
Equity offer size	The number of shares that a firm issues at a particular time in a Stock market
Equity offering firms	Firms that issue share capital to the public.
Equity Stock Liquidity	The ability of market to absorb a huge volume of securities at a lower execution cost within a short

	period without having a significant effect on security prices (Brennan *et al.*, 2012).
Firm age	Number of years since a firm was incorporated (Matemilola, Banny- Ariffin, Nassir & Azman-Saini, 2017).
Firm Characteristics	Are the tangible and intangible features such as firm size, stock turnover, brand name, goodwill, leverage, liquidity, number of employees, firm age (Sarwoko & Frisdiantara, 2016).
Firm characteristics	Features where a firm's shares are owned by institutions, foreigners, or by individuals of the country of residence.
Firm Size	The value of a firm as measured by market price of a share multiplied by number of shares issued (Al-Shawawreh & Al- Tarawneh, 2015).
Foreign share ownership	Shares owned by non-Kenyan Citizens (CMA, 2014).
Institutional Ownership	Shares owned by non-individuals.
Liquidity	Is exclusive concept that generally denotes the ability to trade large quantities quickly at low cost and without moving the price (Pastor & Stambaugh, 2003).

LM12	Is the liquidity measure of a security. It is turnover adjusted number of zero daily trading volumes over previous 12 months, where 12 month turnover is the sum of daily turnover in the previous 12 months (Luu & Dang, 2022)
Long run Capital returns	The value of a share as quoted in security exchange a year or more following issue of shares through IPO, SIP or SEO. (Wang, 2011)
Long-run return	The relationship between long return and standard return on basic of initial closing price (.Hanbing Jarret & Pan, 2019)
Market Timing	Is the action of a firm's manager to repurchase or issue stock in a stock market (Luu &Dang, 2022)
Microeconomics	Is the study of how households and firms make decisions and how they interact in specific markets (Mankiw, 2018**)**
Stock return	Value of a particular equity after it has been issued.
Stock turnover	Number of shares a firm sells over a period of time in securities market. (Merritt, 2017).
Value Weighted Return	Is an index of a group of securities computed by calculating a weighted average of the return on each security where weights are proportional to outstanding market value

ABSTRACT

The purpose of the study was to evaluate the effect of some microeconomic variables on long-run return by firms which offer equity at the Nairobi Securities Exchange. To address this problem the study used seven specific objectives; firm size, offer size, stock return, stock turnover, foreign share ownership, institutional share ownership and age to see the effect of long run return. The study covered a period stretching from 1993 to 2013. It was prompted by the fact that studies done in developed economies regarding the performance of share issues in the long run give conflicting results. Some firms give negative returns whereas others give positive returns regardless of whether these are SEOs, IPOs or SIP. Seven hypotheses were developed to test these specific objectives in level of significance at 5%. The research philosophy was based on pragmatism. Pragmatism arises out of action, situations and consequences as opposed to post positivism that is based on antecedent conditions. The study adopted cross-sectional time series research design strategy with descripto-explanatory purposes. All the Thirty-two (32) firms that issued equity at the NSE over the period of study were included as a sample. Secondary data was used for the study. These were collected from NSE database and CMA database. The study used Stata statistical package to analyze the data. Model specification tests were carried out to ensure that models were neither over nor under specified. Each firm was subjected to analysis for five years. Hausman test was used to confirm validity of panel regression model applicable; OLS, fixed or random effects. Diagnostic tests carried out included; normality, autocorrelation, multi-co-linearity, homoscedasticity, stationarity, co-integration and granger causality. Cumulative average return was regressed against the explanatory variables to determine the direction and strength of the independent variables as indicated by R^2. By use of descriptive statistics many variables were normally distributed. PCCs showed that many clusters were positive but with moderate strength. The study was based on individual variables and at 5% level of significance. This gave the following results; firm size has no effect on long run return, offer size is found significant at 5% on cluster 1998-2002 only. Stock return was found statistically significant at 5% for cluster 2009-2013, Stock turnover has no significant influence on long run capital market return at 5% level of significance for all clusters, foreign share ownership is found to be statistically significant at 5% for only cluster 2009-2013, institutional shareholders is found to have insignificant influence on long run capital market return for all clusters on long run capital market return. Age as a moderating variable was not found to have a significance at 5% level on any of the ten clusters. The study concludes that three independent variables; offer size, stock return and foreign were statistically significant for certain clusters in certain periods therefore they have effect on long run capital market return.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Management's decision to issue shares as initial public offering (IPO), seasoned equity offerings (SEO) or share issue privatization (SIP) is a major corporate choice which can create opportunities for a firm as well as for the owners of the firm (Naik & Padhi, 2012). La Rocca, La Rocca and Cariola (2011) believe that by offering equity to the public, the company is fulfilling its natural lifecycle. Huang and Ritter (2009) on the other hand argue that going into the capital market is a choice and not essentially an ordinary stage in an establishment's lifecycle.

De Jong, Huijen, Marra, and Rosenboom (2012) have suggested that when a firm goes public or continues to offer its shares to the public, its competitiveness is enhanced. Moreover the proceeds resulting from accessing capital market enhances aggressive completion. Borisov, Andrew, and Merih (2017) point out that establishment exhibits higher employment growth when IPOs take place than before.

Lin and Wu (2013) posit that firms that issue SEO, do so when liquidity risk drops to the point that investors are less worried about risk. Larrain and Urzua (2013) argue that managers undertake SEOs when stock prices have increased steadily for a period of time. Institutional ownership managers figure out that SEO firms experience the highest growth surrounding the offer date and will have above average return. Therefore institutional enterprises would acquire ownership in potential firms (Gibsond, Safieddine & Sonti, 2004).

Several scholars have suggested several reasons why firms issue their shares in the stock markets either as IPOs or SEOs. They include the following: First is that a firm needs immediate cash for its survival (De Angelo, De Angelo & Stulz, 2010). The second reason is that firms that go public or continue to visit capital markets create value in form of securities which are traded in the market (Pattani & Vera, 2011). This also makes shares more liquid because shareholders can sell their shares should they require cash (Pattani, & Vera, 2011). The third reason is that it allows share dispersion of ownership (Chemmanur, & Fulghieri, 1999). The fourth reason is that a firm diversifies its capital structure which leads to accessing capital market with less cost in the long-run because there is no information asymmetry (Jensen & Meckling, 1976). Fifth reason is that firms make SEO in pursuit of profitable growth opportunities (Li, Livdan & Zhang 2009; Carlson, Fisher & Giammarino 2006). Furthermore, a firm is then monitored thus fulfilling the stock listing rules (Capital Markets Authority, 2014). Loughran and Ritter (2001) argue that on average firms go public when they are around seven years old.

Stock returns are classified as either in short run or long run (Ahmad-Zaluki & Lim, 2012). The short-run return is a measure of the difference between offer price and the market price at the end of trading's first day (Schaub & Highfield, 2004). In some cases this short-run return can last a few months (Ritter, 1991). Contrariwise, the long-run returns are returns are experienced from one year up to five years following the first day of trading after equity issue (Khushed, Mudambi & Goergen 2007; Abhyankar, Chen & Ho, 2006; Bilinski**,** & Strong, 2011 and Al-Shawawreh & Al-Tarawneh, 2015). Kooli and Suret (2004) refer to long run period as many years after equity issue. This definition is general as it does not specify the time period. As per this investigation, long-run return is a return that runs from one year to five years starting from the time equity shares were issued.

Kooli and Suret (2004), Corwin (2003), Ahmad-Zaluki and Lim (2012) posit that, when shares are issued, issuing firms exhibit negative long-run return persisting from one year up to five years. While studies done by (Thomas & Yawen, 2011; Dang & Yang, 2007) among others argue that issuing firms register positive long-run returns following equity issue.

These contradicting results call for further study in the area. Studies so far done in this area have raised more questions than answers. For example, in the case of IPOs, some scholars have come up with explanation that shares issued underperform non-issuing firms in the long run because there is initial underpricing (Kooli & Suret, 2004; Corwin, 2003; Ahmad-Zaluki & Lim, 2012). Lin and Wu (2013) posit that firms that issue SEO, do so when liquidity risk drops to the point that investors are less worried about risk

The above explanations raise fundamental questions: Why then would companies issue IPOs if these two adverse situations are obvious? Why would establishments continue going public if they are expected to underachieve in the long-run? Why would firms issue SEOs when it is obvious that they will have low returns in the long-run? Why would investors continue to buy portfolios if expected returns would be low for a long period? Despite these numerous questions and several empirical studies in this area, no concrete answers have so far been reached. Moreover in other studies the assertion that IPOs and SEOs do not necessarily give low returns in the long-run. Scholars including Eckbo, Masulis, & Norli (2000) posit that they fail to understand why SEO or IPO firms would produce low returns in the long-run and yet investors continue to buy these securities whenever they are offered in the market. Loughran and Ritter (1995) call this phenomenon a “puzzle”. Brav (2000) argues that low returns in the long-run found in IPOs and SEOs is just because of measurement error. Autore, Bray, & Peterson (2009) posit that the purpose for issuing equity in the market determines future returns. For example; are the issues for investment reasons, recapitalization or for overall corporate

objectives? They conclude that issues citing recapitalization and overall corporate objectives encounter adverse returns for three years subsequent to issue. However issues with particular proposes to utilize the funds for investments do not result into abnormal negative returns.

A few studies on long-run return have been done in Kenyan Capital market. Simiyu, Thadeus, Barasa, and Mateta (2016) looked at firm characteristics. Kinyua, Nynumba, Gathaiya & Kithitu (2013) did a comparative study on operating returns of firms five years before issue and five years after issue, based on liquidity and earnings per share. Maina (2013) carried out a study on pre and post issue return on the firms that issued shares. The result of these studies have not been conclusive in this area.

1.1.1 Some Microeconomic Variables and Long-Run Capital Market Return

Microeconomics is the study of the manner in which households and establishments make decisions and their interactions in particular markets (Mankiw, 2018).This study evaluates the long-run return on firms that issued equity as initial public offers, seasoned equity offers or share issue privatization by decomposing them under the following variables in the long-run; firm size, offer size, stock return, stock turnover, foreign share ownership, and institutional share ownership. These variables have been used as a possible predictive causality (Suzuki & Yamada, 2012). Firm microeconomic variables (size of the firm, age, offer size, book/market ratio, quality of underwriter, credit rating and multi nationality of the firm) may be connected to volatility and excessive past returns (Bandarchuk & Hilscher, 2013).

Small firms are less likely to attract large capital funds because of lack of asset base and low credit rating especially if they have been in the market for a few years (Bilinski & Mohammed, 2014). Young firms in particular are more likely to be at their growth stage

therefore have less return as they require more external funding for investment than fully-fledged establishments thus experience higher information asymmetry than those having long history (Ahmad-Zaluki & Lim, 2012; Bilinski & Mohammed, 2014). Silva and Blinski, (2015) suggest that quality of underwriter as reflected by its cost may influence long-run return.

Stock ownership structure characteristics (state ownership, managerial ownership, foreign ownership, concentrated holding, big five & institutional ownership) may lead to higher or lower returns depending on the circumstances considered under agency theory (Jensen & Meckling, 1976). Managers as agents of the shareholders determine when to issue shares. Where they own some shares, they are likely to work for their benefits. Thus amounts raised as a result of equity issue are likely to be invested in profitable projects because they would be beneficiaries of such investments in the long- run.

Firms are established to achieve certain objectives. One such objective is capital market returns. Capital market return is an establishment's capacity to realize planned outcomes as measured against its target objective(s). Classical theory on firm return originated from the works of Penrose (1959) where she theorizes that firm return is largely influenced by the resources and competencies within the firm. Industrial economists argue that return levels among firms can be explained as arising from factors which are firm specific (Capon, Farley & Hoenig 1990).

Major investors in capital markets invest in anticipation of high expected returns in the long-run because of risk associated with long term period (Spiegel & Wang, 2010). Majority of these investors include institutional investors; pension funds, insurance establishments, investment funds, mutual funds, and sovereign wealth funds (Celik & Isaksson, 2013). The institutional investors are generally interested in capital gains because their investments are intended to be for long-term. As a result of this, many

studies have tended to look at the returns of these investments in the long-run. With this in mind investors are more concerned with returns when either pension or insurance policies mature. Based on this background information, investors are concerned with the return on their portfolios which are likely to be invested for a long period. Therefore, predicting the most appropriate investment return in the long-run when shares are floated in the capital market would be a great contribution to finance literature (Perera, 2014).

1.1.2 Capital Market Return Measurement

Measurement is the assignment of numbers to aspects or attributes of things or occurrences in such a manner that appropriate qualitative or quantitative observed relationships amongst these aspects or attributes are characterized by these numbers and by significant properties of the number system (Cooper, 2015). Security return is a measure of the value of a segment of capital market securities. It is determined from securities' prices (typically a weighted average). It is an approach that investors and finance managers employ to define the market index and do comparison of the return on particular investments. Market security index is a mathematical construct.

Capital market return is based on price of a share as quoted in the securities market over a given period. The interest of a firm is to maximize its share value (Katharine, 2011). Share value is reflected in share price. It is a financial measure as opposed to operating measure that is based on financial results after a period generally referred to as profit/loss in the period. Capital market return is instantaneous following information availability as reflected in share price of a firm. Share price of a firm can be compared with share price of a similar size firm that has not issue equity over a period of time in the same securities market. It can also be compared with changes in movement of stock market index over a period of time. Capital market securities can be categorized in

several ways. They can be global for example S&P Global (market capitalization) or they can be regional or for one country like Dow Jones in USA, or Nairobi Securities Exchange (Weighted price index change).

Capital market security return is a better method of measuring return of equity issued in the market in the long-run as oppose to using operating return. Operating return is based on the operating profits, and may be affected by a several factors for instance, accounting methods used, one time effect of accounting changes and shift in product demand. Accounting methods used may be subjected to the possibility of manipulation of accounting numbers or accounting standard to project a positive image on financial statements. The figures in financial statements may also be influenced by the one-time impacts of accounting shifts and economic aspects like non-recurring income. Finally the figures in the operating results may also be due to temporary shifts in product demand (Barber & Lyon, 1996; Lee, 1996). One major disadvantage with operating return is that it is a lagging measure (Drury, 2017).

A number of scholars have used Capital market returns to determine a firm's long-run performance for instance (Ediriwickrama & Azeeze, 2015). Dong, Michel and Pandes (2011); Ramlee and Ali, (2012); and Zarafat (2012). They have carried out empirical studies on the characteristics of IPOs with results of high short-run returns and afterwards poor long-run returns. These studies have indicated that IPO and SIP establishments encounter share price of low returns compared to non-issuing establishments in the long-run. The same is said of SEOs. The period of low returns typically runs between one to five years (Zarafat, 2012). This long-run low return phenomenon seems to be prevalent in many markets of the world. However this phenomenon is not found in all cases such as in same markets, in different markets or in different periods (Thomas &Yawen, 2011; Schaub & Highfield, 2004). Some scholars

have suggested that the low returns are as a result of measurement errors (Brav, 2000; Ritter & Welch, 2002).

1.1.3 Capital Market in Kenya

In Kenyan capital market, there are a number of traded instruments. These include equity shares, preference shares, unit trusts, money market, government securities (treasury bills, & treasury bonds) and derivatives whose market was launched from 4th July 2019 for equity index futures and single stock futures based on NSE 25 share index. One of the most developed Capital market in Kenya is the equity market. In this market there are 67 firms whose shares are traded (as at December, 2013) according to NSE data base for the period of this study. These firms are divided into ten industrial segments namely; the agricultural, investment, banking, automobiles & accessories, commercial services, construction & allied, energy & petroleum, insurance, manufacturing & allied and telecommunication & technology. NSE has been in existence since 1954. Since 1990s, the NSE has undergone transformation and it has become more liberalized in its operations. Its activities are watched over by Capital Markets Authorities. Nairobi Securities Exchange has twenty two Stock Brokerage firms as contained in the (NSE hand book, 2013).

1.2 Statement of the Problem

The purpose of this study was to investigate the effect on some microeconomic variables on long run capital market return on firms that issued equity in the Nairobi Securities Exchange using the following variables; firm size, offer size, stock return, stock turnover, foreign share ownership, institutional share ownership and age as independent variables and cumulative average return as dependent variable.

Investigations on long-run return of SEOs, IPOs and SIP have been undertaken in several developed countries. These studies report conflicting results as evidenced below. In support of poor long-run returns of SEO include studies done by (Panagiotis, 2009; Paskelian & Bell, 2010). Others to the contrary include Thomas and Yawen (2011), Dang and Yang (2007). Eckbo, *et al* (2000) have questioned the presence of low returns on a sample in a study done on SEOs from 1963-1995.

Similarly, studies on IPOs give conflicting results too. Those with low long-run return include (Ma & Shen, 2003; and Espenlaub, Gregory & Tonks, 2000). Others done by scholars such as Brav and Gompers (1997), Khushed, *et al* (2007), Choi, Lee, & Megginson (2010) have positive long-run returns.

In case of studies done on share issue privatization (SIP) by Megginson and Netter (2001); Djankov and Murrel (2002) all find significant, positive long-run returns. Schaub and Highfield (2004) on the other hand give two different results; low returns for those issued before 1996 and higher returns for those issued after June 1996.These empirical results do not seem to solve the raging debate in this area. Levis (2011) rightly says, not enough research has been done on causes underlying the differences in empirical results.

The Kenyan capital market has issued a number of IPOs, SEOs and SIP but not enough research has been done in this area. A few studies so far done have either been for a short period or the scholars have used operating measures and the problem does not seem to be solved. This study would like to investigate the effect of the selected microeconomic variables on long run capital market returns in NSE.

1.3 Research Objectives

The investigation took account of the following objectives;

1.3.1 General Objective

The general objective of this study was to evaluate the effect of some microeconomic variables on long run capital market returns on equity offering firms at The Nairobi Securities Exchange.

1.3.2 Specific Objectives

The following were the specific objectives of the investigation.

i. To determine the influence of firm size on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
ii. To ascertain the influence of equity offer size on establishment's long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
iii. To evaluate the influence of stock return on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
iv. To examine the influence of stock turnover on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
v. To ascertain the influence of foreign share ownership on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
vi. To investigate the influence of institutional share ownership on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.
vii. To examine the moderating effects of firm Age on the long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue.

1.4 Research Hypotheses

This study tested the following null hypotheses:

$H_{01:}$ Firm size has no significant influence on firm's long-run capital market return following equity issues at the NSE.

H_{02}: Firm offer size has no significant influence on firm's long-run capital market return following equity issue at the NSE

$H_{03:}$ Stock return of a firm has no significant influence on firm's long-run capital market return following equity issue at the NSE.

$H_{04:}$ Stock turnover of a firm has no significant influence on firm's long-run capital market return following equity issue at the NSE.

$H_{05:}$ Foreign share ownership has no significant influence on firm's long-run capital market return following equity issue at the NSE.

$H_{06:}$ Institutional share ownership has no significant effect on firm's long-run capital market return following equity issue at the NSE.

H_{07} Firm age has no significant moderating effect on the long-run capital market return on firm's that issued equity shares in the NSE.

1.5 Significance of the Study

This study has made two major contributions in the following areas; academic contribution to scholars and policy contribution to policy makers. These are discussed below.

1.5.1 Academic Contribution

The investigation has contributed to the academic world since the topic has remained controversial in terms of empirical results and has covered a long period. Further advantage is that not extensive studies have been done in this area in the developing world. Moreover, the study looked at six determinants in one market over a period running to twenty years. Previous studies in this Market have covered only a few years with one determinant being the topic of study.

Moreover three of the null hypotheses have turned out to be true, these are; offer size, share turnover and age of the firm. The other four; firm size, foreign ownership, institutional ownership and stock return are factors to consider when an investors is interested in investing in a firm in NSE.

1.5.2 Contribution to Policy Makers

The investigation can be used by government agencies and equity analysts in terms of policy formulation especially for investment. Many government agencies have surplus funds. These funds are occasionally invested in the equity market and at times are lost because of poor predictions (Kenya Airways Ltd, Mumias Sugar Co. Ltd; Uchumi Super Markets Ltd). These funds should be invested in firms that would give higher returns with minimum risk.

1.6 Scope of the Study

The investigation encompassed all firms that issued equity in exchange for cash in the NSE from 1993 to 2013 and which had not been delisted at least within the five years of issuing equity. This period is long enough to represent a longer stretch of Kenyan capital market history and the extended sample period enhanced power of the test on

characteristics. Moreover, the period fell within the time when there was market oriented reforms in the financial sector that covered the capital market as stated in the paragraph that follows.

The reforms that took place included: strengthening regulatory infrastructure; reformed CMA that provided good corporate governance practice; published disclosure guidelines for both public and private companies; instituting open outcry system of trading to ensure transparency; allowing foreign investors in the market with shareholding in local firms up to 40%, and increasing the number of stock brokers from 12 to 20 aimed at sustaining liquidity in the market (Ngugi, 2003).

Further changes that took place included trading cycle using Central Depository System (CDS), and Central Depository Settlement Corporation (CDSC) to digitize all shares held by investors (NSE, 2002); automating live trading in NSE since 2002 to increase transparency in stock trading ; introduced The NSE All share index as an another index in 2008 ; automating trading in Government bonds using Automated Trading System (ATS) a consequence by NSE and Central Bank of Kenya (CBK) in the creation of financial depth in Capital Market by giving the required liquidity in November 2009; reducing the equity settlement cycle from 1 plus four days to 1 plus three days thus enhancing liquidity in the market in 2011 at the NSE. Other changes that have been implemented include; Complaints Handling Unit (CHU, 2009) enabling investors and people to pass on any enquiries or complaints to NSE. Finally other reforms made in 2012 include FTSE-NSE Kenya 15 share index and FTSE25 share index. These were made available on NSE Website. This new initiative has enabled investors to access new information and provide a dependable indication on the performance of Kenyan equity market during the trading periods. Such changes have increased transparency in the Market, making investors and financial analysts much better informed. Lastly the period

the study covered had available data on the activities in the market and which was useful in conducting a successful research.

1.7 Limitations of the Study

This investigation has provided insight into microeconomic determinants of long-run returns on equity issued in Nairobi Securities Exchange. However a few limitations were observed. Even though the author has collected data as fully and as accurately as possible there is no guarantee that data is comprehensive. Secondly the model assessing the microeconomic determinants for the long-run return may not be wholly inclusive. Some variables that may have significant influence may not have been included. Thirdly the research is performed based on linear regression, but there are weakness with linear such as; it might be unable to control time invariant firm specific heterogeneity and therefore the process may be subjective and may give unreliable results (Huyghebaert, 2006).

Fourthly certain firms were not quoted in NSE regularly for a long period in certain months. This was common especially with small firms, as a result of this shortcoming the study had to rely on averaging. Finally the study focused on all equity issues without separating IPO, SIP or SEOs. This was because of few establishments that issued shares in the period of investigation and this is because of the small size of the market relative to other markets found in Europe, Americas and East Asia. Perhaps if these shares were segregated and study done on each group, a different result could have emerged. However the stated limitations did not compromise the quality of the findings as the analysis and conclusions are based on scientific basis.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter reviewed comprehensively both theoretical and empirical literature relating to microeconomic variables on long-run capital market return on shares issued as Initial Public Offerings, Seasoned Equity Offerings and Share Issue Privatization in the Nairobi Securities Exchange. Along with literature review, a conceptual framework that links microeconomic variables to long-run capital market return on these firms; namely dependent, independent variables and moderating variable were developed. To achieve study objectives, the study reviewed theoretical literature then tried to relate the independent variables to relevant theories reviewed. Thereafter, empirical literature review was done to connect the explanatory variables with empirical studies done in the past. This approach was aimed at establishing the grounds upon which conceptual framework would relate both theory, empirical literature, all independent variables and dependent variable. The research hypotheses were logically put forward in chapter one and were explained in the conceptual linkages among the independent and dependent variables. These hypotheses were later tested in chapter four. This chapter concluded by identifying the research gaps which justified the study and thereafter ended with the summary of literature.

2.2 Theoretical Literature

Literature on initial public offerings, seasoned equity offerings, and share issue privatization has generally been centered around long-run return on the listed firms. The focus has been on returns over 1- 5years as primary period of analysis. There are a number of theories which form the backbone of empirical literature. These theories try

to explain the behavior of investors when firms issue Initial Public Offerings, Seasoned Equity Offerings or Share Issue Privatization. These are fundamental theories underlying the returns on these firms once shares are issued. These theories include; random walk theory, efficient market hypothesis theory, liquidity preference theory, agency theory, market timing theory, capital market theory and life cycle theory. They are discussed below.

2.2.1 Random Walk Theory

Random walk theory was proposed by Fama (1970) who contended that stocks trade at their fair value, inhibiting either the buying of undervalued stock or selling overvalued stock at overstated price. It gained prominence when Malkiel (1999) wrote a book "A random walk down the Wall Street" which is now popular with investors as a reference text. The theory adds that successive price changes are independent of past data thus these previous information cannot be employed in the prediction of future prices.

Random Walk is a statistical concept that was developed and tested by Kendall (1953), by comparing mutual funds and other professionally managed portfolios which regularly produced lower returns than the market in entirety. The proponent of random walk recommended wide diversification of investment portfolios (Markowitz, 1952). The theory argues that no stock is undervalued or overvalued at any time. However once new information becomes available, price of stock changes automatically by correcting the price through this new information. Thus investors react instantaneously to any information and at times take advantage by eliminating profitable opportunities**.**

Lo and McKinlay (1999) posit that stock prices will every time completely replicate available information so that there may be no profit made from information on the basis of trading. This results in a random walk in which, prices change by market efficiency

by either rising or falling depending on the information content. A random walk of stock prices may not indicate that there is efficiency of stock market with investors who are rational.

Because price changes are independent of each other, this defines a random walk. If today's price changes occur then such occurrence should be because it is only due to today's unexpected news. Yesterday's news has no influence on today's share prices. Edgar (1996) posits that if the returns are independent of past events then random variables follow a random walk. Brealey and Meyers (2005) define drift as simply a weighted average of each price's probabilities moving to the next period. Although the model is useful, it is relatively limiting because it has the assumption that a probabilistic independence is absent between consecutive price movements.

Random Walk theory implies that the market is efficient. When testing Efficient Market Theory, Random Walk is also tested. In a study of long-run return on shares issued, future share price is of essence. But a high degree of market perfection would exhibit the properties of random walk in the way future price movements would occur. Smith, Jefferis and Ryoo (2002) carried out a study on Random walk theory in eight African Stock markets including Kenya based on assumption that a stock market price index develops a random walk. The study found that Kenyan market was not efficient. .

However, Krugman (2000) argues that share prices may surge or plunge for no apparent reason. Thus falling or rising of share prices may come without any good reason, without any new information. This share price behavior may cause losses or gains to investors.

Since the price movement still remains unclear, the general belief on the random walk theory continues to be held by stock analysts and economists. Because random walk

theory is still widely held, this study finds random walk theory relevant. Moreover Random walk theory is based on Capital market return which is affected by the movement of share prices following corporate events including equity issue and this study is based on capital market return rather than operating return (Lo & McKinlay, 1999).The Random Walk theory is consistent with cumulative average return as a dependent variable. It reflects the value of a share (Katharine, 2011). Random Walk theory is also applicable to stock return as an independent variable. Random Walk theory reflects price changes that are experienced in security markets.

2.2.2 Efficient Market Theory

In finance literature, capital market is considered efficient when investors are not able to earn abnormal returns, when they base their trade on available information (Fama, 1976). Earlier, Fama (1970) argued that assumption about market equilibrium conditions could only be indicated with respect to expected returns based on mathematical concepts of expected value to condition not indicated by the common principle of market efficiency. It was assumed that securities markets were very efficient in the reflection of information regarding particular stocks and regarding the stock markets in entirety. Based on this assumption, after an information has arisen, it circulates very fast and is interpreted into price of market securities.

Latham (1986) argues that security markets are efficient in accordance with information if disclosing that information set to every agent would not alter equilibrium price of portfolio(s). Defining efficiency of capital market when looking at the general economic performance of a country would be more appealing. There exist three forms of market efficiency; strong form, semi strong and weak form (Fama, 1970). Each form defines how information flow is attributed. However, there is a difference between an efficient market and a perfect market. Market efficiency merely regards the link between

information flow and stock prices (Beaver, 1981).Whereas perfect market is concerned with the number of sellers and buyers. Thus a capital market may not be perfect but is efficient when information flow is at its best. The presence of economic inefficiency would imply that securities market is inefficient. Dickinson and Muragu (1994) found that the Nairobi stock market was in its weak-form. Other studies that have been carried out subsequently include: Zhang, Chang and Lee (2012) and Njuguna (2015) all these have concluded that efficient market theory in Kenya is in its weak form.

The evidence supporting the efficient market theory is extensive and there is less contradictory evidence. There have been intellectual arguments since the turn of this century that efficient market hypothesis theory is not universally accepted. This argument was advanced by some financial economists and statisticians who stated that stock prices can partially be predicted by using fundamental valuation metrics (Lo, Mamaysky & Wang, 2000). However, this technique is disputed because of its limitation in accounting numbers.

Efficient market hypothesis paradigm is pertinent to the investigation at hand because the data used is based on capital market valuation. Thus, it is a departure from those scholars like Lo, *et al* (2000) who believe that stock prices can be predicted using fundamental valuations (earnings, dividends, asset value) which are lagging measures (Drury, 2017).Efficient Market Theory is relevant to the two variables in the study that is cumulative average return and stock return.

2.2.3 Liquidity Preference Theory

This paradigm was propounded by Keynes (1936) and it states that; long-term securities ought to give greater returns compared to short-term securities due to the willingness of investors to accept lesser returns for short-term maturing securities to evade the

volatility of greater return on long-term maturing securities. The theory contends that higher rates of return for long term securities is justified because there is need to offer a premium to compensate investors. The theory is based upon the idea that borrowers tend to borrow for long periods whereas lenders prefer to lend for shorter periods. Therefore in order to convince lenders, borrowers must provide a premium for this long period. It has been suggested that certain segments of the yield curve are favored by different types of investors. Investment and pension fund investors are keener on long-term dated stocks. Even in the absence of inflation and risk, it is presumed that most people would prefer their money now rather than in future (Keynes, 1936).When firms issue equity, most investors should expect higher return because they expect to hold these securities for a long time especially where the investors are pension funds, endowment funds, or life insurance funds. Based on liquidity theory, returns on issued equity (SEOs, SIPs or IPOs) should have higher returns than those from short term securities. This paradigm may be regarded as an expansion of expectation theory since the formal liquidity preference position maintains that liquidity premium within the returns for longer maturing securities ought to be incorporated into the projected future rate to arrive at the long-term returns. Liquidity preference theory has some strong empirical support. For example a study by McCulloch (1975) found that investors need greater expected yields for holding assets with higher sensitivity to variabilities in market liquidity. Liu (2008) posits that greatest liquidity-beta stocks perform better than the lowest liquidity-beta stocks by 0.531%, on monthly average.

Liquidity preference theory remains relevant in a study of returns on investments. All investors would like to invest, provided they get better returns. The rate of returns will depend on how long an investment is out of the hands of the investor. In view of the fact that investment is for long period the return has to be higher than if it were for a short period. In this study the theory is very relevant. Investment in stocks are for a long

period especially in cases of institutional investors. Therefore returns should be higher since the investments in equity stocks are generally held for long periods particularly by institutional investors (Sartawi, Hindawi, Bsoul, & Ali, 2014). This theory supports the stock turnover variable used as one of the independent variables in the study.

2.2.4 Agency Theory

There is a clear distinction between ownership and management in a firm structure (Jensen & Meckling, 1976). Shareholders are the owners of the firm whereas managers are agents who manage the firm on behalf of shareholders. Both shareholders and managers have differing objectives regarding the running of the firm. Managers aim at maximizing their benefits from the firm whereas shareholders would like to maximize their returns from the invested capital. This brings into focus what is called the agency problem. This problem resulted into the development of agency theory.

Jensen and Meckling (1976) advanced the agency theory which they referred to as theory of the firm. The paradigm regards the different agency problems and their available solutions under each ownership kind. Managers who are agents in both private and state-owned enterprises generally aim at increasing their individual utilities instead of those of the owners (Jensen & Meckling, 1976).

In private corporations, this difference is lowered by external facts for instance markets for managers, capital and firm controls. Thomsen & Conyon, (2012) have a broad look at the composition of ownership in terms of board influence, ownership influence, the regulatory effect of company law and the mechanism governance systems around the world in relations to company performance. These systems include internal approaches like managerial involvement in ownerships, reward systems and the composition of board of directors who may be either executive or non-executive (Thomsen & Conyon,

2012). Thus, managers in firms that issue equity to the public are inclined to maximize the return for shareholder. These managers have to invest in projects which will give higher returns for the firms they are managing on behalf of shareholders.

This theory predicts that greater proportion of shareholding by management decreases the likely conflicts of interest between administrators aiming at increasing their individual utility and external shareholders aiming at increasing their returns (Morck,Yeung &Yu 2000). Thus, by increasing share ownership to outsiders and decreasing shareholding to managers, it is predicted that this would have an adverse influence on establishment's value and share price (Chen & Yu, 2012). Share issue through SEOs may lead to poor long run return on the firm when management considers that their interests are not catered for following reduced share ownership.

The agency theory applicability in equity return on an establishment has been generally acceptable in literatures of finance. Decisions on investments are made by managers as agents of the principals who are the shareholders. Managers know better about these companies than the principals. They have an idea about the value of the firms they manage on behalf of the shareholders. They use this knowledge to determine when the issuance of shares to the public ought to be undertaken and in certain countries to purchase back the stocks.

In this study agency theory becomes very relevant because it is the managers who determine when shares are issued to the public, they determine how many shares they should own, and at what price these shares should be issued to the public (De Angelo & Stulz, 2007; Dierker, Kang Lee & Seon 2014). Agency theory is reflected in the study in terms of stock return variable which is one of the independent variables.

2.2.5 Market Timing Theory

Korajczyk, McDonald and Lucas (1991) argue that firms prefer to issue equity when there is quality information about them. This quality information may include earnings release, new business opportunities, or any other positive information that can be availed to the public. As a consequence of this, insiders with this superior knowledge about the firm have incentives to issue shares when the establishment is overestimated.

Under market timing theory Baker and Wurgler, (2002); Luu and Dang, (2022), posit that it is the managers who determine when it is most appropriate time to issue shares of a firm in order to maximize amount of cash received in share flotation. Managers in collaboration with underwriters determine the issue price. They also determine when to issue shares depending on which firms are about to issue their equity in the market (Belghitar & Dixon, 2012; Dierker, *et al*, 2014).

Lucas and McDonald (1990) developed a model which is based on asymmetrical information on firm behavior. One such behavior is that establishments reschedule their issuance of equity if their values are depressed. Consequently, if market value for their shares is down, they will postpone the issue of SEOs until the market is bullish. Dierker *et al* (2014) argued that firms look into the market to see which firms are likely to issue equity. Where there are a few good quality firms which are about to issue equity, other less quality firms will postpone their issues.

Other theorists argue that markets provide entrepreneurs with vital material. Markets provide material upon which entrepreneurs are responsive to, thus increases growth prospects and this is indicated by greater prices in the markets (Schultz, 2001). Baker and Wurgler (2002) back this paradigm; they suggest that market timing and financing decisions just accumulate over time. Ritter (1991) supports this paradigm in his

investigation which focused on IPOs long-run return. He finds concentration in amount in particular years as being linked with exploiting favorable moment. Graham and Harvey (2001) find that most managers' actions are determined by market timing and the amount of stock over or under valuation in USA securities market. De Angelo and Stulz (2007) posit that market timing highly influences SEO choices.

Market timing theory has generally been none controversial in finance literature as many scholars seem to support the theory. Decisions by management are based on future. Where future activities can be predicted accurately, management takes credit. That is why where management owns shares in the firm which they manage; they will only take advantage of any 'window of opportunity'. The market timing theory is relevant to the study at hand following empirical studies done to date (Loughran & Ritter, 1995; De Angelo & Stulz, 2007).

2.2.6 Capital Market Theory

The capital market theory is part of portfolio investment theory. Investors who are foreigners can invest in foreign countries through the securities exchange market by buying shares. According to Aliber (1971) firms are more likely to expand abroad when their currency value in the home country is strong. .Capital market theory explains reasons behind firm's investment abroad (Boddewyn, 1985). Boddewyn (1985), gives three situations where foreign investors; can invest abroad. These are; where the host country has weak securities market; where currency in the host country has undervalued exchange rate or where there is information asymmetry in host country especially in securities' market. In a country where any of the above factors is common foreign investors tend to take advantage by investing through the stock market.

Foreign investors have become a major investment group in The Nairobi Securities Exchange especial following the financial liberalization in 1990s.Many foreign institutions and individuals have invested in Nairobi Securities Exchange. Therefore foreign shareholders formed one of the independent variables in this study.

2.2.7 Life Cycle Theory

Life cycle theory of a firm was developed Mueller in 1972. He identifies four stages in the firm life cycle, these four stages included: the birth stage, growth stage, maturity stage and finally old stage. The life cycle theory explains the relationship between firm age and shareholders' returns. Stincombe (1965) provides a link between firm age and stock return. Stincombe (1965) argues that age of a firm increases with firms' experience and greater networks of relationship leading to superior returns. Jovanovic (1982) affirms that the older the firm in the market the more it learns about its true costs and efficiency therefore less likely to fail. Headd and Kirchhoff (2009) argue that life cycle theory explains the link between firm age and returns. Faccio, Marchica and Mura (2011) note that firm age captures the differences in life cycle of the firm because riskiness would decline with firm age. Stepanyan (2012) posits that firms closer to maturity have substantial experience and are able to make effective capital structure decisions maximizing the benefits of debt interest tax shield. Custodio and Metzger (2014) report that firm age is positively related to return.in USA. In many studies firm age has been used as determinant of stock returns (Custodio & Metzger, 2014). Scholars have shown more interest on firm age and performance. They argued that firm age is more than a control variable (Leoncini, Marzucchi, Montresor, Rentocchi & Rizzo, 2017). In the same breath firm age has been found to been important moderating factor (Koh, Durand, Dai & Chang, 2015). However there are a growing number of scholars who have raised issue with age and firm's performance. They cite emergence of the

internet revolution where young companies like Google, Facebook and Instagram have performed much better despite these being young firms.

The life cycle theory of firm age has become a popular topic of research in past few decades (Ophir, 2016). Theoretical concepts relating to firm age are still being refined but there has

been no opposition to this theory. Scholars have shown more interest on firm age and performance.

2.3 Conceptual Framework

This investigation's conceptual framework as illustrated on (figure 2.1) is based on both theoretical and empirical literature review. It shows that firms may issue equity as IPOs, SEOs and SIP and their long run return may be determined by the following independent variables; firm size, equity offer size, stock return, stock turnover, foreign ownership, institutional ownership and age as a control variable. The dependent variable used in the study is cumulative average return (Capital market return).In figure 2.1, independent variables that may influence cumulative average return, dependent variable which is measured by cumulative average return and moderating variable are listed under each characteristic.

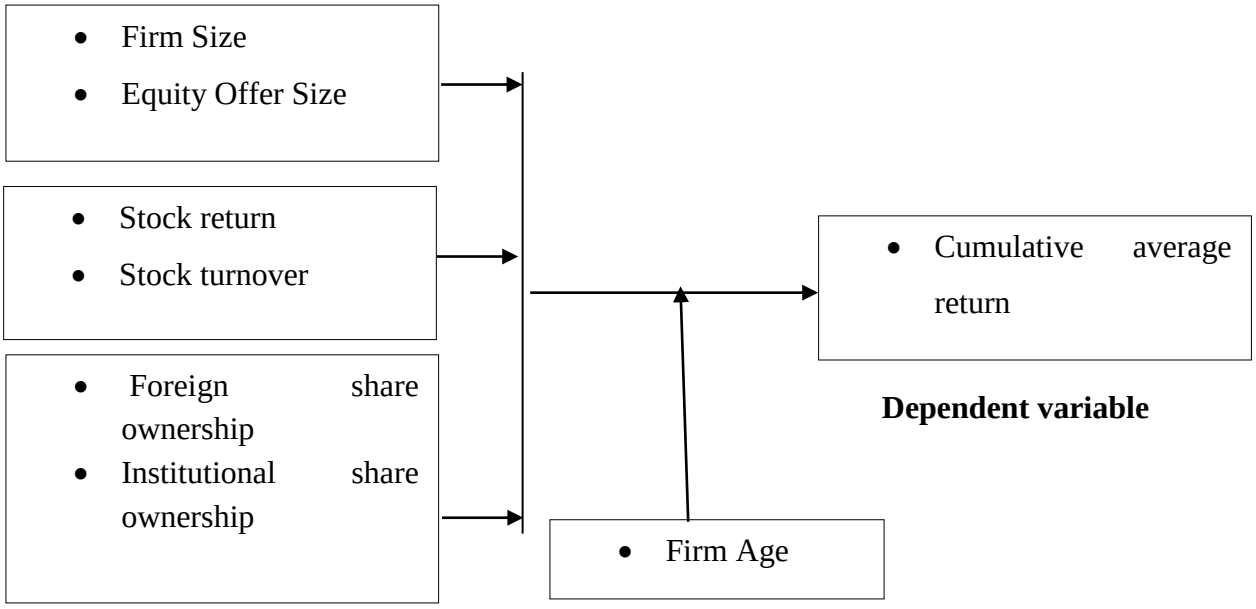

Figure 2.1: Conceptual Framework

Source: Author (2018)

2.3.1 Firm Characteristics

Bessemblier and Zhang (2013) argue that based on establishment's characteristics (size, offer size, leverage, age, sector), IPOs', SIP and SEOs' long-run yield would differ with control firms because of; idiosyncratic volatility, liquidity, capital investment and return momentums. Based on random walk theory and efficient market theory, the volatility of returns and return momentum are often experienced as firm characteristics.

The size of the firm is the market capitalization (market value) when it goes public (Al-Shawawreh & Al- Tarawneh, 2015). This market value explains abnormal return. Smallest firms account for largest abnormal returns. Vithessonthi and Tonguria (2015) argue that large firms are better off in terms of performance when compared to small firms. Berk (1995) finds market value of companies has an explanatory power of their

returns. Because small firms suffer due to lack of information available, they also have smaller number investors compared to those having broader range of information. Besides the foregoing problem, small firms have liquidity problems because of small asset base. They may desire to have long term financing but they may not be able pay premium for long term finance. Al –Shawareh and Tarawneh (2015) established that there is substantial link between firm size and long-run performance.

Khurshed, *et al.* (2007) find that large establishments have better performance in the long-run. The same result is found in a study by Khrushed (1999) who argues that the larger the firm's size the better is the performance in the long-run. However Jegadeesh (2000), Fama and French (1993) all find that firm size is insignificant in regard to firm performance.

Offer size is the number of shares offered at a time. Large size issuances will cause greater investor interest leading to more analysis by market players and better firm's performance in the long-run (Belghitar & Dixon, 2012). Large size issuances can also generate positive sentiment. Large offers require proper market timing so that all shares are taken up by investors otherwise the burden would fall on underwriters and the sponsoring investment banks. It should be noted that in certain cases large offers might lead to poor long-run performance because funds raised following share issue are used without considering viability of the projects upon which they are put (Autore, *et al.*, 2009).

The amount of offer has certain effects. Large issuances are usually done by firms that are well grounded. A particular firm will opt to float a larger issue the moment the conditions of the market are determined by solid demand on the basis of market timing paradigm (Ritter, 1991; Baker & Wurgler, 2002). Khushed, *et al*., (2007); Ghosh (2005); Belghitar and Dixon (2012); Minardi, Ferrari, and Araujo-Tavares (2013) find strong

link between offer size and long-run performance. However, Lee, Lochhead, Ritter and Zhao (1996); Cai, Liu, & Mase (2008); Thomadakis, Nounis, and Gounopoulas, (2012) find a statistically adverse connection between issue size and long-run performance.

The quality of underwriter is determined by the variable Sponsor. The variable Sponsor is measured by "The Annual Broker Survey" in United Kingdom. This survey ranks the top 15 merchant and investment banks that act as underwriters. In USA underwriter reputation is determined by the underwriter's market share in any given year's overall underwriting (proceeds rank). The principal manager carries out the due diligence regarding information revealed in the offer documents. The disclosure's quality in the prospectus will depend on the quality of the underwriter partaking the issue (McLean, Zhang & Zhao (2011). Reputable underwriters will only choose the less risky IPOs or SEOs. This is why reputable underwriters are often big players within their domain and it is more critical for them not to lose their reliability (Su & Bangasa, 2011).

Underwriters advise their client firms on offer timing, pricing decisions and distribution of shares to investors. The certification theory proposes that underwriters who are reliable are linked with decreased uncertainty (Corwin & Schultz, 2005). Autore, *et al*., (2009) document that prospectus material aids to forecast SEO post offer performance and that good information is provided by reputable underwriter. Suzuki and Yamada (2012) point out that the quality of an underwriter has substantial positive influence on establishment's long-run performance. The same result is found in a study by Chahine and Filatotchev (2008); Silva and Bilinski (2015) all who argue that the existence of a reputable underwriter increases effective due diligence. However Su and Bangasa (2011) in the Chinese market did not ascertain substantial effect of underwriter reputation on long run return on equity issued.

Firm age can be a proxy for risk. Old firms are more likely to be stable and mature. Age can be a measure of both investor confidence and uncertainty (Ritter, 1991). The age of a firm is determined by the number of days before going public. An establishment that has been in operation for many years is able to sustain risk. A firm which has been in business for a long time is well known and there is little element of uncertainty (Lowry, Officer and Schewert, 2008; Alvarez, 2015). Ritter (1991); Khurshed (1999); Belghitar and Dixon (2012) document a more pronounced positive link between issuer's age and IPOs' and SEOs' long-run performance. They argue that this is because older establishments have less information asymmetry. However in studies done by Brau, Couch and Sutton (2012); Liu, Uchida and Gao (2012) it was reported that there was unsubstantial adverse link between firm's age and IPOs' long-run performance.

Different firms operate in different sectors in the economy. Firm sector refers to the sector which it fits in. For example; financial establishments, agricultural establishments, utility firms or technology firms. The return experienced in each sector keeps on changing due to changes in technology. Al- Shawawreh and Al-Tarawneh (2015) find that the sector in which the firm belongs is positively, statistically and significantly correlated with long-run abnormal return. But Spiess and Affleck-Graves (1995) find that the sector in which a firm belongs has insignificant influence in long run return on equity issues. The same result is found by Ritter (1991) where the study revealed under performance of IPOs in the long-run regardless of industry in which a firm operated.

2.3.2 Equity Stock Liquidity

Stock Liquidity characteristics (Price Momentum, Stock turnover, Stock return, Book to Market ratio) are important in assessing long-run return of equity issued (Ediriwickrama & Azeez, 2015). Liquidity of a security is important when it comes to its pricing. Trading activities such as volume or turnover in security markets can be a measure of

liquidity (Chordia, Roll, & Subrahmanyam, 2001). Liquidity preference theory asserts that securities that are easily converted into cash are less likely to demand a higher premiums than securities that are difficult to liquidate (Liu, 2008).

Liu (2008) posits that there is a premium associated with liquidity especially where securities remain untraded in stock market for long periods. Liquidity is also associated with how volatile the stock price is. Liu (2008) finds that the greatest liquidity-beta stocks perform better than the lowest liquidity beta stocks by an average of 0.53% every month. Thus liquidity is an important determinant on long-run return of establishments issuing equity.

Price momentum is the price at which firm's shares trade over a given period. Vogel and Gray (2015) describe price momentum as a continuation of past returns experienced in stock trading. Stock traders give attention to shares that are moving considerably in a single direction in greater amounts. Past good returning firms should continue to perform well in future while past low returning firms should continue with low returns. Therefore a firm that issues shares frequently or in large numbers may invest in projects with low returns. In view of this, these firms may register low returns in the long-run. Momentum anomaly is connected to risk. Johnson (2000) argued that risk is connected with the unusual returns since establishments that are in upward momentum face greater growth rate. Grinblatt and Moskowitz (1999) found that momentum impact is more apparent in establishments that are profitable when evaluating sectors rather than specific stocks. The same result was found by (Parmlet & Gonzalez, 2007). However Korajczk and Sadka (2004) find that momentum effect does not always deliver excess return.

Stock turnover is the volume of stock traded in a particular given period (Merritt, 2017). It is used as a measure of stock liquidity. Stock liquidity in this case is measured by the

ratio of the total amount of stocks traded over a year to the average amount of stocks outstanding for that year. The higher the share turnover, the more liquid the shares of the company are. Share turnover ratio tells an investor how easily the shares can be disposed of but it does not indicate the performance of a firm (Merritt, 2017).

Chord *et al*. (2001) find a substantial cross-sectional link between stock return and the variability of liquidity when using trading volume and turnover as a measure of liquidity. Liu (2010) however found that stock turnover as a measure of liquidity has no predictive power for returns.

In Kenya, Nairobi Securities Exchange Index is the major index and market indicator that provides investors with a broad knowledge regarding the stock return in Kenya as well as direction and securities market's performance. The NSE 20 share index is constituted by 20 large companies that are quoted in Nairobi Securities Exchange. Other indices include the 25 share index and all share index. Several investigations have been done in regard to stock market return to whether it has influence on firm performance. These studies include Gan, Lee Yong and Zhang (2006) in New Zealand; Pilinkul and Boguslauskkas (2009) in Lithuanian Stock Market Index; Abu-Libden and Harasheh (2011) in Palestinian Stock Exchange and Chord,*et al.* (2001) in USA stock market. All point out that there is a substantial cross-sectional link between stock return and the liquidity's variability.

Book/ Market ratio is one of the indicators of liquidity in a securities market. Book to Market ratio is the ratio of cash flow proxy to current price level (Kothari & Shanken, 1997; Pontiff & Schall, 1998). Establishing the ratio of a cash flow proxy to current market price results in a variable that is linked with prospective yields. Book to Market ratio of individual stocks has ability to explain cross sectional variation in stock return. Fama and French (1993); Brav and Gompers (1997) found a strong positive relationship

between average long-run yield and book to market ratio. Brav and Gompers (1997) found statistically significant positive relationship to performance on book-market ratio and long- run return. However Berk (1995) did not find book/market ratio as bearing any positive influence on establishment's long-run yield.

2.3.3 Ownership Structure

Stock ownership characteristics include different ownership structures. These are; State stock ownership, Managerial stock ownership, Institutional Stock ownership and foreign stock ownership. Stock Ownership structures differ across many countries (Chen & Yu, 2012). Various kinds of stockholders usually have varying goals, priorities and preferences (Claessens, Djankkov & Lang, 2000). La Porta, Lopez-de Silanes and Shleifer (1999) ascertain that an ownership structure type defines establishment's performance. These ownership structures and firm value are explained theoretically by a number of scholars who include (Noe, 2002; Oded & Wang, 2010). Ownership structures are better explained by AT and corporate governance theory. These structures include; government ownership, foreign ownership institutional ownership, and managerial ownership.

Governments have owned shares in companies. State ownership in some instances is encouraged in order to cure market failures. Such ownership has also been encouraged in industries which are considered strategic to the Country (national resources, utilities and infrastructure) because of the benefits they accord to the society as a whole (Grout & Steven, 2003). Le and Buck (2011) found state ownership and establishment's performance positively significant. However, Wei, *et al.* (2005); Rahman and Rejab, (2015); Thamsen and Pedrsen, (2000); Gunasekarage, Hess and Hu (2007); Mao (2015) all find adverse link between government ownership and establishment's performance.

Institutional investors are financial institutions (Life insurance establishments, Endowment funds and Pension funds) that bear significant amount of equity in publicly traded companies (Zhang & Gimeno, 2016). Bebchuk, Cohen, and Hirst (2017) posit that establishments have always been regarded as passive owners, giving rise to concerns that their growth would deteriorate management and aggravate agency problem. However studies done by McCahery, Sauter and Starks (2016); Appel, Gormley and Kiem (2016) provide evidence that large establishments carry out thorough proxy voting and quietly engaging with administration. Institutional investors are more composite compared to other stockholders since they are more specialized in respect to capital markets, sectors, businesses and have higher level of information (Useem, 2015). They have advantage over State ownership because they are capable of monitoring firms they invest in effectively. Institutional shareholders have long term strategy (Useem, 2015). Some institutional investors may be passive investors because they invest in long term (Appel, *et al*., 2016). Kapadia (2017) argues that passive investors may trigger idle shareholders to engage and weaken corporate governance.

Rahman and Rejab (2015) find that institutional ownership had statistically significant relationship to bank performance. The same result is found by (Mao, 2015; Le & Buck, 2011). However, Wei, Xei and Zhang. (2005) find that Institutional shareholding is substantially adversely linked to establishment's value as a proxy by Tobin's Q.

Foreigners often invest in local companies by buying shares through stock markets. Where they have significant control the following advantages generally arise; they may bring with them improved technology and monitoring techniques therefore improve firm value, and lead to better performance of the firm. These foreign shareholders can also instill controls over firm operations by constant monitoring firm activities. Wei, *et al.* (2005); Douma, George and Kahir, (2006), Boyer and Zheng (2009) and Ongore (2011) all find positive link between foreign ownership and firm's long-run performance.

However Omran, Bolbol and Fatheldin (2008); Rahman and Rejab (2015) find that foreign ownership had insignificant link with bank performance.

Managerial Stock Ownership are the shares held by directors. Directors manage firms on behalf of the shareholders (Thomsen & Canyon, 2012). Some directors may also be major shareholders.

The director ownership presence seems to decrease agency costs and enhance performance (Filatotchev, Lien, & Piesse, 2005). Where managers have large shareholdings, they may become entrenched and immune to other forms of discipline because they are resistant to monitoring by outside shareholders (Morck, *et al*., 2000). Highly concentrated shareholders including passive and institutional investors who work closely with management may pursue long term value for the firm (Chen, Shapiro & Zhang, 2014). Lins (2003) investigated the effect of establishment's value on the amount of shareholding by directors. The result of their study was that firm value was low where directors continuing rights exceeded cash flow rights. Whereas firm value was found to be higher when non-managerial control rights holdings was large. Rahman and Rejab (2015) find significant and positive relationship with bank performance where the directors had a large shareholding.

Table 2.1: Capital Market Return: Dimension and Indicator

Dimension	**Indicator**
Capital Market Return:	Cumulative Average Return

Source: Author (2018)

2.4 Empirical Literature

2.4.1 Firm size and Long-run Capital Market Return of Firms

Zarafat and Vejzagic (2014) carried out a study in Bursa Stock Exchange in Malaysia with objective of investigating long-term return of IPOs. The study was divided into four periods; namely first six months, one year, two years and three years. A sample of 166 firms was picked for investigation. Zarafat and Vejzagic (2014) used secondary data that included size of the firm, gross proceeds from each firm following IPO, underwriter reputation, Book/market ratio all as predictor variables and ROA as output variable.

Zarafat and Vejzagic (2014) used multi-regression analysis to determine which variables were determinants and had trend effects on long-term return. Through descriptive statistics and regression analysis, the study indicated the following interesting results; average market adjusted yield for six months, one year, two years and three years after listing were -5.2%, -10.8%, -21.4% and -32.8%. These yields were not statistically substantial. Although the study was intended for long term yield, part of the study also covered short run returns indicated that first day yield, size and volatility of market are three determining factors of one year yield. Zarafat and Vejzagic (2014) also found that these three variables together with book/market value ratio are predictors of two year returns. The third year return was influenced by book/ market ratio and gross proceeds arising from equity issue but the size of the firm had no influence.

Ezechukwu and Amahalu (2017) explored the extent by which establishment characteristics affected financial performance of listed Nigerian deposit money banks in the long-run. The study covered period from January 2010 to December 2015. A sample of 15 banks were selected. Secondary data was from Nigeria Stock exchange, fact

books, annual reports and accounts of picked quoted companies. Specific references were made to statements of comprehensive income and statements of financial positions.

Ex-post research design and time series data was adopted for the study. Ezechukwu and Amahalu (2017) used firm size and age as independent variables among others. They used three output variables; ROA, ROE and ROCE. Data was analyzed using Pearson coefficient correlation and ordinary least square regression as the fundamental statistical tests. The study found that establishment size had a positive and statistically substantial (at 5% significance level) effect on FP on quoted deposit money banks. Ezechukwu and Amahalu (2017) concluded that the size and age of banks have a positive relationship with their performance.

Al-Shawawreh and Al-Tarawneh (2015) carried out a study on firm characteristics and their effect on long-run abnormal return in Jordanian Financial Market. They hypothesized that IPOs' long-run performance was dependent on managerial decisions and not firm characteristics. A sample of 119 establishments was picked from Amman stock Exchange (ASE).

The study covered period from 1993 to 2011. Predictor variables included; size of the establishment, sector, offer size and age of establishment. Al-Shawawreh and Al-Tarawneh (2015) used event study methodology. They applied cross-sectional data analysis. Simple regression model was employed to test the effect of the independent variables on the long term performance. The outcomes of the investigation revealed that there existed a significant positive link between firm size and long-run return. They concluded that level of low return was different, depending on the bench mark used. The Study confirmed that there is positive link between the firm size and its long-run performance.

2.4.2 Offer Size and Long Run-Capital Market Return of a Firm

Offer size of a firm has certain qualities in relation to long-run return on firm performance. Several investigations have been under taken to examine what public offer size of equity by a firm has on long-run return. Thomadakis, *et al.,* (2012) carried out a study in the Greece stock market for the period between 1994- 2002. A sample of 254 Greek IPOs were selected and both BHAR and CAR were applied as dependent variables The aim of the investigation was to explore the long-run performance of IPOs using BHAR and CAR over a period of three years after the firm had issued shares to the public. The independent variables included firm and market variables such as offer size of shares, book/market ratio, total return including dividend, capital gains and share price. The study applied time series tests using both calendar and event methodology. The investigation employed a cross sectional regression analysis. The result showed that there was over performance of the IPOs in the first two years and offer size was a significant determinant in the long-term return. Thomadakis, *et al.,* (2012) concluded that because the period was associated with hot IPO period this could have contributed to the positive returns for over two years.

Al-Shawawreh and Al-Tarawneh (2015) investigated long-run return on IPOs registered in ASE over the period from 1993 to 2011. A sample of 119 firms were selected for the investigation. The objective of the investigation was to determine firm's long-run performance in regard to certain independent variables including offer size of IPO in Jordanian market. Three bench marks were used for the study. These were capital asset pricing model (CAPM), matching firms and market index against which the following independent variables; firm size, age, sector, and offer size. Cross sectional regression analysis was used for the study. The study revealed that offer size was positively correlated with abnormal return. The study concluded that offer size is a determinant of long-run return.

Cai, *et al.*, (2008) investigated the determinants of long-run performance of IPOs in shanghai Stock Exchange for shares issued from January 1997 to December 2001. A sample of 335 was selected from China Centre for Economic Research which deals with Financial and general information for each firm. Data for the study consisted of dependent variables buy and hold average return (BHAR) and cumulative average return (CAR). Independent variables included among others Offer size of shares issued. Cai, *et al.*, (2008) used cross sectional and regression analysis to ascertain the bearing of independent variables on both CAR and BHAR. The investigation indicated that offer size was adversely linked to long-run performance in all cases where CAR or BHAR were applied. The study concluded that although the size of IPO especially a large issue is an indication of more stability and less risk, it has negative impact on IPO performance.

2.4.3 Stock Return and Long-run Capital Market Return of a Firm

Numerous investigations have been done in regard to stock return and long-run returns. Pastor and Stambaugh (2003) investigated whether projected yields are linked to systematic liquidity risk in yields. They focused on aspects of liquidity connected with price fluctuation accompanying order flow. Data for the study was obtained from shares traded in New York Stock Exchange (NYSE) and American Stock Exchange (AMEX). The period of the study covered January 1966 to December 1999. A measure of liquidity was based on monthly stock prices regressed using ordinary least squares against aggregate liquidity, volume- weighted market return and three factors of Fama and French (1993). The outcomes of the study indicated that stock yields are cross-sectional, related to yield sensitivities and to variabilities in total liquidity. The average yield on stocks that are highly sensitive to liquidity exceeded that for stocks having low sensitivities by 7.5% yearly.

Liu (2009) investigated liquidity risk in asset pricing behavior with the aim of exploring the long run evidence for any proposed liquidity measure. Liu (2009) carried his study over a period from 1926 to 2005 on USA stock markets using the daily financial data. These included: trading volume's daily data, share price, amount of shares outstanding, MR and market capitalization from CRSP data base. He used a number of models to predict the return on securities for instance: CAPM, Fama–French three factor model. These two models failed to elucidate the liquidity premium. He also found that turnover measure of liquidity had no predictive power for return. However, using *LM*12 he was able to predict return significantly. *LM12* is the adjusted number of zero daily trading volumes in the previous 12 months. Results of the study indicated that liquidity risk is useful in asset pricing.

Lewllen (2015) carried out a study on expected stock return over a period ranging from 1964 to 2013. A sample of 3,905 firms were selected from NYSE The study used the following independent variables; Size of the firm, Book/ Market ratio, Stock prices, Offer Size, Profitability, Asset growth, Dividend yield, Beta market leverage accruals (under three specifications). Analysis of data included the use of Fama-Macbeth regression where the dependent variable was regressed on lagged establishment's characteristics. The *t* statistics on the basis of the time series variability of the slope incorporated a Newey-West correlation with ten lags.

Results of the test indicated that firm characteristics based regression had better predictive power than either asset pricing models. The gradients of B/M past 12 month yields and profitability were substantially positive. The result of the study indicated that the out of sample analytical gradients in cross-sectional regressions are economically and statistically huge with any of the three terms. The study concluded that Time series and cross-sectional property of projected stock yields are essential for several

applications comprising analyzing asset pricing models, formulating trading strategies and ascertaining the cost of capital of an establishment.

2.4.4 Stock Turnover and Long-run Capital Market Return of a Firm

Ediriwickrama and Azeez (2015) carried out a study on multi factor models that may explain the underperformance of IPOs. Their study was undertaken in Colombo Stock exchange in Sri Lanka. The study covered period from 2000 to 2012. A sample of 51 IPOs were selected for the investigation. The objective of the investigation to ascertain which factor model explains the return variation of IPO stock in emerging market like Sri Lanka. Six models: Sharpe –Linter CAPM; Zero Beta CAPM; Fama and French three factor model; Carhart four factor model; Three factor model augmented by liquidity factor model and Fama and French five factor. Data for the study included; monthly stock prices, company annual reports, size of the firms, book/market value, stock turnover ratio, profit momentum and liquidity. Outcome of the investigation indicated that all the six models of IPO, stocks underperformed. Ediriwickrama and Azeez (2015) concluded that all the factors jointly explain the variation of IPO returns with emphasis that market beta was the most important factor in all the six models.

Liu (2009) investigated liquidity risk in asset pricing behavior with the aim of exploring the long run return for any proposed liquidity measure. The study covered period from1926-2005 on USA stock market using the daily financial data. The independent variables included; trading volume's daily data, share price, amount of shares outstanding, capital market return and market capitalization. He finds that turnover as a measure of liquidity had no predictive power for return. However using LM12 model he was able to predict return significantly

2.4.5 Foreign Share Ownership and Long-run Capital Market Return of a Firm

Wei, *et al.*, *(*2005) investigated the relationship between ownership structure and establishment's value in partially privatized establishments in China. A sample of 5,284 firms were selected for ten years covering period from 1991-2001. Wei, *et al.*, (2005) hypothesized that conflicts of interest amongst various block of stockholders bear no influence on firm value in the long-run. They used three ownership explanatory variables including, foreign ownership, state ownership and institutional ownership for the investigation. The study employed ordinary least squares (OLS) for analysis to explicate variation in Tobin's Q as a function of ownership kinds. The outcome of the investigation revealed that there existed positive link between foreign share ownership and Tobin Q.

Rahman and Rajeb (2015) investigated the association between ownership structure of establishments and their performance. The period of study covered 2000 to 2011. The population of the study was from commercial banks in Malaysia totaling 22 banks with a sample of 252 observations. The study used panel data with both Breush- Pagan Godfrey test and Lagrange Multiplier test. To determine the factors affecting firm performance, the study developed numerous hypotheses one of which was foreign firm ownership which stated that "there is positive relationship between foreign ownership and bank performance." Data was analyzed using Hausman test, diagnostic tests and General Least Square estimation with fixed effect model. The outcomes of the investigation revealed that foreign ownership shareholding is insignificant to bank performance. The study concluded that foreign share ownership has no substantial impact to bank performance.

Ongore (2011) investigated the effects of ownership structure on performance of registered establishments in the NSE. This was based on five hypotheses namely; there

exists a positive link between ownership concentration and establishment's performance, management ownership has a positive effect on firm performance, Government ownership has an adverse effect on establishment's performance, ownership by corporations has a positive effect on establishment's performance, diverse ownership has a negative effect on firm performance and foreign ownership has positive effect on firm performance. Dependent variables used included return on asset or return on equity and independent variables included government ownership, ownership concentration, institutional ownership, foreign ownership, diverse ownership, board effectiveness and management ownership. Data was analyzed using logistic regression and Pearson moment correlation. Ongore (2011) ascertained that foreign ownership had positive influence on establishment's performance. Ongore (2011) concluded that foreign shareholding has several advantages to local firms in Kenya including introducing better management systems thereby making the firms more efficient.

.2.4.6 Institutional Share Ownership and Long-run Capital Market Return of a Firm

Uwalomwa and Olamide (2012) undertook a study in Nigerian Stock Exchange over a period from 2006 to 2010. The objective of the study was to investigate the link between ownership structures of the FP of registered companies in financial sector of the Nigerian economy. Uwalomwa and Olamide (2012) developed hypotheses, one of which stated that there is no substantial link between Institutional ownership and performance of listed firms in Nigeria. From all listed firms as at 31st December 2010, a sample of 31 establishments were selected. ROA was designated as output variable and institutional share ownership among others was predictor variable. Multi-regression analysis was used to determine which or all of the predictor variables was statistically significant on firm performance. Through Pearson correlation coefficient (PCC) analysis, the result showed that there was substantial positive link between institutional ownership and

performance of registered financial establishments in Nigerian Stock Exchange as reflected by correlation coefficient of r=.429 at a significant level of 5%. Uwalomwa and Olamide (2012) concluded that institutional ownership has a substantial positive impact on performance of firms where a significant portion of equity is held by Institutional shareholders.

Aguila, Boundry and Connolly (2018) investigated the effect of pricing efficiency in real estate firms in USA for a period from 1993 to 2014. Their investigation was aimed at understanding the determinants of efficient pricing of Real Estate Investment Trust level to both investors and managers since real estate ownership is dominated by both passive and active institutional investors. A sample of S&P 400, 500 and 600 were selected. Aguila,*et al.,* (2018) used a fixed effects panel regression model because of the unbalanced panel. The study used several independent variables including institutional ownership, index inclusion, and information for pricing product. Raw variance ratio was dependent variable. Both time series and cross- sectional variation analysis was employed. Outcomes of the investigation were that active institutional ownership was a significant determinant of pricing efficiency while passive institutional owners did not seem have detrimental effect on efficiency on pricing. The study concluded that if real estates are separated from finances, this would increase institutional ownership and create a positive impact on pricing efficiency for real estates.

Rahman and Rajeb (2015) investigated the link between ownership structure of establishments and their performance in stock market. The period of study covered 2000 to 2011. The investigation's population comprised all commercial banks in Malaysia totaling 22 banks with a total of 252 observations. The study used panel data with both Breush- Pagan Godfrey test and Lagrange Multiplier test. To determine the factors that affect firm performance, the study developed several hypotheses one of which was

foreign firm ownership “there exists positive link between institutional ownership and bank performance.”

Data was analyzed using Hausman test, diagnostic tests and Generalized Least Squares estimation (GLS) with fixed effect model. The outcomes of the investigation revealed that institutional ownership is significant in explaining differences in the bank performance using dependent variable ROE and not ROA. The study concluded that institutional ownership to bank performance cannot be concluded as the outcomes point out that institutional ownership is just applicable to ROE.

2.4.7 Age of a Firm and Long Run Capital Market Return of a Firm

Alvarez (2015) studied how volatility of IPOs affects the value of a firm that goes public in Spanish stock market over a period ranging from 1993 to 2011. A sample of 80 establishments were selected. Data was collected from Spanish National Market Commission which contained all data related to firm prospectus. The investigation was aimed at ascertaining the performance of Initial Public Offerings based on three hypotheses; the degree of volatility of Spanish Initial Public Offering, underpricing, Initial underpricing and volatility is higher for Spanish Initial Public Offering Initial understating is greater for high quality establishments having high market value that recover this loss in time to come with new Season equity offering. Data for the study included the dependent variable internal rate of return and independent variables such as Alternative Investment Market, Bubble, time, market, age, shares, update, technical market value and SEOs. Analysis of the data was done using OLS regression analysis. The result of the study found that Age as an independent variable is insignificant in determining long-run performance of firms which issue IPOs.

Al-Shawawreh and Al-Tarawneh (2015) investigated long run return on IPOs registered in Amman Stock Exchange between 1993 and 2011. A sample of 119 firms were selected for the investigation. The objective of the investigation was to determine firm's long-run performance in regard to certain independent variables including age of a firm in Jordanian market. Three bench marks were used for the study. These were CAPM, matching firms and market index against which the following independent variables; firm size, age, sector, and offer size. Cross sectional regression analysis was used for the study. The study found that age was positively correlated with abnormal return. The study concluded that age of the establishment is a determinant of long-run return.

2.5 Critique of Existing Literature

This study has looked at various studies done in relation to the microeconomic variables on long-run returns on firms that have issued IPOs, SEOs or SIPs in stock markets. The study chose; firm size, offer size, stock turnover, stock return, foreign share ownership, institutional ownership and age of the firm among other variables. These studies mentioned above have come up with different results on each of the variables. Therefore it is justifiable to look further into this area as these varying results justify a further study.

Starting with firm size, Al-Shawareh and Al- Tarawneh (2015) in Jordanian market and Ezechuku and Amahalu (2017) in Nigerian stock market find that firm size bears a positive influence on long-run yield on firms that issued equity in stock market. But Zarafat and Vezagic (2014) in Malaysian Bursar Stock market find firm size has insignificant determinant on long run return for firms that issued equity. In view of different results in different markets, a study in NSE market may shed more light in the topic.

Thamadakis, *et al*., (2012) in Athens Stock Exchange and Al-Shawawreh and Al-Tawareh (2015) in Amman Stock Exchange find that offer size is significant determinant in long run return. However Cai, *et al.,* (2008) in Shanghai Stock Exchange find offer size as having insignificant influence on long run return. The results in different markets seem not to concur with each other. Therefore a further study in this area is justified.

On stock return, Lewellen (2015) in a study of NYSE stocks, Abu-Libden &Harashen (2011) in Palestinian Stock market, Liu (2009) and Pastor and Stambaugh (2003) in USA stock markets all find that stock return is a significant determinant on long run return on firms that issue equity in stock markets.

Edirickrama and Azeez (2015) in Colombo stock exchange find that stock turnover is a significant determinant in long run return for firms that have issued equity in stock market. The same conclusion was reached by Liu (2009). However Liu (2010) concludes that stock turnover is not predictive variable in long run return for firms that issue equity in stock markets. In this same subject there is no concrete agreement whether stock turnover has influence over long run return on firms that issued equity.

On foreign share ownership, Wei, *et al*., (2005) in Chinese Stock Exchange and Ongore (2011) in Nairobi Security Exchange find positive effect on foreign share ownership on long run return, but Rahman and Rajeb (2015) find no influence of foreign share ownership on long run return. Therefore there is no agreement on the issue discussed, a further study on this area would be justified even though Ongore (2011) carried out his study in NSE market.

Uwalomwa and Olamide (2012) in Nigerian Stock Exchange and Aguila, *et al.,* (2018) in USA find that institutional Ownership has positive influence on long run yield on

establishments issuing equity in stock markets. This is similar to the study by Raham and Rajeb (2015) in Busra Stock Exchange. On the other hand (Mao, 2015; Le & Buck, 2011) find that institutional ownership as insignificant in determining long return on firms that issue equity in stock markets. Therefore these inconstant results call for further study in this area.

Age as one of microeconomic variables has been found to have significant influence on the long run return in a number of cases like: Fama and French (1993), Belghitar and Dixon (2012), Al- Shawareh and Al-Tareweh (2015). But a study by Alvarez (2015) in Spanish Stock market find that age has no effect in long run return. The results are not conclusive due different results. A further study would probably give more light in this area.

Several of the above investigations have been undertaken in developed nations, additional study in developing countries could shade further light in this controversial topic.

2.6 Research Gaps

There are several reasons why there is need for further study to be under taken on the long run return of equity issue. These are justified when looking at both theoretical and empirical evidence. Jakobsen and Sorensen (2001) argue that no conclusive approach exists to elucidate IPOs' long-run low market return. Thomadakis, *et al.*, (2012) argue that studies on long-run performance have come up with contradictory results, yet behavioral theories which purport to give explanations have not been convincing. Bilinski, and Strong (2011) argue that these conflicts have not been justified by empirical results. Levis (2011) argues that not enough research has been done on causes

underlying the differences in empirical results that have so far been found. Therefore further empirical study is justified in this area.

There are three methodologies employed in determining the long-run performance including: Event-time approach which include; CAR, BHAR and WRI. The second method which is based on calendar period include; CAPM, Fama and French model and the four factor model. The third measure is the mixed model approach that uses both the above. However the long-run return is generally sensitive to the approach employed (Abukari & Vijay, 2011).

Perera (2014) gives two conflicting results namely, when CAR is employed in determining of IPOs' long-run return, the result is positive long-run return. Whereas when BHAR is used as a measure, the result is negative long-run return. This measurement problem may contribute to the conflicts that are found in the performance in the long-run for firms that issue equity. Thirdly, there is doubt about empirical results so far on long-run return of SEO and IPOs by the fact that there are conflicting results that have emerged from the studies done to date. A good example in support of this point is (Schaub & Highfield, 2004). All the variables that have to be part of explanatory variables in this study have all given conflicting results either by different authors, in different countries or at different times.

This justifies the need for further studies in this area. In contrast, other studies have shown that firms that issue equity have better returns than non-issuing firms for example: Thomas and Yawen (2011); Choi, *et al.*, (2010); Megginson and Netter (2001) and Dang and Yang, (2007). In some instances; a study has given two different results over a period of time, positive returns for samples issued after June 1996 and negative returns before June 1996 (Schaub & Highfield, 2004). Kang, Kim and Stulz *(*1996*)* find that there is no effect on long-run return on Japanese SEOs. Considering all the facts

above, there is still need for comprehensive study on the IPOs, SEOs and SIP and their long-run return.

Studies done in Kenya by Kinyua*,et al.,(*2013) and Simiyu, *et al.,(*2016) and many more on IPOs', SEOs' or SIPs' long-run return of have shown negative long run return. But most of them have looked at one characteristic and one measurement technique. This study looked at a number of offer characteristics based on certain parameters. Investors are therefore likely to benefit much following this study. In consideration of the facts above, there is need for comprehensive study on the IPOs, SEOs and SIP in Kenya capital markets which this study offers. This study adds more to empirical literature on this long-run return phenomenon.

2.7 Summary of Literature

This study has examined theoretical literature, conceptual framework and empirical literature to set ground for the study. Under theoretical literature, relevant theories were discussed to justify the study. These theories brought out clearly how returns and capital investments in shares are likely to be related. The study identified the following theories: The random walk theory, the efficient market theory, the liquidity preference theory, the agency theory, the market timing theory and the life cycle theory.

Random walk theory is based on the fact that the movement of share prices is determined by new information that is passed to the market. However it has been noted that share prices may rise or fall without any new information in the market. Some statisticians have also argued that they can predict the movement of share prices using past data.

The price of shares in capital market are assumed to work well where the market is efficient. However few markets are efficient for example the Nairobi Securities Exchange.

The Agency theory lends credence to the fact that management holds a key factor in firm's future return especially when they are also beneficiaries. However there are instances where management though are beneficiaries can embezzle funds by investing funds in none profitable ventures.

Market timing theory assert s that financing decisions are based on when equity is likely to be issued to the public. Yet when shares are issued without profitable projects in place, the resulting cash inflows may lead to long run negative returns.

The life cycle theory of firm's age assumes that the older the firm the less risk it has, therefore such a firm will have positive long run return in a case where it issues shares in the capital market than in the case of young firms. Nevertheless this argument has challenges because young technological firms have in recent years produced impressive returns in the long run.

The Conceptual Framework shows how the predictor variables are linked to the output variable through inbuilt theories discussed above. The Conceptual framework identified the variables that were collected in data collection process and analyzed to attain the investigator's desired objectives.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

There is a general consensus in literature that to have a grounded base in research methodology and hence generate valid results, a research must be conducted in a systematic and well laid down manner (Yin, 2017). Good results will depend on research design. This means that there is need for a well thought design and the method by which data is obtained. This should be clearly stated, data should be processed and properly analyzed (Cooper, 2015). Thus to achieve the desired objective of the study; The effect of some microeconomic variables on long- run capital returns on equity offering firms at the Nairobi Securities Exchange, there must be a well-structured methodology.

The study has laid down in this chapter, methodology under the following subheadings; research philosophy, giving the basis of the study; research design, illustrating how the study was conducted; population studied including period covered; data collected, giving specific data, where these came from and the tools that were used for collection, measurements and analysis; model specification tests to ascertain whether to utilize pooled OLS, fixed effects model or random effects model, appropriate model of study used, and finally, the application of diagnostic tests to ensure that the parameters and the variables are consistent with study expectations.

3.2 Research Philosophy Applied in the Study

Research philosophy is the knowledge developed to be employed by scholars and researchers when undertaking an investigation (Saunders, Lewis & Thornhill, 2019). There are two extreme research philosophies: Positivist by Bhaskar, (1989) and

interpretivist (Hughes, 1990; Merton, 2010; Lincol & Collegues, 2011). In between is the Pragmatism philosophy.

Positivism has been updated and is now referred to as Post positivism, removing the traditional notion of absolute truth of knowledge (Phillip & Burbules, 2000). The post positivism recognizes that human beings cannot be positive about claims of knowledge while studying behavior and actions of human beings. Post positivists hold a determining philosophy in which causes determine effect or outcomes. Problems studied by post positivists reflect on the need to identify and assess the causes that influence outcomes such as those found in experiments. It is a reductionistic in that the intent is to reduce the idea into a small, discrete set of tests such as variables than compose hypothesis and research question. Post positivists believe on careful observation and measurement of the objective reality that exists in nature. This philosophy is more applicable in scientific research. It is a scientific method of doing research. It holds researcher to the use of what can be referred to as objective and measurement rules that are more commonly found in physical and natural sciences (Creswell, 2017).

Interpretivist philosophy on the other hand, is an approach where a researcher considers that individuals seeks understanding of natural phenomena in which they live and work. Individuals develop subjective meanings of their experiences towards certain objectives (Lincoln & Colleagues, 2011; Merten, 2010). This leads researchers to look for complex views rather than narrowing meanings into a few ideas. The interpretivist researcher often addresses the process of interaction among individuals, focusing of specific contexts in which people live and work in order to understand historical and cultural settings. Therefore their background shape their interpretation where subjective meanings are negotiated socially and culturally

In between post positivist and interpretivist is the pragmatist philosophy (Cornish & Gillespie, 2009; Patricia, 2004). Pragmatism is a duality. It uses inquiry as a focal point, with emphasis that knowledge should be evaluated and used according to user's needs (Creswell, 2017). Pragmatism arises out of actions, situations and consequences rather than antecedent conditions as is the case of post positivism. This philosophy is concerned with applications and solutions to the problem (Patton, 1990). Pragmatism provides a philosophical basis for research. It is not committed to any one system of philosophy and reality (Creswell, 2017). It gives individual researcher freedom of choice therefore relies on truth during research to look at what and how (Tashakkori and Teddlie, 2019). Thus this study is based on pragmatism. This philosophy was applied in data collection, identification of relevant theories, generation of hypotheses, and tests to give statistical results (McMillan & Schumacher, 2010).

3.3 Research Design

Research design is an outline that identifies methods of gathering data, analyzing of data to reach a reasonable conclusions on the study (Creswell, 2017).This study adopted cross-sectional time series research design strategy with descripto-explanatory purposes. Descriptive research investigates trends and characteristics of population (Cooper & Schindler, 2011). Explanatory purpose relates to how a theory functions and how it can guide a scientist to determine the adequacy of data in a study (Cooper, 2015). Explanatory purpose tries to establish the relationship between variables (Saunders, Lewis & Thornhill, 2019). The objectives of descripto-explanatory research are two folds; to identify the present conditions and explain the relationship of the traits and relationship (Saunders, Lewis & Thornhill, 2019).

This research was based on panel data study using quantitative figures to determine the financial performance of establishments over a maximum period of five years from the

time the firm(s) issued shares to the public. The study used secondary data for both predictor and output variables. The research strategy for each of the offer characteristics was to determin**e** the relationship of these characteristics on dependent variable which for this study was the long-run financial market return expressed as cumulative average return.

The study looked at three characteristics. The first one was firm characteristic. Firms may have different characteristics but for this study the following were considered; firm size at the time shares were issued and offer size, how many shares were issued in monetary terms. A number of scholars have used these independent variables to determine firm performance for example (Jagedeesh, 2000; Al Shawawreh & Tarawneh, 2015).

The second characteristic used was equity stock liquidity in trading activities such as stock return and stock turnover (Liu, 2010; Lewell, 2015).The third one was share ownership. This was divided into two segments; shares owned by foreign investors (Rahman & Rejab, 2015) and shares owned by institutions (Uwalomwa & Olamide, 2012). Age of the firms was used as a moderating variable. The units of analysis for the study were changes in share prices and changes in NSE 20 share index.

3.4 Study Population

This comprised of thirty-two (32) firms which issued equity as IPOs, SIP or SEOs from (1993-2008) at the Nairobi Securities Exchange. No sampling was necessary because the population was small. All the firms were subjected to a five year test allowing a five-year holding period. Thus the study period stretched from 1993 to 2013.

The study period was chosen for the following reasons; first there was availability of data, secondly the period was with most consistent and continuous record data and

stretched long enough (20 years). The researcher considered the period long enough to give reasonable results like in other empirical investigations that have been undertaken in nations like USA, Europe and Australia. The extended period enhanced the power of the tests of characteristic model. The third reason was that; the period covered the time when the securities market had under gone a lot of transformation including liberalization of the market. The number of firms that were subjected to analysis is considered fairly reasonable in number as is common in other studies done for example, Trail and Vos (2000) had 39 firms in the New Zealand Stock Market, Aggarwal, Leal and Hernandez (1993) had: Brazil 62, Chile 36 and Mexico, 44. Table 3.1 classifies these firms according to their industrial sectors.

Table 3.1: Firms Classified as per Industrial Sector

Industrial Sector	**Number**
Agriculture	1
Automobile and Accessories	4
Banking	8
Commercial	5
Construction	2
Energy and Petroleum	2
Insurance	2
Investment	2
Manufacturing	6
Telecommunication	2
Total	**32**

Source: Nairobi Securities Exchange (2013)

The number of firms that issued equity over 15 years is relatively small as compared to firms in developed and emerging states such as South East Asia. However the number under study did not compromise the results of the investigation.

3.5 Data Collection and Presentation

Data collection is the procedure of obtaining information from participants, observation or from secondary sources (Cooper, 2015). This study used secondary data. The data comprised of movement of share prices of the firms under study, The NSE 20 Share price index, the number of shares issued and at what price by firms in their prospectuses from Capital Markets Authority. These sources provided proper data for the study in calculating capital market return

These multiple sources were based on three specific characteristics. These three specific characteristics are: firm characteristics (firm size, offer size); firm liquidity characteristics; stock market return, based on the NSE 20 share index, stock turnover based on the number of shares sold in one year by each firm; and firm ownership structure characteristics; foreign shareholding and institutional shareholding. The six above were independent variables with one additional variable age as a moderating variable. The output variable in the investigation was cumulative average return. Each of these are decomposed in the paragraphs that follow in terms of data used and where data was obtained from. The unit of analysis was changes in capital market prices over a period of time

Under firm characteristics, the study selected firm size and firm offer size. Firm size was based on market capitalization (market value) for each firm under study. Market capitalization was arrived at by having total shares issued multiplied by market price per share at the end of every of specific year under study. This data was obtained from Nairobi Securities Exchange data base. Firm offer size is the number of shares issued at the time the firm issued shares at the securities market. The number of shares offered was obtained from firm's prospectus available at Capital Markets Authority.

Under liquidity characteristics the independent variables used were; stock return and stock turnover. Stock return was based on the NSE 20 share index. It is share price movement for each firm. As a unit of measure. This index was ideal because it covered all firms under the study; unlike the NSE 25 share index or NSE all share index which were introduced a few years ago. The Nairobi Securities Exchange records, on a daily basis, share prices for those shares that are traded in the market. Stock turnover is the total number of shares that are sold by each firm each year. This was done for a five year period for each firm. The last characteristic was ownership structure. The study selected shares owned by foreigners and those owned by institutions. Total Shares owned by foreigners were quantified as a portion of total shares in the firm at each of the specific periods of study. These were then expressed as a percentage of shares owned by the firm for each year. Many firms in NSE have foreign ownership. This ratio keeps changing over the years because shares are disposed or acquired depending on changes investment opportunities. Similarly the amount of shares that institutional investors own was also expressed as a percentage of total shares outstanding. This information was sourced from annual financial reports of these firms.

Age was chosen as a moderating factor for all the firms. Age was determined by number of years since the establishment was founded. The dependent variable is cumulative average return based on daily share price movement. The daily share price was collected from 1993 to 2013 cumulatively from year one to year 5 for each firm. This was referred to as buy and hold average return (BHAR). It was then converted into cumulative average return (CAR).This is expressed in the following model and is explained in equation 3.3

$$CARqs = (1/n) \sum_{t=q}^{s} ARt$$

3.6 Data Analysis Techniques

Cumulative average returns are determined by monthly raw stock return less the monthly market return for the same period. The market adjusted return for the stock *i* in event month *t* is defined as:

$AR_{it} = (R_{it\text{-}MR\ it})$ ---------- Equation 3.1

The average market adjusted return on a portfolio of n stocks for event month $_t$ is the equally-weighted arithmetic average of the market-adjusted return:

$AR_t = (1/n)\sum_{i=1}^{n} ARit$---------- Equation 3.2

The cumulative market adjusted aftermarket return performance from event month q to month s is the summation of average market adjusted returns:

CARqs= (1/n) $\sum_{t=q}^{s} ARt$---------- EQUATION 3.3

To determine the proper functional form of the three models for firm performance, there was need to provide their statistical properties and this was through descriptive statistics. The descriptive statistics were utilized to determine the data spread as specified by mean, mode, median, skewness and kurtosis. Once statistical properties of the three models were ascertained, CAR was then correlated with other variables (firm size, offer size, stock return, stock turnover, foreign share ownership, institutional share ownership, and age) in the study model to measure the strength of association using Pearson's correlation coefficient specified as:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2]\,[n(\sum y^2) - (\sum y)^2]}}$$

Where:

n = period

$\varkappa$ =output

У = cost/return

The correlation coefficient varies from-1 to +1. The nearer it is to zero the weaker the link. Data analysis procedures in this investigation were carried out with Stata statistical package where all significant tests were at α. 0.05.

The association of CAR with other variables needed to be interrogated further by considering CAR as the output variable and predictor variables were firm size, offer size, stock market return, stock turnover, foreign share ownership, institutional share ownership and age. This required regression analysis organized as a panel regression model, a tool for operationalizing the variables in the cumulative average return (Table 3.2).

3.7 Operationalization of the Variables

Table 3.2: Dependent Variable, Measurement and Empirical Application

Dependent Variable	Measurement of the Variable	Empirical application by:
CAR: Cumulative average return	Difference in share price over a given period of time	Choi *et al*., (2010)

Table 3.3: Independent Variables, Measurement and Empirical Application

Independent Variables offer Characteristics	Measurement of the Variables	Empirical Application by
FZ. Firm Size	Market Value of a firm each year for 1 to 5	Bandarachuk and Hilscher (2013)
OS: Offer Size	The number of share issued multiplied by offer price	Al-shawawreh and Al-Tarawneh (2015)
SR: Stock market return	Return recorded at NSE 20 Share Index for years: 1 to 5	Lewellen (2015)
ST: Stock turnover	Number of a particular equity sold in a given peril	Ediriwickrama and Azeez (2015)
FE: Foreign Owned Shares	Percentage of shares owned by foreigners against other shareholders in year 1,2, 3, 4 and 5	Rahman, and Rejab, (2015)
IS: Institutional Shares	Percentage of shares owned by Institutions	Uwalomwa and Olamide (2012)

Table 3.4: Moderating Variable

Variable	Measurement of the Variable	Empirical Application by
G: The age of the firm that issues shares	Measured by the date when the firm was incorporated to date it issued shares.	Al-Shawawreh &Al Tarawneh (2015)

In the panel regression model, three models could possibly be used and these are: OLS model, fixed effects model and random effects model. The specifications of the three models are given below as follows:

i. OLS Model: $CAR=\beta_0+ \beta_1FZ+ \beta_2OS+\beta_3SR+ \beta_4ST+\beta_5IS+\beta_6FE+ \beta_7AG+\dot{\varepsilon}$

ii. FEM::$CAR=\beta it+ \beta_1FZ+ \beta_2OS+\beta_3SR+ \beta_4ST+\beta_5IS+\beta_6FE+ \beta_7AG+\dot{\varepsilon}$

iii. REM::$CAR= \beta_1+ \beta_2FZ+ \beta_3OS+\beta_4SR+ \beta_5ST+\beta_6IS+\beta_7FE+ \beta_8AG+\dot{\varepsilon}$

Choice of the most appropriate model was based on Hausman test while the model fit used diagnostic tests. All analytical procedures were conducted using the STATA statistical package platform. The hypotheses tests were in all cases geared towards attaining the six stated specific objectives of the study and significant tests were all at α =0.05. The panel regression model used in the investigation was aimed at limiting under fitting a model, overfitting a model or misspecification of a model (Gujarati &Porter, 2009).

In using the panel regression model, the study first attempted to determine the suitability of the model in achieving the investigation's objectives through:

Model Specification Estimates and Rationale Variables.

Testing for Validity of the Model.

Use of Hausman test

In model specification estimation and rationale variable, comprised time series and cross-sectional data and were pooled into a panel data set clustered into ten groups in order to cover a period of twenty years where each cluster was for five years. The underlying variables in the specification were cumulative average return as dependent variable, firm size, offer size, stock market return, stock turnover, intuitional owned shares, and foreign owned shares as predictor variables and age as moderating variable. The resulting model specification was multiple regression where several predictor variables were assumed to collectively affect the cumulative average return (Gujarati & Porter, 2009).In considering whether the model was a good fit the following factors were taken into account; the R^2 value, Durbin & Watson (1951) value, the sign of estimated coefficients and the estimated *t* ratios.

To test for validity of the panel regression model in the three independent approaches of pooled OLS model, fixed effects model, and random effects model, the study used Hausman test (Gujarati & Porter, 2009). In Hausman Specification test, there is a common assumption that every entity has its own attributes that can or cannot affect the independent variables. There are two regression models that are designed to control individual effects and these are fixed effects and random effects models (Park, 2011). The difference between the two models (fixed effects and random effects) is whether the unobservable distinct effects are linked with independent variables in the models (Bruderl & Lugwig, 2015).

Under the fixed effects model there is an assumption that individual specific effects is linked with predictor variable and therefore the outcome variable is assumed to be

affected by the unobservable explanatory variables but are connected with the observed explanatory variables (Schmidhieny, 2013; Park, 2011). Fixed effects model assumes that specific characteristics do not change over time hence the entity's error term and the constant, capture different attributes. Fixed effects model is designed to remove these individual attributes from the independent variables so that researcher may examine the net influence on dependent variable (Bruderl & Ludwig, 2015). The difference across the entities is presumed to be random and not connected with the predictor variables included within the model.

Given the two options of the model in testing validity, either fixed effects or random effects become more relevant and significant. The Hausman test provides an appropriate approach in choosing the right model, for it measures the efficiency of the models (Clark & Linzer, 2015). The procedure involves running both fixed effects model and random effects model. In the Hausman Specification test, the two models are included in the analytical procedure and the null hypothesis tested is that there is no substantial link between the individual effects and the independent variables. A rejection of the null hypothesis as specified validates the contention supportive of fixed effects model against the random effects model and the opposite is true. Once the choice of the appropriate model had been made, the panel regression procedure was conducted.

3.7.1 The Panel Data Regression Model

Panel data analysis was utilized in this investigation to ascertain the link between selected microeconomic variables and cumulative average return. Relative to purely cross-sectional or purely time series data set, the panel data has numerous key benefits. Firstly, the analysis of panel data increases the accuracy of the estimated parameter when data is pooled hence enables the estimation process to bear more degree of freedom and sample variability (Ozturk & Yilma, 2015). Also, using panel data analysis

instead of a cross section dataset provides more flexibility individually in causing the variations in terms of behavior across panel members (Green & Hensher, 2010). Lastly panel data analysis is more consistent than time series or cross sectional data set because the individual particular attributes can be tracked as well as simultaneously conducting Granger causality across variables (Kunst, 2010).

The study used panel data because the data incorporated both time series and cross section observations for individual firms in the study and that panel data could better identify and determine the influences that simply could not be observed in pure cross-section or on pure time series data (Gujarati & Porter, 2009). Furthermore the panel data enabled the variables at various levels of analysis to be included. The panel data used in the study was considered balanced since each firm included in the data had the similar number of observations. The three possible application models that were considered in this study were:

Pooled OLS model

This was expressed as:

$$\mathbf{CAR_{it} = \beta_0 + \beta_1 FZ_{it} + \beta_2 OS_{it} + \beta_3 ST_{it} + \beta_4 SR_{it} + \beta_5 IS_{it} + \beta_6 FE_{it} + \beta_7 AG_{it} + u_i} \text{-------- } \mathbf{Equation\ 3.4}$$

Where:

CAR= Cumulative average return

$\beta_{0=}$ the intercept

$\beta_{1-}\ \beta_7$ =Coefficients of independent variables

FZ= firm size

OS= offer size

SR= Stock market return

ST=stock turnover

IS= Shares owned by Institutions

FE=Shares owned by foreigners

AG=Age of the firm

i =is the *ith* subject

t =is the time period for the variables

Uit = error term

The explanatory variables are assumed to be non- stochastic and the results of the pooled regression coefficients are expected to be highly statistically significant. The weakness with the model is that it may not differentiate different firms in the study thus camouflaging the heterogeneity (unobserved and unchanging variables).

Fixed effects model

The model considers heterogeneity amongst the establishments thus every establishment has its individual intercept value and in this investigation. Each entity has its own individual characteristics that may or may not influence the predictor variables. The model is expressed as follows:

$$CAR_{it} = \beta_{1i} + \beta_1 FZ_{it} + \beta_2 OS_{it} + \beta_3 ST_{it} + \beta_4 SR_{it} + \beta_5 IS_{it} + \beta_6 FE_{it} + \beta_7 AG_{it} + uit \text{------}$$

Equation 3.5

Where:

CAR= Cumulative abnormal return

$\beta 1i$ = is the unidentified intercept for every entity (entity (i) - individual intercepts and 1 is period)

$\beta_1 - \beta_4$ coefficients of independent variables

FZ=Firm size

OS=offer size

ST=Stock turnover

SR=Stock return

IS= Shares owned by institutions

FE= Shares owned by Foreigners

AG= Age of the firm

U_{it}=error term

This model is different from the pooled model since there is *i* in the intercept term to identify with other firms whose characteristics may be different from each other, at the same time the intercept does not vary over time. Fixed effects model has certain

weaknesses. It leads to including many variables in the model and in certain cases it is not possible to ascertain the bearing of time-invariant variables (Gujarati & Porter, 2009). Any invariant variable is absorbed by the intercept.

Random Effects Model

Random effects model is not often used because the regressor and the unit effects are not correlated hence the preference for fixed effects model (Clark & Linzer, 2015). This argument is however insufficient when the assumption of random change across entities and unconnected with the predictor variables are encompassed in the model. Random effects model includes time invariant variables and is expressed as follows:

$$\mathbf{CAR_{it} = \beta_1 + \beta_2 FZ_{it} + \beta_3 OS_{it} + \beta_4 ST_{it} + \beta_5 SR_{it} + \beta_6 IS_{it} + \beta_7 FE_{it} + \beta_8 AG_{it+} W_{it}}$$ **---Equation 3.6**

CAR=Cumulative average return

FZ= firm size

OS= Offer size

ST= Stock turnover

SR= stock return

IS=Shares owned by institutions

FE= foreign Ownership of shares.

AG= Age of a firm

$\beta_{1=}$ intercept, measures the mean value of dependent variable.

β_{2-} β_8 = are coefficients of the explanatory variables

$Wit=\varepsilon_{it}+u_{it}$

ε_{it} = within-entity error (individual error component)

u_{it} = between entity error (combined time series and cross-sectional error component)

3.7.2 Diagnostic Tests

Given the assumptions of multiple regression model, the outcomes of the above models were subjected to various diagnostic tests to confirm the reasonableness (measurement errors) of the variables. The diagnostic tests used included normality test, autocorrelation test, multi-co-linearity test and homoscedasticity test. Since data involved had time series component over a relatively short duration, there was need to further subject the results to stationarity test, co-integration test and Granger causality test.

3.7.3 Test of Normality

Among the major assumptions of Regression model is that the variables have normal distribution and violation of this assumption makes the outcome invalid. The normality test used in this study was Shapiro-Wilk test which provided inferential statistics, *W,* for normality test (Razali & Wa, 2011; Joreskog, Olsson & Wallentin, 2016). The *W* is specified as follows:

$$W = \frac{\left(\sum_{i=1}^{n} a_i x_{(i)}\right)^2}{\sum_{i=1}^{n}(x_i - \overline{x})^2}$$

Where:

X (i) = the order sample values.

αi =constants generated from the means, variances and covariance of the Order statistics of a sample of size n to form a normal distribution**.**

Normality distributions have values of skewness and kurtosis of zero (0) and three (3) respectively (Joreskog, *et al*., 2016).

3.7.4 Test of Autocorrelation

The Autocorrelation test was used in this study as a measure of the link between error terms at various points in time (Giles & Beattie, 2018).The Wald test was used in the autocorrelation test and is defined as:

$$DW = \frac{\sum_{t=2}^{T}(e_t - e_{t-1})^2}{\sum_{t=1}^{T} e_t^2}$$

T= data set

et= yt- ŷt are residual for OLS fit

Here it is assumed that successive residuals (e_t) are linked in time series data since an occurrence in single time period usually affects the occurrence in the subsequent period. According to Chen (2016), Durbin Watson values normally ranging from 0 to 4 and values nearer to 2 indicates the nonexistence of Autocorrelation.

3.7.5 Test of Multi-co Linearity

This test was used in the study to measure the independence of the predictor variables (Katrutsa & Strijov, 2017). Multi-co linearity can be perfect or less than perfect. Perfect multi-co linearity indicates regression coefficients of X variables being indeterminate with infinite standard errors. On the other hand if multi-co linearity is below perfect the

regression coefficients, though determinate, has huge standard error implying that the coefficients may not be determined with greater precision or accuracy. To determine the state of multi-co linearity, the study used the high R^2 values, significant t ratios, high pair-wise associations among regressors (in excess of 0.8), auxiliary regressions, and evaluation of partial associations, condition index and Eigen values.

Multi-co linearity is an element of the sample not of a population since it is the form of explanatory variables presumed to be non-stochastic and is a data deficiency problem where there are a few independent variables (Gujarati and Porter, 2009). Multi-co linearity is measured by using Variance Inflation factor (VIF), Tolerance and R^2. These three ingredients are commonly employed to measure the level of multi-Collinearity of the regression model's i^{th} predictor variable with other predictor variables despite their short comings (O'Brien, 2007). The presence of multi-co linearity is shown by tolerance of below 0.1, a VIF of more than 10 or where R^2 is more than .9

3.7.6 Test of Homoscedasticity/ Heteroscedasticity (Constant variance of ε term)

Homoscedasticity test was used to measure the variation around the regression line of average link between Y and X for all values of X with slight heteroscedasticity considered to have little influence on significance tests (Tabachnick & Fidell, 2019). Heteroscedasticity may result in major misrepresentation of outcomes and seriously impair the analysis leading to the possibility of a Type 1 error. This study used Wald test for group wise chi-square to test homoscedasticity and is expressed as follows:

$$W_T = \frac{\left[\hat{\theta} - \theta_0\right]^2}{1 / I_n(\hat{\theta})} = I_n(\hat{\theta}) \left[\hat{\theta} - \theta_0\right]^2$$

Where:

$\hat{\Theta}$ = Maximum Likelihood Estimator (MLE),

$I_n(\hat{\theta})$ = expected Fisher information (evaluated at the MLE)

The Wald test is run on the basis of the following step; the output variable is assumed to have a normal distribution. In carrying on the test, a mean of the sample is obtained, there after the difference between sample variables and the group sample mean is calculated. The resulting figure is transformed into absolute positive values.

3.7.7. Stationarity Test

Because the data employed in the investigation was a time series data, the observations were therefore assumed to be random variables and which could be expressed using certain stochastic procedures. A stationary test was conducted to test if the mean, the variance and the covariance were constant over time. Stationarity test is basically essential so that there is appropriate properties or validity of statistical estimators and it is crucial to test a time series to determine whether it is stationary or not (Brockwell, Davis &Yang, 2011).In this study, stationarity test was used to establish every variable's order of integration. To determine the influences of various microeconomic factors in this study, several steps were made one of which was analyzing the variables' stationary properties through application of the unit root test to confirm whether the variables in the study had constant mean, variance, and covariance for every specific lag. Strong stationarity indicates no spurious regression. There are various approaches of testing the existence of unit root and in this investigation, the Augmented Dickey- Fuller (ADF) test was used (Gan, *et al.,* 2006). The test encompasses running regression of the first difference of the series against lagged difference term and optionally to give constant and time trend. The unit root test was specified as follows:

$$\Delta X_t = (\alpha - 1) X_{t-1} + \varepsilon_t,$$

Δx= first difference operator

α= coefficient

ε_t = Error term

Xt = variable interest

3.7.8 Co-Integration Test

The stationarity test above was further enhanced using the co-integration test in which a set of variables were considered co-integrated if they were separately non-stationary and integrated in similar order but their linear integration was stationary (Ibrahim,2000). The fundamental philosophy about integration is that the output and predictor variables move closely together in the long run (Azizan & Sulong, 2011). Co-integration implies that data from a linear integration of two variables can be stationary. It is the existence of long-run link between the variables. If there exists at least one having co-integrating link among the variables, then the causal link among these variables may be established through estimation of the vector error correction model (VECM).This study relied on the Johansen method of multivariate co-integration as was in studies by Johansen and Juselius, (1990) to establish whether the linear integration of the series possessed a long-run equilibrium link and to explain the link between output and predictor variables in short and long-run period (Ali & Rehman, 2010). Co-integration was specified as follows:

$$Y[t] = U + \beta * X[t] + e[t],$$

Where:

Y= dependent variable in testing regression

X=independent variable

u= stationary co-integration error component

β= expected future return

ε= error term

t= time period

This investigation implies that the present value of share prices can be modelled to acquire long-run link between share prices and their dividends.

3.7.9 Granger Causality Test

Granger Causality test is applied in testing the short-run link between output and predictor variables. To determine the presence of short-run link, stationarity of data is ideal. Under this Granger causality approach, the methodology has sensitivity to lag length utilized to ascertain the data's stationarity property. Ibrahim (2000) finds that this Granger Causality test is not applicable when the variables under analysis are non-stationary and co-integrated. A relevant vector error correction models describe the long-run and short run causality dynamics with respect to shared feedback amongst the variables (Agrawalla &, Tuteja, 2008). Finally, an enhanced form of Granger causality test entails error correction term (Shahbaz, Ahmed &Ali, 2008). The granger causality model is expressed as follows**:**

$$X1(t) = \sum j=1pA11, jX1\ (t-j) + \sum j=1pA12, jX2\ (t-j) + E1\ (t)$$

Where:

X_1 = output at time 1

X_2 = output at time 2

E_1 (t) = error 1 at time t

1_P = probability

A = an arbitrary non-empty set I (t)] and

l_{-x} (t) = information available as of time t in the whole matrix and that in the modified universe whereby x is left out

This may be conducted by F test on null hypothesis.

$$F=\frac{RSSr-RSSur)/m}{RSSur/(n-k)}$$

F= level of significance

RSSr = restricted residual sum of squares

RSSur= Unrestricted sum of squares

m=number of lagged M terms

n=number of observations

k= number of parameters estimated in the unrestricted regression

Testing for Significance

Once the model assumptions tests were complete, the results were then tested for significance using t-statistic for linear relationship while F-statistic was used to measure variance for all variables at $\alpha = 0.05$.

i. The t test allows testing a single restriction. It is strictly valid if the errors are actually normally distributed. The *t* test was employed in ascertaining whether every the individual predictor variables is substantial. This is called a test for *individual significance*.
ii. F test allows testing multiple restrictions jointly. It is strictly valid if the errors are truly normally distributed. F-test was utilized to ascertain whether a substan**t**ial link existed between the output variable and each of the predictor variables, which may be termed as *overall significance.*

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The investigation's general objective was to evaluate the effect of some microeconomic variables on long-run capital market returns on equity issued at the NSE. To attain this objective, the following six specific objectives were set; to determine the influence of firm size on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to ascertain the influence of equity offer size on establishment's long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to evaluate the influence of stock return on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to examine the influence of stock turnover on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to ascertain the influence of foreign share ownership on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to investigate the influence of institutional share ownership on long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue, to examine the moderating effects of firm Age on the long-run capital market return on firms that issued equity shares at the NSE for a period of five years after issue. For the seven specific objectives, the investigation used panel data model, divided into ten clusters to cover the twenty years. Each cluster had five years of study.

Corresponding hypotheses were formulated in order to accomplish the above objectives. This chapter demonstrates preliminary findings of the investigation upon which further analysis was carried out. Data for the investigation was collected from thirty two (32)

firms that issued shares at the NSE over a period stretching from 1993 to 2008 starting with descriptive statistics followed by Pearson correlation coefficients (PCCs) which explored the strength and direction of the link of the variables.

4.2 Summary of Descriptive Statistics

Descriptive statistics is useful for two purposes: To provide basic information about variables in a dataset and to highlight potential relationship between these variables. Descriptive statistics enables the researcher to present data in a more meaningful way than when raw data is used and allows simpler interpretation of the data.

Descriptive statistical tests were done for ten clusters based on the five year period over which determinants of long run capital market return were assessed using seven independent variables. The study used Stata statistical package. Table 4.1 below gives the results of descriptive statistics for period 1994-1998 followed by PCCs in table 4.2. The results of other periods follow in the same format.

Table 4.1: Descriptive Statistics (1994-1998)

Statistics	CAR	Age	FZ	FE	OS	IS	SR	ST
Mean	5.10	59.67	885636241.73	0.32	2912807.60	0.00	91.65	439157.87
Median	1.80	49.00	716228890.00	0.35	2500000.00	0.00	-156.72	260789.00
Maximum	59.70	86.00	1946514600.00	0.46	7996170.00	0.00	2025.51	1164858.00
Minimum	-38.00	44.00	359827650.00	0.18	1120874.00	0.00	-1076.66	74315.00
Std. Dev.	22.76	17.92	516193814.32	0.11	2217352.55	0.00	1071.42	352191.32
Skewness	0.52	0.68	0.76	-0.10	1.58		1.00	0.96
Kurtosis	3.79	1.52	2.31	1.43	4.39		2.77	2.82
Jarque-Bera	1.08	2.54	1.75	1.57	7.49		2.53	2.32
Probability	0.58	0.28	0.42	0.46	0.02		0.28	0.31
Sum	76.56	895	13284543626	4.775	43692114	0	1374.69	6587368
Sum Sq. Dev.	7255.01	4493.33	3.73E+18	0.17508333	6.88331E+13	0	16071150.76	1.73654E+12
Observations	15	15	15	15	15	15	15	15

Table 4.1 Descriptive statistics 1994-1998 provides the summary of descriptive statistics of output and predictor variables. The dependent CAR reflects the value of return on long run for firms that issued equity in the period stated above with a mean of 5.10. This can be translated into a return of 5.1%.The standard deviation is 22.76.

This standard deviation shows a fairly large dispersion around the mean. It suggests that there is a higher chance that the return may not be realized. Skewness of the explanatory variables are all superior to zero except for foreign share ownership (-0.10). The positive skewness indicates that these explanatory variables have a greater probability of influence on CAR. These variables are right skewed meaning that they are positive. It is only foreign ownership which is negatively skewed, an indication that there is a greater chance that it has no influence on CAR. The kurtosis of age, firm size, foreign ownership, stock return and stock turnover lie below 3 meaning that they are flatter with a wider peak and reflect the normality assumption. The other two; CAR and offer size are above 3 indicating a leptokurtic distribution. Jacque Bare further tests normality using chi square statistics showing that every variable has p- values of over 0.05 indicating that the variables are normally distributed and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 (Gujarati & Porter, 2009).

4.3 Correlation Analysis

The test was done for each of the ten clusters to ensure that there was absence of extremely connected variables in order to avoid the multi-co-linearity problem within the model.

Table 4.2: Correlation Coefficients (1994-1998)

Variables	CAR	AG	FZ	FE	OS	SR	ST
CAR	1.000000	- 0.218227	0.242516	0.101175	0.181167	0.303814	-0.230426
AG	-0.218227	1.000000	-0.344543	-0.012063	-0.526853	-0.036686	0.771318
FZ	0.242516	-0.344543	1.000000	0.863304	0.262038	0.125078	-0.065928
FE	0.101175	-0.012063	0.863304	1.000000	-0.497168	-0.044542	0.262083
OS	-0.181167	-0.526853	-0.262038	-0.497168	1.000000	-0.048808	-0.645774
SR	0.303814	-0.036686	0.125078	-0.044542	-0.048808	1.000000	0.109790
ST	-0.230426	0.771318	-0.065928	0.262083	-0.645774	0.109790	1.000000

Table 4.2 reports the PCCs for period (1994-1998) between the variables. There exists positive link between cumulative abnormal return and establishment's size= 0.243, foreign ownership=0.101, and stock return 0.303.These results reject the null hypotheses stated earlier in the paper and confirm that these variables have effect on long-run capital market return. However there is negative correlation between CAR and age of the firms= -0.218; offer size= -0.181 and stock turnover = -0.230. These results indicate that the relationship is small and negative therefore these variables have effect on long run return on firms that issue equity shares but negatively. None of independent variables had a strength of more than 0.9 which means that there was no multi-co-linearity problem in the model.

Table 4.3: Results of Descriptive Statistics (1995-1999)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	1.038000	31.66667	7.93E+09	0.167793	2.30E+08	0.000000	-301.9775	4995123.
Median	-1.050000	30.00000	2.49E+09	0.100000	75000000	0.000000	-156.7200	4008409.
Maximum	20.35000	40.00000	2.53E+10	0.490000	5.96E+08	0.0000	1.650000	9253445.
Minimum	-14.00000	26.00000	3.36E+08	0.007900	8789063.	0.0000	-1076.660	1777496.
Std. Dev.	8.800991	4.879500	9.20E+09	0.174647	2.70E+08	0.0000	328.2323	2700228.
Skewness	0.520917	0.591141	0.921272	0.713219	0.680827	0.0000	-0.950592	0.378364
Kurtosis	2.806391	1.747320	2.116847	1.923817	1.500119	0.0000	2.983536	1.701744
Jarque-Bera	0.701813	1.854374	2.609331	1.995560	2.564841	0.0000	2.259233	1.411316
Probability	0.704050	0.395665	0.271263	0.368697	0.277365	0.0000	0.323157	0.493783
Sum	15.57000	475.0000	1.19E+11	2.516900	3.44E+09	0.0000	-4529.662	74926851
Sum Sq. Dev.	1084.404	333.3333	1.18E+21	0.427024	1.02E+18	0.00000	1508310.	1.02E+14
Observations	15	15	15	15	15	15	15	15

Table 4.3 above provides the summary of descriptive statistics of output and predictor variables. The dependent variable CAR has a mean value of 1.038 reflecting the value of return on long return of 1.04% for firms that issued equity over the aforementioned period. This is a very low return with standard deviation of 8.8 showing fair dispersion around the mean suggesting that possibility of realizing that return is also low. This low return could have been attributed to financial distress which was triggered by the Goldenberg scandal in Kenya during this particular period when treasury bills were offered at the rate of around 40%. Skewness of the explanatory variables are all superior to zero except for institutional ownership of shares (0.00) and stock return (-0.95). The negative skewness of stock return indicates that there is a large possibility that stock return has no effect on cumulative average return. All the remaining variables are right skewed and are positive indicating that there is a greater probability of these variables have a large influence on cumulative average return. The kurtosis for CAR, age, firm Size, offer size, foreign ownership, stock return and stock turnover lie below 3 and

above 1 which means that these variables are flatter with a wider peak and reflect the normality assumption. Only Institutional shareholding has kurtosis of 0.00. Jarque Bare further tests normality using chi square statistics and shows that each variable has p-value of over 0.05 indicating that the variables are normally distributed and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.4: Correlation Coefficients (1995-1999)

Variables	CAR	AG	FZ	FE	OS	SR	ST
CAR	1.000000	-0.026529	0.167743	0.142896	0.231637	-0.332223	-0.306816
AG	-0.026529	1.000000	-0.587757	-0.396199	-0.617529	0.071549	-0.066105
FZ	0.167743	-0.587757	1.000000	0.958405	0.955635	0.194211	-0.200443
FE	0.142896	-0.396199	0.958405	1.000000	0.924166	0.291244	-0.296417
OS	0.231637	-0.617529	0.955635	0.924166	1.000000	0.136430	-0.256666
SR	-0.332223	0.071549	0.194211	0.291244	0.136430	1.000000	-0.078306
ST	-0.306816	-0.066105	-0.200443	-0.296417	-0.256666	-0.078306	1.000000

Table 4.4 indicates the PCCs for period (1995-1999) between variables. It shows positive correlation between cumulative abnormal return and firm size=0.168, foreign ownership=0.143, and offer size=0.232.Although these are positive, they are considered weak or small (Cohen, 2013). However there is negative correlation between CAR and age of the firms=-0.027 but are considered weak (Cohen, 2013); stock return=-0.332 and stock turnover =-0.307. These two are negative but considered medium (Cohen, 2013). Every variable is kept in the model because they do not present multi-co-linearity problem.

Table 4.5: Descriptive Statistics (1997-2001)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	S T
Mean	-1.903333	36.00000	1.78E+09	0.172667	1.77E+08	0.028667	-298.9040	10902852
Median	-0.300000	22.00000	1.14E+09	0.160000	84000000	0.000000	-292.2100	2148286.
Maximum	2.800000	68.00000	4.15E+09	0.270000	4.62E+08	0.100000	1.650000	42735733
Minimum	-13.00000	18.00000	1.80E+08	0.070000	8227312.	0.000000	-659.6700	93723.00
Std. Dev.	4.518104	22.02272	1.49E+09	0.076576	1.96E+08	0.043238	230.8096	15093580
Skewness	-1.603390	0.697753	0.402316	0.293581	0.681138	0.873247	-0.317973	1.100181
Kurtosis	4.318658	1.513200	1.526811	1.537586	1.632367	1.933731	2.068585	2.552581
Jarque-Bera	7.513938	2.598756	1.761073	1.552134	2.328886	2.616982	0.794976	3.151109
Probability	0.023354	0.272701	0.414560	0.460212	0.312096	0.270228	0.672006	0.206893
Sum	-28.55000	540.0000	2.68E+10	2.590000	2.66E+09	0.430000	-4483.560	1.64E+08
Sum Sq. Dev.	285.7857	6790.000	3.12E+19	0.082093	5.36E+17	0.026173	745822.7	3.19E+15
Observations	15	15	15	15	15	15	15	15

Table 4.5 provides the summary of descriptive statistics of output and predictor variables in period 1997-2001. The dependent CAR reflects the value of return on long return for firms that issued equity of the period stated above with a mean of -1.9 which indicates a negative return of-1.9%. It has standard deviation of 4.5 this shows small dispersion around the mean. Skewness of the explanatory variables are all superior to zero except for CAR = (-0.6) and stock return (-0.32). And these variables are right skewed except in case of CAR= -1.60, and stock return= -0.3179. Thus apart from stock return, the rest of the variables have significant influence over CAR. The kurtosis of Age=1.51, firm Size=1.53, foreign ownership =1.54, Offer Size=1.63, IS=1.93 stock return=2.06 and stock turnover= 2.6 lying below 3. This means that these variables are flatter with a wider peak thus normally distributed. CAR=4.32 is above 3 an indication of leptokurtic distribution. Jarque Bare further tests normality using chi square statistics and shows that every variable has p-value of over 0.05 indicating that the variables are normally

distributed and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.6: Correlation Coefficients (1997-2001)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	-0.556204	0.035520	0.100943	0.200705	0.276580	-0.055533	0.249984
AG	-0.556204	1.000000	-0.166860	-0.116902	-0.309093	-0.443326	-0.034508	-0.453759
FS	0.035520	-0.166860	1.000000	0.963674	0.962601	0.908597	0.088478	0.864641
FE	0.100943	-0.116902	0.963674	1.000000	0.965771	0.902914	-0.060078	0.844342
OS	0.200705	-0.309093	0.962601	0.965771	1.000000	0.973481	-0.055395	0.884157
IS	0.276580	-0.443326	0.908597	0.902914	0.973481	1.000000	-0.116577	0.893930
SR	-0.055533	-0.034508	0.088478	-0.060078	-0.055395	-0.116577	1.000000	-0.106956
ST	0.249984	-0.453759	0.864641	0.844342	0.884157	0.893930	-0.106956	1.000000

Table 4.6 indicates the PCCs for period (1997-2001) between variables. It shows positive correlation between cumulative abnormal return and strong strength. Firm size=0.036 this is positive, foreign ownership=0.101 this is positive but weaker strength, offer size=0.2 is positive but weak, institutional shareholding=0.277 this is positive but weak in strength, stock return= -0.056 is negative and of very weak strength. Stock turnover=0.25 this is positive but of weak strength (Cohen, 2013). In summary, they have weak correlation regardless of direction. All the variables are retained in the model since they do not present multi-co-linearity problem.

Table 4.7: Descriptive Statistics (1998-2002)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	3.292333	43.00000	2.16E+10	0.515133	17201972	0.026987	-306.7540	2725769.
Median	-0.015000	27.00000	6.21E+08	0.700000	18000000	0.000000	-292.2100	2553768.
Maximum	44.00000	80.00000	9.41E+10	0.790000	43508929	0.094800	-37.60000	6711243.
Minimum	-1.800000	22.00000	3.72E+08	0.050000	1679600.	0.000000	-659.6700	225285.0
Std. Dev.	11.42560	25.69047	3.22E+10	0.338433	13283883	0.039743	220.1849	2329764.
Skewness	3.309576	0.695938	1.007487	-0.665559	0.206071	0.747513	-0.448907	0.667693
Kurtosis	12.34495	1.509711	2.524967	1.497688	2.107889	1.622067	2.081578	2.006287
Jarque-Bera	81.96330	2.598926	2.678610	2.518009	0.603576	2.583627	1.030979	1.731701
Probability	0.000000	0.272678	0.262028	0.283937	0.739495	0.274772	0.597208	0.420694
Sum	49.38500	645.0000	3.25E+11	7.727000	2.58E+08	0.404800	-4601.310	40886540
Sum Sq. Dev.	1827.622	9240.000	1.45E+22	1.603514	2.47E+15	0.022113	678739.6	7.60E+13
Observations	15	15	15	15	15	15	15	15

Table 4.7 provides a summary of descriptive statistics of output and predictor variables for period 1998-2002. The dependent CAR reflect the value of return on long return for firms that issued equity of the period stated above with a mean of 3.3, and standard deviation (SD) of 11.42.This shows a fairly big dispersion around the mean. The mean of CAR reflects long term return of 3.3%. Skewness of the explanatory variables are all superior to zero except for Foreign ownership of shares (-0.670) and stock return=-0.449. All the remaining variables are right skewed. The kurtosis of Age, Firm Size, Foreign ownership, offer Size, Stock return and stock turnover lie below 3 which means that these variables are flatter with a wider peak. Only CAR is above 3, meaning a leptokurtic distribution. Jarque Bare further tests normality using chi square statistics shows that all the variables have values greater than 0.05 an indication that the variables have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.8: Correlation Coefficients (1998-2002)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	0.495623	0.704260	0.307823	0.594327	-0.213930	0.310497	0.520490
AG	0.495623	1.000000	0.963376	0.538288	0.841857	-0.534946	0.022945	0.854796
FS	0.704260	0.963376	1.000000	0.558162	0.850947	-0.474477	0.099182	0.862036
FE	0.307823	0.538288	0.558162	1.000000	0.048765	0.419376	0.016702	0.269471
OS	0.594327	0.841857	0.850947	0.048765	1.000000	-0.850134	0.102759	0.876637
IS	-0.213930	-0.534946	-0.474477	0.419376	-0.850134	1.000000	0.040796	-0.654862
SR	0.310497	0.022945	0.099182	0.016702	0.102759	0.040796	1.000000	-0.146231
ST	0.520490	0.854796	0.862036	0.269471	0.876637	-0.654862	-0.146231	1.000000

Table 4.8 indicates the PCCs for period (1998-2002) between variables. It shows that majority of the variables have positive correlation between cumulative abnormal return. These are; age =0.50, firm size=0.704, offer size=0.594 stock turnover=0.52. These are strong positive correlation with the CAR (Cohen, 2013). Foreign ownership=0.308, stock return=0.310 have positive but moderate correlation Cohen, (2013) with CAR. Institutional shareholding=-0.214, is the only variable which has negative but small correlation with CAR. Therefore all the independent variables can be regarded as determinants of long run return for firms that issued shares during this period. All the variables are retained in the model since they do not present multi-co-linearity problem.

Table 4.9: Descriptive Statistics (1999-2003)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	-2.209333	38.33333	2.16E+09	0.021680	25340665	0.077670	-100.7333	3220165.
Median	-6.000000	46.00000	1.92E+09	0.032600	26721587	0.000000	-292.2100	2932490.
Maximum	43.01000	49.00000	3.96E+09	0.033200	40000000	0.250050	1390.480	7712762.
Minimum	-36.50000	19.00000	5.46E+08	0.000000	9419476.	0.000000	-659.6700	1243834.
Std. Dev.	22.73306	12.77087	1.01E+09	0.015883	12565794	0.113880	642.6255	1831089.
Skewness	0.642159	-0.693217	0.268115	-0.701365	-0.046513	0.717410	1.674892	1.303491
Kurtosis	2.829113	1.538933	2.681936	1.499708	1.517875	1.529502	4.581200	3.918599
Jarque-Bera	1.049172	2.535573	0.242943	2.636579	1.378344	2.638171	8.575780	4.775115
Probability	0.591800	0.281454	0.885616	0.267593	0.501992	0.267380	0.013734	0.091854
Sum	-33.14000	575.0000	3.25E+10	0.325200	3.80E+08	1.165050	-1511.000	48302469
Sum Sq. Dev.	7235.090	2283.333	1.42E+19	0.003532	2.21E+15	0.181561	5781545.	4.69E+13
Observations	15	15	15	15	15	15	15	15

Table 4.9 Descriptive statistics for cluster 1999-2003 provides the summary of descriptive statistics of output and predictor variables. The dependent CAR reflect the value of return on long return for firms that issued equity of the period stated above with a mean of -2.209% and SD of 22.73.This shows fairly big dispersion around the mean. With respect to Skewness, four of the descriptive variables are all superior to zero (firm size=0.268115, institutional shareholding=0.717, stock return=1.67 and stock turnover=1.3). The other variables have values which are negative (age=-0.693, foreign ownership=-0.701, offer size= -0.046). CAR has skewness of 0.642. The kurtosis of; CAR=2.81 age=1.54, firm size=2.68, foreign ownership=1.5, offer size=1.52, institutional ownership=1.53 have a value of less than 3. The two variables; stock return=4.58 and stock turnover=3.92 have kurtosis above value 3 meaning that they have leptokurtic distribution. Jarque Bare further tests normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables

have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.10: Correlation Coefficients (1999-2003)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	0.298169	0.656452	0.219215	0.108200	-0.236109	0.788515	0.032560
AG	0.298169	1.000000	-0.251121	0.990664	-0.802033	-0.995505	0.304833	-0.692594
FS	0.656452	-0.251121	1.000000	-0.338147	0.564357	0.308915	0.703618	0.517540
FE	0.219215	0.990664	-0.338147	1.000000	-0.859420	-0.997478	0.201471	-0.706378
OS	0.108200	-0.802033	0.564357	-0.859420	1.000000	0.852499	0.167727	0.642806
IS	-0.236109	-0.995505	0.308915	-0.997478	0.852499	1.000000	-0.230234	0.699747
SR	0.788515	0.304833	0.703618	0.201471	0.167727	-0.230234	1.000000	0.075710
ST	0.032560	-0.692594	0.517540	-0.706378	0.642806	0.699747	0.075710	1.000000

Table 4.10 indicates the PCCs for cluster (1999-2003) between variables. It shows that all variables have positive correlation between cumulative abnormal return except institutional investors =-0.236. These are; age =0.298, firm size=0.656, foreign ownership=0.219, offer size=0.108, stock return=0.789 and stock turnover= 0.033. Majority of the variables which are positive but weak in strength according to Cohen (2013) ranking. Stock return is positive and strong in strength with coefficient=.789. All the variables are retained in the model sine they do not present multi-co-linearity problem.

Table 4.11: Descriptive Statistics (2001-2005)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	-3.661000	79.00000	8.79E+08	0.522580	8047858.	0.000000	4 50.5480	6261584.
Median	-4.000000	79.00000	8.19E+08	0.533900	8047870.	0.000000	175.0200	4185590.
Maximum	14.00000	103.0000	1.60E+09	0.552500	10000000	0.000000	1390.480	28890082
Minimum	-17.50000	55.00000	2.80E+08	0.476500	6095710.	0.000000	-292.2100	231062.0
Std. Dev.	9.013816	23.23790	4.77E+08	0.028423	2057738.	0.000000	678.2806	8309063.
Skewness	0.284641	-5.55E-17	0.303912	-0.759205	-5.67E-11	0.000000	0.349202	2.258762
Kurtosis	2.835426	1.016405	1.652581	1.898474	1.000000	0.000000	1.458693	6.864066
Jarque-Bera	0.146319	1.639437	0.910412	1.466220	1.666667	0.000000	1.193082	14.72460
Probability	0.929452	0.440556	0.634317	0.480413	0.434598	0.000000	0.550713	0.000635
Sum	-36.61000	790.0000	8.79E+09	5.225800	80478580	0.000000	4505.480	62615844
Sum Sq. Dev.	731.2399	4860.000	2.05E+18	0.007271	3.81E+13	0.000000	4140581.	6.21E+14
Observations	10	10	10	10	10	10	10	10

Table 4.11 Descriptive statistics for cluster (2001-2005) provides the summary of descriptive statistics of output and predictor variables. The dependent CAR reflects the value of return on long return for firms that issued equity of the period stated above with a mean of -3.7 and standard deviation of 9.01. CAR has a return of negative of 3.7%. The SD is large and indicates that the negative return can even be larger. The negative return of 3.7% is a reflection of the general return in the stock market during this period of NSE history. The Skewness of the explanatory variables have mixed results; CAR= 0.284, firm size =0.303, stock return= 0.349 and stock turnover r= 2.259. These are positive and indicate that they have influence on CAR. Other variables have the following values; age=-5.5E-17, foreign ownership -0.759, offer size -5.67E-11 and institutional shareholding (0.000). Those with negative values indicating that they have negative influence on CAR. The kurtosis of; CAR =2.8, age =1.016, firm size =1.65, foreign ownership= 1.89, offer size=1.00 and stock return =1.46 lies below 3 which means that these variables are flatter with a wider peak and are within the normal range.

Only stock turnover = 6.86 is above 3, meaning it has leptokurtic distribution. Jarque Bare further tests on normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.12: Correlation Coefficients (2001-2005)

Variables	CAR	AG	FZ	FE	OS	SR	ST
CAR	1.000000	0.261267	0.442196	-0.146423	-0.237510	0.338054	0.325690
AG	0.261267	1.000000	0.116088	0.447755	-0.997940	0.039916	-0.083253
FS	0.442196	0.116088	1.000000	-0.431966	-0.065949	0.852573	0.712563
FE	-0.146423	0.447755	-0.431966	1.000000	-0.481383	-0.405413	-0.554813
OS	-0.237510	-0.997940	-0.065949	-0.481383	1.000000	-1.77E-06	0.122334
SR	0.338054	0.039916	0.852573	-0.405413	-1.77E-06	1.000000	0.486844
ST	0.325690	-0.083253	0.712563	-0.554813	0.122334	0.486844	1.000000

Table 4.12 indicates the PCCs for period (2001-2005) between variables. It shows that four variables have positive correlation between cumulative abnormal return. Three variables; firm size= 0.442, stock return=.338 and stock turnover=.326 have medium coefficients with medium strength (Cohen, 2013). One variable, Age has coefficient=.261 this has small strength. The other two variables; foreign ownership= -.146 and offer size=-.238 negative but small strength. However institutional share ownership was not ranked. All the variables are retained in the model since they do not present multi-co-linearity problem.

Table 4.13: Descriptive Statistics2002-2006)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	2.911333	61.33333	7.11E+09	0.502333	3.91E+08	0.016667	843.5120	75194147
Median	0.050000	49.00000	6.49E+09	0.692000	1.01E+08	0.000000	1017.050	6478210.
Maximum	24.20000	104.0000	1.99E+10	0.790000	1.02E+09	0.050000	1672.610	3.24E+08
Minimum	-4.000000	31.00000	6.51E+08	0.030400	52321500	0.000000	-37.60000	558028.0
Std. Dev.	7.804766	30.55830	5.07E+09	0.347271	4.61E+08	0.024398	692.8099	1.09E+08
Skewness	1.783530	0.552299	1.162080	-0.660011	0.700738	0.707107	-0.162754	1.075307
Kurtosis	5.054289	1.506869	3.850496	1.499942	1.500000	1.500000	1.360663	2.714347
Jarque-Bera	10.59001	2.155984	3.828162	2.495394	2.633833	2.656250	1.745863	2.941709
Probability	0.005017	0.340278	0.147477	0.287165	0.267960	0.264974	0.417725	0.229729
Sum	43.67000	920.0000	1.07E+11	7.535000	5.87E+09	0.250000	12652.68	1.13E+09
SumSq. Dev.	852.8012	13073.33	3.60E+20	1.688360	2.97E+18	0.008333	6719799.	1.66E+17
Observations	15	15	15	15	15	15	15	15

Table 4.13 provides the summary of descriptive statistics of output and predictor variables over period 2002-2006. The dependent variable CAR reflects the value of return in long run for firms that issued equity of the period stated above with a mean of 2.91. This is a reflection of a return of 2.9%. Standard deviation is 7.8. This is a wider dispersion around the mean suggesting that realizing this return may be a challenge. Skewness of the explanatory variables are all superior to zero (CAR=1.78, FS=1.162, OS= 0.700, IS=0.77, ST= 1.075) suggesting that these variables have positive influence on cumulative return. Foreign ownership of shares (-0.66) and stock return

(-0.163) are the only variables that are negatively skewed thus may have negative influence on cumulative average return. The kurtosis of ; age, offer size, foreign ownership, stock return and stock turnover lie below 3 which means that these variables are flatter with a wider peak and are within the normal range. The other two; CAR (5.05) and firm size (3.9) are above 3 meaning that they have leptokurtic distribution and are

above the expected normal range. Jarque Bare further test on normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.14: Correlation Coefficients (2002-2006)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	-0.288453	0.393078	-0.442196	0.435325	0.437824	-0.156611	0.237074
AG	-0.288453	1.000000	-0.741654	0.584470	-0.710757	-0.678633	0.030840	-0.653153
FS	0.393078	-0.741654	1.000000	-0.760511	0.811035	0.799914	-0.093205	0.757283
FE	-0.442196	0.584470	-0.760511	1.000000	-0.986080	-0.992520	-0.000442	-0.934319
OS	0.435325	-0.710757	0.811035	-0.986080	1.000000	0.998998	1.37E-17	0.944215
IS	0.437824	-0.678633	0.799914	-0.992520	0.998998	1.000000	1.50E-17	0.944126
SR	-0.156611	0.030840	-0.093205	-0.000442	1.37E-17	1.50E-17	1.000000	0.023463
ST	0.237074	-0.653153	0.757283	-0.934319	0.944215	0.944126	0.023463	1.000000

Table 4.14 indicates the PCCs for period (2002-2006) between variables. It shows that the following variables have positive correlation between cumulative abnormal return and medium strength (Cohen 2013); firm size= 0.393, Offer size= 0.435, issue size =.438 institutional shareholding = 0.438, However one variable, stock turnover= 0.237 has positive but small strength. The other variables; age=-0.288, stock return= -.157 have negative correlations and weak strength. Foreign ownership has negative correlation= -0.442 but medium strength. All the variables are retained in the model since they do not present multi-co-linearity problem (Gujarati & Porter, 2009)

Table 4.15: Descriptive Statistics (2007-2011)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	-1.373500	37.00000	6.64E+09	0.231615	1.93E+08	0.115205	-426.3740	81492375
Median	-0.675000	40.00000	5.51E+09	0.056800	1.39E+08	0.106150	-229.7300	44191492
Maximum	32.55000	57.00000	2.72E+10	0.546800	4.59E+08	0.285300	1149.050	2.60E+08
Minimum	-31.00000	11.00000	5481000.	0.011300	1890000.	0.009300	-1595.510	2510035.
Std. Dev.	10.99373	15.67767	6.91E+09	0.235795	1.85E+08	0.096593	989.4761	83354562
Skewness	0.494867	-0.551142	1.489002	0.284568	0.424369	0.228844	0.382633	0.973558
Kurtosis	7.982742	2.056579	5.035757	1.167326	1.599485	1.465146	1.981930	2.554657
Jarque-Bera	21.50608	1.754229	10.84402	3.068840	2.234832	2.137713	1.351749	3.324661
Probability	0.000021	0.415982	0.004418	0.215581	0.327124	0.343401	0.508711	0.189696
Sum	-27.47000	740.0000	1.33E+11	4.632300	3.85E+09	2.304100	-8527.480	1.63E+09
Sum Sq. Dev.	2296.381	4670.000	9.08E+20	1.056385	6.48E+17	0.177273	18602198	1.32E+17
Observations	20	20	20	20	20	20	20	20

Table 4.15 Descriptive statistics 2007-2011 provides the summary of descriptive statistics of output and predictor variables. The dependent CAR reflect the value of return on long return for firms that issued equity of the period stated above with a mean of -1.374 with SD of 10.99.This shows fairly large dispersion around the mean. The return is negative at 1.374%. This is a reflection of the 2008 financial crunch where share prices fell across the world. Skewness of the explanatory variables are all superior to zero except for age which is (-0.55). All these variables are right skewed except for the case of age. The kurtosis of; age, offer size, foreign ownership, stock return and stock turnover lie below 3 which means that these variables are flatter with a wider peak and they fall within the normal level (Cohen, 2013). The other two variables; CAR and firm size are above 3 an indication of leptokurtosis. Jarque Bare test on normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables have normal distribution and that the calculated skewness and kurtosis

values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.16: Correlation Coefficients (2007-2011)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	0.408032	-0.438438	0.230540	-0.388131	0.468049	-0.217167	-0.311472
AG	-0.408032	1.000000	-0.100995	-0.450077	0.328236	-0.732930	0.026686	0.041932
FS	-0.438438	-0.100995	1.000000	-0.301953	0.445096	-0.319506	0.062130	0.659009
FE	0.230540	-0.450077	-0.301953	1.000000	-0.823624	0.761620	0.004700	-0.335008
OS	-0.388131	0.328236	0.445096	-0.823624	1.000000	-0.811526	0.015879	0.499164
IS	0.468049	-0.732930	-0.319506	0.761620	-0.811526	1.000000	-0.049738	-0.426299
SR	-0.217167	0.026686	0.062130	0.004700	0.015879	-0.049738	1.000000	0.082387
ST	-0.311472	0.041932	0.659009	-0.335008	0.499164	-0.426299	0.082387	1.000000

Table 4.16 indicates the PCCs for period (2007-2011) between variables. It shows that only two variables have positive correlation with cumulative abnormal return. These are; foreign ownership=0.231weak strength and institutional shareholding= 0.468 with moderate strength. The rest have negative correlation; age = -0.408 with moderate strength, firm size= -0.438 with a moderate strength, offer size= -0.388 with a moderate strength, stock return= -0.217 with a small strength and stock turnover= -0.311 with a moderate strength. All the variables are retained in the model as they do not present a multi-co-linearity problem.

Table 4.17: Descriptive Statistics (2008-2012)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	-0.222500	37.00000	5.42E+09	0.159710	1.31E+08	0.260010	-220.4420	36201987
Median	-0.740000	41.00000	4.33E+09	0.086350	29834619	0.197650	-229.7300	32044175
Maximum	30.53000	53.00000	1.65E+10	0.393700	5.10E+08	0.748000	1149.050	1.27E+08
Minimum	-22.25000	13.00000	1.28E+08	0.011700	3695645.	0.000000	-1595.510	1946880.
Std. Dev.	11.30439	13.78405	4.82E+09	0.160267	1.97E+08	0.258527	1150.373	30955127
Skewness	0.687157	-0.799168	0.717206	0.418831	1.158083	0.667565	0.003500	1.301362
Kurtosis	4.414209	2.163682	2.709636	1.416254	2.382481	2.189110	1.299226	4.689325
Jarque-Bera	3.240608	2.711754	1.784873	2.674939	4.788293	2.033431	2.410566	8.023324
Probability	0.197839	0.257721	0.409656	0.262509	0.091251	0.361781	0.299607	0.018103
Sum	-4.450000	740.0000	1.08E+11	3.194200	2.63E+09	5.200200	-4408.840	7.24E+08
Sum Sq. Dev.	2427.994	3610.000	4.41E+20	0.488023	7.34E+17	1.269887	25143784	1.82E+16
Observations	20	20	20	20	20	20	20	20

Table 4.17 Descriptive statistics 2008-2012 provides the summary of descriptive statistics of output and predictor variables. The dependent CAR reflects the value of return on long return for firms that issued equity of the period stated above with a mean of -.23 with SD of 11.30.This shows fairly wide dispersion around the mean. The return of -0.22% is a reflection of financial crisis that was experienced in 2008. Skewness of the explanatory variables are all superior to zero including CAR except age which is -0.799. All the explanatory variables are right skewed. The kurtosis of; age, establishment's Size, offer size, foreign ownership and stock return lie below 3 which means that these variables are flatter with a wider peak and fall within the level of normality according to (Cohen,2013). The other two; CAR and stock turnover are above 3 a reflection of leptokurtosis. Jarque Bare further test on normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.18: Correlation Coefficients (2008-2012)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	0.264164	0.087277	-0.157264	-0.011140	0.037826	0.055015	-0.337036
AG	0.264164	1.000000	0.444065	-0.370887	0.183969	0.111130	0.051834	-0.658214
FS	0.087277	0.444065	1.000000	-0.784561	0.226207	0.711372	-0.049887	0.077642
FE	-0.157264	-0.370887	-0.784561	1.000000	-0.504644	-0.612884	-0.062470	-0.030327
OS	-0.011140	0.183969	0.226207	-0.504644	1.000000	-0.242453	0.015766	0.119931
IS	0.037826	0.111130	0.711372	-0.612884	-0.242453	1.000000	0.062907	-0.028159
SR	0.055015	0.051834	-0.049887	-0.062470	0.015766	0.062907	1.000000	-0.111964
ST	-0.337036	-0.658214	0.077642	-0.030327	0.119931	-0.028159	-0.111964	1.000000

Table 4.18 indicates the PCCs for period (2008-2012) between variables. It shows that four variables have positive correlation with cumulative abnormal return. These are; age= 0.264, firm size= 0.087, institutional shareholding= 0.038, and stock return= 0.055.The strength of the relationship is weak although positive. Three other variables have negative coefficients. These are foreign shareholding= -0.157, offer size= -0.011 and stock turnover= -0.337. The relationship is weak except for stock turnover which has a moderate strength. All the variables are retained in the model since they do not present multi-co-linearity problem

Table 4.19: Descriptive Statistics (2009-2013)

Statistics	CAR	AG	FZ	FE	OS	IS	SR	ST
Mean	2.485500	39.75000	1.26E+11	0.143722	1.02E+10	0.318341	255.9680	7.12E+08
Median	1.130000	46.00000	9.32E+09	0.030600	3.90E+08	0.076600	786.5400	2.55E+08
Maximum	19.18000	55.00000	1.82E+12	0.450000	4.00E+10	0.776500	1149.050	3.78E+09
Minimum	7.600000	12.00000	2.02E+08	0.000230	470000.0	0.000000	-1335.380	18169675
Std. Dev.	7.760344	15.59985	4.01E+11	0.184351	1.76E+10	0.325868	948.6072	1.06E+09
Skewness	0.581825	-1.014131	4.027492	0.903260	1.153071	0.274265	-0.760091	1.702832
Kurtosis	2.368772	2.266488	17.50516	2.026094	2.332032	1.185162	2.015983	4.789989
Jarque-Bera	1.460441	3.876570	229.4021	3.510007	4.803727	2.995436	2.732702	12.33551
Probability	0.481803	0.143951	0.000000	0.172907	0.090549	0.223640	0.255036	0.002096
Sum	49.71000	795.0000	2.52E+12	2.874430	2.04E+11	6.366820	5119.360	1.42E+10
Sum Sq. Dev.	1144.236	4623.750	3.05E+24	0.645722	5.91E+21	2.017614	17097257	2.13E+19
Observations	20	20	20	20	20	20	20	20

Table 4.19 Descriptive statistics 2009-2013 provides the summary of descriptive statistics of output and predictor variables. The dependent CAR has a mean of 2.9 reflecting the value of return on long return for establishments that issued equity in the period of 2.9%. This has a SD of 7.76 which reflects fairly moderate dispersion around the mean. Skewness of the explanatory variables are all superior to zero CAR=0.582, firm size= 4.027, foreign ownership=0.903 offer size=1.15, institutional shareholding =0.274 stork turnover=1.70. However stock return (-0.760) and age (-1.014) have negative skewness. The kurtosis of; CAR=2.37, age =2.27, offer size=2.33, foreign ownership=2.03, and Stock return=2.016 and Institutional shareholding=1.19 are all below 3 which means that these variables are flatter with a wider peak. The other two; firm size=17.5 and stock turnover= 4.79 are above 3 a reflection of leptokurtosis. Jarque Bare further test on normality using chi square statistics shows that all the variables have values greater than 0.05 indicating that the variables have normal distribution and that the calculated skewness and kurtosis values do not move off from the norms of 0 and 3 in that order (Gujarati & Porter, 2009).

Table 4.20: Correlation Coefficients (2009-2013)

Variables	CAR	AG	FZ	FE	OS	IS	SR	ST
CAR	1.000000	0.232893	-0.174925	-0.113871	-0.231254	0.252727	0.417320	-0.161470
AG	0.232893	1.000000	-0.452707	-0.875903	-0.978838	0.423609	0.025506	-0.816921
FS	-0.174925	-0.452707	1.000000	0.426852	0.444286	-0.291840	-0.080472	0.051401
FE	-0.113871	-0.875903	0.426852	1.000000	0.950198	-0.710778	0.018590	0.869768
OS	-0.231254	-0.978838	0.444286	0.950198	1.000000	-0.568339	0.002248	0.868544
IS	0.252727	0.423609	-0.291840	-0.710778	-0.568339	1.000000	-0.069979	-0.558361
SR	0.417320	0.025506	-0.080472	0.018590	0.002248	-0.069979	1.000000	-0.083857
ST	-0.161470	-0.816921	0.051401	0.869768	0.868544	-0.558361	-0.083857	1.000000

Table 4.20 indicates the PCCs for period (2009-2013) between variables. It shows that three variables have positive correlation with cumulative abnormal return. These are; age =0.233, institutional shareholding= 0.253 these have weak relationship and stock return 0.417 with moderate relationship. Whereas firm size= -0.175, foreign ownership= -0.114, offer size= -0.231 and stock turnover= -161 have negative and weak relationship. Each variable is held in the model because they do not present multi-co-linearity problem**.**

4.3.1 Summary of Results of Descriptive Statistics

In majority the clusters, the study has shown that the mean for each variable has been positive. The SD for majority of cases has had moderate dispersion. Skewness of explanatory variables showed that they are superior to zero. Kurtosis of the variables were around three and only a few were above three. Jarque Bare test on normality also confirmed that the variables have a normal distribution.

4.3.2 Summary of Pearson Correlation Coefficients

The PCCs results for most clusters are positive but medium in size according to Cohen (2013) rating. A few of the variables were negative directionally.

4.4 Model Specification

Model specification test is necessary in order to avoid a spurious regression model which emanates from the regression of too many explanatory variables on a single dependent variable (Gujarati & Porter, 2009). Using panel data allowed the researcher to control for variables that are not observable or measurable over time across entities. Panel data accounts for individual heterogeneity. Three techniques were tested in order to determine which specification model was appropriate (pooled OLS model, fixed effects model or random effects model) for analysis of data. The researcher used Hausman model specification test.

Random effects model is based on the assumption that change across entities is random and is unconnected with the predictor encompassed in the model. Fixed effects model explores the link between predictor and outcome variables in an object. When the fixed effects model is applied, it is presumed that something within the individual variable can impact on the predictor therefore the need to control for this (Torres-Reyna, 2014).These time invariant attributes are distinctive to individuals and ought not be linked with individual attributes and applies to both the error(s) term and u term. In order to overcome the above problem, the researcher used Hausman specification test to identify whether, fixed effects model, random effect model or pooled OLS was the suitable model. The Hausman specification test is on the basis of the following hypothesis and decision rule:

Hypothesis;

H_0: variance in coefficients is unsystematic (Random effects)

Ha: variance in coefficients is systematic (Fixed effects)

The test required calculation of the Hausman chi-square statistic by computation of the beta coefficients of both the fixed effect (b) and of the random effect (B) and determining the differences and further a covariance matrix of the difference vector.

Decision Rule:

If the p-value of chi square is over 0.05 then H_0 is not overruled.

However if the p-value of chi-square is below 0.05 then H_0 is overruled.

Table 4.21: Hausman Test on Cluster (1994-1998)

Variable	**(b) Fixed**	**(B) Random**	**(b-B) Difference**	**Sqrt (diag (V_b-V-B)) S.E**
Ln Firm Size	7.236359	33.52146	-26.2851	23.09525
Ln Offer Size	-30.92055	-20.05044	-10.87011	15.08701
Ln Stock tur'r	1-18.24615	-13.75356	-4.4925	10.29876
Stock return	.0045689	.0046032	-.0000342	.0007973
Foreign Shs-s	-412.678	-127.3509	-285.3271	258.7347

B= inconsistent in Ha, efficient in Ho; taken from xtreg

Test: Ho: variance in coefficients unsystematic

Chi2 (4) = (b-B)' [(V_b-V_B) ^ (-1)] (b-B)

= 1.96

Prob >Chi2 = 0.7430

The result of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.7430. This is greater than p-value= 0.05 thus H_0 is not overruled and REM is appropriate.

Table 4.22: Hausman Test on Cluster (1995-1999)

variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt (diag (V_b-V_B)) S.E
Ln Firm Size	-8.703057	-8.294154	-.4089024	2.423259
Ln Offer Size	.3456342	3.754967	-3.409333	12.448
Ln Stock ‘vo	-1.253324	-.9038414	-.3494827	1.7936
Stock return	-.011944	-.0140642	.0021202	.0039928
Foreign_sh-s	-10.6026	42.47437	-53.07697	60.48629

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi2 (4) = (b-B) ´ [(V_b-B) ^ (-1)] (b-B)

= 0.81

Prob.>Chi2 = 0.9367

The result of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.9367. This is greater than p-value 0.05 thus H_0 is not overruled and REM is appropriate.

Table 4.23: Hausman Test on Cluster (1997-2001)

Variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt. (diag(V_b-V_B)) S.E
Ln Firm Size	-4.844504	-1.045184	-3.79932	10.23943
Ln Offer Size	-10.18023	-8.582361	-1.597872	11.6722
Ln Stock turnover	-2.373836	-2.338805	-.0350311	.9975331
Stock return	.001717	.0031266	.0014096	.0082456
Share O by institutions.	72.82251	89.56407	-16.74155	171.6214
Foreign owned shares	24.0178	192.4087	-168.3909	299.5448

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi2 (5) = (b-B)' [(V_b-V_B) ^ (-1)] (b-B) = 0.33

Prob.>chi2 = 0.9971

The result of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.9971. This is greater than 0.05 thus H_0 is not overruled and random effect model is appropriate.

Table 4.24: Hausman Test on Cluster (1998-2002)

Variables	(b) Fixed	(B) Random	(b-B) Difference	Sqrt.(diag(V_b-V-B SE
Ln Firm Size	-4.844504	-1.045184	-3.79932	10.23943
Ln offer size	-10.18023	-8.582361	-1.597872	11.6722
Ln stock turnover	-2.373836	-2.338805	-.0350311	.9975331
Stock return	.001717	.0031266	-.0014096	.0082456.
Institutions	72.82251	89.56407	-16.74155	171.6214
Foreign shares	24.0178	192.4087	-168.3909	299.5448

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi2 (5) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B) = 0.33

Prob.>chi2 = 0.9971

The result of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.9971. This is greater than 0.05 thus H_0 is not overruled and random effect model is appropriate

Table 4.25: Hausman Test on Cluster (1999-2003)

Variables	**(b) Fixed**	**(B) Random**	**(b-B) Difference**	**Sqrt(diag(V_b-V_B)) S.E**
Ln Firm Size	10.608	15.64367	-5.035671	104.2382
Ln offer Size	11.4359	.8650026	10.5709	218.3267
Ln stock turnover	2.770428	-2.174406	4.944834	102.4232
Stock return	.111386	.0203417	-0.009203	.1900039
Shares owned by Institutions	375.7727	264.1798	111.5929	2325.72
Shares owned by Foreigners	-4583.188	2242.065	-6825.253	140863.8

b = consistent in H_0 command Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi 2 (3) = (b-B) '[(V b-V_B) ^ (-1)] (b-B)

= 0.00 Prob. >chi2 = 1.0000

The result of the test as shown above indicates that the variation in coefficients is unsystematic because p-value of chi2 is 1.000. This is more than 0.05 thus H_0 is not overruled and random effect model is appropriate**.**

Table 4.26: Hausman Test on Cluster (2001-2005)

Variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Ln Firm Size	.8051014	.8658778	-.0607764	7.590009
Ln Offer Size	-362548.4	-3.524016	-362544.9	3757256
Ln Stock tur ˜ r	2.010143	2.035788	-.0256455	4.831018
Stock return	.0010055	.0013738	-.0003684	.0075333
Foreign_sh ˜ s	5.112819	13.16405	-8.051232	215.1737

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi2 (1) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B)

= 0.01

Prob>chi2 = 0.9231

(V_b-V_B is not positive definite)

The outcomes of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi^2 is .9231. This is over 0.05 thus H_0 is not overruled and random effect model is appropriate.

Table 4.27: Hausman Test on Cluster (2002--2006)

Variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Ln Firm Size	2.632503	2.632503	-7.01e^{-10}	
Ln Stock tturver				
Stock return	-2.963149	-2.963149	2.04e^{-10}	.
Foreign_sh ˜ s	-.00129	-.00129	8.51e^{-14}	.
	-566.8496	-566.8496	1.14e^{-07}	.

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi 2(1) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B)

= -0.00

Chi2<0 ==> model fitted on these data does not satisfy of the Hausman test's Asymptotic assumptions; see suest for simplified test.

The results of the test as shown above indicates that the variation in coefficients is neither systematic nor unsystematic and p-value of chi2 cannot be estimated. This means neither random nor fixed effects are appropriate. Therefore pooled OLS is the appropriate model

Table 4.28: Hausman Test on Cluster (2007-2011)

Variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag(V_b-V_B))S.E.
ln Firm Size	-3.895742	.3643949	-4.2601367	1.268245
ln Offer Size	-27.12894	1.610098	-28.73904	28.61461
ln Stock turnover	-.1373482	-1.764074	1.626726	.
Stock return	.0005228	-.0019908	.0025135	.
Share Owed inst.	871.4266	72.49449	798.9321	382.9302
Foreign owned share	179.8715	-.9405986	180.8121	85.00259

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi 2(1) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B)

= 0.92

Prob.>chi2 = 0.9687

(V_b-V_B is not positive definite)

The outcomes of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.9687. This is over 0.05 thus H_0 is not overruled and random effect model is appropriate model.

Table 4.29: Hausman Test on Cluster (2008-2012)

Variables	(b) Fixed	(B) Random	(b-B) Difference	sqrt(diag S.E.	(V_b-V_B))
Ln Firm Size	-2.215361	-4.594171	2.378811	8.585189	
Ln Offer Size	7.653665	-3.238248	10.89191	124.5925	
Ln Stock tur ˜ r	-1.16988	-2.828098	1.658219	4.8414	
Stock return	-.0004554	-.0005052	.0000498	.0015661	
Share Owed inst.	-26.65494	-17.10397	-4.550973	17.02877	
Foreign_sh ˜ s	-118.0667	-94.4341	-23.63256	77.30406	

b = consistent in H_0 and Ha; sourced from xtreg

B = inconsistent in Ha, efficient in H_0; sourced from xtreg

Chi 2 (5) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B) = 0.16

Prob.>chi2 = 0.9995

The result of the test as shown above indicates that the variation in coefficients is unsystematic and p-value of chi2 is 0.9995. This is over 0.05 thus H_0 is not overruled and random effect model is appropriate.

Table 4.30: Hausman Test on Cluster (2009-2013)

Variables	(b) V_B))	(B)	(b-B)	sqrt(diag(V_b-
	Fixed	Random	Difference	S.E.
Ln Firm Size	-.1578098	.6874771	-.8452869	.
Ln Offer Size	-5645175	-1.54259	2.107108	2.026154
Ln Stock turnover	-1.062414	1.232876	-2.295291	2.008412
Stock return	.0038737	.00348	0003862	
Share Owed inst.	-.33.2362	20.03028	13.20591	6.87192
Foreign owned shares	120.4387	33.91717	86.52155	36.77615

b = consistent in H_0 and Ha; taken from xtreg

B = inconsistent in Ha, efficient in H_0; taken from xtreg

Chi 2 (5) = (b-B) '[(V_b-V_B) ^ (-1)] (b-B) = 11.32

Prob.>chi2 = 0.0453

(V_b-V_B is not positive definite)

The outcome of the test as shown above indicates that the variation in coefficients is systematic since the p-value of chi2 is 0.04531 and is below 0.05 hence H_0 is overruled and fixed effects model is suitable model.

4.5 Summary of Hausman Test

Table 4.31 below gives a summary of Hausman test results for all the ten clusters that were tested for the study, showing which model was appropriate for each cluster.

Table 4.31: Summary of Hausman Test Results

Year	chi= (b-B)'[(V_b-V_B)^(-1)](b-B)	Prob>chi2	Estimation
1994	1.35	0.8523	Random effect
1995	1.19	0.88	Random effect
1997	0.33	0.9971	Random effect
1998	21.41	0.0007	Fixed effect
1999	0	1	Random effect
2001	0.01	0.9231	Random effect
2002	-	-	Pooled OLS
2007	0.92	0.9687	Random effect
2008	0.16	0.9995	Random effect
2009	11.32	0.0453	Fixed effect

A summary of the outcomes is indicated on Table 4.31 above that gives the appropriate models used: random effects, fixed effects or pooled OLS models. Hausman test results show that data aggregate for majority of the firms were estimated by random effects model in the following clusters; 1994-1998,1995-1999,1997-2001,1999-2003,2001-2005,2007-2011, and 2008-2012. The fixed effects model was applicable for firms that were clustered 1998-2002 and 2009-2013.Firms which were clustered in period 2002-2005 were estimated by pooled OLS. Panel unit root test and panel co-integration test were not undertaken since data set is of small time dimension.

4.6 Firm Size, Offer Size, Stock Return, Stock Turnover, Foreign Ownership and Institutional Ownership

Following the Hausman test on the independent variables per each cluster, the researcher was able to formulate individual equation for each cluster depending on the model which was appropriate. These are given below:

4.6.1 Panel Data Regression Analysis

Panel data analysis was employed in this investigation to ascertain the link between the selected microeconomic factors and cumulative average capital market returns. Panel data has several major advantages. Ozturk and Yilma, (2015) posit that, when data is pooled, the panel analysis enhances parameter estimates' accuracy and hence allowing more levels of freedom and variability of sample. Also, using panel data in analysis makes the study more flexible in causing variations as regards behavior across the panel members (Green &Hensher, 2010). Lastly, Kunst (2010) avers that there is more reliability in panel data analysis than in time series or cross section data sets because the variables' individual specific attributes can be tracked.

4.6.2 Panel Least Square Regression Analysis

The investigation utilized multiple regression model for analysis. The ten regressions in the study presuppose that the regressions on ten time periods are not the same: that is, the intercept and the gradient coefficients are not the same as pointed out by the subscripted parameters. These are shown in the Table 4.32 as follows: $CAR=-\alpha+\beta FS_{it}+\beta OS_{it}+\beta ST_{it}+\beta SR_{it}+\beta\ IS_{it}+\beta FE_{it}+\beta AG_{it}+\dot{\varepsilon}$

Where, CAR_{it} is cumulative average return for each firm (*i*) over a given time period (*t*).

α = constant (intercept, measures the mean value of dependent variable).

β=coefficient of the independent variable

FS= natural logarithm of firm size

OS= natural logarithm of offer size

ST= natural logarithm of stock turnover

SR= annual stock return

IS=institutional share ownership

FE= foreign Share ownership

AG= age of the firm since founded.

ἐ = error term.

Table 4.32: Summary of Model Equation by Clusters

Model Year	Equation Type	Equation Model
1994-1998	Random	Ln CAR=-171.9+ 33.52FS-20.05OS+13.75ST+0.00460SR-127.4FE+ἐ
1995-1999	Random	Ln CAR=117.6-8.294FS+3.755OS-0.904SR-0.041ST+42.47FE+ ἐ
1997-2001	Random	Ln CAR=174.9-1.045FS-8.58OS-2.34ST+0.003+192.4FE+89.56IS+ ἐ
1998-2002	Fixed	Ln CAR=65.00+7.92FS+23.94OS+6.79ST+0.01SR+65.54FE+1.29IS+ ἐ
1999-2003	Random	Ln CAR=385.8+15.64FS+0.87OS+2.174ST+0.02SR+2.24FE+264.2IS+ ἐ
2001-2005	Random	Ln CAR=-385.8+15.64FS+0.86OS-2.17ST+0.02SR+264.2IS+2.24FE+ ἐ
2002-2006	Pooled	Ln CAR=-1.163+2.63FS+86.67OS-2.96ST-0.002SR-12.257IS-566.8FE+ ἐ
2007-2011	Random	Ln CAR=-15.97+0.364FS+1.61OS-1.764ST-.002SR+72.49IS-0.94FE+ ἐ
2008-2012	Random	Ln CAR=222.8-4.594FS-3.238OS-2.828ST-0.00051SR-17.1IS-94.43FE+ ἐ
2009-2013	Fixed	Ln CAR=-20.66+0.687FS-1.543OS+1.233ST+00349SR+20.03IS+33.92FE+ ἐ

4.7 Diagnostic Tests

4.7.1 Diagnostic Tests on the Four Models Used

Razali and Wah (2011) note that parametric statistical procedures using correlations and regressions are on the basis of the assumption that goes along with a normal distribution such that there is no violation of the assumptions, otherwise there would be unreliable interpretation and inference making. By not meeting these assumptions, either type I or type II errors may be committed. The investigation carried out the following tests: Normality, Multi-co-linearity, Heteroscedasticity and Autocorrelation.

4.7.2 Normality Test

Normality test is done to ascertain if data is appropriately shown using normal distribution. This is depicted by the use of descriptive statistic which shows the

goodness of fit. It is especially useful in hypotheses tests when data is tested against the null hypothesis. Normality test is carried out based on the normality classical assumption in linear model estimation that the disturbance term follows a Gaussian distribution. In cross-sectional analysis, the data is in a single level with only one component. For panel data, it is essential for the researcher to test normality on the basis of both within and between components that could cause it. Testing normality plays a key role in forecasting models in firm level.

The researcher tested normality of the variables which is the entity specific errors within groups and normality on u that is the normality of the remainder or overall error term. For the sample to have normality the expected skewness has to be approximately zero and expected kurtosis has to be 3 or less (Gujarati &Porter, 2009).

The following hypothesis was tested using Normality Test. This was applied in all clusters

Hypothesis:

H_0: Error term has normal distribution

H_1: Error term does not have normal distribution

Decision Rule:

H_0: is not overruled if the p-value is over 0.05

H_1: is rejected if p-value is less than 0.05

Table 4.33: Normality Test (1994-1998)

	Number of obs = 15 Replications = 433 (Replications based on 3 clusters in ID)					
	Observed Co-ef.	**Bootstrap Std. Err.**	**Z**	**Normal-based P>|Z|**	**[95% Conf.**	**Interval]**
Skewness_e(within)	2203.808	3172.86	0.69	0.487	-4014.883	8422.499
Kurtosis_e	247490.4	96359.78	2.57	0.010	58628.7	436352.1
Skewness_u(between)	-187.3656	17.71041	-10.58	0.000	-222.0774	-152.6538
Kurtosis_u	31105.73	1279.239	24.32	0.000	28598.47	33612.99

Joint test for Normality on e: chi2(2) = 7.08 Prob>chi2 = 0.0290
Joint test for Normality on u:chi2(2) = 703.18 Prob>chi2 = 0.0000

The skewness and kurtosis give information regarding the pattern of return. e gives information about firm specifics and gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=2203.808, kurtosis e=247490.4, skewness u=-187.3658 and kurtosis u=31105.73.These are used to measure symmetry and kurtosis for all error elements. Joint test for normality on every error term element and corresponding p-values are given. The test indicates that both elements are asymmetric with accurate symmetry only whereas the individual specific has excess kurtosis. As a result of asymmetry null hypothesis is rejected**.**

Table 4.34: Normality Test (1995-1999)

				Number of observations	= 15	
				Replications	= 433	
	(Replications based on 3 clusters in ID)					
	Observed	Bootstrap			Normal-based	
	Coef.	Std. Err.	Z	P>|Z|	[95% Conf.	Interval]
Skewness e	17.09261	54.63987	0.31	0.784	-89.99956	124.1848
Kurtosis e	-2428.837	992.8193	-2.45	0.014	-4374.727	-482.9472
Skewness u	-1.617281	.3472854	-4.66	0.000	-2.297948	-.9366144
Kurtosis u	659.3496	20.0625	32.86	0.000	620.0278	698.6714

Joint test for Normality on e: chi2(2) = 6.08 Prob. >chi2 = 0.0478
Joint test for Normality on u: chi2(2) = 1101.78 Prob.>chi2 = 0.0000

The skewness and kurtosis give information regarding the pattern of return. e gives information about firm specifics and u gives information about the remainder components. The skewness and kurtosis give information regarding the pattern of return. The output shows coefficient of the four statistics: Skewness e=17.09261, kurtosis e=-2428.837, skewness u=-1.617281 and kurtosis u=659.3496 employed to measure symmetry and kurtosis for every error element. Joint test for normality on every error term element and corresponding p-values are given. The tests indicate that both terms are asymmetric with accurate symmetry whereas only the remainder term *u* has excessiveness of skewness. As a result of asymmetry null hypothesis is rejected. Therefore the data does not have normal distribution.

Table 4.35: Normality Test (1997-2001)

Number of obs = 15
Replications = 321
(Replications on the basis of 3 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf.	Interval]
Skewness_ e	17.67263	8.03294	2.20	0.028	1.928356	33.4169
Kurtosis _e	91.81808	39.32616	2.33	0.020	14.74023	168.8959
Skewness _u	-1.472744	.0441415	-33.36	0.000	-1.55926	-1.386228
Kurtosis- u	19.3953	.7083934	27.38	0.000	18.00688	20.78373

Joint test for Normality on e: chi2(2) = 10.29 Prob>chi2 = 0.0058
Joint test for Normality on u: chi2(2) = 1862.79 Prob>chi2 = 0.0000

The skewness and kurtosis give information pertaining to the pattern of return. e gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=17.67263, kurtosis e=91.81808, skewness u=-1.472744 and kurtosis u=19.3953.73. Skewness is utilized for symmetry and kurtosis for every error element. Joint test for normality on every error term element and corresponding p-values are given. The tests indicate that both elements are asymmetric with accurate symmetry whereas just the individual specific has excessiveness of kurtosis. As a result of asymmetry, null hypothesis is overruled. Therefore the variables do not have normal distribution.

Table 4.36: Normality Test (1998-2002)

Number of obs = 15
Replications = 321
(Replications based on 3 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf. Interval]	
Skewness—e	207.9517	86.01021	2.42	0.016	39.37474	376.5286
Kurtosis - e	6987.46	1994.075	3.50	0.000	3079.145	
Skewness --u	10895.78					
Kurtosis –u	-17.30226	.46149965	-37.49	0.000	-18.20677	-16.39774
	1092.136	36.14109	30.22	0.000	1021.301	1162.972

Joint test for Normality on e: chi2(2) = 18.12 Prob>chi2 = 0.0001
Joint test for Normality on u: chi2(2) = 2318.79 Prob>chi2 = 0.0000

The skewness and kurtosis give information concerning the pattern of return. e gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=207.9517, kurtosis e=6987.46, skewness u=-17.30226 and kurtosis u=1092.136 utilized for symmetry and kurtosis for every error element. Joint test for normality on every error term element and corresponding p-values are given. The test indicates that both elements are asymmetric with accurate symmetry whereas just the remainder has excessiveness of kurtosis. As a result of asymmetry null hypothesis is overruled. Hence the error components are not normally distributed.

Table 4.37: Normality Test (1999-2003)

Number of obs = 15
Replications = 327
(Replications on the basis of 3 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf. Interval]	
Skewness _e	232.2783	122.5383	1.90	0.058	-7.892389	472.449
Kurtosis e	-21522.88	5702.894	-3.77	0.000	-32700.34	-10345.41
Skewness _u	-19.35054	.671304 8	-28.83	0.000	-20.66627	-18.03481
Kurtosis _u	5487.433	41.75846	131.41	0.000	5405.588	5569.279

Joint test for Normality on e: chi2(2) = 17.84 Prob>chi2 = 0.0001
Joint test for Normality on u: chi2(2) = 18099.19 Prob>chi2 = 0.0000

The skewness and kurtosis provide information about the pattern of return. e gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=232.2783, kurtosis e=-21522.88, skewness u=-19.35054 and kurtosis u=5487.433 utilized for symmetry and kurtosis for every error element. Joint test for normality on every error term element and corresponding p-values are given. The test indicates that both elements are asymmetric with accurate symmetry whereas just the individual specific has excessiveness of kurtosis. As a result of asymmetry null hypothesis is overruled. Hence the error components are not normally distributed.

Table 4.38: Normality Test (2001-2005)

Number of obs = 10
Replications = 234
(Replications on the basis of 3 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf.	Interval]
Skewness_e	123.8571	.	.	.	.	.
Kurtosis_e	-8372.448	.	.	.	.	.
Skewness_u	-10.32142	.	.	.	.	.
Kurtosis_u	1441.94	.	.	.	.	.

Joint test for Normality on e: chi2 (2) = Prob>chi2 = .
Joint test for Normality on u: chi2 (2) = Prob>chi2 = .

The skewness and kurtosis give information pertaining to the pattern of return. E gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=123.8571, Kurtosis e=-8372.448 Skewness u= -10.32142 and Kurtosis u= 1441.94. Joint test for normality on every error term element and corresponding p-values are not given. Therefore no conclusion on the error terms can be reached.

Table 4.39: Normality Test (2002-2006)

Number of obs = 15
Replications = 104
(Replications on the basis of 3 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	Normal-based P>|Z|	[95% Conf. Interval]
Skewness_e	263.7006	.	.	.	.
Kurtosis_e	7314.308	.	.	.	.
Skewness_u	-21.97505	.	.	.	.
Kurtosis_u	600.9257	.	.	.	.

Note: one or more parameters were unable to be projected in 396 bootstrap replicates;
Standard-error estimations comprise just whole repetitions.
Joint test for Normality on e: chi2 (2) = Prob>chi2 = .
Joint test for Normality on u: chi2 (2) = Prob>chi2 =

The skewness and kurtosis give information regarding the pattern of return. E gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=263.7006, kurtosis e=7314.308, skewness u=-21.97505 and kurtosis u=600.9257 utilized for symmetry and kurtosis for every error element. Joint test for normality on error term element and corresponding p-values are not given therefore it is not possible to either overrule or not to overrule the null hypothesis.

Table 4.40: Normality Test (2007-2011)

Number of obs = 20
Replications = 490
(Replications on the basis of 4 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf. Interval]	
Skewness_e	-274.3515	175.8802	-1.56	0.119	-619.0704	
Kurtosis_e	70.36743					
Skewness_u	18593.03	3588.585	5.18	0.000	11559.53	
Kurtosis_u	25626.53					
	21.90501	.402715	54.39	0.000	21.1157	
	22.69431					
	159.5108	50.59292	3.15	0.002	60.35049	
	258.6711					

Joint test for Normality on e: chi2 (2) = 29.28 Prob>chi2 = 0.0000
Joint test for Normality on u: chi2 (2) = 2968.57 Prob>chi2 = 0.0000

The skewness and kurtosis give information pertaining to the pattern of return. E gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=-274.3515, kurtosis e= 18593.03, skewness u=21.90501 and kurtosis u=159.5108 utilized for symmetry and kurtosis for each error component. Joint test for normality on every error term element and corresponding p-values are given. The tests indicate that both elements are asymmetric with accurate symmetry. As a result of asymmetry null hypothesis is overruled. Hence the error term components are not normally distributed.

Table 4.41: Normality Test (2008-2012)

Number of obs = 20
Replications = 490
(Replications on the basis of 4 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf.	Interval]
Skewness_e	333.3907	319.4175	1.04	0.297	-292.6561	
Kurtosis_e	70.36743					
Skewness_u	24267.93	18216.53	1.33	0.183	-11435.82	
Kurtosis_u	25626.53					
	-27.7824	.9329434	-29.78	0.000	-29.61094	
	22.69431					
	3041.666	153.0018	19.88	0.000	2741.788	
	3341.544					

Joint test for Normality on e: chi2 (2) = 2.86 Prob>chi2 = 0.238
Joint test for Normality on u: chi2 (2) = 1282.02 Prob>chi2 = 0.0000

The skewness and kurtosis give information pertaining to the pattern of return. U gives information about firm specifics and e gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=333.3907, kurtosis e=24267.93, skewness u=-27.7824 and kurtosis u=3041.666 utilized for symmetry and kurtosis for every error element. Joint test for normality on every error term elements and corresponding p-values are given. The test indicates that both elements are asymmetric with accurate symmetry whereas just the individual remainder element has excessiveness of kurtosis. As a result of asymmetry null hypothesis is overruled. Therefore the residuals do not have normal distribution.

Table 4.42: Normality Test (2009-2013)

Number of obs = 20
Replications = 490
(Replications on the basis of 4 clusters in ID)

	Observed Coef.	Bootstrap Std. Err.	Z	P>|Z|	Normal-based [95% Conf.	Interval]
Skewness_e	-12.72146	16.15645	-0.79	0.431	-44.38752	18.94461
Skewness_u	-305.1059	385.1124	-0.79	0.428	-1059.912	449.7004
Kurtosis_u	5.8026	3.070205	1.89	0.059	-.2148918	11.82009
	64.13821	16.76586	3.83	0.000	31.27773	96.998868

Joint test for Normality on e: chi2 (2) = 1.25 Prob>chi2 = 0.5359
Joint test for Normality on u: chi2 (2) = 18.21 Prob>chi2 = 0.0001

The skewness and kurtosis give information pertaining to the pattern of return. E gives information about firm specifics and u gives information about the remainder components. The output shows coefficient of the four statistics: Skewness e=2203.808, kurtosis e=247490.4, skewness u=-187.3658 and kurtosis u=31105.73 utilized for symmetry and kurtosis for every error element. Joint test for normality on every error term element and corresponding p-values are given. The test indicates that both elements are asymmetric with accurate symmetry only whereas the individual specific has excess kurtosis. As a result of asymmetry null hypothesis is overruled. Hence the residuals are not normally distributed.

4.7.3 Conclusion on Normality Test

In the case of panel data normality error terms are further tested if they are normally distributed using skewness and kurtosis on the basis of both specific error terms within and between components (e & u). This was done through the use of null hypothesis

testing following classical assumption in linear model. The study results were based on chi2. For all clusters e & u were found to have failed normality test.

4.7.4 Multi-co-linearity Test

Multi-co-linearity occurs if two or more independent variables (predictors) in the model are linked and give unnecessary information regarding response. It may be identified from R square between the combined predictor variables (Gujarati & Porter, 2009). This would result into increasing standard error of the β's leading to decreases in reliability of data and often brings confusion and misleading results. In order to ascertain this fact, the study tested data using Variance Inflation Factor (VIF), Tolerance and R^2. Multi-co-linearity becomes a problem when multiple regressions are used as it leads to bad regression model.

Hypothesis:

H_0: There exists no multi-co-linearity problem.

H_1: There exists a multi-co-linearity problem

Decision rules:

H_0: Is not rejected if VIF is less than10 meaning that there is no multi-co-linearity problem.

H_1: Is accepted if VIF is greater than10 implying that a major multi-co linearity problem exists (Baum, 2006)

Table 4.43: Multi-co-linearity Test (1994-1998)

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	1.81	1.42	0.5652	0.4001
Ln- FS	9.70	3.42	0.1003	0.8994
Ln- OS	3.67	2.61	0.2342	0.7621
Ln ST	1.42	1.31	0.8145	0.1752
Ln-SR	1.61	1.13	0.5789	0.4520
Ln-IS	-	-	-	-
Ln-FE	6.62	2.53	0.1550	0.8250

Mean VIF=5.47

Table 4.43 shows that cluster 1994-1998, the value of VIF is below 10 implying that multi-co-linearity problem does not exist. The tolerance also confirms this as in all cases the value is above .1. R square value is also not greater than .9 in any of the variables. Therefore there is no multicollinearity in this cluster.

Table 4.44: Multi-co-linearity Test (1995- 1999)

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	1.75	1.32	0.5719	0.4281
Ln- FS	9.94	3.15	0.1006	0.8994
Ln- OS	4.62	2.15	0.2166	0.7834
Ln ST	1.23	1.11	0.8159	0.1841
Ln-SR	1.77	1.33	0.5642	0.4358
Ln-IS	-	-	-	-
Ln-FE	6.90	2.63	0.1450	0.8550

Mean VIF= 4.37

Table 4.44 shows that VIF value is below 10, all Tolerance is over .1 and all R-squared values are not more than 0.9. In this case R-square values are less than 0.9.These are indications that the cluster has no multi-co-linearity problem

Table 4.45: Multi- co- linearity Test (1997-2001)

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	2.29	1.51	0.4373	0.5627
Ln- FS	20.37	4.51	0.0491	0.9509
Ln- OS	114.58	10.70	0.0087	0.9913
Ln ST	6.50	2.55	0.1538	0.8462
Ln-SR	1.44	1.20	0.6933	0.3067
Ln-IS	-	-	-	-
Ln-FE	99.69	9.98	0.0100	0.9900

Mean VIF= 40.81

Table 4.45 above shows that firm size, offer size and foreign share ownership have VIF values of more than 10. Tolerance is also low for firm size=0.0491, offer size=0.0087 and foreign share ownership=0.010. R square for these three variables; firm size =0.9503, offer size=0.9913and foreign share ownership=0.990. These indicators show that this cluster has multi-co-linearity problem (Gujarati & Porter, 2009).

Table 4.46: Multi- co- linearity Test (1998-2002

Vrariable	VIF	Sort VIF	Tolerance	R Square
CAR	3.59	1.83	0.2984	0.7016
Ln Firm Size	4.89	2.21	0.2043	0.7957
Ln Offer Size	5.42	2.33	0.1846	0.8154
Ln Stock Turnover	4.12	2.03	0.2428	0.7572
Stock Return	3.80	1.95	0.2630	0.7370
Shares owned by Inst.	267.09	16.34	0.0037	0.9963
Foreign _Shares	255.31	15.98	0.0039	0.9961

Mean VIF=77.74

Two variables; Shares owned by Institutions and shares owned by foreigners have VIF value of more than 10. The same two independent variables have R-square value of

more than 0.9 and tolerance value of less than 0.1. These are indications that this cluster has multi-co-linearity problem (Gujarati & Porter, 2009).

Table 4.47: Multi-co-linearity Test 1999-2003

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	3.35	1.83	0.2984	0.7016
Ln- FS	4.89	2.21	0.2043	0.7957
Ln- OS	5.42	2.33	0.1846	0.8154
Ln ST	4.12	2.03	0.2428	0.7572
Ln-SR	3.80	1.95	0.2630	0.7370
Ln-IS	267.09	16.34	0.0037	0.9963
Ln-FE	255.31	15.98	0.0039	0.9961

Mean VIF= 77.71

Table 4.47 Shows that this cluster has multi-co-linearity problem since two of the independent variables have the VIF value above 10, Tolerance value of below 0.1 and R square values over 0.9.Therefore there exists a multicollinearity problem.

Table 4.48: Multi-co-linearity Test (2001-2005)

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	1.27	1.13	0.7895	0.2105
Ln- FS	3.93	1.98	0.2543	0.7457
Ln- OS	5.45	2.33	0.1836	0.8164
Ln ST	8.58	2.93	0.1165	0.8835
Ln-SR	3.69	1.92	0.2711	0.7289
Ln-IS	-	-	-	-
Ln-FE	6.02	2.45	0.1661	0.8339

Mean VIF= 4.82

Table 4.48 Shows that this cluster has no multi-co-linearity problem since all the independent variables have the VIF values of below 10, Tolerance value of over 0.1 and all R square values are below 0.9.

Table 4.49: Multi-co-linearity Test 2002-2006

Variable	VIF	Sort VIF	Tolerance	R-Square
CAR	1.42	1.19	0.7033	0.2967
Ln- FS	9.08	3.01	0.1101	0.8899
Ln- OS	5392.73	73.44	0.0002	0.9998
Ln ST	21.91	4.68	0.0456	0.9544
Ln-SR	1.25	1.12	0.8014	0.1986
Ln-IS	40781.83	201.95	0.0000	1.0000
Ln-FE	17294.07	131.51	0.0001	0.9999

Mean VIF= 9071.76

Table 4.49 Shows that this cluster has multi-co-linearity problem since three of the independent variables; offer size, stock return and foreign ownership have VIF values greater than 10. Similarly Tolerance value for these three predictors are less than 0.1. Finally R square values for three independent variables are over 0.9. Hence the cluster has multi-co- linearity problem (Gujarati & Porter, 2009)

Table 4.50: Multi-co-linearity Test 2007-2011

Variables	VIF	Sort VIF	Tolerance	R-Square
CAR	1.51	1.23	0.6619	0.3381
Ln- FS	6.10	2.47	0.1638	0.8362
Ln- OS	11.30	3.36	0.0885	0.9115
Ln ST	1.88	1.37	0.5323	0.4677
Ln-SR	1.15	1.07	0.8680	0.1320
Ln-IS	3.90	1.97	0.2564	0.7436
Ln-FE	4.49	2.12	0.2228	0.7772

Mean VIF= 4.33

Table 4.50 Shows that this cluster has no multi-co-linearity problem since only one of the independent variables, offer size has VIF value greater than 10. Similarly Tolerance value for the predictor has value less than 0.1. Finally since only one variable has R square value which is greater than 0.9 the cluster is not affected. Therefore the cluster has no multi-co- linearity problem (Gujarati & Porter, 2009)

Table 4.51: Multi-co-linearity Test 2008-2012

Variables	VIF	Sort VIF	Tolerance	R-Square
CAR	1.36	1.16	0.7374	0.2626
Ln- FS	8.01	2.83	0.1249	0.8751
Ln- OS	5.03	2.25	0.1980	0.8020
Ln ST	2.98	1.73	0.3361	0.6639
Ln-SR	1.11	1.05	0.9021	0.0979
Ln-IS	5.39	2.36	0.1790	0.8210
Ln-FE	12.25	3.50	0.0916	0.9184

Mean VIF=5.19

Table 4.51 above shows that the data in cluster (2008-2012) does not suffer from multi-co-linearity. All predictor variables except foreign ownership have VIF value less than 10. The same applies to Tolerance value for all explanatory variables except foreign ownership which has a value less than 0.1. R square value for foreign share ownership is more than 0.9. Since only one independent variable shows multi-co-linearity, it has no influence on the overall result (Gujarati & Porter, 2009)

Table 4.52: Multi-co-linearity Test 2009-2013

Variables	VIF	Sort VIF	Tolerance	R-Square
CAR	1.99	1.41	0.5015	0.4985
Ln- FS	1.39	1.18	0.7198	0.2802
Ln- OS	5.29	2.30	0.1891	0.8109
Ln ST	5.11	2.26	0.1956	0.8044
Ln-SR	1.37	1.17	0.7288	0.2712
Ln-IS	4.42	2.10	0.2262	0.7738
Ln-FE	6.71	2.59	0.1491	0.8509

Mean VIF= 3.76

Table 4.52 for cluster (2009-2013) has no multi-co- linearity problem since no VIF value is greater than 10, no tolerance value is less than 0.1 and no R- square value is greater than 0.9.therefore there is no multicollinearity.

4.7.5 Conclusion on Multicollinearity Test

Multi-collinearity occurs in data where two or more of independent variables in a model are linked and give unnecessary information regarding responses. Multi-co-linearity can be identified by: VIF, Tolerance and R^2 resulting into a large standard error present in the data. Hypothesis tests were carried to determine if data had multicollinearity problem. The results from ten clusters found that there was no multicollinearity in 6 out of 10 clusters.

4.7.6 Heteroscedasticity Test

It is a problem when there is absence of constant variance in the error terms. Heteroscedasticity may be due to various factors like absence of an explanatory variable or the variables not having normal distribution. It may be due to skewness in the distribution of regressors included in the model or due to cross sectional data where

firms are of different sizes (Gujarati & Porter, 2009). White (1980) argues that heteroscedasticity influences the effectiveness of projected parameter and covariance matrix, distorting the outcomes of the hypotheses testing. Long and Laurie (1998) argue that heteroscedasticity problem in time series data and trend that undervalue the variance and standard errors, causing the unreliability both F- statistics' and *t* statistics' outcomes. Heteroscedasticity can be detected by applying Wald Test for a group wise using a chi-square statistics. Wald test is a simple way to test restrictions without having to estimate the restricted model. The principle is based on the idea that if a restriction is true, the unrestricted model should approximately satisfy the restriction. A large p-value for modified Wald test for group wise heteroscedasticity obtained means that there is no heteroscedasticity. A small p-value means that there is heteroscedasticity. The test was based on the following:

Hypothesis:

H_0: The error term exhibits significant group wise homoscedasticity.

H_1: The error term does not exhibit significant group wise homoscedasticity.

Decision rule under Wald test:

H_0: Is rejected if p-value of chi-square is below 0.05, meaning that there is heteroscedasticity.

H_1: Is accepted if p-value of chi-square is over 0.05 meaning that there is homoscedasticity.

Table 4.53: Heteroscedasticity Test (1994-1998)

H0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =9.41
Pro> $chi2$ = 0.0243

Table 4.53 above shows that the p-value of chi-square is below 0.05 therefore the null hypothesis is overruled and heteroscedasticity on firms exists in this cluster. This may be attributed to firms with different size within the model**.**

Table 4.54: Heteroscedasticity Test (1995-1999)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =2.19
Pro> $chi2$ = 0.534

Table 4.54 above shows that the p-value of chi-square is over 0.05 therefore the null hypothesis is not overruled and homoscedasticity on firms exists in this cluster**.**

Table 4.55: Heteroscedasticity Test (1997-2001)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =54.72
Pro> $chi2$ = 0.000

Table 4.55 above shows that the p-value of chi-square is below 0.05 therefore the null hypothesis is overruled and heteroscedasticity on firms exists in this cluster. This cluster may have different firm sizes in the cross-sectional data.

Table 4.56: Heteroscedasticity Test (1998-2002)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =20.40
Pro> $chi2$ = 0.0001

Table 4.56 above shows that the p-value of chi-square is below 0.05 therefore the null hypothesis is overruled and heteroscedasticity on firms exists in this cluster. Heteroscedasticity may be due to cross-sectional data having firms with different sizes.

Table 4.57: Heteroscedasticity Test (1999-2003)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =0.22
Pro> $chi2$ = 0.8945

Table 4.57 above shows that the p-value of chi-square is over 0.8945. This is over .05 therefore the null hypothesis is not rejected and homoscedasticity on firms exists in this cluster.

Table 4.58: Heteroscedasticity Test (2001-2005)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =525.60
Pro> $chi2$ = 0.000

Table 4.58 above shows that the p-value of chi-square is below 0.05 therefore the null hypothesis is overruled and heteroscedasticity on firms exists in this cluster. This may arise due to cross-sectional data where firms in the model are of different sizes.

Table 4.59: Heteroscedasticity Test (2002-2006)

H_0: sigma (i)^2= sigma^2 for all i

Chi2 (3) =3.59
Pro> $chi2$ = 0.4640

Table 4.59 above shows that the p-value of chi-square is 0.4640 and is over 0.05 therefore the null hypothesis is not overruled and homoscedasticity on firms exists in this cluster.

Table 4.60: Heteroscedasticity Test (2007-2011)

H_0: sigma (i)^2=sigma^2 for all i

Chi2 (3) =841.49
Pro> $chi2$ = 0.000

Table 4.60 above shows that the p-value of chi-square is below 0.05 therefore the null hypothesis is overruled and heteroscedasticity on firms exists in this cluster. Heteroscedasticity may be due to cross-sectional data in the model having firms with different sizes.

Table 4.61: Heteroscedasticity Test (2008-2012)

H_0: sigma (i)^2=sigma^2 for all i Chi2 (3) =4.22 Pro> $chi2$ = 0.3772

Table 4.61 above shows that the p-value of chi-square is 0.3772 and it is over 0.05 therefore the null hypothesis is not overruled and homoscedasticity on firms exists in this cluster.

Table 4.62: Heteroscedasticity test (2009-2013)

H_0: sigma (i)^2=sigma^2 for all i Chi2 (3) =9.41 Pro> $chi2$ = 0.0243

Table 4.62 above indicates that p-value of chi2 is below 0.05 hence the null hypothesis is overruled and heteroscedasticity exists in this cluster. The existence of heteroscedasticity may be due to data in firms which have different sizes (Gujarati & Porter, 2009).

4.7.7 Conclusion on Heteroscedasticity Test

The test on heteroscedasticity revealed that half of the clusters of the firms tested were homoscedastic and half were heteroscedastic. These heteroscedastic clusters could be as a result of certain important variables to the cluster being omitted from the model leading to error variance not being constant, this could also rise due to skewness in the distribution of regressors or due to cross-sectional data where firms are of different sizes (Gujarati & Porter, 2009). However to correct heteroscedasticity, the researcher used robust standard errors as depicted on table 4.80A & 4.80B below.

4.7.8 Autocorrelation Test

Autocorrelation test or (serial correlation test) is a test done to detect if there is similarity in time series over successive interval which can lead to understatement of standard error. In many cases where data is time series, regressions suffer from autocorrelation. The serial correlation test is on the basis of the classical assumption that the disturbance term is not auto correlated. In panel data analysis, the postulation is made that the panels exhibit first order autocorrelation of the disturbance term. Therefore it is a requirement that this is checked using appropriate statistical tool. This study used Wooldridge statistics to test if there is autocorrelation. A large p-value of Wooldridge LM test statistics means that there is no autocorrelation. A small p-value means that there is first order Autocorrelation In order to do this the researcher proposed the following hypothesis**;**

Hypothesis:

H_0: Panels exhibit first order autocorrelation

H_1: Panels do not exhibit first order autocorrelation

Decision rules:

H_0: Is not overruled if p-value of F-statistics is below 0.01, implying that autocorrelation problem does not exist**.**

H_1: Is rejected if p-value of the F- statistics is over 0.01, meaning that there is an autocorrelation problem. Woodridge estimation of autocorrelation in panel data**.**

Table 4.63: Autocorrelation Test (1994-1998)

F (1, 2) = 2.157
Prob.>F = 0.2797
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Projected covariance = 3 Number of obs = 15
Projected autocorrelation = 0 Number of groups = 3
Projected coefficient = 6 Time periods = 5
Wald chi2 (5) = 258.35
Log probability = -58.43563 prob.>chi2 = 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]
Ln Firm Size	31.63255	7.982198	3.96	0.000	15.98773 47.27737
Ln Offer Size	-43.89007	11.03341	-3.98	0.000	-65.51515 -22.26499
Ln Stock Turnover	-36.67469	6.787908	-5.40	0.000	-49.97874 -23.37064
Stock Return	.0153157	.0021246	7.21	0.000	.0111515 .0194798
Shares owned by Institutions	-87.86716	39.9694	-2.20	0.028	-166.2057 -9.528574
Foreign Shares	492.1052	373.9179	1.32	0.018	-240.7604 1224.971
Cons					

Table 4.63 Shows that the F is low suggesting that collectively all the variables are not statistically important. F- Statistics value =0.2797. This is more than p-value of .05. This is further confirmed by chi –square value which is less than 0.05 therefore H_0 cannot be rejected and it is assumed that there is autocorrelation.

Table 4.64: Autocorrelation Test for Cluster 1995-1999

Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic

Projected covariance	= 3	Number of observation	= 15
Projected autocorrelation	= 0	Number of groups	= 3
Projected coefficient	= 6	Time periods	= 5
		Wald chi2 (5)	= 591.10
Log probability	= -41.69712	prob.>chi2	= 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf.	Interval]
Ln Firm Size	-18.65711	1.660782	-11.23	0.000	-21.91218	-15.40203
Ln Offer Size	9.118331	3.111212	2.93	0.003	3.020468	15.2162
Ln Stock Turnover	4.700873	1.03731	4.53	0.000	2.667783	6.733964
Stock Return	.0008453	.0004827	1.75	0.080	-.0001009	.0017915
Shares owned by Institutions	0					
Foreign Shares	74.23769	19.78629	3.75	0.000	35.45727	113.0181
_Cons	161.0319	56.13423	2.87	0.004	51.01085	271.053

Table 4.64 Shows that the chi –square is less than 0.05 therefore the $H_{0\ is}$ overruled and it is assumed that there is autocorrelation. F-statistics also confirms that there is autocorrelation since the value of F-statistics=0.2086

Table 4.65: Autocorrelation Test for Cluster (1997-2001)

Wooldridge assessment of autocorrelation in panel data
H_0: no first-order autocorrelation
F (1, 2) = 15.550
Prob. > F = 0.0587
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Projected covariance	= 3	Number of observations	= 15
Projected autocorrelation	= 0	Number of groups	= 3
Projected coefficient	= 7	Time periods	= 5
		Wald chi2 (5)	= 1.24
Log probability	= -31.60947	prob.>chi2	= 0.9749

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]
Ln Firm Size	-1.264294	2.11609	-0.60	0.550	-5.411754 2.883165
Ln Offer Size	-.6047124	2.965738	-0.20	0.838	-6.417452 5.208027
Ln Stock Turnover	.167663	.86982	0.19	0.847	-1.537153
Stock Return	1.872479				
Shares owned by Institution	.0008892	.0023707	0.38	0.708	-.0037574 .0055358
Foreign Shares	22.1526	28.96864	0.76	0.444	-34.62489
_Cons	78.93008				
	17.94934	54.37595	0.33	0.741	-88.62556
	124.5242				
	30.3414	35.87804	0.85	0.398	-39.97828 100.6611

Table 4.65 for cluster 1997-2001 has chi squared value of 0.9749.This is more than p-value of 0.05 therefore H_0 cannot be rejected suggesting that the cluster has no autocorrelation. The F is also is high suggesting that collectively, all the variables are statistically important but F-statistics has a p value = 0.0587 this is more than p-value of 0.05. Suggesting that H_0 should be rejected.

Table 4.66: Autocorrelation for Cluster (1998-2002)

Wooldridge assessment of autocorrelation in panel data
H_0**:** no first-order autocorrelation
F (1, 2) =1.4 Prob. >F=0.35
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation

Projected covariance	= 3	Number of observations	= 15
Projected autocorrelation	= 0	Number of groups	= 3
Projected coefficient	= 7	Time periods	= 5
		Wald chi2 (5)	= 62.90
Log probability	= -54.18193	prob.>chi2	= 0.0000

CAR	**Coef.**	**. Std. Err.**	**Z**	**P>|Z|**	**[95% Interval]**	**Conf.**
Ln Firm Size	40.31576	7.973331	5.06	0.000	24.68832	55.9432
Ln Offer Size	- 8.152591	13.3032	-0.61	0.540	-34.22638	17.9212
Ln Stock Turnover	-8.162215	4.979886	-1.64	0.101	-17.92261	1.598183
Stock Return	.0102128	.007641	1.35	0.181	-.0047632	.0251889
Shares owned by Institutions	274.7095	135.3307	2.03	0.042	9.46621	539.9528
Foreign Shares	2432.57	1229.752	1.98	0.048	22.30107	4842.839
_Cons	676.2628	274.4842	2.46	-0.014	-1214.242	-138.2838

Table 4.66 Shows that the chi –square= 0.000 is less than 0.05 therefore we rejected H_0 and assume that there is autocorrelation. The F- statistics also confirms this because the value of F-statistics=0.35.

Table 4.67: Autocorrelation for Cluster (1999-2003)

Wooldridge assessment of autocorrelation in panel data
H0: no first-order autocorrelation
F (1, 1) = 365.994
Prob. > F = 0.0332
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic

Projected covariance	= 2	Number of observations	= 10
Projected autocorrelation	= 0	Number of groups	= 2
Projected coefficient	= 7	Time periods	= 5
		Wald chi2 (5)	= 5.44
Log probability	= -34.14808	prob.>chi2	= 0.3647

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf.	Interval]
Ln Firm Size	1.312091	8.319923	0.16	0.875	-14.99466	17.61884
Ln Offer Size	-18.71084	27.58058	-0.68	0.498	-72.76778	35.3461
Ln Stock Turnover	-2.475179	6.658367	-0.37	0.710	-15.52534	10.57498
Stock Return	.0075604	.0076467	1.01	0.311	-.0070741	.022194
Shares by Institutions	-115.8316	270.8573	-0.43	0.669	-646.7021	415.0389
Foreign Shares	360.6279	656.9905	0.55	0.583	-927.0497	1648.306
_Cons						

Table 4.67 Shows that the chi –square=0.3647. This is greater than p-value- 0.05 similarly F is also very high=365.994 suggesting that collectively, all the variables are statistically important. F-statistics has a value=0.0332 this is below p-value=0.05. Therefore H_0 cannot be overruled and it may be assumed that autocorrelation does not exist.

Table 4.68: Autocorrelation Test (2001-2005)

Wooldridge assessment of autocorrelation in panel data
H0: no first-order autocorrelation
F (1, 2) = 18.998
Prob. > F = 0.0488
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic

Projected covariance	= 3	Number of observations	= 15
Projected autocorrelation	= 0	Number of groups	= 3
Projected coefficient	= 7	Time periods	= 5
		Wald chi2 (6)	= 20.50
Log probability	= -35.86904	prob. >chi2	= 0.0023

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]	
Ln Firm Size	-6.204082	2.700191	-2.30	0.022	-11.49636	-.911804
Ln Offer Size	22.99524	23.53457	0.98	0.329	-23.13168	69.12216
Ln Stock Turnover	1.517987	.7021997	2.16	0.031	.1417009	2.894273
Stock Return	.0006394	.0009013	0.71	0.478	-.0011272	.002406
Shares by Institutions	-2283.189	3616.266	-0.77	0.442	-9870.94	4304.463
Foreign Shares	-122.2563	167.3186	-0.73	0.465	-450.1947	205.6822
Cons	-212.0428	338.3936	-0.63	0.531	-875.282	451.1964

Table 4.68 Shows that the chi–square=0.0023 which is less than p-value= 0.05. F value though high which should suggest that collectively all variables are statistically important but F-statistics has a value=0.0488 this is almost equal to p-value= 0.05 indicating that it is insignificant. Hence H_0 overruled and it can be determined that autocorrelation exists.

Table 4.69: Autocorrelation Test (2002-2006)

Wooldridge assessment of autocorrelation in panel data
H_0: no first-order autocorrelation
F (1, 3) = 3.134
Prob. > F = 0.1748
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Projected covariance = 4 Number of observations = 20
Projected autocorrelation = 0 Number of groups = 4
Projected coefficient = 3 Time periods = 5
Wald chi2 (2) = 1.76e^+18
Log probability = 28.68577 prob. >chi2 = 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]	
Ln Firm Size	-3.702424	2.80e^-09	-1.3e^+09	0.000	-11.49636	-.911804
Ln Offer Size	10.46693	5.48e^-09	1.9e^+09	0.000	-23.13168	69.12216
Ln Stock Turnover	1.363441	1.78e^-09	7.7e^+08	0.031	.1417009	2.894273
Stock Return	-.0065302	8.82e^-13	-7.4e^+09	0.000	-.0011272	.002406
Shares by Institutions	0				-9870.94	4304.463
Foreign Shares	0				-450.1947	205.6822
_Cons	148.6327	1.36e^-07	-1.1e^09	0.000	-875.282	451.1964

Table 4.69 Shows that the chi–square=0.000. This is less than p-value 0.05. F is not high suggesting that collectively all the variables are not statistically important. F-Statistics=0.1748, this is over p-value of 0.05 therefore H_0 is rejected meaning autocorrelation exists**.**

Table 4.70: Autocorrelation Test (2007-2011)

Wooldridge assessment of autocorrelation in panel data
H_0: no first-order autocorrelation
F (1, 3) = 3.134
Prob. > F = 0.1748
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Correlation: no autocorrelation
Projected covariance = 4 Number of observations = 20
Projected autocorrelation = 0 Number of groups = 4
Projected coefficient = 3 Time periods = 5
Wald chi2 (2) = 1.76e^+18
Log probability = 28.68577 prob. >chi2 = 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]		
Ln Firm Size	-3.702424	2.80e^-09	-1.3e^+09	0.000	-11.49636	-.911804	10.46693
Ln Offer Size	5.48e^-09	1.9e ^		0.000	-23.	1316	69.12216
Ln Stock Turnover	1.363441	1.78e^-09	7.7e^+08	0.031	.1417009	2.894273	
Stock Return	-.0065302	8.82e^-13	-7.4e^+09	0.000	-.0011272	.002406	
Shares by Institutions	0					-9870.94	4304.463
Foreign Shares	0					450.194	205.6822
_Cons	148.6327	1.36e^-07	-1.1e^09	0.000	-875.282	451.1964	

Table4.70 Shows that the chi –square=0.00 this is less than 0.05 therefore is H_0 rejected. The F is also low suggesting that collectively all variables are not statistically important F statistics also has a value=0.178 which is more than p-value of 0.05. Therefore it can be concluded that autocorrelation exists in this cluster.

Table 4.71: Autocorrelation Test (2008-2012)

Wooldridge assessment of autocorrelation in panel data
H_0: no first-order autocorrelation
F (1, 3) = 6.439
Prob.>F=0.0849
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Projected covariance = 4 Number of observations = 20
Projected autocorrelation = 0 Number of groups = 4
Projected coefficient = 3 Time periods = 5
Wald chi2 (3) = 3.85e^+21
Log probability = 38.00493 prob.>chi2 = 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]	
Ln Firm Size	-13.56248	7.34e^-10	-1.8e^+10	0.00	-13.56248	- 13.56248
Ln Offer Size	6.219808	1.85e^-09	3.4e^+09	0.000	6.219808	6.219808
Ln Stock Turnover	12.27534	8.84e^-09	1.4e^+10	0.000	12.2753	12.27534
Stock Return	0024875	1.95e^-13	-1.3e^+10	0.000	-.002487.	-0024875
Shares by Institutions	0					
Foreign Shares	-107.817	5.72e^-09		0.00	-107.817	-107.817
_Cons	0					

Table 4.71 Shows that the chi–square value=0.000, this is less than p-value of 0.05.The F is also low suggesting that collectively all the variables are not statistically important. F-statistics also has a value= 0.0849 this is greater than p-value=0.05.Therefore we rejected H_0, and concluded that autocorrelation exists.

Table 4.72: Autocorrelation test (2009-2013)

Wooldridge assessment of autocorrelation in panel data
H_0: no first-order autocorrelation
F (1, 3) = 8.415
Prob. > F = 0.0625
Cross-sectional time-series FGLS regression
Coefficients: generalized least squares
Panels: heteroskedastic
Projected covariance = 4 Number of observations = 20
Projected autocorrelation = 0 Number of groups = 4
Projected coefficient = 3 Time periods = 5
Wald chi2 (3) = 2.08e^+18
Log probability = 18.67758 prob.>chi2 = 0.0000

CAR	Coef.	Std. Err.	Z	P>|Z|	[95% Conf. Interval]	
Ln Firm Size	-4.334123	3.65e^-09	-1.2e^+09	0.000	-4.334123	-4.334123
Ln Offer Size	.215871	5.12e^-09	4.2e^+07	0.000	.215871	.215871
Ln Stock Turnover	2.805692	3.58e^-09	7.8e^+08	0.000	2.805692	2.805692
Stock Return	.0064277	1.83e^-12	3.5e^+09	0.000	.0064277	.0064277
Shares by Institutions	0	8.04e^-08	7.3e^+08	0.000	58.92723	58.92723
Foreign Shares	0					0
Cons	0					0

Table 4.72 Shows that the chi–square value=0.000, this is less than p-value= 0.05.The F is also low suggesting that collectively all the variables are not statistically important. F-statistics has a value=0.0625 this is greater than p-value =0.05. Therefore H_0 is rejected and it is concluded that there is autocorrelation.

4.7.9 Conclusion on Autocorrelation Test

Using Wald test statistics to test if the variables in the clusters were either auto correlated or not, the test revealed that two clusters had no first order auto correlation, the rest of the clusters were auto correlated.

4.8 Stationarity Tests and Results

Stationarity can be defined as condition where data has constant mean, constant variance and constant auto covariance (Wooldridge, 2014). Before carrying model specification test, unit root test was carried out. Unit root tests are intended to establish integration order of every variable used in the model specification. Thus to assess the influence of various factors used in the model such as firm size, offer size, stock turnover, stock MR, institutional shareholding, foreign ownership and age of the firms the researcher carried out stationarity test. Testing stationarity for these variables avoids bias results (Gan *,et al.,* 2006). The study used Fisher-type unit root test hinged on augmented Dickey-Fuller test. Each variable was tested for unit root test. The test was based on null hypothesis and the alternative hypothesis. The study variables were tested based on the hypothesis stated below together with the decision rules.

Hypothesis:

Ho: All panels have unit roots**.**

Ha: At least one panel is static**.**

The rejection or acceptance criteria for the Fishers test are based on a calculated critical ratio Z-statistic that follows a standard normal distribution**.**

Decision Rules:

i. Overrule the null hypothesis if the p-value of the test statistic is below 0.05.
ii. Accept the other hypothesis if the p-value of test statistics is over .05.

Table 4:73: ADF-Fisher's Unit Root Test Result- (Firm Size)

		Statistics	**p-value**
Inverse chi-squared (64)	P	169.8275	0.000
Inverse normal	Z	-1.7698	0.0384
Inverse logia t (184)	L*	-4.0799	0.0000
Modified inv. Chi-squared	Pm	9.3539	0.0000

Table 4:73 shows the ADF Fisher unit root test result for firm size over 20 years has p-value of 0.0384. The p-value of this variable is < 0.05. Therefore this variable is found be non- stationary.

Table 4.74: ADF- Fisher's Unit Root Test Result- (Offer Size)

		Statistics	**P-value**
Inverse chi-squared(64)	P	79.3019	0.0942
Inverse normal	Z	-0.7903	0.2147
Inverse logit t (49)	L*	-4.8627	0.0000
Modified inv. Chi-squared	PM	1.3525	0.0881

Table 4:74 shows the ADF Fisher unit root test result for Offer size over 20 years has p-value of 0.2147. The p-value of this variable 0.>05. Therefore this variable is found be stationary and can be tested for co-integration and Granger causality

Table 4.75: ADF- Fisher's Unit Root Test Result-(Stock Turnover)

		Statistics	**P-value**
Inverse chi-squared(64)	P	270.4330	0.0000
Inverse normal	Z	-6.6179	0.000
Inverse logit t (164)	L*	-10.8055	0.0000
Modified inv. Chi-squared	PM	18.2463	0.0000

Table 4: 75 shows the ADF Fisher unit root test result for Stock turnover over 20 years has p-value of 0.0000. The p-value of this variable < 0.05. Therefore this variable is found be non- stationary therefore there is no need for further test on co-integration and granger causality**.**

Table 4.76: ADF- Fisher's Unit Root Test Result- (Stock return)

		Statistics	**P-value**
Inverse chi-squared(64)	P	294.1591.8275	0.0000
Inverse normal	Z	-6.6831	0.0000
Inverse logit t (164)	L*	-12.1577	0.0000
Modified inv. Chi-squared	PM	20.3434	0.0000

Table 4:76 shows the ADF Fisher unit root test result for Stock return over 20 years has p-value of 0.0000. The p-value of this variable < 0.05. Therefore this variable is found be non- stationary therefore there is no need for further test on co-integration and Granger causality.

Table 4.77: ADF- Fisher's Unit Root Test Result- (Institutional ownership)

		Statistics	**P-value**
Inverse chi-squared(64)	P	33.2711	0.9995
Inverse normal	Z	2.8576	0.9979
Inverse logit t (164)	L*	3.0297	0.9983
Modified inv. Chi-squared	PM	-2.7161	0.9967

Table 4:77 shows the ADF Fisher unit root test result for institutional ownership over 20 years has p-value of 0.9979. The p-value of this variable is.>05. Therefore this variable is found be stationary therefore a further test on co-integration and Granger Causality.

Table 4.78: ADF-Fisher's Unit Root Test Result- (Foreign share ownership)

		Statistics	P-value
Inverse chi-squared(64)	P	169.3279	0.0000
Inverse normal	Z	0.8060	0.7899
Inverse logit t (164)	L*	-2.7804	0.0031
Modified inv. Chi-squared	PM	9.3098	0.0000

Table 4:78 shows the ADF Fisher unit root test result for foreign ownership over 20 years has p-value of 0.7899. The p-value of this variable is.>05. Therefore this variable is found be stationary therefore a further test on co-integration and Granger causality can be done.

Table 4.79: ADF- Fisher's Unit Root Test- (Firm age)

		Statistics	P-value
Inverse chi-squared(64)	P	0.0000	1.0000
Inverse normal	Z	-	-
Inverse logit t (164)	L*	-	-
Modified inv. Chi-squared	PM	-5.6569.3519	1.0000

Table 4:79 shows the ADF Fisher unit root test result for Firm Age over 20 years has no p-value because it is not classified. Therefore this variable is found to be non-stationary therefore there is no need for further test on co-integration and Granger Causality.

The overall outcomes of the tests is that the null hypothesis is rejected and alternative hypothesis is accepted. This is because out of seven panels three panels have p-values over 0.05 hence we overrule the null hypothesis and take the alternative implying that the variables utilized in the investigation are stationary.

4.9 Co-integration Test

The seven variables for the study namely ; firm size, offer size, stock turnover, stock return, institutional ownership, foreign ownership and age of the firms were tested for stationarity. Offer size, Institutional ownership and foreign ownership were found to be stationary. However firm size, stock turnover, stock return and age were found to be non-stationary. For those variables which were non-stationary co-integration test could not be done. Those that were stationary where co-integration test is possible was also not done because the number of variables was the limiting factor.

4.10 Summary of Work Done On Diagnostic Tests

Following the diagnostic tests done on each cluster on the variables the following summary is given below; majority of the clusters showed lack of normality on the residuals. Therefore they failed normality test. On multi-co-linearity test, out of ten clusters six clusters passed the test. Therefore it can be said that the clusters passed the multi-co- linearity test. On heteroscedasticity the tests revealed that half of the clusters of the firms were homoscedastic and half were heteroscedastic. However to correct heteroscedasticity, the researcher used robust standard errors as depicted on table 4.80A

& 4.80B. All the clusters apart from that of 1999-2003 which has chi square value= over 0.05 and F-statistic value= is below 0.05, the explanatory variables had problem of autocorrelation. In order to correct this Autocorrelation problem, the researcher used robust regression model.

The researcher tested the variables if they were stationary. The results showed that out of seven variables, three variables were stationary and four were non-stationary. The study also carried out co-integration test to see if

4.11 Hypotheses Testing and Empirical Results

The researcher aligned the discussion of the empirical result with each study objective. Empirical results are presented in the tables below. Each explanatory variable was run over for the twenty years but clustered into ten separate classes based on when the shares were issued and tested over a maximum of five years.

4.11.1 Hypothesis Testing

After carrying out diagnostic tests successfully, the researcher carried out seven hypotheses tests; six for the explanatory variables and one for the moderating variable. These are stated below after empirical results given in Table 4.80A and 4.80B for the clusters of firms that issued equity shares in The Nairobi Securities Exchange.

4.11.2 Empirical Results

Table 4.80A and Table 4.80B indicate the empirical results of each independent variable clustered one year after the shares were issued. These are subsequently discussed under respective hypothesis.

Table 4. 80A: Level of Significance for Independent Variables

VARIABLES	(1994) CAR	(1995) CAR	(1997) CAR	(1998) CAR	(1999) CAR
Ln Firm Size	33.52*	-8.294***	-1.045	7.918	15.64
	(18.34)	(2.814)	(2.203)	(20.53)	(24.47)
Ln Offer Size	-20.05***	3.755***	-8.582***	23.94	0.865
	(1.764)	(0.519)	(1.399)	(15.77)	(6.784)
Ln Stock turnover	-13.75***	-0.904	-2.339***	6.794	-2.174
	(2.859)	(4.126)	(0.818)	(5.882)	(18.70)
Stock return	0.00460	-0.0141	0.00313	0.00891	0.0203
	(0.00827)	(0.0168)	(0.00228)	(0.00770)	(0.0148)
Foreign _shares	-127.4*	42.47*	192.4**	-65.54	2,242
	(77.02)	(23.99)	(81.74)	(150.7)	(1,372)
Share Owned by institutions	-	-	89.56**	1,294	264.2***
			(37.63)	(1,456)	(98.41)
Constant	-171.9	117.6	174.9***	-650.0	-385.8
	(311.3)	(75.28)	(67.73)	(606.8)	(559.7)
Observations	15	15	15	15	15
Number of ID	3	3	3	3	3

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.80B: Empirical result

VARIABLES	(2001) CAR	(2002) CAR	(2007) CAR	(2008) CAR	(2009) CAR
Ln Firm Size	15.64	2.633	0.364	-4.594	0.687
	(24.47)	(5.196)	(2.478)	(3.961)	(0.777)
Ln Offer Size	0.865	86.67**	1.610	-3.238**	-1.543***
	(6.784)	(40.15)	(2.784)	(1.264)	(0.174)
Ln Stock turnover	-2.174	-2.963	-1.764	-2.828	1.233
	(18.70)	(5.998)	(1.843)	(3.641)	(1.883)
Stock return	0.0203	-0.00129	-0.00199	-0.000505	0.00349***
	(0.0148)	(0.00138)	(0.00353)	(0.000468)	(0.000832)
Share Owned by institutions	264.2***	-12,257**	72.49*	-17.10*	20.03***
	(98.41)	(5,248)	(41.00)	(9.637)	(6.829)
Foreign _shares	2,242	-566.8**	-0.941	-94.43***	33.92***
	(1,372)	(237.2)	(8.836)	(22.84)	(10.23)
Constant	-385.8	-1,163**	-15.97	222.8***	-20.66
	(559.7)	(536.5)	(27.66)	(42.67)	(27.88)
Observations	15	15	20	20	20
Number of ID	3	3	4	4	4

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

4.12 Regression Analysis

Cumulative average return was regressed against the explanatory variables which included firm size, offer size, stock return, stock turnover, institutional share ownership and foreign share ownership. The regression was done for ten clusters and this gave different model summaries for each cluster**.**

Table 4.81: Model Summary for Cluster 1994-1998

			Change	Statistics	
Model	**R**	**R^2**	**R^2 Change**	**Wald Chi**	**Prob.>Chi2**
1	0.6206	0.3852	0.385	5.01	0.5422

Table 4.81 shows R square as 0.3852 an indication that the study model was fit. The value 0.385 infers that 38.52% of capital market return on CAR is described by these predictor variables in the model, the residual 61.48% of capital market return of CAR is described by other factors not included in the model.

Table 4.82: Model Summary for Cluster 1995-1999

			Change	Statistics	
Model	**R**	**R^2**	**R^2 Change**	**Wald Chi**	**Prob>Chi2**
1	0.6988	0.4883	0.4883	7.64	0.2661

Table 4. 82 shows R square as 0.4883 an indication that the study model was fit. The value 0.4883 infers that 48.83% of capital market return on CAR is elucidated by these predictor variables in the model, the residual 51.17% of CAR is elucidated by other factors not included in the model.

Table 4.83: Model Summary for Cluster 1997-2001

Model	R	R^2	Change R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.7956	0.6329	0.6329	12.7	0. 0983

Table 4.83 shows R square as 0.6329 an indication that the study model was fit. The value 0.6329 infers that 63.29% capital market return on CAR is elucidated by these predictor variables in the model, the residual 36.71% of FP on CAR is elucidated by other factors not included in the model.

Table 4.84: Model Summary for Cluster 1998-2002

Model	R	R^2	Change R^2 Change	Statistics Wald Chi	Prob>Chi2
1	0.2538	0.0644	0.0644	5.51	0.039

Table 4.84 Shows R square as 0.0644 a suggestion that the study model was not very fit. The value 0.0644 infers that 6.44% of capital market return on CAR is elucidated by these predictor variables in the model, the remaining 93.56% of CAR is elucidated by other factors not included in the model**.**

Table 4.85: Model Summary for Cluster 1999-2003

Model	R	R^2	R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.869	0.7533	0.7533	21.38	0.0032

Table 4.85 shows R square as 0.7533 an indication that the study model was fit. The value 0.7533 infers that 75.33% of capital market return on CAR is elucidated by these predictor variables in the model, the residual 24.67% of CAR is elucidated by other factors not included in the model.

Table 4.86: Model Summary for Cluster 2001-2005

Model	R	R^2	R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.4759	0.2265	0.2265	0.88	0.9898

Table 4.86 shows R square as 0.2265 an indication that the study model was fit. The value 0.2265 infers that overall 22.65% capital market return of CAR is elucidated by these predictor variables in the model, the residual 77.35% of CAR is elucidated by other factors not included in the model.

Table 4.87: Model Summary for Cluster 2002-2006

Model	R	R^2	R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.6984	0.4883	0.4883	7.91	0.3409

Table 4.87 shows R square as 0.4883 an indication that the study model was fit. The value 0.4883 infers that 48.83% of capital market return on CAR is elucidated by these predictor variables in the model, the residual is 51.17% of CAR which is elucidated by other factors not included in the model.

Table 4.88: Model Summary for Cluster 2007-2011

Model	R	R^2	R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.6461	0.4175	0.4175	8	0.0342

Table 4.88 shows R square as 0.4175 an indication that the study model was fit. The value 0.4175 infers that 41.75% of capital market return on CAR is elucidated by these predictor variables in the model, the residual 58.25% on CAR is elucidated by other factors not included in the model.

Table 4.89: Model Summary for Cluster 2008-2012

Model	R	R^2	R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	**0.5178**	**0.2681**	**0.2681**	**4.4**	**0.7332**

Table 4. 89 Shows R square as 0.2681 an indication that the study model was fit. The value 0.2681 infers that 26.81% of capital market return on CAR is elucidated by these predictor variables in the model, the residual 73.19% on CAR is elucidated by other factors not included in the model.

Table 4.90: Model Summary for Cluster 2009-2013

Model	R	R^2	Change R^2 Change	Statistics Wald Chi	Prob.>Chi2
1	0.1706	0.0291	0.0291	6.14	0.0074

Table 4.90 shows R square as 0.0291 an indication that the study model was not fit. The value 0.0291 infers that 2.91% of capital market return on CAR is elucidated by these predictor variables in the model, the residual 97.09% of CAR is elucidated by other factors not included in the model.

4.12.1 Hypotheses Test Results

H_{01}: Firm size has no significant effect on firm's long-run capital return following

Equity issues at The Nairobi Securities Exchange.

Tables 4.80A and 4.80B indicate that the firm size has insignificant effect on the long run return for the firms that issued their IPOs, SEOs or SIP and are clustered 1994-1998, 1997-2001, 1998-2002, 2001-2005, 2002-2006, 2007-2011 and 2008-2012.These results

indicate that the null hypothesis confirms past investigations done by (Jegadeesh, 2000; Cai, *et al.*, 2008; Thomadakis, *et al.* (2012). However firms clustered (1995-1999) have negative but substantial influence (at 5% level of significance) on the long-run capital market return. These are consistent with previous studied done by Al- Shawardi and Tarawneh (2015), Belghitar and Dixon (2012), Ferrariad and Araujo-Travares (2013).

H_{02}: Firm's offer size has no significant effect on firm's long run return following equity issue at The Nairobi Securities Exchange

Tables 4.80A and 4.80 B reveal that the Offer size has insignificant bearing on the long-run capital market return for firms that issued IPOs, SEOs or SIP clustered under 1994-1998, 1995-1999,1997- 2001, 1999-2003 2001-2005, 2002-2006, 2007-2011, 2008-2012 and 2009-2013.Therefore the null hypothesis cannot be rejected. These outcomes are in line past studies done by Lee, *et al*. (1996); Thomadakis, *et al*. (2012); Cai, et al., (2008).

However firms that fall under cluster 1998-2002 have substantial influence (at 5% level of significance) on the long-run capital return. These results are in conformity with studies that were done by Khushed, *et al*. (2007), Ghosh (2005), Belghitar and Dixon (2012), Minardi, *et al.* (2013) who found positive link between offer size and long-run performance.

H_{03}: Equity Stock return has no significant effect on firm's long-run return following equity issue at The Nairobi Securities Exchange.

Tables 4.80 A and 4.80B indicate that stock return has insignificant effect on long run return on the following clusters 1994-1998, 1997-2001, 1998-2002, 2001-2005, 2002-2006, 2007-2011, 2008-2012 for firms that issued IPOs, SEOs or SIP. The results in the years 1995 -1999 show adverse but statistically substantial influence (at 10% level of

significance) on long-run return. In cluster1999-2003 there is positive and statistically substantial influence (at 10% level of significance) on long-run return, the same is found in cluster 2009-2013 where there is a positive and statistically significant (at 5% level of significance) effect on long run capital return. The outcomes of the latter three clusters are similar to studies done by Gan, *et al.* (2006.), Pilinkul and Boguslauskas (2009) in Lithuanian Stock, Abu-Libden & Harasheh (2011) in Palestinian securities market and Chord, *et al*. (2001) in USA stock markets who determine a substantial cross-sectional link between stock return and long-run return. However

H_{04}: Share turnover of a firm has no significant effect on firm's long run return following equity issue at The Nairobi Securities Exchange.

Tables 4.80A and 4.80 B indicate that the Stock turnover has insignificant bearing on the long run return for the clusters of firms that issued their IPOs, SEOs or SIP under clusters: 1994-1998,1995-1999, 1998-2002, 1999-2003, 2001-2005, 2002-2006, 2007-2011, 2008-2012 and 2009-2013. The results are consistent with studies done by Liu (2010). However Stock turnover for cluster (1997-2001) firms has an adverse but statistically substantial effect (at 1% level of significance) on the long-run return. This outcome is as per results that were found in studies by (Edirickram & Azeeze, 2015; Liu, 2009)

H_{05}: Foreign share ownership has no significant effect on firm's long run return following equity issue at The Nairobi Securities Exchange.

Tables 4.80A and 4.80B indicate that foreign share ownership has positive and statistically substantial effect (at 10% level of significance) on the long run return for cluster of firms in 1997 -2001. This is similar to those firms in cluster 2009-2013 (at 5% level of significance) where there is an effect on long run return., however for firms

clustered in 2008-2012 there is adverse but statistically substantial effect (at 10% level of significance) on long run return. The first three results are consistent with the previous results on studies done by Wei, *et al*., (2005), Douma, George and Kahir (2006), Boyer and Zheng (2009) and Ongore (2011) who ascertained positive relationship between foreign ownership and firm's long run performance. However firms clustered 1994-1998, 1995-1999, 1998-2002, 1999-2003, 2001-2005, 2002-2006 and 2007-2011 have no significant effect on long run return. These outcomes are as per those of studies by Omran, *et al.*, (2008), Rahman and Rejab (2015). They find that foreign ownership has insignificant relationship with bank performance.

H_{06}: Institutional share ownership has no significant effect on firm's long run return following equity issue at The Nairobi Securities Exchange.

Tables 4.80A and 4.80B show that Institutional shareholding has positive and statistically significant (5% level of significance) effect on long run return only on firms under cluster 2009-2013.This is consistent with previous studies done by (Rahman & Rejab, 2015, Mao 2015, Le & Buck, 2011). The two clusters 1994-1998 and 1995-1999 were not given any values. The rest of other clusters 1997-2001, 1998-2002,1999-2003,2001-2005, 2002-2006, 2007-2011, 2008-2012 were found to have insignificant effect on long run return. The finding is consistent with results that were found in study done by (Wei, *et al.*, 2005).

4.12.2 Summary of the Findings

The six independent variables tested revealed that each one of them had a substantial influence on the long run yield for firms that issued shares. The effects may not have been all at the same time or in the clustered years but in each of the clusters there was significant effect on long run capital market return by each of the variables. These

results reveal that these microeconomic variables have effect on long run capital market returns.

4.13 Age: A Moderating Factor on Long Run Return

H_{07} Firm age has no significant moderating effect on the long run return on firm's that issued equity shares in The Nairobi Securities Exchange

The study considered age as a moderating factor in the long run capital market return on firms that issued share to the public in form of IPOs, SEOs or SIP. The discussion is based on the period of issue that extends to five years on each of the issues that were done

Table 4.91: Moderating Effect of Age on Cluster (1994-1998)

VARIABLES	1994 CAR
Ln Firm Size	41.48
	(76.56)
Ln Offer size	-198.4
	(209.1)
Ln stock turnover	**104.8****
	(44.8)
Stock return	**-0.0224**
	(0.0370)
Foreign Owned Shares	**-66.19**
	(51.06)
Ln Firm Size* Age	**-0.693**
	(1.655)
Ln Offer Size*Age	**3.056**
	(3.516)
Ln stock turnover*Age	**-2.222***
	(1.259)
Stock return*Age	**.000581**
	(0.000624)
Shares owned by Institutions*Age	**-**
Constant	**657.7**
	(896.7)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4. 91 demonstrates that age has adverse but statistically substantial effect (at 10% level of significance) on stock turnover in cluster 1994-1998. The results are consistent with studies done by Ritter (1991); Khurshed (1999); Belghitar and Dixon (2012) who documented a more pronounced positive link between issuer's age and IPOs' and SEOs' long-run performance. However in other studies by Liu, *et al.,* (2012); Brau, *et al.,* (2012) reported an insignificant adverse link between firm's age and IPOs' long-run performance.

Table 4.92: Moderating Effect on Age in Cluster (1995-1999)

VARIABLES	(1995) CAR
Ln Firm Size	154.7
	(179.4)
LN Offer Size	-178.0
	(171.8)
Ln Stock turnover	-6.261
	(37.03)
Stock return	0.128***
	(0.0414)
Foreign _shares	2.455
	(82.36)
*age	-4.471
	(4.787)
Ln Offer Size*age	5.325
	(4.949)
Ln Stock turnover*age	0.118
	(1.079)
Stock return*age	-0.00498***
	(0.00182)
Share Owned by institutions	
Share Owned by institutions*age	
Constant	-73.02
	(283.2)
Observations	15
Number of ID	3

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.76 the cluster (1995-1999), age had adverse but statistically substantial effect (at 1% level of significance) only on stock return. This is consistent with studies done by Belghitar & Dixon, 2012; Khurshed, 1999). Age had no influence on the rest of the variables. This outcome is as per the outcomes of investigations done by (Liu, *et al*, 2012; Brau, *et al.*, 2012).

Table 4.93: Moderating Effect of Age on Cluster (1997-2001)

VARIABLES	(1997) CAR
Ln Firm Size	**21.82***
	(12.00)
Ln Offer Size	**-24.27*****
	(0.774)
Ln Stock turnover	**-5.563**
	(6.211)
Stock return	**-0.0266**
	(0.0185)
Foreign_ shares	**51.52**
	(51.82)
Ln Firm Size*age	**-0.986*****
	(0.284)
Ln Offer Size*age	**1.086*****
	(0.240)
Ln Stock turnover*age	**0.0762**
	(0.0975)
Stock return*age	**0.00110*****
	(0.000363)
Share Owned by institutions	**728.6*****
	(30.01)
Share Owned by institutions*age	**-29.88*****
	(4.522)
Constant	**51.38**
	(126.8)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster (1997-2001), the results of the study show that age has statistically significant influence as follows; firm size has negative but statistically substantial (at 1% level of

significance) influence, institutional share ownership has negative but statistically significant (at 1% level of significance) offer size has positive and statistically substantial (at 1% level of significance) influence. Stock return has positive and statistically substantial (at 1% level of significance) influence. These outcomes are as per the investigations done by (Khurshed, 1999; Belghitar & Dixon, 2012). In the case of other variables it was found that age had no influence which is as per the investigations done by (Liu, *et al.*,, 2012; Brau, *et al.*, 2012).

Table 4.94: Moderating Effect of Age on Firms in Cluster (1998-2002)

VARIABLES	(1998) CAR
Ln Firm Size	**-1.376**
	(24.10)
Ln Offer Size	**83.17**
	(122.4)
Ln Stock turnover	**-10.32**
	(13.78)
Stock return	**-0.0206**
	(0.0130)
Foreign _shares	**94.88**
	(168.3)
Ln Firm Size*age	**0.0919**
	(1.141)
Ln Offer Size*age	**-0.451**
	(1.605)
Ln Stock turnover*age	**0.244**
	(0.609)
Stock return*age	**0.000627**
	(0.00104)
Share Owned by institutions	**3,541**
	(7,338)
Share Owned by institutions*age	**-96.80**
	(163.6)
Constant	**-1,161**
	(1,520)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster (1998-2002) age does not to have any moderating effect on all the variables. The results are consistent with studies done by (Liu, *et al.,* 2012; Brau, *et al*., 2012).

Table 4.95: Moderating Effect of Age in Cluster (1999-2003)

VARIABLES	(1999) CAR
Ln Firm Size	**114.0**
	(0)
Ln Offer Size	**-104.1**
	(0)
Ln Stock turnover	**-55.54**
	(0)
Stock return	**0.0220**
	(0)
Foreign_ shares	**2,280**
	(0)
Ln Firm Size*age	**-2.657**
	(0)
Ln Offer Size*age	**2.056**
	(0)
Ln Stock turnover*age	**2.014**
	(0)
Stock return*age	
Share Owned by institutions	**1,265**
	(0)
Share Owned by institutions*age	
Constant	**-287.8**
	(0)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster (1999-2003), age does not have any statistically substantial bearing as a moderating factor for the explanatory variables and is consistent with studies done by (Liu, *et al*., 2012; Brau, *et al.*, 2012).

Table 4.96: Moderating Effect of Age in Cluster (2001-2005)

VARIABLES	(2001) CAR
Ln Firm Size	**11.18**
	(8.149)
Firm Size*age	**-0.152****
	(0.0734)
Ln Offer Size	**-287.6**
	(209.6)
Ln Stock turnover	**-0.810**
	(4.126)
Stock return	**0.00469**
	(0.00426)
Share Owned by institutions	**14,257**
	(20,291)
Foreign shares	**128.2**
	(793.5)
Ln Offer Size*age	
Ln Stock turnover*age	
Stock return*age	
Share by institutions*age	
Ln Firm Size	
Constant	**5,124**
	(3,374)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

For shares in cluster (2001-2005), age as a moderating factor was determined to bear no

statistically substantial influence on all the explanatory variables and is consistent with studies done by (Liu, *et al.*, 2012; Brau, *et al*., 2012).

Table 4.97: Moderating Effect of Age in Cluster (2002-2006)

VARIABLES	(2002) CAR
Ln Firm Size	**0.0445**
	(7.097)
Firm Size*age	
Ln Offer Size	**-253.4**
	(193.6)
Ln Stock turnover	**-0.422**
	(4.156)
Stock return	**0.00360**
	(0.00389)
Share Owned by institutions	**8,185**
	(18,451)
Foreign shares	**-186.2**
	(738.3)
Ln Offer Size*age	**-0.204****
	(0.0974)
Ln Stock turnover*age	
Stock return*age	
Share by institutions*age	
Ln Firm Size	
Constant	**5,004**
	(3,287)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4.81 indicates that age has a adverse but statistically substantial (at 5% level of significance) moderating effect on offer size on period 2001-2006.This is consistent with

studies done by (Khurshed, 1999; Belghitar & Dixon, 2012). However age has no moderating effect on other variables.

Table 4.98: Moderating Effect of Age in Cluster (2007-2011)

VARIABLES	(2007) CAR
Ln Firm Size	**7.239**
	(6.893)
Firm Size*age	
Ln Offer Size	**-250.4**
	(172.8)
Ln Stock turnover	**11.38**
	(7.097)
Stock return	**0.00565**
	(0.00414)
Share Owned by institutions	**5,986**
	(16,675)
Foreign shares	**-275.7**
	(688.4)
Ln Offer Size*age	
Ln Stock turnover*age	**-0.245****
	(0.103)
Stock return*age	
Share by institutions*age	
Ln Firm Size	
Constant	**4,674***
	(2,807)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster (2007-2011) age has an adverse but statistically substantial (at 5% level of significance) moderating influence on Stock turnover consistent with studies done by

(Khurshed, 1999; Belghitar & Dixon, 2012). However in the rest of the other variables it does not have any influence. This is as per the outcomes of the investigations done by (Liu, *et al*, 2012; Brau, *et al*., 2012**).**

Table 4.99: Moderating Effect of Age in Cluster (2008-2012)

VARIABLES	(2008) CAR
Ln Firm Size	**-13.30*** **
	(4.394)
Firm Size*age	
Ln Offer Size	**-30.09**
	(56.50)
Ln Stock turnover	**2.323**
	(2.190)
Stock return	**0.00437** **
	(0.00182)
Share Owned by institutions	**12,134**
	(8,871)
Foreign shares	**282.4**
	(388.0)
Ln Offer Size*age	
Ln Stock turnover*age	
Share by institutions*age	
Ln Firm Size	
Constant	**591.4**
	(788.9)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster (2008-2012) age has a statistically substantial (at 5% level of significance) moderating influence on Stock return consistent with studies done by (Khurshed, 1999;

Belghitar & Dixin, 2012). Firm size has negative but significant (at 10% level of significant However in the rest of the other variables it does not have any influence. This is as per the outcomes of the investigations done by (Liu, *et al.*, 2012; Brau, *et al*., 2012).

Table 4.100: Moderating Effect of Age in Cluster (2009-2013)

Variables	2009 C A R
Ln Firm Size	**-13.30*** **
	(4.394)
Firm Size*age	
Ln Offer Size	**-30.09**
	(56.50)
Ln Stock turnover	**2.323**
	(2.190)
Stock return	**0.00437****
	(0.00182)
Share Owned by institutions	**12,134**
	(8,871)
Foreign shares	**282.4**
	(388.0)
Ln Offer Size*age	
Ln Stock turnover*age	
Stock return*age	
Share by institutions*age	**-190.9*** **
Ln Firm Size	**(31.22)**
Constant	**591.4**
	(788.9)
Observations	**15**
Number of ID	**3**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

In cluster 2009-2013 age has an adverse but statistically substantial (at 1% level of significance) moderating influence on Institutional share ownership this is consistent with studies done by (Khurshed, 1999; Belghitar & Dixon, 2012).

4.13.1 Conclusion on Age as a Moderating Factor on Long Run Capital Market Return

The study found that age is a moderating factor in all the clusters that were covered except for clusters; (1999-2003) and (1998-2002). The moderating effect was either positive or negative at different levels of significance (at 1%, 5%, & 10%). At least each independent variable was affected by age as a moderating factor. Thus age is a moderating variable in this study as it is statistically significant for all the independent variables

4.14 Chapter Summary

This chapter presented microeconomic determinants of long run returns on equity issued at the NSE. The chapter similarly reveals the manner in which different variables demonstrated and influenced CAR over each firm over five years after issue of equity. The variables were established and interpreted using descriptive statistics and PCC. Diagnostic tests such normality, multi co linearity, autocorrelation, and heteroscedasticity were carried out. Varied out comes were noted. Data analysis was undertaken by both descriptive and inferential statistics according to investigation objectives and hypotheses. Based on the outcomes, investigation hypotheses were done. The chapter that follows gives summary, conclusion and recommendations for further research.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter provides summary of findings, discussion of major findings, conclusions drawn on the study. The study ends by suggesting areas of further research. All these are focused on evaluating some microeconomic variables on long run capital market returns on equity issued at NSE. The investigation was on the basis of the following specific objectives: To ascertain the influence of firm size on long run capital market return of firms that issued equity shares in the NSE. To determine the bearing of equity offer size of firm's long run market return of firms that issued equity shares in the NSE. To ascertain the influence of stock return on long run capital market return of firms that issued equity shares in NSE. To examine the influence of stock turnover on long run capital market return of firms that issued equity shares in Nairobi Securities Exchange. To investigate the influence of foreign share ownership on long- run capital market return of firms that issued equity shares in the NSE. To explore the bearing of institutional share ownership on long- run capital market return of establishments that issued equity shares in the NSE. Finally to establish whether there is moderating effect of firm age on the long-run capital market return of establishments that issued equity shares in the NSE.

5.2 Summary of the Findings

The general objective of the study was to evaluate the effect of some microeconomic variables on long run capital market returns of equity shares issued at the NSE. To achieve this objective, six specific objectives were set. These were; to determine the effect of firm size, offer size, stock return, stock turnover, foreign shareholding,

institutional shareholding and age of the firm on long run capital market return of firms that have issued equity shares in the NSE. The target population was 32 firms that issued equity in NSE from 1993 to 2008. The study used secondary data. Data was subjected to various statistical tests under various econometric assumptions to ensure that the findings were worth using in decision making. The study used diagnostic tests in order to ensure that analysis met associated assumptions and helped to avoid Type I and Type II errors.

In this study, normality test was carried out using Shapiro Wilk test. Out of the ten clusters only cluster 1994-1998 was found to meet the normality test, the rest of the clusters failed the normality test. In the case of Multi-co-linearity, variance inflation factor (VIF) test was carried out to establish the level of correlation between variables and to estimate how the variance of a coefficient was inflated because of linear dependence with other predictors. Where any of the VIF was greater than10, then there was a probability of a problem of multi co linearity. The test indicated that out of ten clusters, four clusters showed signs of multi-co-linearity. These were; 1997-2001, 1998-2002, 1999-2003, and 2002-2006. The other clusters had no multi-co-linearity problem.

In order to ensure that error terms are not correlated (that there is no autocorrelation), Wald test was done on all clusters. Wald test showed that there was autocorrelation in the following clusters; 1994-1998,1995-1999, 1998-.2002, 2001-2005,2002-2006, 2007-2011, 2008-2012 and 2009-2013. Only two clusters; 1997-2001 and 1999-2003 had no autocorrelation. Finally a test of heteroscedasticity was carried out to establish whether there was consistence of equal variance on standard error. Wald test was carried out and the outcome showed that there was heteroscedasticity in a number of clusters. However by using robust standard estimation both autocorrelation and heteroscedasticity were overcome as shown in Tables (4.80A &4.80B).Further tests were done on the explanatory variables. These tests included stationarity tests, co-integration test and

granger causality. The tests revealed that there was stationarity on the independent variables.

The study used the following independent variables to establish whether they had any statistically significant influence on long run return on shares that are issued at the NSE stock market: Firm size, Offer size, Stock return, Stock turnover, Foreign shareholding, Institutional shareholding and Age as a moderating factor. The study found that these variables had statistically significant influence on long run capital market return on equity issued in the NSE.

5.3 Conclusion

The key objective was to evaluate the effect of micro economic variables on long run capital market return of equity offering at the Nairobi security exchange. To achieve this key objective, six specific objectives and a moderating variable, age of the firms together with their corresponding hypotheses were tested. This section presents the conclusion for each specific objective of the study with overall finding that certain microeconomic factors have in influencing long run financial market return on equity issued at Nairobi Securities Exchange.

5.3.1 Influence of Firm Size on Long Run Capital Market Return

The first objective was to investigate if firm characteristics have significant effects on long run capital market return on firms that issued equity in the NSE. One of the firm characteristic was firm size. Firm size was measured by the number of shares outstanding at the end of years that were identified for this particular study. These were first year after equity was issued up to the end of fifth year after issue. The value of the firm was based on the outstanding shares at end of each event year of study multiplied by the market price of each share at end of each year. The total value was expressed in

billions of Kenya Shillings. This value was used as a regressor to the cumulative abnormal return in order to determine whether it had significant influence on the long run return on the firm at end of each of the five years following equity issues. The results of the study showed that firm size was statistically significant (at level 10% and 1%) for two clusters 1994-1998 and 1995-1999 respectively. In the remaining clusters firm size had no significant influence on long run return.

5.3.2 Influence of Offer Size on Long Run Capital Market Return

The second specific objective on firm characteristic was to determine the influence of offer size on firm's long run capital market return on firms that issued equity shares in the NSE. In most clusters offer size was found to have statistically significant influence on long run return for those firms that issued equity in the NSE. Cluster 1994-1998, 1995-1999, 1997-2001 and 2009-2013 were statistically significant (at 1% level of significance).The other clusters: 2002-2006 and 2008-2012 had statistically significant (at 5% level of significance). However the four clusters namely; 1998-2002, 1999-2003, 2001-2005 and 2007-2011 had no significant influence, an indication that offer size was not a determinant of long run return for firms in these clusters**.**

5.3.3 Influence of Stock Return on Long-Run Capital Market Return

The fourth specific objective was to examine the influence of stock return on long run return for firms that issued equity shares in NSE. The study found that only in one cluster, (2009-2013) was stock return statistically significant (at 1% level of significance). In the rest of the clusters stock return had no statistically significant influence over long run capital market return on equity shares that were issued.

5.3.4 Influence of Stock Turnover on Long- Run Capital Market Return

The third specific objective was to evaluate the influence of stock turn over on long run return for firms that issued equity shares in NSE. Stock turnover was found to have very little influence on long run return. Only in two clusters, 1994-1998 and 1997-2001 was stock turnover found to have statistically significant (at 1% level of significance) influence on long run capital market return In the rest of the clusters stock turnover was found to have no influence on long run capital market return.

5.3.5 Influence of Foreign Share Ownership on Long Run Capital Market Return

The fifth specific objective was to investigation the influence of foreign share ownership on long run capital market return on equity shares issued at the NSE. In a number of clusters, foreign shareholding was found to have statistically significant influence on long run capital market return. In cluster 1994-1998 foreign shareholding was found to have negative but statistically significant (at 10% level of significance) influence. In cluster 1995-1999 foreign shareholding was found to have positive statistically significant (at 10% level of significance) influence. In cluster 1997-2001 foreign shareholding was found to have positive statistically significant (at 5% level of significance) effect. In cluster 2002-2006 foreign shareholding was found to have negative but statistically significant (at 5% level of significance) influence .In cluster 2008-2012 foreign shareholding was found to have a negative but statistically significant (at 1% level of significance) influence. In cluster 2009- 2013 foreign shareholding was found to have positive statistically significant (at 1% level of significance) influence. The other four clusters namely; 1998-2002, 1999-2003, 2001-2005 and 2007- 2011 had no statistically significant influence on long run capital market return.

5.3.6 Influence of Institutional Ownership on Long Run Capital Market Return

The last objective was to explore the bearing of institutional share ownership on long-run capital market return for firms that issued equity shares in the NSE. The study found that out of ten clusters, seven clusters were found to have statistically significant influence. In clusters 1997-2001, 2002-2006, institutional ownership had statistically significant (at 5% level of significance) influence on long run capital market return. In clusters 2007-2011 and 2008-2012, institutional ownership was found to have statistically significant (at 10% level of significance) influence on long run capital market return. In clusters; 1999-2003, 2001-2005 and 2009-2013 institutional ownership was found to have statistically significant (1% level of significance) influence on long run capital market return. Only three clusters 1994-1998, 1995-1999 and 1998-2002 institutional ownership was found to have no significant influence on long run capital market return.

5.3.7 Age as a Moderating factor on Independent Variables

The study found that age as a moderating factor had significant influence on at least one variable on eight clusters. The only clusters that age had no significant influence on any of the independent variables were that were (1998-2002) and (1999-2003). On the other cluster the following moderating effect were found: Cluster (1994-1998) age was found to have statistically significant but negative (at 10% level of significance) influence on stock turnover. In Cluster (1995-1999) age was found to have a statistically significant but negative (at 1% level of significance) influence on stock return. In cluster (1997-2001) age was found have statistically significant but negative (at 1% level of significance) influence on institutional shareholding. In cluster (2001-2005) age was found to have statistically significant but negative (at 5% level of significance) influence on firm size. In cluster (2002-2006) age was found to have statistically significant but

negative (at 5% level of significance) influence on offer size. In cluster (2007-2011) age was found to have statistically significant but negative (at 5%level of significance) influence on stock turnover. In cluster (2008-2012) age was found to have statistically significant but negative (at 1% level of significance) influence on stock return. Finally in cluster (2009-2013) age was found to have statistically significant but negative (at 1% level of significance) influence on institutional share ownership. It is noted that although in majority of the clusters age had statistically significant influence on one of the variables, the influence was negative. Secondly at least each independent variable was affected by age as a moderating factor in every cluster over the 20 years of this study except foreign shareholding.

In conclusion, the paper examined the effects of microeconomic determinants on long run return based on cumulative abnormal return on firms that issued IPOs, SEOs or SIPs in the NSE. The findings show that the independent variables that were tested had statistically significant influence on CAR. From above findings, several policy recommendations have been proposed and are stated under each of the independent variables.

5.4 Recommendations

This section presents the recommendations based on the conclusions of each of the specific objectives of the study.

5.4.1 Influence of Firm Sizes on Long- Run Capital Market Return

Out of ten clusters, firm size had only statistically significant influence on two clusters namely 1994-1998 and 1995-19999. Thus firm size was not found to be a major determinant on long run return. This could be because as a firm gets larger and larger its

operational costs also increase resulting in diminishing marginal returns. Therefore firm expansion should be in line with its level of maturity.

5.4.2 Influence of Offer Size on Long- Run Capital Market Return

Offer size had statistically significant influence on six clusters out of ten clusters examined. However the study found that offer size had no statistically significant influence on the remaining four clusters. Generally a large offer gives immediate attention to investors and this is because of information symmetry that accompanies such offer. It is important that when a firm goes to the securities market it should be well prepared to ensure that the shares offered would satisfy its financial obligation thereby avoiding frequent visits to the securities market.

5.4.3 Influence of Stock Turnover on Long Run Capital Market Return

Stock turnover was found to have very little statistical significance on long run return because out of the ten clusters only two clusters were found to be statistically significant. Turnover is associated with liquidity but in some instances it may be associated with speculation of what is likely to happen to the firm leading to high turnover but associated with low return. However it was noted that blue chip firms had the highest stock turnover at the NSE which means that investors may be secure to invest in firms with high stock turnover as they would be able to sell their securities and realize cash should need arise. In the last four decades stock turnover as a measure of liquidity has exhibited a number of sharp declines, many of which coincide with market downturn and possibly with stocks being disposed for other quality stocks in other markets.

5.4.4 Influence of Stock Return on Long- Run Capital Market Return

This independent variable was found to have the least influence on long run capital market return. Only one cluster (2009-2013) had statistical significant return. This result is interesting because what is in the stock market should be a reflection on the market in general. This result is probably reflecting the economic performance of other traded instruments for example the government securities which are less risky and have assured returns. Government borrowing has continued to rise therefore more capital investment is channeled into this sector. A reduction on government borrowing would likely change the scenario.

5.4.5 Influence of Institutional Share Ownership on Long- Run Capital Market Return

Institutional ownership was found to have statistically significant influence on seven out of the ten clusters. Only three clusters were found not to be influenced by institutional shareholding. Institutional shareholding like foreign shareholding has several advantages to firms in regard to the performance. Institutional shareholders may be in a position to monitor management activities and correct possible mistakes long before annual general meeting just before things get out of hand. The monitoring role has also a value in enhancing performance of firms upon acquiring a substantial proportion of firm equity provided these institutions are not part of government investments like National Social Security Fund, National Hospital Insurance Fund. Many economies in Africa including Kenya are making every effort to attract investors by creating investor confidence. These efforts should include establishment of sound institutional structures. Strengthening the level of confidence of investors depends not only on economic factors but also by soundness of institutional structures. Thus this paper recommends that the government must strengthen the rule of law, accountability and control the level of corruption.

5.4.6 Influence of Foreign Ownership on Long- run Capital Market Return

Foreign ownership was found to have statistically significant influence on long run capital market return. Out of ten clusters, foreign ownership had significant influence over six clusters. This may be attributed to the benefits associated with foreign investors in local firms such as introduction of new technology, high standards of corporate governance and managerial efficiency. Since foreign investors have statistically significant influence in cumulative abnormal return, the government should as a matter of a policy strengthening the level of confidence of investors. Thus this paper recommends that the government must strengthen the rule of law, regulatory quality, accountability and level of control over corruption.

5.4.7 Moderating Effects Of Firm Age on long-run Capital Market Return

Age as a moderating factor was evident in all the clusters that were tested. However its influence was negative, though statistically significant. In cases where statistical significance was missing before the moderating factor was introduced, this changed once Age as a factor was introduced and statistical significance was realized. A firm which is old has the potential of being stable. It has operating systems in place, therefore it is likely to have both corporate governance and information symmetry in place. Thus Age plays important role in long run capital market return giving a suggestion that higher returns are associated with old established firms.

5.4.8 Summary of the Recommendations

This study gives evidence of equity issue in Kenyan Capital Market in the period from 1993 to 2013.The purpose of the study was to evaluate microeconomic determinants on long run returns on equity offerings at the NSE in years after the offer had been made. Each firm was tested in terms of return over a period of five years after issue. During the

period of study, a dataset of 480 observations were tested. All independent variables had statistically significant influence on firm's long run return at different periods of study. Therefore it can be concluded that microeconomic factors are determinants of long run return on firms that have issued shares in Nairobi Security Exchange.

5. 5 Suggested areas for Further Research

The study sought to establish the microeconomic determinants of long run return of equity offering at the Nairobi security exchange. The study recommends three areas of further study. The first area is to expand the independent variables. This study focused on only on six independent variables. This number can be increased to eight. Firm characteristics should have two variables excluding firm size. Stock equity liquidity should have two additional variables but excluding stock return. Share ownership should include two other factors but excluding foreign ownership and institutional ownership and finally ownership structure should exclude foreign ownership but include other characteristics such as institutional ownership, state ownership, concentrated ownership and big five shareholders. The eight independent variables may give enhanced results provided multi co linearity is contained.

Secondly the study recommends further research on relationship of other variables in each of the thirteen industrial sectors as currently constituted at the NSE. Thirdly this study can be extended to cover the East African Community Countries as a number of them have Securities markets that have been in existence for more than ten years. Each of the East Africa community countries has a different monetary and fiscal policies especially in regard to domestic borrowing. Finally further study can be undertaken using different methodology such as using different benchmarks as independent variables.

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APPENDICES

Appendix I: List of Firms that Issued Equity for the Study Period

	Name of firms	Issue Year	Type of issue
1.	Cooper Motor Corporation Holding Ltd	1993	IPO
2.	East African Oxygen Ltd	1993	IPO
3	Marshalls E.A. Ltd	1993	SEO
4.	NIC Bank Ltd	1994	IPO
5	Firestone EA Ltd	1994	IPO
6	National Bank of Kenya Ltd	1994	SEO
7	Uchumi Supper M. Ltd	1995	SIP
8.	Rea Vipingo Ltd	1996	IPO
9.	Kenya Airways Ltd	1996	SIP
10	East Africa Portland Cement Company Ltd	1996	SIP
11.	TPS Serena Ltd	1997	IPO
12.	Athi River Mining Co. Ltd	1997	IPO
13	East African Breweries Ltd	1997	SEO
14	Kenya Commercial Bank Ltd	1998	SIP
15	ICDC Investment Company Ltd	1998	SEO
16	Unga Group Ltd	2000	SEO
17	Pan African In. Ltd	2000	SEO
18	Mumias Sugar Company Ltd	2001	SIP
19	Standard Group Ltd	2001	SEO
20	Total K Ltd	2001	SEO
21.	Ken Gen Ltd	2006	SIP
22.	Scan Group Ltd	2006	IPO
23	Eveready Co. Ltd	2006	IPO
24	Mumias S CO Ltd	2006	SIP
25	Access Kenya Ltd	2007	IPO
26	Kenya Re Ltd	2007	SIP
27	Olympia Capital Ltd	2007	IPO

28	**NIC Bank Ltd**	**2007**	**SEO**
29	**Safaricom Ltd**	**2008**	**IPO**
30	**Co-op Bank Ltd**	**2008**	**IPO**
31	**KCB Ltd**	**2008**	**SIP**
32	**HFCK Ltd**	**2008**	**SEO**

Source; NSE 1993-2008

Appendix II: Firms Listed at NSE by Industrial Groups at 31-12-2013

1. **AGRICULTURAL**

   Eaagads-AIMS

   Kakuzi

   KapchoruaTea-AIMS

   Limuru Tea- AIMS

   Sasini

   Williamson Tea-AIMS

2. **AUTOMOBILES&ACCESSORIES**

   Car and General

   Marshalls (E.A.) Ltd.

   Sameer (Firestone E.A. Ltd)

3. **BANKING**

   Barclays

   CFC Stanbic

   DTBK

Equity

Housing Finance

I&M Holding

KCB

NBK

NIC Bank

Standard Chartered Bank

Co-operative Bank

4. **COMMERCIAL**

Atlas Development Ltd

Express (K) Ltd –AIMS

Hutchings Biemer

Kenya Airways

Longhorn Publishers- AIMS

Nation Media

Standard Group

TPS East Africa

Uchumi Supermarkets

WPP Scan group

5. **CONSTRUCTION & ALLIED**

ARM Cement Ltd

Bamburi Cement Ltd

Crown Berger

E.A. Cables

EAPC

6. **ENERGY & PETROLEUM**

Kengen Energy Ltd

Kenol-Kobil

Kenya Power

Total Petroleum

Umeme

7. **INSURANCE**

British American

CIC Insurance

Jubilee

Kenya Re

Liberty

Salamin (Pan Africa Insurance)

8. **INVESTMENT**

Centum Investment Ltd (ICDC Investment)

Home Africa –GEMS

Kurwitu Ventures Ltd-GEMS

Olympia Capital Holdings

Transcentury –AIMS

Nairobi Securities Exchange

Investment Services

9. **MANUFACTURING &ALLID**

A. Baumann-AIM

BOC Gases (East Africa Oxygen)

BAT Kenya

Carbacid

East Africa Breweries Ltd

Eveready East Africa

Flame Tree GEMS

Kenya Orchards- AIMS

Mumias Sugar Ltd

Unga Ltd

10. TELECOMMUNICATION & TECHNOLOGY

Safaricom

Source: NSE 2013

Appendix III: Annual NSE Market Share Index from January 1993- Dec 2013

	1st January	31s December	Average Annual index	Change in Market share index Δ
1993	**1165.31**	**2527.07**	**1846.355**	**+1,361.76**
				0.488
1994	**2533.89**	**4559.40**	**3546.645**	**+2025.51**
1995	**4545.51**	**3468.88**	**4007.195**	**-1,076.66**
1996	**3449.66**	**3114.11**	**3281.885**	**-335.55**
1997	**3115.82**	**3117.47**	**3116.45**	**+1.65**
1998	**3118.78**	**2962.06**	**3040.40**	**-156.72**
1999	**2962.85**	**2303.18**	**2633.015**	**-659.67**
2000	**2,300.92**	**1,913.35**	**2,107.135**	**-387.57**
2001	**1,636.47**	**1,344.26**	**1490.365**	**-292.21**
2002	**1,355.05**	**1,317.45**	**1,336.25**	**-37.6**
2003	**1,362.85**	**2,753.33**	**2,058.00**	**+1,390.48**
2004	**2,753.33**	**2,928.35**	**2,840.84**	**+175.02**
2005	**2,955.99**	**3,973.04**	**3,464.515**	**+1017.05**
2006	**3,973.04**	**5,645.65**	**4,809.345**	**+1,672.61**
2007	**5,641.13**	**5,444.83**	**5,542.98**	**-196.3**
2008	**5,055.48**	**3,459.97**	**4,606.4**	**-1,595.51**
2009	**3,419.18**	**3,189.454**	**3,032.59**	**-229.73**
2010	**3,247.44**	**4,396.49**	**4,966.06**	**+1149.05**
2011	**4495.41**	**3160.03**	**3827.72**	**-1,335.38**
2012	**3,212.86**	**4122.22**	**3667.54**	**+909.36**
2013	**4140.43**	**4926.97**	**4533.5**	**+786.54**

Source: NSE1993-2013

Appendix IV: Annual CAR of Firms for a Period of Five Years

ISSUE	FIRMS	Year1	Year 2	Year 3	Year 4	Year 5
1.1993	Cooper Motor Corp.Ltd	11.5-14.25	15.00-70.00	70.50-54.00	54.00-65.00	65.00-74.00
2.1993	E.A. Oxygen	27.5-60.00	65.00-100.00	100.00-88.00	88.00-65.0	65.50-70.5
3.1993	Marshalls E.A. Ltd	14.00-9.50	9.5-41.00	41.0-39.00	37.00-48.5	48.5-41.0
4.1994	N.I.C Bank	56.00-55.50	55.50-49.0	49.5-40.50	41.00-57.00	50.50-28.5
5.1994	Firestone E.A.	00-00	37.25-24.75	24.75-27.00	27.25-23.50	23.50-16.10
6.1994	NBK Ltd	24.0025.75	22.75-23.25	23.25-13.5	13.5-12.45	12.5-8.8
7.1995	Uchumi S Markets	66.50-40.0	40.0-53.0	53.5-39.00	40-37.75	44.00-40.0
8.1996	Rea Vipingo	15.20-10.0	10.00-8.65	8.95-6.00	6.00-4.75	4.80-3.10
9.1996	Kenya Airways	12.55-4.40	8.00-7.55	7.50-8.10	8.35-7.80	7.85-9.00
10.1996	EAPCC Ltd	52.5-20.25	20.5-20.0	20.0-17.55	11.25-11.7	11.25-11.7
11.1997	TPS Serena Ltd	19.65-14.25	14.25-14.5	14.5-16.05	16.05-15.85	15.75-17.5
12.1997	Athi River M.	12.5-9.65	9.65-6.60	6.60-5.75	5.75-4.00	4.00-4.00
13.1997	EABL	77.0-62.00	61.5-31.5	31.5-25.5	25.50-16.15	16.15-12.50
14.1998	KCB	14.00-12.75	12.5-17.25	17.25-17.	19.00-57.00	49.75-33.00
15.1998	ICDC	26.00-13.5	13.0-6.5	6.80-5.00	5.00-17.05	18.75-10.6
16.2000	Unga Ltd	50.5-28.5	45.0-27.0	26.75-17.05	18.05-15.25	14.95-18.55
17.2000	Pan African Ins.	27.0-13.0	13.5-13.10	13.10-7.00	7.0-23.50	24.00-21.00
18.2001	Mumias S.Co.	6.25-6.35	6.45-4.10	4.00-4.70	4.40-10.80	10.80-35.00
19.2001	Standard Group	14.25-7.00	7.00-10.10	10.10-46.50	46.50-45.0	45.00-40.00
20.2001	Total Kenya	14.50-36.75	19.0-22.75	22.75-39.00	40.0-39.00	40.00-40
21.2006	Ken Gen Ltd	25-21.25	21.25-26.0	26.0-13.0	13.0-13.95	13.95-16.55
22.2006	Scan group Ltd	17.95-24.75	24.75-28.25	28.25-25.75	25.75-27.25	27.25-60.50
23.2006	Eveready Co Ltd	11.0-17.95	17.2-7.20	7.45-3.5	3.5-2.95	2.95-3.00

24.2006	**Mumias S. Co.**	**35.75-54.00**	**45-14.15**	**14.15-3.6**	**3.6-10.55**	**10.55-7.75**
25.2007	**Olympia Capital Ltd**	**16.06-13.20**	**13.20-7.50**	**7.50-7.50**	**7.50-4.30**	**4.30-3.60**
26.2007	**Access K. Ltd**	**13.55-21.75**	**21.75-20.00**	**20.00-20.25**	**20.25-13.35**	**13.25-4.25**
27.2007	**Kenya Re.**	**16.25-15.95**	**15.95-12.65**	**12.65-11.85**	**11.85 -10.95**	**10.95-10.45**
28.2007	**NIC Bank ltd**	**117.00-60.5**	**60.5-38.10**	**38.10-35.00**	**35.0-50.50**	**50.50-26.25**
29.2008	**Safaricom Ltd**	**7.35-3.60**	**3.60-4.55**	**4.55-4.70**	**4.7-3.4**	**3.4-7.0**
30.2008	**Co. op Bank Ltd**	**9.00-8.75**	**8.75-20.00**	**20.00-14.3**	**14.30-12.55**	**12.55- 17.65**
31.2008	**KCB Ltd**	**30-26.5**	**26.5-21.00**	**21.00-21.25**	**21.25-16.6**	**16.60-29.75**
32.2008	**HFCK Ltd**	**44.25-18.6**	**18.6-17.5**	**18.25-25.25**	**25.. 25-12.9**	**12.90-15.50**

Source: NSE 1993- 2013

Appendix V: Companies that issued shares at NSE

	Name of the firm	Issue date	Year One	Year Two	Year Thee	Year Four	Year Five
1	**CMC Ltd**	**1993**	**1.60**		**1.50**		**0.90**
2	**E.A.Oxygen Ltd**	**1993**	**1.76**		**1.39**		**1.40**
3	**Marshalls E.A**	**1993**	**0.54**		**0.68**		**0.60**
4	**Firestone E.A. Ltd**	**1994**	**8.60**		**6.70**		**4.50**
5	**NIC Bank**	**1994**	**1.80**		**1.75**		**1.30**
6	**NBK Ltd**	**1994**	**4.40**		**3.00**		**1.00**
7	**Uchumi Super Ltd**	**1995**	**3.00**		**2.76**		**2.57**
8	**EAPCC**	**1996**	**1.60**	**2.12**	**1.30**	**1.12**	**.99**
9	**Kenya Airways**	**1996**	**3.70**		**3.46**		**3.5**
10	**Rea Vipingo**	**1997**	**0.76**		**0.22**		**0.15**
11	**EAB Ltd**	**1997**	**4.34**		**6.30**		**9.00**
12	**TPS Serena Ltd**	**1997**	**0.60**		**0.60**		**0.7**
13	**Athi River Mining**	**1997**	**0.17**		**0.11**		**0.11**
14	**K C Bank Ltd**	**1998**	**3.50**		**2.50**		**7.40**
15	**ICDC Investment**	**1998**	**1.90**		**1.50**		**2.40**
16	**Unga Group Ltd**	**2000**	**0.40**		**0.55**		**0.74**
17	**Pan Africa Ins Ltd**	**2000**	**0.63**		**0.40**		**1.03**
18	**Mumias SCO Ltd**	**2001**	**1.28**		**5.90**		**26.30**
19	**Standard Group**	**2001**	**0.50**		**2.30**		**3.10**
20	**Total K. Ltd**	**2001**	**2.75**		**3.86**		**3.59**
21	**Ken Gen Ltd**	**2006**	**5.37**		**2.67**		**3.45**
22	**Scana Group Ltd**	**2006**	**0.22**		**0.20**		**0.42**
23	**Eveready Ltd**	**2006**	**0.48**		**0.18**		**0.13**

24	**Mumias SCo Ltd**	**2006**	**12.57**	**2.10**	**2.69**
25	**NIC Bank Ltd**	**2007**	**22.80**	**14.6**	**11.30**
26	**Acess K. Ltd**	**2007**	**6.00**	**3.8**	**0.90**
27	**Kenya Re.Ltd**	**2007**	**3.80**	**2.98**	**2.41**
28	**Olympia Capital**	**2007**	**0.47**	**0.26**	**0.11**
29	**KCB Ltd**	**2007**	**51.00**	**51.0**	**89.00**
30	**HFCK Ltd**	**2008**	**1.93**	**2.85**	**2.88**
31	**Co-Op Bank Ltd**	**2008**	**4.28**	**10.06**	**11.12**
32	**Safaricom Ltd**	**2008**	**112**	**166**	**264**

Source: NSE 1993- 2013

Appendix VI: Firm Ownership Structure (in Percentage)

Firm: CMC Ltd	Period	**1993**	**1994**	**1996**	**1998**
Local ownership		**75%**	**73%**	**65%**	**64%**
State ownership		-	-	-	-
Institutional Ownership		-	-	-	-
Foreign Ownership		**25%**	**27%**	**35%**	**36%**
Firm: E. A. Oxygen	Period	**1993**	**1994**	**1996**	**1998**
Local ownership		**55%**	**54%**	**56%**	**57%**
State ownership		-	-	-	-
Institutional Ownership		-	-	-	-
Foreign Ownership		**45%**	**46%**	**44%**	**43%**
Firm: NIC Bank	Period	**1994**	**1995**	**1997**	**1999**
Local ownership		**85%**	**89%**	**90%**	**92%**
State ownership		-	-	-	-
Institutional Ownership		-	-	-	-
Foreign Ownership		**15%**	**11%**	**10%**	**8%**
Firm: Firestone EA Ltd	Period	**1994**	**1995**	**1997**	**1999**
Local ownership		**31%**	**41%**	**51%**	**60%**
State ownership		**10%**	**10%**	**10%**	**10%**
Institutional Ownership		-	-	-	-
Foreign Ownership		**59%**	**49%**	**39%**	**30%**
Firm:Rea Vipingo	Period	**1996**	**1997**	**2000**	**2002**

Local ownership		**92%**	**93%**	**90%**	**90%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**8%**	**7%**	**10%**	**10%**
Firm: Kenya Airways	Period	**1996**	**1997**	**1998**	**2001**
Local ownership		**40%**	**39%**	**35%**	**35%**
State ownership		**28%**	**28%**	**28%**	**28%**
Institutional Ownership		**5%**	**6%**	**10%**	**10%**
Foreign Ownership		**27%**	**27%**	**27%**	**27%**
Firm: TPS Serena Ltd	Period	**1997**	**1998**	**2000**	**2002**
Local ownership		**29.5**	**27.5**	**22**	**14.5**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**6.5**	**7.5**	**8**	**9.48**
Foreign Ownership		**64**	**65**	**70**	**76.96**
Firm: Athi River Mining	Period	**1997**	**1998**	**2000**	**2002**
Local ownership		**92%**	**93%**	**95%**	**95%**
State Ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**8%**	**7%**	**5%**	**5%**
Firm: MUSCO Ltd	Period	**2001**	**2002**	**2004**	**2006**
Local ownership		**53.77**	**53.77**	**53.77**	**53.92**
State ownership		**38.04**	**38.04**	**38.04**	**38.04**

Institutional Ownership		**5**	**5**	**5**	**5**
Foreign Ownership		**3.19**	**3.19**	**3.19**	**3.04**
Firm: Ken-Gen Ltd	Period	**2006**	**2007**	**2009**	**2011**
Local ownership		**29.43**	**27.94**	**27.37**	**27.88**
State ownership		**70%**	**70%**	**70%**	**70%**
Institutional Ownership		**0.03%**	**0.93%**	**1.32%**	**2.12%**
Foreign Ownership		**0.5%**	**1.13%**	**1.31%**	**1.66%**
Firm: Scan-group	Period	**2006**	**2007**	**2009**	**2011**
Local ownership		**73.63%**	**63.9%**	**30.75%**	**26.22%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**24.54%**	**28.53%**	**19.61%**	**19.1%**
Foreign Ownership		**1.83%**	**7.56%**	**49.64%**	**54.68%**
Firm: Eveready Co.	Period	**2006**	**2007**	**2009**	**2011**
Local ownership		**30%**	**31.17%**	**31.91%**	**32.8%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**24.38%**	**17.41%**	**17.42%**	**21.33%**
Foreign Ownership		**45.62%**	**51.42%**	**50.67%**	**45.87%**
Firm: Access Kenya	Period	**2007**	**2008**	**2010**	**2012**
Local ownership		**60%**	**60.63%**	**46.48%**	**48.63%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		-	-	**39.75%**	**50.44%**

Foreign Ownership		**40%**	**39.37%**	**13.77%**	**20.93%**
Firm: Kenya Re	Period	**2007**	**2008**	**2010**	**2012**
Local ownership		**20.33%**	**21.12%**	**31.18%**	**15.99%**
State ownership		**60%**	**60%**	**60%**	**60.04%**
Institutional Ownership		**18.2%**	**17.71%**	**5.31%**	**21.73%**
Foreign Ownership		**1.47%**	**1.17%**	**3.5%**	**2.28%**
Firm: Safaricom	Period	**2008**	**2009**	**2011**	**2013**
Local ownership		**-**	**22.07%**	**20.05%**	**20%**
State ownership		**60%**	**35%**	**35%**	**35%**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**40%**	**42.93%**	**45%**	**44.12%**
Firm: Co-op Bank	Period	**2008**	**2009**	**2011**	**2013**
Local ownership		**26.89**	**27**	**32.04**	**19.43**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**73.08**	**72.97**	**66.6**	**77.65**
Foreign Ownership		**.04**	**.023**	**1.36**	**2.92**
Firm: Olympia Capital	Period	**2007**	**2008**	**2010**	**2012**
Local ownership		**72.51%**	**65.3%**	**62%**	**62%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**27.49%**	**34.7%**	**38%**	**38%**
Firm: Marshalls (E.A)	Period	**1993**	**1994**	**1996**	**1998**

Local ownership		**86%**	**82%**	**82%**	**80%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**14%**	**18%**	**18%**	**20%**
Firm: NBK Bank	Period	**1994**	**1995**	**1997**	**1999**
Local ownership		**29%**	**27%**	**24%**	**20%**
State ownership		**70%**	**72%**	**75%**	**79%**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**1%**	**1%**	**1%**	**.79%**
Firm: Uchumi S. Market	Period	**1995**	**1996**	**1998**	**2000**
Local ownership		**20%**	**19%**	**23%**	**23%**
State ownership		**60%**	**56%**	**54%**	**55%**
Institutional Ownership		**20%**	**25%**	**23%**	**22%**
Foreign Ownership		-	-	-	-
Firm: EAPCC	Period	**1996**	**1997**	**1999**	**2001**
Local ownership		**15%**	**13%**	**14%**	**19%**
State ownership		**75%**	**72%**	**70%**	**65%**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**10%**	**15%**	**16%**	**16%**
Firm: EAB Ltd	Period	**1997**	**1998**	**2000**	**2002**
Local ownership		**23%**	**22%**	**22%**	**21%**
State ownership		**-**	**-**	**-**	**-**

Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**77%**	**78%**	**78%**	**79%**
Firm: KCB Ltd	Period	**1998**	**1999**	**2001**	**2003**
Local ownership		**47%**	**46%**	**45%**	**40.62%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**52%**	**53%**	**54%**	**59%**
Foreign Ownership		**1%**	**1%**	**1%**	**.15%**
Firm: ICDC Ltd	Period	**1998**	**1999**	**2001**	**2003**
Local ownership		97.37%	96.74%	96.68%	96.93%
State ownership		-	-	-	-
Institutional Ownership		-	-	-	-
Foreign Ownership		2.63%	3.26%	3.32%	3.1%
Firm: Unga Group	Period	**2000**	**2001**	**2003**	**2005**
Local ownership		**48%**	**46.9%**	**46.42%**	**46%**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership	52%	**53.1%**	**53.58%**	**54%**	
Firm: Pan-African Insur.	Period	**2000**	**2001**	**2003**	**2005**
Local ownership		**45**	**44.75**	**50.8**	**52.35**
State ownership		**-**	**-**	**-**	**-**
Institutional		**-**	**-**	**-**	**-**

Ownership					
Foreign ownership		**55**	**55.25**	**49.2**	**47.65**
Firm: Standard Group	Period	**2001**	**2002**	**2004**	**2006**
Local ownership		**35**	**32**	**30.8**	**30.8**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign ownership		**65**	**68**	**69.2**	**69.2**
Firm: Total (K) Ltd	Period	**2001**	**2002**	**2004**	**2006**
Local ownership		**15**	**21**	**21.1**	**21.49**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**-**	**-**	**-**	**-**
Foreign Ownership		**85**	**79**	**78.9**	**78.29**
Firm: MUSCO	Period	**2006**	**2007**	**2009**	**2011**
Local ownership		**54.17**	**73.81**	**73.64**	**72.91**
State ownership		**38.04**	**20**	**20.01**	**20**
Institutional Ownership		**5**	**3.82**	**3.64**	**3.29**
Foreign Ownership		**2.79**	**2.37**	**3.72**	**3.8**
Firm: NIC Bank	Period	**2007**	**2008**	**2010**	**2012**
Local ownership		**28.49**	**28.24**	**23.99**	**75.68**
State ownership		**-**	**-**	**-**	**-**
Institutional Ownership		**70.39**	**70.46**	**74.8**	**22.82**
Foreign Ownership		**1.12**	**1.3**	**1.21**	**1.5**

Firm: KCB Ltd	Period	**2008**	**2009**	**2011**	**2013**
Local ownership		**69.03**	**67.96**	**63.04**	**52.66**
State ownership		**23.61**	**23.61**	**17.75**	**17.63**
Institutional Ownership		**5.23**	**5.23**	**7.63**	**7.68**
Foreign Ownership		**2.13**	**3.20**	**11.58**	**22.03**
Firm: HFCK	Period	**2008**	**2009**	**2011**	**2013**
Local ownership		**76.66%**	**30.42%**	**29.05%**	**87.55%**
State ownership		**3.66%**	**3.66%**	**5.66%**	**3.65%**
Institutional Ownership		**6.83%**	**65.61%**	**66.6%**	**6.82%**
Foreign Ownership		**12.85%**	**0.31%**	**0.69%**	**1.98%**

Source**:** NSE 1993-2013

Appendix VII: Moderating Effect by Age of a Firm

Moderating effects of firm age on the long run return of firms

	(1994)	(1995)	(1997)	(1998)	(1999)
VARIABLES	**CAR**	**CAR**	**CAR**	**CAR**	**CAR**
Ln Firm Size	**41.48**	**154.7**	**21.82***	**-1.376**	**114.0**
	(76.56)	**(179.4)**	**(12.00)**	**(24.10)**	**(0)**
Ln Offer Size	**-198.4**	**-178.0**	**-24.27*****	**83.17**	**-104.1**
	(209.1)	**(171.8)**	**(0.774)**	**(122.4)**	**(0)**
Ln Stock turnover	**104.8****	**-6.261**	**-5.563**	**-10.32**	**-55.54**
	(44.80)	**(37.03)**	**(6.211)**	**(13.78)**	**(0)**
Stock return	**-0.0224**	**0.128*****	**-0.0266**	**-0.0206**	**0.0220**
	(0.0370)	**(0.0414)**	**(0.0185)**	**(0.0130)**	**(0)**
Foreign _shares	**-66.19**	**2.455**	**51.52**	**94.88**	**2,280**
	(51.06)	**(82.36)**	**(51.82)**	**(168.3)**	**(0)**
Ln Firm Size*age	**-0.693**	**-4.471**	**-0.986*****	**0.0919**	**-2.657**
	(1.655)	**(4.787)**	**(0.284)**	**(1.141)**	**(0)**
Ln Offer Size*age	**3.056**	**5.325**	**1.086*****	**-0.451**	**2.056**
	(3.516)	**(4.949)**	**(0.240)**	**(1.605)**	**(0)**
Ln Stock turnover*age	**-2.222***	**0.118**	**0.0762**	**0.244**	**2.014**
	(1.259)	**(1.079)**	**(0.0975)**	**(0.609)**	**(0)**
Stock return*age	**0.000581**	**-0.00498*****	**0.00110*****	**0.000627**	
	(0.000624)	**(0.00182)**	**(0.000363)**	**(0.00104)**	
Share Owned by institutions			**728.6*****	**3,541**	**1,265**
			(30.01)	**(7,338)**	**(0)**
Share Owned by institutions*age			**-29.88*****	**-96.80**	
			(4.522)	**(163.6)**	
Constant	**657.7**	**-73.02**	**51.38**	**-1,161**	**-287.8**
	(896.7)	**(283.2)**	**(126.8)**	**(1,520)**	**(0)**

Observations	**15**	**15**	**15**	**15**	**15**
Number of ID	**3**	**3**	**3**	**3**	**3**

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Appendix VIII: Moderating Effect by Age of a Firm

	(2002)	(2007)	(2008)	(2009)
VARIABLES	CAR	CAR	CAR	CAR
Ln Firm Size	**-5.343**	**-2.576**	**-63.01***	**1.092**
	(40.91)	**(61.88)**	**(34.61)**	**(2.262)**
Ln Offer Size	**-12.58**	**12.39**	**15.58**	**-8.407**
	(74.60)	**(80.70)**	**(15.79)**	**(8.195)**
Ln Stock turnover	**-12.60**	**-6.826**	**73.08**	**4.844**
	(45.13)	**(12.99)**	**(56.83)**	**(5.655)**
Stock return	**0.0126**	**-0.00366**	**-0.0169**	**0.00132**
	(0.0123)	**(0.0231)**	**(0.0111)**	**(0.00101)**
Institutions Owned	**20,137**	**239.6**	**289.6**	**255.6****
	(46,042)	**(629.2)**	**(242.0)**	**(102.0)**
Foreign_ shares	**725.4**	**40.19**	**133.1**	**134.0*****
	(2,476)	**(163.1)**	**(177.4)**	**(29.89)**
mod1	**-0.179**	**0.0453**	**1.639**	**-0.0101**
	(0.925)	**(1.410)**	**(1.056)**	**(0.114)**
mod2	**0.0457**	**-0.138**	**-0.141**	**0.168**
	(0.635)	**(1.327)**	**(0.522)**	**(0.173)**
mod3	**0.297**	**0.138**	**-1.774**	**-0.122**
	(0.910)	**(0.275)**	**(1.417)**	**(0.0818)**
mod4	**-0.000168**	**6.10e-05**	**0.000350***	**6.56e-05**
	(0.000216)	**(0.000448)**	**(0.000212)**	**(4.79e-05)**

mod5	**-234.0***	**-3.087**	**-6.411**	**-5.053****
	(123.6)	**(8.187)**	**(4.938)**	**(2.027)**
o.mod6	**-**	**-**	**-**	**-**
Constant	**-97.72**	**-109.8**	**-302.8**	**-2.724**
	(1,356)	**(522.5)**	**(415.1)**	**(42.41)**
Observations	**15**	**20**	**20**	**20**
Number of ID	**3**	**4**	**4**	**4**

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1