DETERMINANTS OF BEAR MARKET PERFORMANCE IN THE NAIROBI SECURITIES EXCHANGE IN KENYA

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Determinants of Bear Market Performance in the Nairobi Securities Exchange in Kenya

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DECLARATION

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

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This thesis has been submitted for examination with our approval as the University Supervisors.

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DEDICATION

To all my family members: Felix Ogilo, Stephane Adhiambo, Angela Akinyi, Selina Anyango, Margaret Ogilo and Yahson Ogilo. Thank you very much for your support throughout the period I was engrossed in the process of completing this work.

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LIST OF ACRONYMS

AIMS	Alternative Investments market segment
CBK	Central Bank of Kenya
DJIA	Dow Jones Industrial Average
EMH	Efficient Market Hypothesis
FIMS	Fixed Income Securities Market Segment
FOMS	Futures and Options Market Segment
FTSE	Financial Times Stock Exchange
KM O	Keiser Meyer- Olkin
MIMS	Main Investment Market Segment
MSA	Measure of Sampling Adequacy
NSE	Nairobi Securities Exchange
OLS	Ordinary Least Square
PCA	Principal Component Analysis
PPMC	Pearson's Product Moment Correlation
SPSS	Statistical Program for Social Sciences

DEFINITION OF TERMS

Accumulation Phase: This is where the uptrend start, which is usually at the bottom of a downward trend. It is the point where professional investors enter the market (Sarbapriya, 2012).

Bear Market: A long-term downward trend characterized by lower intermediate lows interrupted by lower intermediate highs and that the trend must always be a primary one (Sperandao, 2010).

Bull Market: A long term persistent rise in share prices. It is always interrupted by secondary movements and minor trends; but the current bottom of the curve must be higher than the previous bottom (Gonzalez *et al*., 2008).

Excess Phase: This is the last phase of the three phases within the primary trend. It is where professional investors start to reduce their exposure and begin to make some profit (Richard *et al*., 2009).

Minor Trends: These are short term movements lasting from one day to three weeks and are generally corrective moves to the secondary trends (Schannep, 2008).

Panic Phase: This is the last phase of a bear market which tends to be filled with market panic and leads to large sell offs of securities (Richard *et al*., 2009).

Primary Trends: Primary movements represent the broad underlying trend of the market and can last from a few months to many years. This is the basic trend established by a stock in a bull or bear market (Schannep, 2008).

Public Participation Phase: In this phase, corporate profits are better and economic conditions are good. More investors buy shares. It happens when good news has been taken on board (Schannep, 2008).

Secondary Trends: This trends moves in the opposite direction of a primary trend; it moves opposite to an established bull market or bear market. Secondary moves are sometimes called reaction rallies (Richard *et al*., 2009).

ABSTRACT

This study sought to establish the determinants of bear market performance by taking a survey of investors in the Nairobi Securities Exchange. The specific objectives of the study were: to determine the influence of transaction cost on bear market performance; to establish the influence of mobilization of resources by retail investors on bear market performance; to evaluate the influence of financial literacy on bear market performance and also to assess the influence of cultural values on bear market performance in the Nairobi Securities Exchange. To achieve this, a cross-sectional research design was adopted and the study involved administering questionnaires to 500 retail investors participating in the Nairobi Securities Exchange through five purposively selected stock brokerage firms based in Mombasa Town. Convenient sampling technique was used to administer questionnaires to respondents and a pilot study was done to test the reliability of the data collection tool. Data was analysed by the use of descriptive statistics and correlation analysis was carried out to determine the relationship between the variables. Application of exploratory factor analysis and confirmatory factor analysis was performed to identify underlying dimensions of the study. A multiple regression model was employed to analyse the independent variables and their effect on bear market performance and ANOVA test at five percent level of significance was used to determine the relationship between the dependent and independent variables. The secondary data for firms comprising the twenty share index showed that all the firms experienced a bear market within the time range of analysis. The ANOVA results showed that three variables; transaction cost, mobilization of resources by retail investors and financial literacy values had an influence on bear market performance while the ANOVA result for cultural values was insignificant and therefore had no influence on bear market performance. The Pearson correlation analysis showed that bear market performance was strongly associated with transaction costs and weakly associated with mobilization of resources and financial literacy while the relationship between bear market performance and cultural values was largely insignificant. Multivariate regression analysis showed overally, that at $p < 0.05$, transaction cost positively influences bear market performance while mobilization of resources, financial literacy and cultural values negatively influences bear market performance. The study concludes that transaction cost, mobilisation of resources by retail investors and financial literacy have an influence on bear market performance, while cultural values have no influence on bear market performance. The study recommends that brokerage costs and agency costs should be maintained at low levels. The Capital Markets Authority should educate potential investors through available media such as; radio, television and online adverts on the importance of investing at the NSE. Further studies should be carried out on other variables such as contangion through global markets and its effects on share prices, firm size and level of industrial production in a country and their influence on bear market performance.

CHAPTER ONE

INTRODUCTION

1.1 Background

The concept of bear market can be traced back to the time of Charles Dow (1851-1929) when he made an analysis of trends in the Dow Jones Stock Market in New York, United States of America. The security trend may either be increasing or decreasing; Gann (2010) explained the concept of bear market as a situation when the stock prices exhibits a continuous downward trend, the opposite of bear market is a bull market whereby stock prices exhibits a continuous increasing trend. Gann (2010) noted that bear market shows three clear cut peaks: Each peak is lower than the previous peak; the bottoms are also lower than the previous bottoms. In vindicating this concept, Robert and Pretcher (2009) also in an analysis of Dow Theory noted that there are three principal phases of a bear market. They are: the abandonment of hopes, selling due to decreased business and earnings, and finally, distress selling of sound securities regardless of value (Sabrapiya, 2012).

Gann (2010) observed that although there are unique characteristics from one market to the next based upon the personalities of individual markets, there are runaway tendencies, which most markets tend to follow. In general, whether up or down, the moves last between two and three months. The minor corrections along the way are shallow and seldom linger more than five trading days before momentum aggressively resumes in favour of the trend. These minor corrections result from short-lived profit-taking moves. Because these minor corrections tend to be so small, they provide several powerful dynamics relating to profitability: They allow for entering the market with very small risks since the minor corrections are often very uniform. Stop-loss orders can be trailed behind the market as it moves in the favour of the investor, thereby enabling the trader to lock in the lion's share of profits once the market reverses. Robert and Pretcher

(2009) observed that the concept of bear market is well entrenched in Dow Theory and technical analysis theory since both of them deal with analysis of trends of securities at the bourse.

Gomez and Perez (2011) by basing their argument on technical analysis theory found out that stock market volatility is higher during bear markets. Jones (2012) provided two possible explanations for the higher volatility during bear markets. First the increased uncertainty and risk observed in the bear market may generate a decline in equity values. Also in the context of increased uncertainty investors react to bad news more quickly, adding then more volatility to the market. Further, Chordia (2011) also suggest that the different behaviour observed in the stock market liquidity in bear markets may be related with volatility; thus, bear markets could be subject to falling liquidity.

Ramos (2007) found out that bear market corresponds to periods of a generalized downward trend (negative returns). Dukes *et al*. (2011) vindicated this by using the Standard and Poor's 500 index and found out that bear markets are periods in which the index decreased by at least 20% from a peak to a trough. Chauvet and Potter (2008) explained that a stock market moves to a bear state if prices have declined for a substantial period since their previous (local) peak. Gonzalez *et al*. (2008) found out that the opposite of the bear market is the bull market which is associated with persistently rising share prices, strong investor interest and raised financial well-being. Aroa and Buza (2009) established that bull markets are usually associated with a period of prosperity; when the future seems bright and investors have easy access to money. From the above reasoning, it can be observed that while bull markets involve an enhancement of the investors' financial well-being, the opposite takes place when there is a bearish market.

In an attempt to estimate the bull and bear markets, Gonzalez *et al*. (2008) established that the algorithm basically replicates the business cycle turning points and therefore generates formal dating rules in order to determine the local peaks and troughs in stochastic time series. Klaus (2012) established that the minimum length of a cycle lasts

for fifteen months from the peak to the trough and back to the peak and that one phase lasts for five months.

Sossounov and Pagan (2010) extended the required minimum duration of a financial cycle to be sixteen months rather than fifteen months, such that each phase is defined to last at least four months. Gonzalez *et al*. (2008) adds that sharp stock price movements are accounted for by disregarding the minimum phase length if the stock index falls by more than twenty percent in a single month. On the other hand, Lunde and Timmermann (2010) investigated the duration dependence in bull and bear markets and found out that the average duration of bull and bear markets to be twenty one months and nine months respectively. However, they found out that the shortest bull and bear markets lasted one week only, whereas the longest durations are estimated to be one hundred and thirteen and thirty four months respectively. Shiller *et al*. (2008) found out that volatility is a general concept of variation in stock prices and therefore a function of the bull and bear market; this is because, within a bull run, stocks will still experience volatility (though to a small scale). Stocks also experience volatility in a bearish run in a large scale as compared to a bull run (Shiller *et al*., 2008).

The Nairobi Securities Exchange has been hit by a number of governance issues as was observed by Okoth (2009). The collapse of Nyaga Stock Brokers became public and this played a big role in eroding public confidence in investing in stocks. Okoth (2009) further adds that after the collapse of Nyaga Stock Brokers, Discount Securities followed suit due to reduced business and sharp decrease in revenues. Preceding the two securities firms was Francis Thuo and partners which had collapsed earlier with millions of shillings. Such governance issues can weigh heavily on stock prices at the bourse and lead to a continuous decrease in their trading prices. Gay and Dae (2010) found out that there is frequent under-pricing of futures during periods of downward market trends. They attributed this to unique restrictions on short sales and accounting conventions in the securities market.

Lesmond *et al*. (2011) found out that the transaction cost represents a limit that must be exceeded before the securities return will reflect new information. Amy *et al*. (2012) found out that the average transaction costs are a function of trade size for each bond traded at the bourse. They further established that transaction costs decrease significantly with trade size. Rogers (2008) observed that inflation rates as an element of transaction costs erode the spending power of consumers. The author also observed that when inflation rate is high, consumers are not likely to invest in stocks since they will be focusing on spending on consumables first. High inflation rates can therefore lead to depressed share prices for a long time since there will be inadequate disposable income. Durham (2010) noted that when central banks make credible commitment to reduce inflation, expectations would adjust accordingly thus leaving disposable income unchanged. But he went on to say that in most cases when the central bank is acting, the effect would have lasted for about three to four months.

Maxx (2011) established that consumer financial literacy education promotes increased alienation through encouraging perpetual consumption of financial products and integration into, and reliance upon, the health of the market and the corporations in which individuals invest in. Marten *et al*. (2012) relying on comprehensive measures of financial knowledge, provided evidence of a strong positive association between financial literacy and net worth. They concluded that financial knowledge increases the likelihood of investing in the stock exchange, allowing individuals to benefit from the equity premium. Morrin *et al*. (2011) analysed stock market behavior by investigating the effect of fund assortment on asset allocation choices. They found out that more knowledgeable investors were less likely to change their portfolio composition in response to changes in fund assortment. They further established that individuals with lower levels of debt literacy tended to conduct high-cost transactions; the less financially literate were either unable to judge their debt position or reported excessive debt loads.

Moak *et al*. (2012) found out that traditional financial theories assume that individuals draw utility from their own consumption. However, many researchers are mindful that the behaviour of investors comparing themselves with others around them, depicted as

keeping up with the Joneses may drive individual's investment decisions. Lauterbach and Reisman (2011) argued that investors prefer domestic assets to mimic the economic fortunes and welfare of their neighbours, countrymen and social preference groups. Demarzo *et al*. (2010) developed a model in which even rational and risk averse agents may overinvest in risky technology stock. With the model, the authors demonstrate that an indirect utility with keeping up with the Joneses properties can induce herding and hence promote investment bubble.

Abu *et al*. (2010) established that savings and investments are co-integrated. Feldstein and Horioka (2008) also established that domestic savings and investments are highly correlated. They further argued that when households savings are low, there will be very little investment in securities market, while when it is high; there will be an increase in investment in the securities market.

The NSE is a stock market that has been characterized by humble beginnings and it has grown considerably over time. Ngugi and Njiru (2010) in their study stated that the NSE came into being in the 1920s when Kenya was a British colony when an informal way of dealing in shares and stocks was commenced. The business of shares trading was restricted only to the resident of European community and Africans and Asians were not permitted to deal in securities.

In 1963, Kenya became independent and Africans and Asians were permitted to deal in securities. In Kenya, the first three years after independence in 1963, saw steady economic growth when the Nairobi Securities Exchange (NSE) handled a number of highly oversubscribed public issues, this led to a bull run in the stock prices within this time since most African Kenyans were now interested in investing in stocks (NSE, 2016). In 1975, NSE lost its regional character following nationalizations, exchange controls and other inter-territorial restrictions introduced in neighbouring Tanzania and Uganda, this led to a decrease in volume of trade and therefore the first bearish run after independence (NSE, 2016).

In 1980, The Kenyan Government saw the need to design and implement policy transformation to promote the sustainability of economic growth with an efficient and steady financial system. In 1984, A Central Bank of Kenya study, Development of Money and Capital Markets in Kenya, which was known as a blueprint for structural reforms in the financial markets helped the creation of a regulatory body (CBK, 2016). In February 2001, basic reformation of the capital market of Kenya took place and divided the market into four independent market segments: the Main Investments Market Segment (MIMS), the Alternative Investments Market Segment (AIMS), the Fixed Income Securities Market Segment (FISMS) and later Futures and Options Market Segment (FOMS). On 26th July 2002, with the introducing of a New Foreign Investor Regulations, there are three categories of investor on the capital markets; local, East African and foreign (NSE, 2016).

Kalui (2010) found out that companies quoted at the NSE experience high stock price volatility. He found that stock price volatility at the NSE between 1998 and 2002 was a high of 21.2%; with the industrial and allied sector recording the lowest at 15.3%. The highest stock price volatility was registered in the year 2000 at 31.9% and the lowest during this period of study in 2001 at 12.8%. In 1991, Kenya introduced equity stock as recorded in the most recent trading session ended as a measure to mitigate the high volatility of equity stock prices. Thirikwa and Olweny (2015) did a study on determinants of herding in the NSE and found out that herding exists in the NSE and that there is book-to-market value and the deviation in earnings in returns of a security. Olweny and Waweru (2016) did an analysis of asymmetric and persistence in stock return volatility in the NSE market phases; they found out that stocks listed at the NSE experience consistent peaks and troughs leading to bear and bull phases.

1.2 Statement of the problem

Bear market is a situation whereby there is a continuous long term downward trend of stock prices (Sperandao, 2010). This situation makes investors to get worried since when they invest in securities, they expect the stock prices either to remain the same or have

an upward trend which is always not the case. The Nairobi Securities Exchange experienced a long bear market between January 2nd and March 31st 2009 where the NSE -20 share index dropped from 3589.16 points to 2805 points with market capitalization falling from sh. 863 billion to sh. 689 billion (NSE, 2016). Apart from the global recession, the NSE has also been hit by a number of regulatory and governance issues such as the collapse of Discount Securities and also Thuo Stock Brokers. Kalui (2010) observed that companies quoted at the NSE experience high stock price fluctuations. He found that stock price fluctuations at the NSE between 1998 and 2002 was a high of 21.2%; with the industrial and allied sector recording the lowest at 15.3%. The highest stock price fluctuation was registered in the year 2000 at 31.9% and the lowest during this period of study in 2001 at 12.8%. The concern which was addressed by this study was to establish the determinants of bear market performance at the Nairobi Securities Exchange.

Kim and Zumwalt (2009) did an analysis of risk in bull and bear markets but they did not analyze the determinants of bear market performance. Maheu *et al*. (2009) studied how to extract bull and bear markets from stock returns but they did not document the determinants of bear market performance. Klauss (2012) analysed whether bull and bear markets have changed overtime by using empirical evidence from the US-stock market but he did not find out the determinants of bear market performance. Bradford and Barsky (2009) studied why stock markets fluctuate by using United States stock market index such as S & P stock market index, he however, did not establish the determinants of bear market performance. These studies done overseas clearly indicate a literature gap in the determinants of the bear market performance.

Simiyu *et al*. (2013) also established that dividend is the major determinant of share price volatility, on the other hand Nduga *et al*. (2014) studied the impact of macroeconomic variables on stock market returns in Kenya and found out that money supply, exchange rates and inflation affect stock market returns in Kenya. Aroni (2011) studied the factors influencing stock prices for firms listed at the Nairobi Securities Exchange. The variables used were; inflation rates, money supply, exchange rates and

interest rates. Most of these variables are sub-variables in the current study and that the major intent was to study their influence on stock prices in general but not specifically bear market performance. Kirui *et al*. (2014) in a study of macroeconomic variables in relation to volatility and stock market return concentrated more so on stock returns in general and not necessarily on bear market performance.

Wanjala (2014) did a study on micro-economic determinants of stock market performance in Kenya by taking a case of Nairobi Securities Exchange. The study established that the relationship between inflation and stock market performance is inverse but insignificant. The variables studied were few and the study was more focused on stock market performance in general and not on the share price performance. Ouma and Muriu (2014) studied the impact of macroeconomic variables on stock market returns in Kenya. The study found out that there exist a significant relationship between stock market returns and macro-economic variables. This study was more on the returns of the stock market but not on bear market performance. In another local study, Kiboi and Katwa (2015) did a study on Nairobi Securities Exchange by taking a regression of factors affecting stock prices. The study established that selected macro-economic covariates significantly affect the value of stocks at the Nairobi Securities Exchange. This study however, was not specific on whether the effect was on a bull or bear market. Mutuku and Kirwa (2014) studied macroeconomic variables and the Kenyan Equity Market by performing a time series analysis. The study established that macro-economic variables drive equity market in the long run. This study however, failed to specify whether the macro-economic activities were leading to share price increases or decreases or whether it was affecting bear market performance.

Muiruri (2014) studied the effects of estimating systematic risk in equity stocks in the Nairobi Securities Exchange by taking an empirical review of systematic risk estimation. The study found out that there exist a relationship between systematic risk and stock market return. In this study, there was no attempt to establish whether the returns were positive or negative. Olweny and Kariuki (2011) investigated stock market performance and economic growth by taking empirical evidence from Kenya using causality test

approach. The study established that the studied variables were co-integrated with at least one co-integrating vector. This study was more on a specific approach; causality test approach and neither did it show the effect on bear market performance.

Odoyo *et al*. (2014) studied the effect of foreign exchange rates on price per share. The study established that there exists a positive relationship between stock prices exchange rates. The study narrowed down to only one variable; exchange rate, moreover, it did not involve bear market performance. Kimani and Mutuku (2013) did a study of inflation dynamics on the overall stock market performance by taking a case of Nairobi Securities Exchange. The study established that there exists a negative relationship between inflation and stock market performance in Kenya. However, the study never attempted to explain the effect of inflation on bear market performance.

Mwendwa *et al*. (2014) did a study on the determinants of stock market growth at the Nairobi Securities Exchange. The study found out that regulatory framework, technology, corporate governance and capital are key determinants of stock market growth. This study however, did not link the determinants of stock market growth to bear market performance. Thirikwa and Olweny (2015) did a study on determinants of herding in the Nairobi Securities Exchange and found out that stock returns are fat tailed and not normally distributed; this study however, did not link determinants of herding to bear market performance. Olang *et al*. (2015) did a study on the effect of liquidity on the dividend pay-out by firms listed at the Nairobi Securities Exchange in Kenya; the study established that profitability plays a major role in dividend pay-out. The study however, did not link dividends payout to bear market performance.

Ogega and Waweru (2016) did an analysis of asymmetric and persistence in stock return volatility in the NSE market phases. The study established persistent bullish phases than bearish with bearish being more frequent. The study however, did not link the determinants of bear market to its performance, and neither did it establish the determinants of bear market. The above studies done in Kenya mainly address factors affecting share price fluctuations; however, these studies fail to address the determinants

of bear market performance in the Nairobi Securities Exchange. It is also clear from the above analysis that there are few studies available that analyze structural changes in bear markets overtime while figuring out potential implications for investors who maximize their utilities. This study therefore attempted to address this gap existing in the Kenyan finance research and therefore fill it in the literature. The study sought to examine transaction cost, mobilization of resources by retail investors, financial literacy and cultural values as possible factors affecting bear market performance in the Nairobi Securities Exchange in Kenya.

1.3 Research Objectives

1.3.1 General Objectives

The general objective of the study was to investigate the determinants of bear market performance in the Nairobi Securities Exchange in Kenya.

1.3.2 Specific objectives

The following were the specific objectives in line with the research problem:

1. To determine the influence of transaction cost on bear market performance in the Nairobi Securities Exchange in Kenya.
2. To establish the influence of mobilization of resources by retail investors on bear market performance in the Nairobi Securities Exchange in Kenya.
3. To evaluate the influence of financial literacy on bear market performance in the Nairobi Securities Exchange in Kenya.
4. To assess the influence of cultural values on bear market performance in the Nairobi Securities Exchange in Kenya.

1.4 Research questions

The following were the research questions that were used to achieve the research objectives:

1. Does transaction cost influence bear market performance in the Nairobi Securities Exchange in Kenya?
2. Does mobilization of resources by retail investors' influence bear market performance in the Nairobi Securities Exchange in Kenya?
3. Does financial literacy influence bear market performance in the Nairobi Securities Exchange in Kenya?
4. Does cultural values influence bear market performance in the Nairobi Securities Exchange in Kenya?

1.5 Research Hypotheses

This study was guided by the following research hypotheses:

$H_0$1: Transaction cost has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

$H_0$2: Mobilization of resources by retail investors has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

$H_0$3: Financial literacy has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

$H_0$4: Cultural values have no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

1.6 Justification of the Study

The study adds to the scant local literature on bear market performance in the Nairobi Securities Exchange; additionally, it adds value to the conceptual understanding of the phenomena of the bear market. It also serves as basis of future research in the area by using different approaches to further explore this area or attempt to demystify the determinants of bear market. The study is of importance to policy makers and government regulators as it provides an opportunity of understanding the issues and constraints that affect the development of bear market performance in the Nairobi Securities Exchange in Kenya. It also assists by explaining which determinants should be given more focus in terms of bear market performance and new policies that can be formulated as a result of the findings.

The study would be of practical relevance to investors who most of the time experience bear market at the Nairobi Securities Exchange and do not know how to deal with it. The speculators therefore can be in a good position on what action to take every time the bourse experiences bear market; since most of the activities of speculators are to consistently buy and sell off securities, the knowledge on bear market is therefore an added advantage to them. The study adds value to the body of corporate financial management discipline especially in the more demanding concerns of market signals and behavioural finance and also form the basis of further research by identifying the knowledge gap that arises from this study. To practice, investors can apply it to evaluate the determinants of bear market and how they influence its performance in the Nairobi Securities Exchange. The study therefore would play a big role in guiding the investors on when to buy a stock so as to make capital gains in the future and also not to be in a hurry to dispose of a stock which is experiencing a run bear market because the market always corrects itself in the long run.

Most studies in Kenya have been geared towards investors and dividend payouts but very few in the area of bear market; this study therefore attempted to fill this gap in the missing literature on the determinants of bear market performance. The development of

the bourse is both important to the Kenyan Government and investors and knowledge on bear market is crucial for both current and potential investors. Some of the documented information on what affects the market has not really emphasized the contributions by the behaviours of the retail investors, this study therefore attempted to fill this gap by detailing how the behaviours of retail investors' affects bear market performance.

1.7 Scope of the Study

This study examined the determinants of bear market performance in the Nairobi Securities Exchange. The study targeted retail investors transacting business in the Nairobi Securities Exchange through stock broking companies operating in Kenya and which are actively involved in trading big volumes in the Nairobi Securities Exchange. Retail investors were considered suitable for the study since they are involved in the daily transactions which take place at the Nairobi Securities Exchange and are considered to be the major players in stock price fluctuations.

There are various investment avenues in the capital market but the study focused on individuals' investment in shares, relating this activity with the bear market performance by considering the determinants of bear market such as; transaction costs, mobilization of resources by retail investors, financial literacy and cultural values. The securities market is considered as a safe investment avenue by investors. However, the bear market experienced in the Kenyan bourse erodes confidence thus creating fear of the possibility to lose savings. It was therefore necessary to have a more understanding of the factors affecting the bear market performance so as to enhance participation in the financial markets.

1.8 Limitations of the study

Data for the study was collected through administering questionnaires to retail investors as they transacted business at the stock brokerage firms. As pertains to accessibility, the retail investors could only be accessed when they were transacting business; this means that in the circumstance where there was no much business, then they would not be easily accessed. However, during the period of collecting data, Rea Vipingo was doing a share buyback so most of the stock brokerage firms had sufficient retail investors. Also, most retail investors were more interested in transacting business rather than filling in the questionnaires; this challenge was resolved by assuring the retail investors that the data was strictly for research purposes and would be treated with confidentiality since they were not required to write their names on the questionnaires.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter analyses the theoretical ground for this study, it reviews the current theories in the area of financial investments and the resultant trends and how the action of investors have resulted into these trends. The particular areas investigated include the Dow Theory; EMH; Agency Theory; transaction cost; mobilization of resources by retail investors, financial literacy, cultural values and governance at the bourse and how they determine the performance of the bear market. The literature review identifies the major studies related to the research area, outlining points of views and findings established by the various researchers. Research gaps are identified and their relevance to the research problem entrenched.

2.2 Theoretical framework

Various theories have been postulated to enlighten on the determinants of bear market performance in the Nairobi Securities Exchange. The theories reviewed include; Dow Theory, Efficient market hypothesis and Agency theory.

2.2.1 The Dow Theory

Sarbapriya (2012) stated that the Dow Theory holds that there are three components in the movement of stock prices: The primary trend, the secondary trend, minor trend or tertiary and that daily fluctuation in the stock market are meaningless and contain no useful information. Richard *et al*. (2009) also noted that Dow (1920) editorials provided the basis for the underlying tenets of Dow Theory and also the technical analysis of trends. These tenets includes: The averages discount everything; the averages consist of three stock price movements and; both averages must confirm the trends. In the first tenet, Richard *et al*. (2009) noted that the averages represent all that is known and all

that can be foreseen by financial and lay minds concerning financial matters. In effect the averages accurately reflect the tapping of every source of important information that has any market significance. In the second tenet; the averages consist of three stock price movements: The primary trend, Secondary reactions and daily fluctuations. Primary trends are known as bull or bear markets and can last a year to several years. Secondary reactions are the movements that run counter to the market's primary trend and are often erroneously perceived as changes in the primary trend, they do not persist long enough to become primary trends.

Sarbapriya (2012) notes that daily fluctuations according to the Dow Theory, offer little in the way of forecasting power, inferences drawn from daily price movements will almost always be misleading. In the third tenet; both averages must confirm: This is the most important tenet of Dow Theory. Dow (1920) explored the Dow Jones (DJ) Industrial Average and DJ Rail Index and suggested that stock markets move in similar ways over time, he is therefore thought of as the founder of technical analysis. The movements of both the industrials and transport indices that Dow (1920) analysed should always be considered together. Conclusions based on the movements of one average unconfirmed by the other, are likely to be misleading. Richard *et al*. (2009) observed that in Dow's analysis of Industrials and Transport Indices, if both Industrial and Transport reach significant highs, the market's primary trend is bullish. Conversely, if both averages reach significant lows, the primary trend is bearish. Once primary trend is signaled, it remains intact until a contrary signal is generated; the primary trend has three phases; Accumulation, Public participation and Excess.

The relevance of this theory to this study lies in the explanation given by Carlson (2015) that the theory is based on the changes in price of the stocks which are bought and sold every business day. Each share of stock represents ownership of a definite fraction of some business enterprise. The owner of each share of stock is virtually a partner in that business. He may sever his connection with the business on a moment's notice by selling his stock. He does not sell it to the company or to a stock exchange, but to some other individual through a broker on the stock exchange in the perpetual auction which the

exchange conducts. Every transaction in this auction consists of a sale and purchase. The price at which every transaction is made is carefully recorded and widely published. Critiques of Dow Theory states that one problem with Dow Theory is that followers can miss out on large gains due to the conservative nature of a trend reversal signal. Another problem with Dow Theory is that over time, the economy and the indexes originally used by Dow has changed (Sabrapiya, 2012).

2.2.2 Efficient Market Hypothesis

Fama (1970) explained that asset prices arising from efficient capital markets fully reflect all of the information in some relevant information set. He distinguished three versions of market efficiency depending on the particular specification of the information set. These are weak form efficiency, semi strong form efficiency and strong form efficiency corresponding to information sets which contain respectively only past prices and returns, all information, both publicly available as well as insider or private information. Efficient Market Hypothesis (EMH) postulates that all information relevant to determining the intrinsic value of an asset will, by virtue of the actions of rational, profit maximising traders, be embodied in the actual market price (Fama, 1970). As a consequence, asset prices will fully reflect all relevant information, and will move only upon the receipt of new information (Taylor, 2008).

If asset markets do not act as efficient aggregators and processors of relevant information, the resulting disparity between market prices and intrinsic values would present traders with easily identifiable and riskless profit opportunities. In exploiting such opportunities (i.e. purchasing under-priced assets and selling overpriced ones), rational speculators would quickly drive asset prices back towards their intrinsic values, thereby having a stabilising influence on asset markets. Speculators (i.e. investors whose conduct may be characterised as irrational and destabilising who did not behave in this manner) would make losses and be forced to exit the market (Kortian, 2009).The two troubling characteristics of the EMH are the implication that future prices are not influenced by past movements in the asset price, and that speculation can have only a

stabilising influence upon asset markets. It is clear that past prices do influence the behaviour of investors and traders. There are several features of trading in real world asset markets which are contrary to the sort of behaviour implied by the EMH. For example, the widespread use of chartism and technical analysis assumes that publicly available information, such as past asset price movements, can be profitably exploited to predict future movements in an asset price. If the EMH fully explained behaviour in asset markets, Chartism should die out, yet its importance seems to have increased (Taylor, 2008).

The relevance of this theory to the study lies in the fact that the main principle behind the EMH is that the price of a stock reflects all the information available to the market participants concerning the return and risk of that security. The current price represents the present value of all future dividends expected from holding the stock. If all the available information is factored into the market price, the market price will reflect the share's worth or, rather, estimate its value (Petros, 2015). All the information available to the market about future cash flows expected from holding a particular share is factored into the share's price through trading. Trading brings together heterogeneous market participants, each seeking to maximise their utility. As each trader participates in the market the information he or she has about a share is incorporated into the market price of the share; hence trading transmits the information from traders into the prices, making the price mechanism the aggregator of information currently available (Grossman, 2016; Lo, 2017).

Critiques of EMH suggest that the Efficient Market Hypothesis has been widely accepted as valid, but evidence against market efficiency is mounting. To some this evidence is disturbing and they raise concerns on potential sampling errors, the formative nature of behavioural theories as well as other econometric concerns (Kothari, 2014). However, to other researchers, it is 'liberating' and 'enough' to cast doubts over the robustness of the Efficient Markets proposition (Lee, 2016; Dyckman & Morse, 2016). These researchers maintain that price adjustment to new information is a continuous process and does not occur instantaneously. The market is continuously

seeking to price securities correctly, making the current price, “at best, a noisy (or incomplete) proxy of the security’s true fundamental value” (Lee, 2017).Shiller (2013) called the EMH “half-true”. The EMH perfectly describes trading conditions in the modern stock market, because the information flow and trade execution are faster than ever. On the other hand, there are certain patterns in stock prices, which the EMH fails to explain.

Zhang *et al*. (2012) did a study on revisiting the EMH for African countries. In their study they considered five countries; Egypt, Kenya, Morocco, South Africa and Tunisia. Their empirical results from the univariate unit root and panel based unit root tests indicates that weak form efficient market hypothesis holds in three countries; Kenya, South Africa and Tunisia, while the Fourier function indicates that a unit root in stock prices is flatly rejected for Egypt and Morocco. They further argue that this is due to strong support of active investment strategies of international mutual funds in Egypt and Morocco. Naryan (2008) postulates that finance researchers have been interested in time series properties of equity prices, with particular concern regarding whether stock prices can be described as a random walk or mean reverting processes. Whether or not stock prices are characterised by a unit root has implications for the EMH, which asserts that returns of a stock market are unpredictable from previous price changes. Nelson (2010) asserts that stock prices are non-stationary and therefore shocks will have a permanent effect, implying that stock prices will attain a new equilibrium and future returns cannot be predicted based on historical movements; this proposition supports the weak form EMH.

2.2.3 Agency Theory

Agency theory postulates that the firm consists of contracts between the owners of economic resources (the principals) and managers (the agents) who are charged with using and controlling those resources (Jensen & Meckling, 1976). Furthermore, Scapens (2010) established that agency theory is based on the premise that agents have more information than principals and that this information asymmetry adversely affects the

principals′ ability to monitor effectively whether their interests are being properly served by agents. It also assumes that principals and agents act rationally and that they will use the contracting process to maximize their wealth. This means that because agents have self-seeking motives they are likely to take the opportunity to act against the interests of the owners of the firm, for example by partaking in high levels of perquisite consumption.

Ross *et al*. (2008) also found out that agency cost is the implicit cost of the conflict of interest that exists between shareholders and management; this arises when management acts in their own interest rather than on behalf of the shareholders who own the firm. This could be direct or indirect. This is contrary to the assumptions of Miller and Modigliani (1961) who assumed that managers are perfect agents for shareholders and no conflict of interest exists between them. Managers are bound to conduct some activities, which could be costly to shareholders, such as undertaking unprofitable investments that would yield excessive returns to them, and unnecessarily high management compensation (Al-Malkawi, 2007). Wallace (2011) found out that to ensure pareto-optimality in the contracting process, both principals and agents will incur contracting costs. For instance, to minimize the risk of shirking by agents, principals will incur monitoring expenditures, for example the costs of subjecting financial statements to external audit scrutiny. Agents, on the other hand, incur bonding costs, for example the cost of internal audit, in order to signal to owners that they are acting responsibly and in a manner consistent with their contract of employment. Such action also helps managers to secure their positions in the firm and to protect their salary levels. Indeed, Wallace (2011) argues that the principal′s expenditures for monitoring agents′ actions are reflected in the salary paid to the agent. Therefore, it is in the agents′ interest to demand monitoring services, like internal auditing, in order to reduce the risk of principals making adverse adjustments to executive compensation.

The relevance of this theory to the study is that for a shareholder to purchase stock at the NSE, he/she has to do so through an agent who in this case is a registered stock broker. The shareholder will identify the stock he wants to do business with then deposit the cash for purchase of the stock. On the other hand, when the shareholder wants to dispose his/her share in the NSE; he/she has to do so through the agent by making bids which the agent will forward to the NSE so as to get a willing buyer for the said stock. In this circumstance, the shareholder is the principal while the stock broker is the agent, also once the stock is acquire, the shareholder is the principal and the manager of the company the investor has purchased its stock is the agent. Critiques of agency theory state that agency becomes a problem when there is a divergence between interests and goals between the principal and the agent, such that the agent will be more interested in fulfilling his needs rather than the needs of the principal and therefore causing conflict between the agent and the principal (Kay, 2015).

2.3 Conceptual Framework

Kothari (2012) posits that a conceptual framework explains either graphically, or in narrative form, the main things to be studied; the key variables and the presumed relationship among them. Holborn (2011) explains that it is useful since it is a means of setting out explanation set that might be used to define and make sense of the data that flow from the research question. It also acts as a link between the literature, the methodology and the results. Miles and Huberman (2010) also found out that the main purpose of a conceptual framework is to clarify concepts and propose relationships among the concepts in the study. This can be used to provide a context for interpreting the study findings. The variables that were investigated consisted of; transaction cost, mobilization of resources by retail investors, financial literacy, cultural values and governance at the bourse. The variables are relevant in the Kenyan situation and data for their analysis can readily be collected. In view of the literature review and the research gaps identified, there is need to investigate the Kenyan situation further with the aim of finding out the effect of the selected variables on the bear market performance in the NSE.

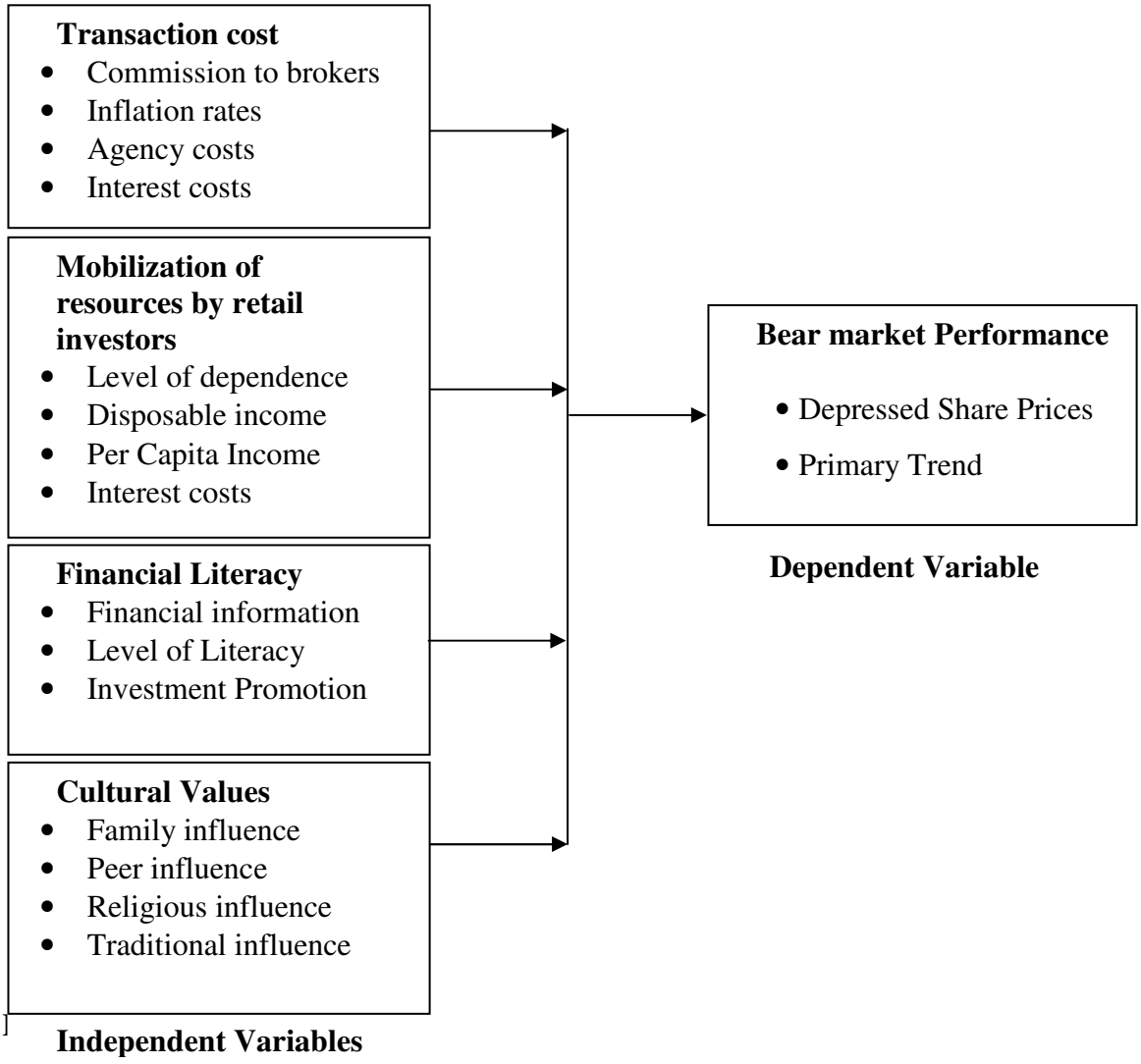

Figure 2.1: Conceptual framework

2.4 Review of Variables

In this section the major study variables that were used in the study; transaction cost, mobilisation of resources by retail investors, financial literacy and cultural values are analysed and also the extent to which they affect the performance of bear market.

2.4.1 Transaction cost

Transaction costs include time and money spent searching, drawing up and enforcing contracts and in dealing with contingencies (Burke, 2012). The concept of transaction cost is traced from its originator economist, Coase (1960) and to its more recent development by Kreps (2010). Burke (2012) further noted that transaction costs are somewhat of a catch them all term for various economically valuable activities that facilitate economic exchanges. Cordella (2006) found out that transaction costs can be reduced in the bourse by making use of electronic systems. He noted that failure to digitize the bourse can lead to higher costs of transactions. He therefore suggested that the implementation of information communication technology grounded in transaction costs theory can help cut down costs at the bourse.

Gupta (2013) defines inflation as an increase in the price of goods and services as experienced by all consumers. Cechetti and Ehrmann (2009) established that inflation decreases the purchasing power of money; its direct impact can be measured as a reduction in the real return on investments. They further established that the real return on an investment differs from the nominal return in that the real return factors in the decline in the value due to inflation while the nominal return does not. Hagen (2011) established that inflation which is an element of transaction cost has a damaging effect on the purchasing power of investors' portfolios, more so in the long run. Hagen (2011) further notes that investors are constantly on the search for investments and investment strategies that can provide a hedge against the inflation risk inherent in portfolios. Lisa *et al*. (2008) did a study on the correlation between asset prices and inflation and established that there is a high correlation between inflation and asset prices; high inflation rates lead to low asset prices and vice versa. Sevita (2011) found out that transaction costs leads to high lending cost, this then affects investment in securities since potential investors will lack funding to invest. Dimitri *et al*. (2012) found out that when transaction costs increase, the price of the liquid asset increases. They also added that the price of the illiquid asset decreases if the asset is in small supply, but may increase if the supply is large. Dimitri *et al*. (2012) also notes that transaction costs such

as bid-ask spreads, brokerage commissions, exchange fees and transaction taxes are important aspects in determining a price of a security.

The relationship between stock prices and interest rates has received considerable attention in the literature. Fama (1981) found out that expected inflation is negatively correlated with anticipated real activity, which in turn is positively related to returns on the stock market. The study further adds that, stock market returns should be negatively correlated with expected inflation, which is often proxied by the short-term interest rate. On the other hand, the influence of the long-term interest rate on stock prices stems directly from the present value model through the influence of the long-term interest rate on the discount rate. Rather than using either short-term or long-term interest rates, Campbell (2013) analyzed the relationship between the yield spread and stock market returns. He argues that the same variables that have been used to predict excess returns in the term structure also predicts excess stock returns, deducing that a simultaneous analysis of the returns on bills, bonds and stock should be beneficial. His results support the effectiveness of the term structure of interest rates in predicting excess returns on the US stock market. Kaul (2010) studied the relationship between expected inflation and the stock market, which, according to the proxy hypothesis of Fama (1981) should be negatively related since expected inflation is negatively correlated with anticipated real activity, which in turn is positively related to returns on the stock market.

Instead of using the short-term interest rate as a proxy for expected inflation, Kaul (2010) explicitly models the relationship between expected inflation and stock market returns. Zhou (2011) also studied the relationship between interest rates and stock prices using regression analysis. He found that interest rates have an important impact on stock returns, especially on long horizons, but the hypothesis that expected stock returns move one-for-one with ex ante interest rates is rejected. In addition, his results show that long-term interest rate explain a major part of the variation in price-dividend ratios and suggests that the high volatility of the stock market is related to the high volatility of long-term bond yields and may be accounted for by changing forecasts of discount rates. Lee (2013) in an analysis of stocks used three-year rolling regressions to analyze the

relationship between the stock market and the short-term interest rate. He forecasted excess returns on the Standard and Poor 500 index with the short-term interest rate, but found out that the relationship is not stable over time. It gradually changes from a significantly negative to no relationship, or even a positive although insignificant relationship. Jefferis and Okeahalam (2014) analyzed South Africa, Botswana and Zimbabwe stock market, where higher interest rates are hypothesized to depress stock prices through the substitution effect, an increase in the discount rate had a depressing effect on investment and hence on expected future profits. Harasty and Roulet (2012) analyzed 17 developed countries and found out that stock prices are co-integrated with earnings and the long term interest rate in each country. Spyrou (2011) analyzed the relationship between inflation and stock returns but for the emerging economy of Greece.

Consistent with Kaul's results, Spyrou (2011) established that inflation and stock returns are negatively related. Arango (2012) established that some evidence of the nonlinear and inverse relationship between the share prices on the Bogota stock market and the interest rate as measured by the inter bank loan interest rate, is to some extent affected by monetary policy. Zordan (2013) found out that historical evidence illustrates that stock prices and interest rates are inversely correlated, with cycle's observable well back into the period subsequent to World War II. Uddin and Alam (2012) analyzed linear relationship between share price and interest rate, share price and changes of interest rate, changes of share price and interest rate, and changes of share price and changes of interest rate on Dhaka Stock Exchange (DSE). For all of the cases, included and excluded outlier, it was found that interest rate has significant negative relationship with share price. Islam (2013) replicated the above studies to examine the short-run dynamic adjustment and the long-run equilibrium relationships between four macroeconomic variables (interest rate, inflation rate, exchange rate, and the industrial productivity) and the Kuala Lumpur Stock Exchange (KLSE) Composite Index. His conclusions were similar: There existed statistically significant short-run (dynamic) and long-run (equilibrium) relationships among the macroeconomic variables and the KLSE stock

returns. Ibrahim (2012) also investigated the dynamic interactions between the KLSE Composite Index, and seven macroeconomic variables (industrial production index, money supply M1 and M2, consumer price index, foreign reserves, credit aggregates and exchange rate). Observing that macroeconomic variables affected the Malaysian stock indices, he concluded that Malaysian stock market was informational inefficient. Chong and Koh's (2013) results were similar: They showed that stock prices, economic activities, real interest rates and real money balances in Malaysia were linked in the long run both in the pre- and post-capital control periods.

Mukherjee and Naka (2013) applied Johansen's (2011) VECM to analyze the relationship between the Japanese Stock Market and exchange rate, inflation, money supply, real economic activity, long-term government bond rate and call money rate. They concluded that a co-integrating relationship existed and that stock prices contributed to this relationship. Maysami and Koh (2012) examined such relationships in Singapore. They found out that inflation, money supply growth, changes in short- and long-term interest rate and variations in exchange rate formed a co-integrating relation with changes in Singapore's stock market levels. Islam and Watanapalachaikul (2013) found out that there exists a strong, significant long-run relationship between stock prices and macroeconomic factors (interest rate, bonds price, foreign exchange rate, price-earnings ratio, market capitalization, and consumer price index) during 1992 to 2011 in Thailand. Kumar (2012) found out that there exists a long-term relationship of stock prices with exchange rate and inflation in Indian context. DeStefano (2012) examined whether movements in economic factors dictated by the dividend discount model can explain broad movements in stock returns over the business cycle. As anticipated, stock returns decrease throughout economic expansions and become negative during the first half of recession. Returns are largest during the second half of recessions, suggesting an important role for expected earnings. These results are consistent with the notion that expected stock returns vary inversely with economic conditions, yet suggesting that realized returns are especially poor indicators of expected returns prior to turning points in the business cycle.

Flannery and Protopapadakis (2011) estimated a GARCH model of daily equity returns, in which realized returns and their conditional volatility depend on seventeen macro series' announcements. They found six candidates for priced factors: Three nominal (CPI, PPI, and a Monetary Aggregate) and three real (the employment report, the balance of trade and housing starts). Boucher (2011) considered a new perspective on the relationship between stock prices and inflation, by estimating the common long-term trend in real stock prices, as reflected in the earning-price ratio, and both expected and realized inflation. They studied the role of the transitory deviations from the common trend in the earning-price ratio and realized inflation for predicting stock market fluctuations. In particular, they found that out that these deviations exhibit substantial in sample and out-of-sample forecasting abilities for both real stock returns and excess returns. Moreover, they found out that this variable provides information about future stock returns at short and intermediate horizons that is not captured by other popular forecasting variables.

Gilbert (2011) studied the link between macro-economic announcement surprises, intraday returns on the S&P 500 Index, and the subsequent revisions to the announced data. This study found out that announcement-day returns contain information about the future revisions of the released figures. This information is unrelated to the initial announcement surprises and predicts the future revisions: Prices increase when the subsequent revisions will be positive. This observation is strongest for real activity and investment variables such as non-firm payroll, industrial production, and factory orders. The results suggest that the release of noisy public information triggers the aggregation of more accurate private information.

Mookerjee and Yu (2012) used the techniques of co-integration and causality together with forecasting equations to test for informational inefficiencies in both the long and short run, respectively. The results indicated that three of the four macro variables are co-integrated with stock prices, suggesting potential inefficiencies in the long run. The causality tests and forecasting equations provided conflicting evidence on the informational efficiency of the stock market in the short run. Humpe and Macmillan

(2011) examined whether a number of macroeconomic variables influence stock prices in the US and Japan. A co-integration analysis was applied in order to model the long term relationship between industrial production, consumer price index, money supply, long term interest rates and stock prices in the US and Japan. For US, they found the data were consistent with a single co-integrating vector where stock prices were positively related to industrial production and negatively related to both the consumer price index and a long term interest rate. They also found insignificant (although positive) relationship between stock prices and the money supply. However, in Japan they found two co-integrating vectors. For one vector prices were influenced positively by industrial production and negatively by the money supply. For the second co-integrating vector, they found industrial production to be negatively influenced by the consumer price index and a long term interest rate. These contrasting results may be due to the slump in the Japanese economy during the 1990s and consequent liquidity trap.

Adam and Tweneboah (2012) examined the impact of macro-economic variables on stock prices in the Databank stock index. To represent the stock market and (a) inward foreign directs investments, (b) the Treasury bill rate (as a measure of interest rates), (c) the consumer price index (as a measure of inflation), (d) average crude oil prices, and (e) the exchange rate were used as macroeconomic variables. They analyzed quarterly data for the above variables from 1991 to 2007 employing co-integration test, vector error correction models (VECM). The paper established that there is co-integration between macroeconomic variable and stock prices in Ghana indicating long run relationship. The Vector Error Correlation Model (VECM) analyses showed that the lagged values of interest rate and inflation have a significant influence on the stock market. The inward foreign direct investments, the oil prices, and the exchange rate demonstrate weak influence on price changes. Paddy (2012) found out that macroeconomic and fiscal environment is one of the building blocks which determine the success of securities market. Conducive macroeconomic environment promotes the profitability of business which propels them to a stage where they can access securities for sustained growth. Generally, the barometers for measuring the performance of the economy include real

GDP growth rate, rate of inflation, the exchange rate, fiscal position and the debt position. Of these the exchange rate, interest rate and the rate of inflation can be singled out to affect stock market activity as they impinge directly on the state of corporate activity in the country. Agenor (2011) captured these views by stating that high inflation, large fiscal deficits, and real exchange rate over-valuation are often key symptoms of macro-economic instability which constraints private sector investment and savings and thereby results in inefficient allocation of resources on the exchange affecting its performance.

Atje and Jovanovic (2013) found strong evidence to support the view that stock market development leads to economic growth. Using data from 1976 to 2010 on 41 countries including both developed and developing, Levine and Zervos (2013) investigated the relationship between economic growth and stock market development. They found a strong positive correlation between the stock market development and long-run economic growth after controlling for the initial level of per capita GDP, initial level of investment in human capital, political instability, and measures of fiscal and monetary policies as well as exchange rate policy. Harris (2011) found evidence to support the view that stock market development explains economic growth applying two-stage least squares. In fact, the results indicated that for developed countries, stock market development had some explanatory power on economic growth but not on developing countries. He concluded that the pool of literature that leads us to believe that the existence of stock markets might enhance economic growth is misleading or at best weak. Wai and Patrick's (2013) in their study argued that securities markets have generally not contributed to economic development of those countries that created them. Stiglitz (2009) also contend that the contribution of securities markets as a source of funds is limited because of fundamental problems of enforcement, adverse selection, and incentives undermining the protection of investors. Aidoo (2009) also reported several factors such as political instability, low-growth rate, lack of entrepreneurship and inadequate demand for stocks as some of the factors that are likely to influence the performance of the GSE. The study projected massive growth of the stock exchange in

terms of demand and supply provided the economic and political conditions remained favourable

Zhao (2010) did not find stable long-run relationship between Chinese Yuan real effective exchange rates and stock prices. Ramasamy and Yeung (2012) indicated inconsistent results for bi-directional causality between stock prices and exchange rates for six Asian countries over the period of 1995 and 2011. Kutty (2010) found that stock prices Granger affected exchange rates in the short run but there was no long-run significant relationship in Mexico between January 1989 and December 2006. Other studies from Griffin and Stulz (2011); Fernandez (2012); Hartmann and Pierdzioch (2013); and Zhao (2010) suggest no relationship between exchange rates and stock prices. On the other hand, the long-run relationship has been confirmed in some studies. Nieh (2012) found a long-run and asymmetric causal relationship between the exchange rates of new Taiwan dollar and Japanese Yen and their stock prices in Japan and Taiwan. Whether empirically or theoretically, the above studies have suggested a significant relationship between exchange rates and stock prices, but the results have been mixed for the sign and causal direction between exchange rates and stock prices. Phylaktis and Ravazzolo (2012) employed co-integration and multivariate Granger causality tests that resulted in positive long-run and short-run causality between stock prices and exchange rates in some Pacific Basin countries. Aloui (2011) indicated that movements of stock prices affect the exchange rate dynamics for the two periods pre- and post-Euro in the United States and Western European markets. Pan and Liu (2010) found out a causal relation from exchange rates to stock prices for East Asian countries. Yang and Doong (2012) found out that exchange rate changes directly impacted future changes of stock prices for the Group-7 countries from 1979 to 1999. Nandha and Hammoudeh (2010) argued that stock prices were affected by changes in the exchange rate for nine Asia-Pacific countries while Wu (2011) showed Singapore dollar exchange rates Granger affected stock prices.

Chiang and Yang (2013); Ratanapakorn and Sharma (2012); Kolari and Sorescu (2012); Aydemir and Demirhan (2011); Ning (2010); Chu and You (2011); and Eichler (2011)

specified that higher exchange rate variability mostly increases local stock market volatility, but decreases volatility for the United States stock markets. Exchange rate exposure has negative and significant impact on emerging market stock returns in a study by Chue and Cook (2012) while the S&P 500 stock price is negatively related to the real exchange rates in Kim (2013)'s research. Thus far, the relationship between stock prices and exchange rates is still inconclusive. The linkage between exchange rates and stock prices vary across economies with respect to exchange rate regimes, the trade size, the degree of capital control and the size of equity market (Pan & Liu, 2012). Mercereau (2013) suggested that the financial structure of an equity market influenced its real exchange rate, as well as the volatility of this exchange rate, whereas Walid and Fry (2011) asserted that the stock price volatility responded asymmetrically to events in the foreign exchange market.

Diamandis and Drakos (2011) found out that there exists a significant long-run relationship between the local stock market and the exchange rate market, but that the stability of the relationship is affected by financial and currency shocks such as the Mexican currency crisis of 1994 and the global financial crisis of 2007 to 2009. In addition, during the creation of the Mercosur between Argentina, Brazil, Paraguay and Uruguay in Latin American countries, this process led to the local currency devaluation. These exchange rate movements have substantial negative impact on the respective stock prices (Allegret & Sand-Zantman, 2011; Alvarez-Plata & Schrooten, 2012; Camarero & Tamarit, 2011). Hatemi and Roca (2012) reported that the two variables are significantly linked in the non-crisis period, but not at all during the crisis period for ASEAN countries. Exchange rates and stock prices are correlated in a complicated manner (Kim & Yoon, 2011: Tastan, 2012). As such, market interactions may destabilize stock markets, but may also play a stabilizing effect on the exchange rate market (Dieci & Westerhoff, 2010).

Muhammad and Rasheed (2011) conducted a study on the relationship between stock prices and exchange rates in four South Asian countries; Pakistan, India, Bangladesh and Sri- Lanka, for the period January 1994 to December2000. The study employed co-

integration, vector error correction modeling technique and standard Granger causality tests to examine the long-run and short-run association between stock prices and exchange rates. Results of the study showed no short-run association between the variables for all four countries. There was no long-run relationship between stock prices and exchange rates for Pakistan and India as well. However, for Bangladesh and Sri-Lanka, there appeared to be a bi-directional causality between these two financial variables. Sekmen (2011) examined the effects of exchange rate volatility, using the squared residuals from the autoregressive moving average (ARMA) models, on stock returns for the U.S. for the period 1980 to 2008. The study found that exchange rate volatility negatively affected U.S. stock returns since the availability of hedging instruments could not lessen the negative effect of exchange rate volatility on trade volume. In another study, Olugbenga (2012)examined the long-run and short-run effects of exchange rate on stock market development in Nigeria over 1985:1–2009:4 using the Johansen co-integration tests. Results showed a significant positive stock market performance to exchange rate in the short-run and a significant negative stock market performance to exchange rate in the long-run.

Amoro (2015) did a study on the effect of macro-economic factors and political events on the performance of Nairobi securities Exchange. The study established that exchange rate, money supply, 91-Day Treasury bill and political events were significant except inflation. Nyandema and Lagat (2016) did a study on the influence of foreign exchange rate fluctuations on the financial performance of commercial banks listed at the NSE. The study established that there exists a strong positive relationship between exchange rates and financial performance indicators. Tran (2016) did a study on the linkage between exchange rates and stock prices. The study established that exchange rates and stock prices were non- normally distributed; the study also established that time series, exchange rates and stock prices were stationary at the level form itself. Kabeer *et al*. (2016) did a study on the influence of macro-economic factors on capital market performance and established that the three major economic variables; foreign direct

investment, foreign exchange rate and inflation had an effect in the Karachi Stock Exchange.

2.4.2 Mobilisation of Resources by Retail Investors

The level of resources by retail investors is postulated to depend on lifetime income, wealth, and the expected returns on savings (Shiimi *et al*., 2009). In their research on theoretical and empirical investigation into the relationship between households' savings and investments in shares, Shiimi *et al*. (2009) established that low household savings leads to low investment in stocks and vice versa. Leff (2010) discovered a significant inverse relationship between dependency ratio and saving ratio in poor countries. He rationalized his findings as follows: Rapidly growing populations are characterized by a high ratio of dependants to the working age population who because they contribute to consumption, but not to production, impose a severe constraint on society's potential for saving. Thanoon and Baharumsha (2010) corroborated the view that savings ratio is determined by dependency ratio and that high dependency ratio leads to low investment in stocks.

Michael (2012) suggests that household may help to maintain connection and standings in the community. In his maintenance hypothesis, Michael suggests that remittances are given by households in order to maintain assets in the home community and for new investments. Michael (2012) further found out that an appreciation of the host country's currency could lead to increased remittances as the migrant takes advantage of the higher rate to increase the origin household's income. However, the appreciation also means that the migrant could remit less and the origin household would receive the same amount. Gonzalez (2011) found out that the Keynesian absolute income hypothesis and the Non-Keynesian hypothesis asserts that savings is a function of one's household's income, ceteris paribus. The capacity to save by the households is determined by the marginal propensity to save and the average propensity to save. Further to this, Edwards (2012) studied Latin American savings rate for 36 countries from 1970 to 2011 and found out that per capita income was the most important determinant of private and

public savings. Maximilano *et al*. (2013) noted that according to the monetary consensus achieved at the United Nations summit on financing for development in 2003, the major challenge is to create necessary domestic and international conditions to facilitate direct investment flows to developing countries particularly Africa.

Maximilano *et al*. (2013) also established that economic geography variables are more relevant for foreign direct investment from non traditional sources. They also noted that resource abundance and superior technology in the host countries represent minor pull factors of foreign direct investment from non-traditional sources. The impact of macro-economic factors on the performance of stock market in the modern period was addressed by authors such as Bilson *et al*. (2012) who argue that these factors determine the stock prices more than the global Macroeconomic factors. According to Vesela (2010) the macroeconomic factors that affect the development of stock prices, include interest rate, inflation, GDP, money supply, the movement of international capital changes in exchange rates, political and economic shocks. According to Kohout (2010) the most important factor that affects the development of stock prices in the long term is the amount of money in the economy. Also Flannery, Protopapadakis (2012) include among the major macroeconomic factors the money supply as well as unemployment, trade balance, the number of new residential buildings and the Producer Price Index. According to Maskay and Chromec (2013) the monetary policy or change in money supply, is one of the most effective tools available to the national central banks of individual countries in association with influencing the actual economic activity. Many authors, such as Keran (2011), Gupta (2012), Musílek (2013), Poire (2012) and Shostack (2013) consider the money supply as the instrument of the monetary policy, to be the most important macroeconomic factor that influences the behaviour and development of stock prices.

Maskay and Kontonikas (2012) consider the stock market to be the basic indicator of the condition and development of the economy strongly influencing and predicting it. Also these authors consider the money supply to be a strong determinant of the stock market of the entire economy. Money supply can affect stock prices directly, when there is more

money in the economy than can be utilized, they are allocated to investments (Musilek, 2013). By examining global factors certain associations were discovered by Gupta (2011) between money supply and the development of stock prices. Most authors listing macroeconomic factors that influence the development of stock prices consider the monetary policy, or change of the money supply in the economy to be the most important factor. A finding by Gupta (2012) serves as an example, when he found out that the money supply can be utilised for predicting the development of stock markets. His investigation confirmed that 59% of the value of stock indices can be predicted based on the money supply. This statement is supported by Rapach *et al.* (2013) who, in their analysis focused on the prediction of stock market development by using macroeconomic factors in 12 countries, concluded that the most trustworthy macroeconomic indicator for stock market predictions is the interest rate. Roley (2013) in their research dealt with the issues of anticipative money supply and concluded that there is a reciprocal relation between the non-anticipative money supply and the development of the stock prices. As stated by these authors, the central bank will quickly respond to this growth by raising the interest rates, resulting in the reduction of stock prices, because investors will seek less risky substitutes for their investment. On the contrary, according to Bernanke (2013) the anticipative change in the money supply will have no effect on the development of prices of financial assets (i.e. also including equity securities - shares) because the investors included it in their decisions (the asset prices were discounted). Only non-anticipative change in the money supply may influence the prices of securities. Varying effects of anticipative and non-anticipative money supply on the development of stock prices are confirmed by Maskay (2013).

Habibullah and Baharumshah (2013) the first author to empirically deal with the relationship between the money supply and stock rates was Sprinkel (1964) who found a strong relationship between the change in the U.S. money supply and stock prices in the observed period of 1918-1960. This study became the basis for the work of Mookerje (2007); Jeng *et al.* (2010); and Malliaris (2011). In this respect, a question arises whether this relationship holds even today, that is approximately 50 years after publication of this

"pioneering study", or how massive change of the money supply (e.g. the consequences of quantitative release) during the recent financial crisis influenced the development of stock prices and how the change in the money supply affects the development of the stock price bubbles.

Other authors dealing with the correlation and link between stock markets and the money supply such as; Maysami and Koh (2011) who, in the conditions of the Asian market revealed a positive relationship between the money supply and the development of the SGX index (Singapore stock exchange), confirming the hypothesis that a growth in the money supply will cause inflation, which causes a growth in future cash-flow and share prices, as already investigated by Fama (1981). The same results are confirmed by Maysami *et al*. (2013) who discovered a positive dependence between money supply change and stock price evolution on Singapore stock exchange. The causality between money supply and stock markets on emerging markets was investigated also by Brahmasrene and Jiranyakul (2012) specifically in their analysis of the Thai stock market between 1992 and 2010, where they found a positive relationship between money supply and stock prices. Cagli *et al*. (2010) dealt with the relationship between money supply and stock prices on another emerging market; the Turkish market. These authors did not confirm any co-integration between these variables.

The effects of the changes in macroeconomic factors (including the money supply) on the development of stock prices were discussed also by Shaoping (2012)who found out a very strong effect of the money supply on the development of stock prices in the period between 2005-2007. As stated, he found a long-term and stable relationship between stock prices and monetary aggregate M0, M1 and M2. Similarly, stock prices and money supply had a positive co-integration. A positive co-integration has thus resulted into the growth of money supply results in the rising prices of equity shares. The authors say that a “loose” monetary policy makes stock markets grow and, on the contrary, a restrictive policy causes share prices to fall. They showed how market fluctuations correspond to changes in monetary policy; The issues of efficiency of the stock market in Malaysia and co-integration between money supply and stock prices were discussed by

Habibullah and Baharumshah (2012) who defined a weak efficiency and non-existent co-integration between money supply and stock prices at this market. However, in a later study, Habibullah (2013) found a causal relationship between money supply and stock prices. In the Japanese market, Kimura and Koruzomi (2013) discovered no relationship between the change in the money supply and the development of stock prices.

Husein and Mahmoud (2011) performed an analysis of long-term relationship between money supply and stock prices and discovered the existence of a long-term co-integration between the stock prices and money aggregates M1 (Money Supply 1) and M2 (Money Supply 2) using the co-integration test. The positive relationship between macroeconomic indicators (including the money supply) is also demonstrated by Hanousek and Filler (2010) who found out a positive relationship between money supply and stock prices in the conditions of Central Europe in 1993-2006. Positive correlation and causal relationship between money supply and stock prices in the U.S. market were also discovered by Maskay (2011); Flannery and Protopapadakis (2011); Poire (2012) in their respective studies. As stated by Habibullah and Baharumshah (2012) when investigating the conditions of the U.S. stock market, they found out a positive influence of the money supply on the development of stock prices.

Hussein and Mahmoud (2011); Rozeff (2012) in his study revealed the effectiveness of the U.S. stock market in relation to money supply, while Kraft, Kraft(2013) found no causal relationship between the equity returns and changes in money supply in the same market. Money supply, as the most important macroeconomic factor that affects the stock prices is recognized by Maskay (2011); Dwyer and Hafer (2012); Sprinkel (2012); Poiere (2010); Musílek (2012); Kohout (2010); Nyvltova and Reznakova (2012).According to Vesela (2013) money supply also acts as the predicting indicator of the development of equity prices.

The relationship between stock returns, real activity, inflation and money supply changes were investigated by James *et al*. (2010) and their empirical results strongly support Geske and Roll's (2009) reversed causality model, which brings similar results

with Solnik (2010) for other industrialized countries where they confirmed that the variables; money supply and inflation affect stock price movements.

Kaneko and Lee (2013) re-examined the US and the Japanese markets and they employed the Chen *et al.* (2010) factors to evaluate the effects of systematic economic news on stock market returns. Using eight variable Vector Auto Regressive (VAR) systems, they found that both the term and risk premiums, as well as the growth rate of industrial production, are significantly priced in the US. Asprem (2012) examined the relationship between macroeconomic variables and stock prices in European countries and found out a positive relationship between Industrial production, money supply and stock prices and a negative effect between inflation, interest rate and stock prices. Bulmash and Trivoli (2011) found out that interest rates influenced stock prices negatively, since higher interest rates attract another investment alternative. Abdullah and Hayworth (2013) found out that stock returns are positively related with money growth and inflation rate while interest rates react negatively on stock returns.

In contrast, other empirical studies have reported that past changes in money supply have no significant forecasting power. Rozeff (2012) examined stock market efficiency with respect to data on the money supply by testing regression models of stock returns using monetary variables and trading rules based on supply data. The results indicated that there was no meaningful lag in the effects of monetary policy on the stock market, as well as no profitable security trading rules using past values of the money supply. Rogalski and Vinso (2013) found out that that causality did not appear to go from money supply to stock prices but rather from stock prices to money supply and possibly back again. Alatiqi and Fazel (2013) argued against the existence of any relationship. They reported that there was no causal relationship from money supply to stock prices.

Various empirical arguments exist on the link between stock returns and money supply. The upshots of these studies have been quite contradictory and with differing conclusions, largely contingent on the methodology, environment and the macroeconomic variables chosen. A review of some of the literature are: Abdullah and

Hayworth (2012) found out that the US stock returns are positively related to inflation and growth in money supply, yet negatively to budget and trade deficits, and also to short and long term interest rates. Mukherjee and Naka (2013) used vector error correction approach to model the relationship between Japanese stock returns and macroeconomic variables. Co-integration relation was detected among stock prices and the core macroeconomic variables, namely exchange rate, inflation rate, money supply, real economic activity, long-term government bond rate and call money rate.

Habibullah and Baharumshah (2012) investigated whether money supply (M1 andM2) and output are important in predicting stock prices in Malaysia from January 1978 - September 2011. Their result found out that the Malaysian stock market is informationally efficient. Thus current stock prices already incorporate all past and current information of money supply and output. Mookerjee and Yu (2011) investigated the effect of macroeconomic variables on Singapore stock market and found out that stock prices are co-integrated with both measures of money supply (M1 and M2) and aggregate foreign exchange reserves. Kwon and Shin (2012) examined the role of macroeconomic variables in estimating Korean stock prices and found out that stock indices seem to be co-integrated with the combination of four macroeconomic variables namely; money supply, trade balance, foreign exchange rate, and industrial production.

Maysami and Koh (2013) analyzed the relationship between money supply and the Singapore stock exchange and found out that a positive relationship exist between them. Brahmasrene and Jiranyakul (2011) used annual data from 1992-2008and found out that that a positive relationship exists between money supply and the Thai stock market returns. Maskay (2012) investigated the relationship between money supply and the S&P 500 Index, the direction of the relationship; and the difference in the relationship between anticipated and unanticipated changes in money supply with stock market prices. Using quarterly data and a two-stage regression model, he found a positive relationship between changes in money supply and stock prices, as the coefficient for the actual change in M2 is positive. Second, anticipated changes in money supply matter

more than unanticipated changes as both unanticipated components are insignificant at 0.1 percent level whereas the anticipated change is highly significant at the 0.01 percent level. So, the results support the critics of the Efficient Market Hypothesis and signify that anticipated change in money supply affects stock prices.

Raymond (2010) researched on the long-run relationship between stock prices and monetary variables on the Jamaican Stock Exchange; using the VECM framework. Monetary indicators employed in the analysis include 180- day Government of Jamaica (GOJ) Treasury bill yields, the value of the Jamaica Dollar vis-a-vis the US dollar, inflation rate and the money supply(measured by M2 aggregate which was seasonally adjusted). The monthly lag of each series was utilized and the data employed spanned the period January 1990 to March 2009 (231 observations). Coefficients from the co-integrating vector, normalized on the stock price, suggesting that the JSE Main Index is positively influenced by the inflation rate and M3 and negatively by the exchange rate, interest rate and M2. Furthermore, the Granger causality tests showed that only M2 is a predictor of stock prices. This suggests that equity investors show greater responsiveness to M2, as changes in this variable are indicative of underlying liquidity conditions and growth in economic activity. As such, regulators have greater impact on the stock market through the money supply channel. Maku and Atanda (2010) explored on the determinants of stock market performance in Nigeria using the ADF, Co-integration and Error Correction Model. They found out that in the long-run, the stock market is more responsive to changes in money supply, exchange rate, inflation rate, and real output.

Eze (2011) investigated the effect of monetary policy on stock market performance in Nigeria. Employing Co-integration and Error Correction Model, he found out that both in the short-run and long-run, Broad money supply, Exchange rate and Consumer Price Index are responsible for stock market performance. Ahmed and Suliman (2011) revealed a uniform directional causation between the supply of money and price movements. The causation runs from money supply to stock prices. This they regard as a piece of evidence supporting the monetarists claim, to that monetary expansion is not promptly followed by a response from the production sector of the economy, the supply

of money will have a direct effect on prices. Ogbulu and Uruakpa (2011) investigated the link between monetary policy and stock prices in Nigeria; using quarterly data from 1986:2 to 2011:4. They found co-integration among the variables under study; and their ECM indicates that money supply has a positive and significant impact on stock prices. In addition, uni-directional causality exists from stock prices to money supply. They concluded that the Nigerian monetary authorities should always design and implement on appropriate monetary policy mix with preference to money supply in order to project the capital market towards optimal growth. Ogiji (2011) examined the impact of monetary policy management one economic growth in Nigeria and established that due to non-stationarity of the variables, supply of money has no significant impact on stock prices in the long-run.

Ossisanwo and Atanda (2012) who researched on the determinants of stock market returns in Nigeria and found out that money supply, interest rate, previous stock returns levels and exchange rate are the variables that actually impact on stock market returns in Nigeria. Sirucek (2012) investigated the effect of money supply on the Dow Jones Industrial Average stock index. Money supply was measured by M2 and MZM aggregates (money with zero maturity). The Granger causality test was applied on initial differences of variables with an incremental time delay of one, two, three and six months. The study found out that where a one-month delay is applied, money supply has no effect on the DJIA index. However, with a longer time delay, correlation between money supply and the DJIA index was significant at the 5% level. Thus, a period of two (2) months or approximately 40 trading days is required for the stock market to respond to changes in money supply. Chude and Chude (2013) examined the effect of money supply on stock returns in Nigeria using annual data from 1980 – 2012. They found a long-run relationship existed between broad money supply and stock market returns. Broad money supply has been relatively high over the years and has significant positive impact on stock market returns.

Mirza and Hashem (2013) explored on the long-term equilibrium relationship between four macroeconomic variables and the Sharia index in Malaysia from the period 2006 – 2012; giving a total of 72 observations. Their VECM showed that the Sharia index is statistically significant with money supply, interest rate and exchange rate. However, once the index deviates from its equilibrium, it will positively affect money supply and negatively affect interest rate and exchange rate. Haruna *et al.* (2013) examined the existence of causality between macroeconomic variables and stock returns in Ghana; using monthly time series data from January 1995 – December 2010. Various tests were employed in the study which included the ADF and PP unit root test, VECM, Impulse Response and Error Variance Decomposition test as well as Granger causality test. They found out that in the short-run, a significant relationship existed between stock returns and money supply. In addition, it takes about 20 months for the stock market to fully adjust to equilibrium if a macroeconomic shock occurs. In furtherance, a causal relationship runs from stock returns to money supply with a p-value of 0.0003.They conclude that arbitrage profit opportunities exist in the Ghana stock market.

Maghayereh (2013) investigated the long run relationship between the Jordanian stock prices and selected macroeconomic variables using co-integration analysis and monthly time series data from January 1987 to December 2010. This study established that macroeconomic variables as exports, foreign reserves, interest rates, inflation, and industrial production are reflected in stock prices in the Jordanian capital market. The study concludes that macroeconomic variables are significant in predicting changes in stock prices. Erdogan and Ozlale (2005) investigated the influence of varying macroeconomic variables on stock return of Turkey and found that industrial production and exchange rates were positively related with the stock return. On the other hand, Circulation in Money (M1) had no any significant impact on stock return. Gan *et al.* (2011) examined the relationship between stock prices and macroeconomic variables for New Zealand. The variables which were used were long-run and short-run interest rate, inflation rate, exchange rate, GDP, money supply and domestic retail oil price. Their findings suggested that there exists a long term relationship between stock prices and

selected variables in New Zealand. However, the Granger causality test suggests that New Zealand stock exchange is not a good indicator for macroeconomic variables in New Zealand.

Naik and Padhi (2012) studied the relationship between the Indian stock market index (BSE Sensex) and various macroeconomic variables as industrial production index, wholesale price index, money supply, treasury bills rates and exchange rates from the time period 1994 to 2011. The analysis reveals that macroeconomic variables and the stock market index are co-integrated and, hence, a long-run equilibrium relationship exists between them. This study found out that stock prices are positively related to the money supply and industrial production but negatively related to inflation. The exchange rate as well as short-term interest rate was found to be insignificant in determining stock prices. Also, they found out that bidirectional causation exists between industrial production and stock prices but unidirectional causation from money supply to stock price, stock price to inflation and interest rates to stock prices was established. Ray (2013) examined the relationship between macroeconomic variables and stock prices. The Industrial production presents a measure of overall economic activity in a country and moves stock prices through its influence on expected future cash flows. Thus, it is expected that an increase in industrial production index is positively related to stock price. The causal relationship between industrial production and stock price in India was covered for a period of, 1990 to 2010. The findings were that there exists no significant causal relationship between industrial production and share price in India. The result of regression, of course, suggested that there may have been a positive relationship between stock price and real industrial production; and that the increase in production of an industry can enhance stock price and vice versa.

Sireesha (2013) examined the impact of macroeconomic factors upon the movements of the Indian stock market index Nifty, gold and silver prices through linear regression technique. Gold returns, Silver returns are selected for the analysis as they are important now a days and are studied along with the stock returns. The performance of internal variables showed that there exists interdependence between these variable with returns

on stock, gold and silver. Stock return was found to be significantly influenced by GDP and inflation while gold return was significantly influenced by money supply. External variables showed significant impact on dependent variables.

Mishra and Gupta (2014) studied the major factors responsible for up-down movement in Indian stock market. They studied the relationship between Sensex and macroeconomic variables - IIP, WPI, Interest Rate and Morgan Stanley Capital International Index of India during the period from 2006 to 2012. Multiple correlation and multiple regressions was used to analyze the relationship among variables. This study showed a highly positive correlation of Sensex with macroeconomic variables and was significant during the period of study. Kumar (2014) performed a study including exchange rate and crude oil prices to understand its impact on Indian stock market through including S&P. The study found out a significant positive impact of exchange rate and crude oil prices on stock market.

Chen *et al*. (2013) explored a set of macroeconomic variables as systematic influence on stock market returns by modeling equity return as a function of macro variables and non-equity assets returns for US. They found out that the macroeconomic variables such as industrial production anticipated and unanticipated inflation, yield spread between the long and short term government bond significantly explained the stock returns. The authors also showed that the economic state variables systematically affect the stock return via their effect on future dividends and discount rates. Ratanapakorn and Sharma (2011) examined the short-run and long run relationship between the US stock price index and macroeconomic variables using quarterly data for the period of 1975 to 1999. Employing Johansen's co-integration technique and vector error correction model (VECM) they found out that the stock prices positively relates to industrial production, inflation, money supply, short term interest rate and also with the exchange rate, but, negatively related to long term interest rate. Their causality analysis revealed that every macroeconomic variable considered affected the stock price in the long-run but not in the short-run.

Mukherjee and Naka (2012) employed a vector error correction model (VECM) to examine the relationship between stock market returns in Japan and a set of six macroeconomic variables such as exchange rate, inflation, money supply, industrial production index, the long-term government bond rate and call money rate. They found that the Japanese stock market was co-integrated with these set of variables indicating along-run equilibrium relationship existed between the stock market return and the selected macroeconomic variables. Mookerjee and Yu (2012) examined the nexus between Singapore stock returns and four macroeconomic variables such as narrow money supply, broad money supply, exchange rates and foreign exchange reserves using monthly data from October 1984 to April 2003. Their analysis revealed that both narrow and broad money supply and foreign exchange reserves exhibited a long run relationship with stock prices whereas exchange rates did not.

Wongbampo and Sharma (2012) studied the relationship between stock returns in 5-Asian countries viz. Malaysia, Indonesia, Philippines, Singapore and Thailand with the help of five macroeconomic variables such as GNP, inflation, money supply, interest rate, and exchange rate. Using monthly data for the period of 1985 to 2002, they found out that, in the long run all the five stock price indexes were positively related to growth in output and negatively related to the aggregate price level. However, they found a negative relationship between stock prices and interest rate for Philippines, Singapore and Thailand, but positive relationship for Indonesia and Malaysia. Chuang *et al*. (2011) examined whether macro-economic variables, in particular, money supply and budget deficit are important in predicting stock prices in Taiwan, Hong Kong, Singapore and South Korea. Quarterly data on stock price indices, money supply and budget deficits were employed in this study. The results were broadly consistent with the general economic literature on macroeconomics and suggest that there exists a long-run equilibrium relationship between macroeconomic policies and stock prices for the four countries studied; stock prices do not necessarily adjust quickly and fully to changes in either monetary or fiscal policies, in the short run.

Chen *et al.* (2012) tested the multifactor model in the USA by employing seven macroeconomic variables and found out that consumption, oil prices and the market index are not priced by the financial market. However, industrial production, changes in risk premium and twists in the yield curve are found to be significant in explaining stock returns. Chen (2013) performed the second study covering the USA, findings suggested that future market stock returns could be forecasted by interpreting some macroeconomic variables such as default spread, term spread, one-month t-bill rate, industrial production growth rate, and the dividend - price ratio. Clare and Thomas (2012) investigated the effect of 18 macroeconomic factors on stock returns in the UK. They found oil prices, retail price index, bank lending and corporate default risk to be important risk factors for the UK stock returns.

Mukherjee and Naka (2013) used vector error correction approach to model the relationship between Japanese stock returns and macroeconomic variables; Co-integration relationship was detected among stock prices and the six macroeconomic variables, namely exchange rate, inflation rate, money supply, real economic activity, long-term government bond rate and call money rate.

Gjerde and Saettem (2011) examined the causal relationship between stock returns and macroeconomic variables in Norway. Results showed a positive linkage between oil price and stock returns as well as real economic activity and stock returns. The study, however, failed to show a significant relationship between stock returns and inflation. A recent study by Flannery and Protopapadakis (2013) evaluated the effect of some macro announcement series on US stock returns. Among these series, six macro variables, namely, balance of trade, housing starts, employment, consumer price index, M1, and producer price index seem to affect stock returns. On the other hand, two popular measures of aggregate economic activity (real GNP and industrial production) do not appear to be related with stock returns. Chen (2012) investigated whether macroeconomic variables can predict recessions in the stock market. Series such as interest rate spreads inflation rates, money stocks, aggregate output, and unemployment rates were evaluated individually. Empirical evidence from monthly data on the

Standard and Poor's S&P 500 price index suggested that among the macroeconomic variables that are considered, yield curve spreads and inflation rates are the most useful predictors of recessions in the U.S. stock market according to in-sample and out-of-sample forecasting performance.

Bailey and Chung (2011) examined the impact of macroeconomic risks on the equity market of the Philippines. Findings of the study showed that financial fluctuations, exchange rate movements, and political changes on owners of Philippine equities could not explain Philippine stock returns. Mookerjee and Yu (2011) investigated the effect of macroeconomic variables on Singapore stock market; the results suggested that stock prices are co-integrated with both measures of the money supply and aggregate foreign exchange reserves. However, stock prices and exchange rates do not have a long-term relationship. Chung and Shin (2012) examined the role of macroeconomic variables in estimating Korean stock prices and found out that stock indices seem to be co-integrated with the combination of the four macroeconomic variables namely, trade balance, foreign exchange rate, industrial production and money supply. Ibrahim and Aziz (2013) investigated the relationship between stock prices and industrial production, money supply, consumer price index and exchange rate in Malaysia. Stock prices are found to share positive long -run relationships with industrial production and CPI. On the contrary, stock prices have a negative association with money supply and exchange rate.

Cheung and Ng (2011) investigated the relationship between stock prices and some macroeconomic factors namely, real oil price, total personal consumption, money supply and GNP in Canada, Germany, Italy, Japan and the USA. They found out that there appears to be a long-run co-movement between the selected macroeconomic variables and real stock market prices. Bilson *et al*. (2011) used value weighted world market index and some macroeconomic variables for explaining stock returns in selected emerging markets. Findings suggested that goods prices and real activity have limited ability to explain the variation in returns. Money supply has greater importance, while the most significant variables are the exchange rate and the world market return.

Wongbangpo and Sharma (2012) investigated the relationship between stock prices and some macroeconomic factors in five ASEAN countries (Indonesia, Malaysia, Philippines, Singapore and Thailand). Results suggested that, in the long-run, stock prices are positively related to growth in output. In the short-run, stock prices are found to be functions of past and current values of macroeconomic variables.

Bilson *et al*. (2012) aimed to address the question of whether macroeconomic variables may proxy for local risk sources. They found out a moderate evidence to support this hypothesis. Further, they investigated the degree of commonality in exposures across emerging stock market returns using a principal components approach, and found little evidence of commonality when emerging markets were considered collectively. At the regional level, however, considerable commonality was shown to exist. Maysami and Sims (2012) employed the error-correction modelling technique to examine the relationship between macroeconomic variables and stock returns in Singapore, Malaysia, Thailand, Japan and Korea. Through the employment of Hendry's (2011) approach which allowed making inferences to the short-run relationship between macroeconomic variables as well as the long-run adjustment to equilibrium, they analyzed the influence of interest rate, inflation, money supply, exchange rate and real activity, along with a dummy variable to capture the impact of the 1997 Asian financial crisis. The results confirmed the influence of macroeconomic variables on the stock market indices in each of the six countries under study, though the type and magnitude of the associations differed depending on the country's financial structure.

Krishna (2015) did a study on macro-economic variables on stock prices on stock markets and established that long-run and short-run relationship exists between macro-economic variables and stock prices. Seoung and Choi (2014) did a study on the effect of money supply on volatility and found out that changes in money supply did not affect the flow of information to the market; therefore changes in money supply did not affect stock volatility directly. Sichoongwe (2016) did a study on exchange rate volatility on the stock market and established that there exists a negative relationship between exchange rate volatility and stock market returns. Adayleh (2016) investigated the

equilibrium relationship between micro and macroeconomic variables in Amman Stock Exchange and established that money supply has an effect on the performance of stock prices.

Omwenga and Mungai (2016) did a study on the effects of foreign aid on economic growth in Kenya and established that net loans had a positive but an insignificant relationship with economic growth in Kenya. Also, they found out that grant aid was positively and significantly related to economic growth and also led to the growth of Gross Domestic Product. Namusonge *et al*. (2016) did a study on effects of dividends policy on financial performance of firms listed at the Rwanda Stock Exchange and established that dividend policy is positively associated with return on assets; also, the study found out that a relationship exists between dividend policy and both return on assets and return on equity.

2.4.3 Financial Literacy

Mark (2011) explained financial literacy as the process by which financial investors improve their understanding of financial products and concepts and through information, instruction and advise, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial wellbeing.

Carlin and Robinson (2012) used data from a finance related theme park to explore how financial education changes investment, financing and consumer behaviour. By assigning students fictitious life situations and also asking them to create budgets; students who received 19-hour financial literacy before going to the park had shown greater uptake of decision than those who did not attend financial training. Debich (2012) found out that there is a strong impact of financial culture on the probability to hold stocks and weaker impact of basic financial requirements. He further observed that there is a strong link between financial literacy and investment decisions. Huston (2010) asserted that financial literacy combines both knowledge and application of human

capital specific to personal finance and measures the degree to which one understands key financial concepts, possesses the ability and confidence to manage personal finance through appropriate, short-term decision-making and long term investment planning.

Musindi (2013) did a study on the effects of financial literacy on personal investment decisions in real estate in Nairobi County. He established that financial literacy level has a significant effect on investment decision making by real estate investors. Volpe *et al*. (2012) did a study on financial literacy; they argued that online investors should have more knowledge than ordinary investors to succeed in the securities markets because they are more likely to be surrounded by financial misinformation and manipulation. They examined investment literacy of 530 online investors and the difference in the literacy level among various groups of participants using age, income, gender, education and previous online trading experience as variables. The study demonstrated that the level of financial literacy varied with peoples education experience, age, income and gender. They also established that online traders have higher financial knowledge than others.

Mirshekary and Saudagan (2011) assessed how different users of financial statements use the information items disclosed in the annual reports, as well as the importance of different sources of information in making investment decisions. The respondents ranked financial report as the main influence of source of information. Nielson (2012) conducted a national survey of adult financial literacy on Australia. The main results of this survey indicated that the lowest levels of financial literacy were associated with people who have lower education, unemployed or unskilled workers and people with low income.

Sudarshan (2012) studied factors affecting investor decisions by taking a case of Nepalese Capital Market. He established that financial education is one of the factors that affect investor decisions. Ashok *et al*. (2014) did a study on financial literacy, human capital and stock market participation in Europe by taking an empirical exercise under endogenous framework. They established that financial literacy has a positive and

significant effect on stock market participation. Guise and Jappelli (2012) found out that lack of awareness of stocks among Italian households is primary reason for the limited participation at the bourse. Christelis *et al*. (2010) studied the link between cognitive abilities and stock holding using share data foe European countries and found out that the propensity to invest in stocks is strongly associated with mathematical ability, verbal fluency and recall skills. VanRoij *et al.* (2011) provided evidence of the fact that higher financial sophistication is associated with higher wealth and higher probability to invest in stocks. Further, they provided that the lack of understanding of economics and finance is a significant deterrent to stock ownership.

Arronde *et al*. (2012) discovered that stock ownership strongly correlates with both expectations and realizations of stock market returns, as well as with measures of financial literacy. Almenberg and Soderbergh (2011) provided evidence that financial literacy and schooling years are correlated and that the stream of education and effectiveness of education can actually affect financial literacy. Samreen (2014) did a study on factors influencing individual investor behaviour by taking an empirical study of Karachi City. He established that financial literacy and accounting information helps investors in lowering information asymmetry and allows investors to invest in risky investments.

Amari (2014) studied the factors forming investor's failure by considering whether financial literacy matter. He established that low levels of financial literacy such as lower level of financial education and difficulties in understanding financial concepts represent the main obstacles to individual investor's further; lack of financial literacy limits the success opportunity of an individual's stock market participation. Laber *et al*. (2016) did a study on the impact of financial literacy and investment experience on risk tolerance and investment decisions. The study established that the behaviour of an investor is influenced by past experience. The study further found out that there exists a relationship between investment experience and risk tolerance. Mona *et al*. (2016) studied the factors affecting the individual decision making. They established that most investors relied on financial knowledge of stock brokers. The study further established a

relationship between advocate recommendations and investment decisions. Aroni *et al.* (2014) studied the effect of financial information on investment in shares. The study established that access to financial information has an influence on investment decisions; the study further found out that acquiring financial information has the potential to improve investors' decision making and therefore leading to improved portfolio performance. Mwangi (2014) studied the relationship between financial literacy and stock market participation by retail investors in Kenya. The study established that financial literacy, gender and income influenced the level of stock market participation.

2.4.4 Cultural Values

Behavioural finance has attempted to explain a number of psychological factors such as; overconfidence bias, herding behaviour and conservatism as some factors that affect investment decisions and therefore stock market performance (Kangatharan, 2014). Cultural factors such as the herding behaviour which implies "follow the leader" mentality is a tendency where individuals follow the crowd (Lim, 2012). According to Luong and Thu (2015) the herding individual bases their investment decisions on the crowd actions of buying and selling; this creates speculative bubbles phenomenon, hence making the stock market to be inefficient. This phenomenon is also confirmed by Mohamoud and Shusha (2016) who did a study on attitudinal determinants of adopting the herd behaviour; their study confirmed that hasty decision and investor mood were some herd behaviours which affected investment decisions and therefore stock market performance.

Bakar and Chui (2015) did a study on the impact of psychological factors on investors' decision making; they established that overconfidence, conservatism and availability bias have significant effects on investors' decisions which eventually affect stock market performance. In another study, Wamae (2013) investigated behavioural factors influencing investment decisions in Nairobi Securities Exchange. The study found out that herding behaviour influenced investment decisions which eventually affected the stock market performance.

Religion as an aspect of culture, influences peoples habits and attitudes (Delner, 2012). Religious beliefs therefore affect investor decisions which finally affect stock market performance (Hawkins, 2014). Douglas *et al*. (2015) in a study of tele-investment evangelists, ritual and religion and the quest to beat the market found out that religion affects investors' decision since most followers practice what they are preached to; which eventually affects stock market performance. Yusof *et al*. (2015) did a study on long-run relationship between Islamic stock returns and macro- economic variables. The study established that Muslim investors buy more Shariah compliant stocks; thereby escalating the Islamic compliant stocks stock prices which eventually affects stock market performance. Mansoor (2016) studied how corporate governance influences firm performance. He established that a culture of good corporate governance has a relationship with firm performance which eventually affects the stock exchange performance. Kombo (2016) did a study on the contribution of good corporate governance practices on the flow of investors into the Nairobi Securities Exchange. He established that a culture of good corporate governance leads to investment in the Nairobi Securities Exchange while a culture of bad corporate governance like the one which led to collapse of some brokerage firms in Kenya, discourages investment in the Nairobi Securities Exchange.

Chen and Chien (2011) utilized theories drawn from behavioural finance and applied it in a Chinese culture. They argued that under Chinese tradition, employees are rewarded with a generous bonus before Lunar New year, mostly paid in January. This activity, they argued leads to more investment in securities and hence creating a higher demand on the preferred portfolio. Kask (2010) established that the direct driver of the excess return from the value investing strategy is the behaviour of investors, while organization culture has an indirect impact on the rate of return on investment through the performance level of value stock companies. Moak *et al*. (2012) established that keeping up with the Joneses preference has a positive and significant effect on individual's tendency to follow others in investment behaviour and was consistent with theoretical models of literature. Jeffrey *et al*. (2015) did a study on religion and stock price crash

risk. They examined whether religiosity at the county level is associated with future stock price crash risk. They established that firms headquartered in counties with higher levels of religiosity exhibited lower levels of future stock price crash risk. They further established that a negative relationship exists between religiosity and future crash risk for riskier firms and for firms with weaker governance mechanisms measured by shareholder takeover rights and dedicated institutional ownership.

Fisher and McCalman (2009) found out that major religions uniformly condemn manipulation of one's fellow man; the anti-manipulative ethos of religion forms a powerful social norm against withholding bad news from investors which therefore mitigates stock price crash. McCleary (2013) asserts that religious managers are more likely to internalize the social norms associated with anti-manipulation and so are less likely to manipulate the flow of corporate information. Also, even if their religiosity is only "skin deep" managers pay a potentially high price in terms of social stigma if they are caught violating social norms by manipulating the flow of corporate information, especially if they are employed in a more religious environment. The above authors also assert that a religious milieu fosters potential whistleblowers that have internalized religious social norms and feel religious bound to unmask manipulators.

Javers (2011) found out that social norms generated by the religious ethos against manipulation, bolstered by religious adherents in the firm acting as potential whistle blowers, operate in tandem as a potentially powerful deterrent against managers manipulating the flow of corporate information by withholding bad news. The author further discloses that even if managers are tempted to withhold bad news for personal gain, say because their compensation is tied to earnings and the bad news affect earnings, they are likely to trade off the gain from additional compensation against the cost of social stigma costs mitigate against withholding bad news regarding earnings, especially if the expected marginal social stigma costs exceed the expected marginal compensation benefits. Weaver and Agle (2012) indicated that weak organizational norms and authorities both enhance the salience of religion in an organization and make religiously influenced behavior easier to put into effect. Omer and Sharp (2013)

provided empirical evidence implying that the impact of religion on investor welfare is contingent on the strength of firm's governance mechanism.

Jeffrey *et al*. (2014) established that the negative relationship between the degree of county-level religiosity and future crash risk is more salient for firms with weaker shareholder takeover rights, firms with lower ownership by dedicated institutions, and riskier firms. Jeffrey *et al.* (2014) further confirms that religious social norms serve as substitutes for conventional governance mechanisms in monitoring the flow of corporate information when corporate governance mechanisms are weak. Longenecker *et al*. (2014) also suggests that the influence of religiosity on business judgement extends to bad news hoarding. They also established that respondents who indicate that religion is of high or moderate importance to them demonstrate a significantly higher level of moral judgement regarding ultimate behaviour resolution.

Tittle and Welch (2013) examined the influence of contextual properties on the strength of the relation between individual religiosity and deviant behaviour. Their research findings indicate that individual religiosity constrains deviant behaviour most effectively in environments where secular controls are absent or weak. Likewise, Weaver and Agle (2012) developed a social structural theory to assess religion's influence on an individual's behaviour in organizations. They analyzed how organizational context affects the relationship between religion and ethical behavior. They emphasized that in an organization featuring weak organizational culture and norms, religion more frequently provides guidance. Grullon *et al*. (2010) and McGuire et al. (2012) provided empirical evidence for the influence of corporate governance on the relationship between religion and opportunistic managerial behaviour. Grullon *et al*. (2010) established that the impact of religion or reducing option backdating weakened significantly after the passage of the Sarbanes-Oxley Act. McGuire *et al.* (2012) found out that religious social norms have a larger effect on curbing accounting risk when dedicated institution ownership in the firm is lower. These findings suggest that the impact of religiosity on investor welfare is contingent on the strength of the firm's

governance environment and that religiosity and the monitoring role of governance are substitutes for each other.

Giovannini (2010) analyzed fifty six firms whose listing took place during 1999-2005 on the Milan Stock Exchange he established a negative impact of family firm status on performance on share prices. Caselli and Gatti (2006) also studied a sample of Italian initial purchase orders. They analyzed firms that went public in the period 1990-2005 and obtained a final sample of 73 family and 29 non-family initial purchase orders. In line with Jaskiewicz *et al.* (2013) their results show that family firms, evaluated in the long-run (36 months), perform worse than the overall market but, at the same time, non-family initial purchase orders perform slightly, albeit not significantly, better than their counterparts. Chahine (2007) points out that the relationship between family ownership and IPO value is cubic. He used a sample of 163 French initial purchase orders during the period 1996-2000 and proxies initial purchase orders performance calculated within a year after listing. He found out that if family ownership is between 0 and 30.7 per cent or is greater than 77 per cent there is a negative relationship with performance, while if ownership ranges from 30.7 to 67.1 per cent the relationship turns positive. Mazzola and Marchisio (2012) focused on the long-term performance (three years) of Italian family initial purchase orders. They found out that family-owned businesses show a higher level of return on investment when compared with non-family businesses.

2.4.5 Measurement of Bear market Performance

Faber (2007) established that if the price of the market at the beginning of the month, as determined by FTSE All share Index, is in excess of the 10-month average then it is determined to be a bull market for the remainder of that month. If the price is below the average, then it is categorized as a bear market. Candelon *et al*. (2008) on a study of measuring synchronization of bulls and bears market by taking a case of East Asia, applied a test for strong multivariate non-synchronization between stock market cycles. Upon applying the technique to five Asian stock markets they found a significant increase in the cross country co-movements of Asian bullish and bearish periods in

1997. They further established that the detected increase in co-movements is more of a sudden nature (contagion) instead of gradual (financial integration) and all these movements must maintain a primary trend for them to perfectly qualify as a bear market.

Shibata (2010) explained that the Tokyo Stock Exchange bull markets are characterized by high returns and low volatility and bear markets feature low returns and high volatility. Shibata (2010) investigation proceeded in two steps. The first step involved identifying pivot points between bull and bear markets and the second step involved using a time series model to investigate return series behaviour. Lucke *et al*. (2012) did a study of the value added of hedge fund styles in multi-asset portfolios by taking a new approach based on bull and bear market betas. They used multiple regressions to establish the relationship between bear markets and relative value funds and also the linear relationship between basic assets in bull markets.

Gatua (2014) it was established that there is no one model to predict share prices at the Nairobi Securities Exchange. The author further found out that only one company Equity Bank had a model that could be used to determine share prices based on the variables under study. Chelagat *et al*. (2013) reviewed successful bear fighting strategies by exploring the factors involved in determining the differential performance of firms in bear market. Their study used multiple discriminant analysis to derive a linear combination of predictor variables which best discriminate between two groups of successful and unsuccessful firms. The linear discriminant function was found to be optimal if it minimizes the probability of misclassification. The technique takes into account the use of interrelationships between the predictor variables. Aroni (2011) in a study of factors influencing stock prices for firms listed in the Nairobi Stock Exchange used multiple regression formula to estimate the effect of selected factors on stock prices. Barasa (2014) did a study on macro-economic determinants of stock market performance in Kenya by taking a case of Nairobi Securities Exchange. The study used analytical regression model to analyse the various macro-economic variables such as inflation rate, money supply and real gross domestic product. Murui and Ouma (2014) studied the impact of macroeconomic variables on stock market returns in Kenya. They

used ordinary least square technique to test the variables under study. Kiboi and Katuse (2015) did a study on regression of factors affecting stock prices at the Nairobi securities Exchange. They used correlation coefficient matrix and regression equation to analyze the respective variables. Mutuku *et al*. (2015) did a study on macroeconomic variables and the Kenyan equity market: A time series analysis. They used Vector Auto Regressive (VAR) and VECM analysis to establish that macroeconomic variables drive equity market in the long run. Muiruri (2014) did a study on the effects of estimating systematic risk in equity stocks in the Nairobi Securities Exchange by taking an empirical review of systematic risks. He used the capital asset pricing model (CAPM) and the Capital Market Line (CML) to establish the effect of beta and volatility on stock return from firms listed in the Nairobi Securities Exchange.

Namusonge and Olweny (2013) did a study on financial attributes and investor risk tolerance at the Nairobi Securities Exchange by taking a Kenyan perspective. The study used ordinal logistic regression model to establish the contribution of financial attributes on risk tolerance. Olweny and Kimani (2011) did a study on stock market performance and economic growth by taking empirical evidence from Kenya. The study used the causality test approach by making use of Granger Causality test base on the Vector Auto-Regressive model to establish if the variables are co-integrated. Kipyego and Odoyo (2014) did a study on the effect of foreign exchange rates in Kenya. Mutuku and Kimani (2013) did a study on inflation dynamics on the overall stock market performance at the Nairobi Securities Exchange. They used Johannasen – Juselius VAR based co-integration test procedure.

Onsongo *et al*. (2012) did a study on the determinants of stock market development by taking a case for the Nairobi Securities Exchange. They used regression analysis to establish the relationship between stock market development and macroeconomic stability. Osoro and Ogeto (2014) did a study on macroeconomic fluctuation effects on the financial performance of listed manufacturing firms in Kenya. They used arbitrage pricing theory to identify the micro-variable which influences stock returns.

Gatuhi (2015) studied macro-economic factors and stock market performance in Kenya. He used Durblin-Watson statistic to measure autocorrelation. Regression analysis was used to test the significance of the variables under study. Mwendwa *et al*. (2014) studied the determinants of stock market growth at the Nairobi Securities Exchange. They used regression to evaluate the determinants of stock market growth. Omondi and Olweny (2011) did a study on the effect of macroeconomic factors on stock return volatility in the Nairobi Stock Exchange in Kenya. The study employed exponential generalized conditional heteroscedasticity (EGARCH) and threshold generalized conditional heteroscedasticity (TGARCH) to establish the stock returns.

2.5 Empirical Review

Gil-Alana *et al*. (2008) in examining the U.S. stock market volatility found out that persistence in stock market volatility take place in both the bull and bear markets. They also found that there exists long memory stationarity for the volatility processes. Adrian *et al*. (2013) tried to present a framework that could be used for studying bull and bear markets in asset prices. They used an algorithm based on it to sort a given time series equity prices into periods that bull and bear markets characteristics depend upon the gross domestic product for capital gains.

Barsky *et al*. (2012) found out that the major bull and bear markets of this century have suggested to many researchers that large decade-to-decade stock market swings reflect irrational fads and fashions that periodically sweep investors. They further argued that investors have perceived significant shifts in the long-run mean rate of future dividend growth and that stock prices depend on expectations about the underlying future growth rate that the stock prices would generate large swings. The authors further argue that volatility can be accounted for by the fact that stocks are leveraged claim to only a special fraction of output. Sheiller (2013) stresses that stock prices appear to be particularly volatile relative to their underlying fundamental value.

The author further argues that large swings in stock prices are due to animal spirits of investors and that they do not reflect large shifts in the expected present value of future dividends as assessed by cautious investors.

Campbell (2013) noted that noise in stock prices has a short life span than the decade-to-decade swings that make up the major bull and bear markets. Long *et al*. (2012) observed that the central reason to have a stock market is that it serves as a social calculating machine that reports to firms what the market thinks of their future prospects and therefore governs allocation of investment. If major swings in stock prices are driven by fads the market is unlikely to perform well. Robert *et al*. (2013) argue that major bull and bear markets are driven by shifts in assessment of fundamentals. They also argued that investors have little knowledge of crucial factors, in particular the long-run dividend growth rate and actual expectations held by prominent observers who placed emphasis on understanding fundamentals.

In an effort to establish why stock markets fluctuate, Bradford *et al*. (2012) established that large long-run swings in the stock market arise because investors extrapolate past dividend growth into the future. They further noted that investors are uncertain about the structure of the economy and have to form their own forecasts of the possibly changing long-run dividend growth rate. Investors should estimate warranted values by forecasting dividend growth from a moving average of past dividend changes. It is such extrapolative estimation that leads to fluctuations in warranted values as large as and in phase with actual bull and bear swings. On the other hand, Marsh and Merton (2013) argue that the excess volatility of stock prices relative to dividends is not surprising since firms consciously smoothing dividends make dividends a non-stationary series. They showed that under a plausible dividend payout rule which makes dividends a random walk, the standard volatility test finds excess volatility in every sample even though the efficient markets model is correct.

Shapiro *et al.* (2012) established that market price of stocks should fluctuate less around the naïve forecast price than does the perfect foresight price. They further argued that stock market simply does not accurately reflect underlying fundamentals. Further, Summers (2011) argues that the market could deviate substantially from fundamentals without the existence of discernible profit opportunities. Marjorie (2012) argues that if stock prices are modelled as the present discounted value of rationally forecasted future dividends, the volatility of variance, of the stock price is limited by the volatility or variance of dividend series. Further, under the expectations theory of the term structure of interest rates which asserts that the long term interest rate equals to an average of rationally expected future short term interest rates, the variance of the long term rate is limited by the variance of the short rate. The author further argues that the estimate of the upper bound in these tests is biased downward in small samples and that the magnitude of the bias is large enough to provide potential explanation of share price volatility.

Robert *et al*. (2012) in a study of why stock markets fluctuate found out that interpretations of stock price fluctuations that focus on rates of changes can be roughly divided into three categories; First, there is the present value model whereby the price dividend ratio is a good forecast of the present value of future dividend growth rates, secondly, there is an irrational present value model, in which stock price movements are driven by inappropriate shifts in expected fundamentals: Investors believe that it is rational to extrapolate past dividend growth into the future. Finally, there are fads and irrational bubble in which demands are largely determined by market expectations of short term capital gains that are inconsistent with long-run fundamentals and that are grossly falsified when bubbles burst.

In a study of stock market forecastability and volatility, Shapiro *et al*. (2012) developed a testing procedure involving sample statistics whose expectations and asymptotic distributions under null hypothesis of market efficiency can be found under minimal auxiliary assumptions. Also by employing Monte Carlo procedure to conduct finite sample inference, they found that contrary to predictions of the hypothesis of market

efficiency, the difference between the current level of stock prices and a naïve forecast based solely on current dividends is not orthogonal to future returns; in fact, over horizons of five years or more the naïve forecast often outperforms the market price as a predictor of the perfect foresight price.

Woodward and Anderson (2012) in a study of estimates of bull and bear betas applied a logistic smooth transition market model to a sample of returns. They found out that the relationship between beta and market phase offers only weak evidence that security and portfolio betas are influenced by the alternating forces of bull and bear markets. Further, they found out that for most industries, the stock market spends the vast majority of its time in bull market state. In a study of weekend gold returns in bull and bear markets, Laurence *et al*. (2013) found out that gold returns from close on Friday to close on Monday are significantly lower than returns during the rest of the week. They further argue that this is due largely to gold returns during bear markets. During gold bull markets, gold weekend returns are not significantly different from weekday returns. In a study of identifying bull and bear market in stock returns, Maheu and McCurdy (2012) used Markov switching model that incorporates duration dependence to capture non-linear structure in both the conditional mean and conditional variance. They established that bull markets have a declining hazard functions and the best market gains come at the start of a bull market. Volatility increases with duration in bear markets. Allowing volatility to vary with duration captures volatility clustering. They further argued that a bull market not only tends to persist but becomes more likely to persist as it continues. Also possible explanations for declining hazards are irrational investors such as noise traders or fads. As a bull market persists, investors could become more optimistic about the future and hence wish to invest more optimistic about the future and therefore invest more in the stock market. This in itself results in a decreasing probability of switching out of the bull market; similarly, the length of a bear market could be related to the amount of pessimism about future returns by investors. This would lead to a substitution from equity into other expected high return instruments such as treasury bills.

Klaus (2012) in trying to find out whether the bull and bear markets have changed overtime, analysed bull and bear markets from 1954 to 2011 in the U.S. stock index S&P 500, the author used a two state Markov switching model to figure out bull and bear regimes. The study found out structural break in expectations of returns being associated with bull market regimes. Whereas no structural break can be ascertained concerning bear market regimes.

Lunde and Timmerman (2011) established that the longer a bull market has lasted the lower the probability that it will come to termination. In contrast, the longer a bear market has lasted, the higher is its termination probability. Richard and Huang (2011) in a study of bulls, bears and market sheep established that in bull markets price increases generally exceed decreases in number, while the opposite is true in a bear market. So if an investor buys near the peak or sells near the trough one can easily be convinced that the mistake was merely one of timing of buying too late or of selling too soon. In a study of detecting long memory in bulls and bears markets, Gursakal (2012) investigated whether the Turkish stock market volatility exhibits different patterns of persistence in bulls and bears phases. The study found six bulls and five bear's phases. The study further states that persistence in stock market volatility takes place in both the bull Turkish stock market.

Brunette *et al*. (2011) in a study of whether institutional traders predict bull and bear market analysed the role of hedge fund, swap dealer and arbitrageur activity by using a Markov regime switching model between high volatility bear markets and low volatility bull markets for crude oil, corn and mini S&P 500 index figures. They found out that these institutional positions reflect fundamental economic factors within each market. They found out that hedge fund activities add incrementally to the transition probabilities suggesting that information processing by hedge funds also contributes to the probability of contributions and reversals in these markets. Likewise arbitrageur positioning in the mini S&P 500 market also add incremental explanatory power to these transition probabilities. Conversely, swap dealer positioning is largely unrelated to the probability of transitioning between bull and bear markets, consistent with the

diversification goals of traders using swap dealers for exposure to commodity markets. Also trader positioning can be useful in predicting the transaction probability of moving between bull and bear markets. In a study of whether bull and bear markets are economically important, Juntu (2012) found out that risks and returns vary greatly across regimes. In addition, investors' optimal portfolio weights are affected considerably once the investors incorporate the uncertainty about regime switching between bull and bear markets. Hamilton and Lin (2012) found out that economic recessions are the single largest factor driving the variances of stock returns. Rigdon *et al*. (2011) in a study of duration dependence in bull and bear stock markets found out that there exists negative duration dependence in all samples of bull markets. The results show that bull and bear markets tend to get progressively shorter but for bull markets this trend has accelerated since World War II.

Song *et al*. (2011) in a study of components of bull and bear markets; bull corrections and bear rallies proposed a four state Markov switching model to identify the components of bull and bear market regimes in weekly stock market data. They found out that bull correction and bull states govern the bull regime. A bear rally is allowed to move back to the bear state or to exit the bear regime by moving to the bull regime by transitioning to a bear state. This implies that regimes can feature several episodes of their component states. A bull regime can be characterized by a combination of bull states and bull corrections. Similarly a bear regime can consist of several episodes of the bear state and the bear rally state. The study further found out that the realization of states in a regime will differ overtime; bull and bear regimes can be heterogeneous overtime. This richer structure results in a richer characterization of market cycles. The study further established that bull corrections and bear rallies are empirically important for out-of-sample forecasts of turning points. In a study of investment behaviour decision factors and their effects towards investment performance, Lee (2012) found out that investors with various asset levels do show significantly different preference to market selection. This suggests investors would prefer to make investment among companies with high credibility, larger in size high stock dividends and high stock price.

The study further established that there is a significant correlation between strategy selections to investment performance. This suggests that when buying stock, investors would prefer to choose companies with higher stock dividends as well as invest in short/mid/ long gains. In a bull market, investors with higher amounts of investment have multiple gains, whereas in bear market investors with more cash reserved for the next investing opportunity would likely gain.

Vuran (2012) studied factors affecting stock returns of firms quoted at the Istanbul Stock Exchange. The study found out that stock returns are affected by previous year's returns, financial ratios and macro economic variables. The study further stated that among the macroeconomic variables included in the models are exchange rate, interest rate and oil price which all have a significant explanatory power. Locally in Kenya, Kamini and Nidhi (2013) in a study of determinants of stock prices: Empirical evidence from Nairobi Securities Exchange, found out that firm's book value earning per share and price earnings ratio are having a significant positive association with firm's stock price while dividend yield has a significant inverse association with the market price of the firm's stock.

Ochuodho (2013) studied the relationship between dividend payout and firm performance of listed companies in Kenya. The findings indicated that dividend payout was a major factor affecting firm performance. Further the study established that firms which pay high dividends have their stocks experiencing bull markets while most firms which pay low dividends have their stocks experiencing bear markets. Sameer and Sattam (2012) studied factors affecting stock market prices in Amman Stock Exchange. The major aim of the study was to identify the impact of most basic factors in the market share price of listed companies in Amman Stock Exchange from respondents' opinions. The study found out that there are impacts of internal and external factors in determining the stock prices of listed companies in Amman Stock Exchange. The major impact was inflation rate while the least one was the nature of firm business.

Michael *et al*. (2012) quantified the effect of financial leverage on stock return volatility in a dynamic general equilibrium economy with debt and equity claims. It explained the effects of financial leverage on the market portfolio and small firm with idiosyncratic and market risk. The study further found out that in an economy with both a constant interest rate and constant price of risk, there were significant variation in stock return volatility at the market and firm level. Also, financial leverage contributes more to the dynamics of stock return volatility for a small firm. Locally, Munyaka *et al.* (2014) in a study of factors influencing individual investor behaviour during initial public offers in Kenya, the authors established that investors feel awareness is the most important factors before making investment decisions. Further, lack of awareness may cause share prices to fall due to contagion factors. Also companies going public especially young companies face a market that is subject to sharp swings in valuations. Pricing deals can be difficult even in a stable market condition because insiders presumably have more information than potential outside investors.

Mutuku and Kirwa (2015) studied macro-economic variables and the Kenyan equity market by performing a time series analysis. They established that macro-economic variables drive equity market in the long run. Notably, inflation has a negative effect on equity market suggesting that policy authorities in Kenya should design policies that mitigate inflation for stock market to develop. Further the study found a positive relationship between Nairobi Securities Exchange share prices, the economic growth rate exchange rate and treasury bills. Aroni (2011) studied factors influencing stock prices for firms listed at the Nairobi Stock Exchange covering a period of three years. The study used the variables: Inflation rates, money supply, exchange rates and interest rates. The study established that exchange and interest rates had a negative correlation to stock prices whereas inflation and money supply had a positive correlation.

Kirui *et al*. (2014) in a study of macroeconomic variables, volatility and stock market returns sought to evaluate the relationship between gross domestic product, treasury bill rate, inflation and stock market return in Nairobi Securities Exchange. The results revealed that exchange rate showed a significant relationship with stock returns. For one percent increase in depreciation of a domestic currency, stock returns decreases by one to four percent. Gross domestic product, inflation and treasury bill rate indicated insignificant relationships. Arturo *et al*. (2011) studied the efficiency and the bear: short sales and markets around the world by taking cross-sectional and time series information from 46 equity markets around the world to consider whether short sales restrictions affect the efficiency of the market and the distributional characteristics of returns to individual stock market indices. They found some evidence that prices incorporates negative information faster in countries where short sales are allowed and predicted. A common conjecture by regulators is that short sales restrictions can reduce the relative severity of a market panic. They also found strong evidence that in markets where short selling is either prohibited or not practiced, market returns display significantly less negative skewness.

Sunday and Emmanuel (2012) studied the impact of inflation on stock market performance in Nigeria. They used regression analysis to evaluate the influence of inflation on various measures of stock market performance, market capitalization, total value traded ratio, percentage change in all share index and turnover ratio. They established that these measures were negatively related to inflation in convergence to a priori expectation except for turnover ratio which showed a positive relationship. Luyali (2014) studied the effects of use of derivatives on financial performance of companies listed at the Nairobi Securities Exchange. The study found out that apart from price stabilization other variables contributed positively to the financial performance of companies listed at the Nairobi Securities Exchange. Further, swaps and forwards are used more common than options. When firms use derivatives, on average their stock return volatility fell by five percent, their interest rate exposure fell by 22 percent and their foreign exchange exposure fell by 11 percent.

Fabozzi and Francis (2012) studied mutual fund systematic risk for bull and bear markets: An empirical examination. The study found out that mutual fund managers did not shift their fund's beta to take advantage of market movements. This was mainly because a significant number of stocks have random beta coefficients. As a result an adept portfolio manager might buy an asset which had a historical beta say 1.3 and be disappointed in its performance in a bull market because its beta dropped to say 0.7 because of random coefficient changes. In a study to determine the changes in share prices as a predictor of accounting earnings for financial firms listed at the Nairobi Securities Exchange, Musyoki (2012) established that the studied firms had a positive change towards the accounting earnings in relation to the share price. Additionally, the relationship between accounting variables and the Nairobi Securities Exchange information indicated mixed results with some companies showing a strong positive correlation and others weak correlation. Further, the study indicated that as the earnings of each company represented change, there is an expected increase in the share price.

Nyang'oro (2013) by using monthly data studied the foreign portfolio flows and stock market performance in Kenya: A case of Nairobi Securities Exchange. The study established that participation of foreign investors has an effect on domestic stock market returns and is affected by lagged unexpected flows and not by its contemporaneous value. The price pressure hypothesis is supported but only weekly, with security prices revised downwards with a lag. The base-broadening hypothesis holds, hence the amount of foreign investment in the market drives up returns and hence performance of the market. Flows by internal investors are significant in determining stock market returns and has a positive impact. Macro-economic factors, especially the change in exchange rate and treasury bill rate, are important in determining returns. Stability of exchange rate is therefore important for stock market performance as it creates confidence among investors in the market.

Further, despite the role of portfolio flows in lowering the cost of capital and financing growth, promoting local investment and macro-economic stability is also important in improving performance of the stock market.

Balsubramani and Pushpalatha (2013) performed a sectoral analysis of share price movements in NSE. They established that inflation impacts on the future returns of equity shares. They further established that there was an association between publicly available information and the behavior of stock prices. Waweru *et al*. (2013) investigated the role of behavioural finance and investor psychology at the Nairobi Securities Exchange with special reference to institutional investors. The study established that behavioural factors such as representativeness, overconfidence, anchoring, gamblers fallacy, availability bias, loss aversion, regret aversion and mental accounting affected the decisions of institutional investors operating at the NSE. Moreover, these investors made reference to the trading activity of the other institutional investors and often exhibited an institutional herding behavior in their investment decision making.

Zhao (2011) did an analysis of the relationship between inflation, output and stock prices in the Chinese economy. The study used monthly values covering the period from January 1998 to March 2010. The results established that there exists a significant negative relationship between stock prices and inflation. The findings also indicate that output growth negatively and significantly affect stock prices. Mukherjee and Naka (2012) investigated the relationship between Tokyo stock prices and six macroeconomic variables using a vector error correction model. Their study covered 240 monthly observations for each variable in the period from January 2000 to December 2010. The results of the study showed that there exists a relationship between Tokyo stock prices, the exchange rate, money supply and industrial production is positive, whereas the relationship between Tokyo stock prices, inflation and interest rates is mixed. On the other hand Chaudhuri and Smiles (2013) tested the long run relationship between stock prices and changes in real macroeconomic activity in the Australian stock market in the period from 1998 to 2010. These activities included real gross domestic product, real

private consumption, real money, and real oil price. The result of their study indicated that long run relationships between stock prices and real macroeconomic activity. The study also found that foreign stock markets such as the American and New Zealand market significantly affect the Australian stock return movement.

In testing the informational efficiency of the Malaysian stock market, Ibrahim (2010) investigated the dynamic interaction between stock prices and seven macroeconomic variables for a period of twenty years. The author used co-integration and Granger causality test. The macroeconomic variables included industrial production, consumer prices, credit aggregates, foreign reserves, money supply one, money supply two and exchange rates. The results strongly suggest informational inefficiency of the Malaysian market. In other words, there is co-integration between the stock prices and these macroeconomic variables. The study demonstrates that stock price movements anticipate variation in the industrial production. Money supply and exchange rate, while they react to the deviations from long-run path of consumer prices, credit aggregates and foreign reserves.

Maysami and Koh (2011) examined the dynamic relations between macroeconomic variables and Singapore stock market using vector error correction model. The macroeconomic variables used were: Exchange rates, long and short term interest rates, inflation, money supply, domestic exports and industrial production. The data was seasonally adjusted and covered a period from 2000 to 2011. The study showed that inflation, money supply growth. Change in short and long term interest rates and variation in exchange rates do form a co-integrating relation with the changes in Singapore's stock market levels. The study also examined the association between the American and Japanese stock markets and the Singapore stock market and the findings showed that the three markets are highly co-integrated.

Hammoudah and Alusa (2012) studied the relationship among Gulf Cooperation stock markets and Gulf Exchange stock markets oil future prices for a period of ten years as the oil exports largely determine foreign earnings and governments budget revenues and expenditures. The findings were that the index of the UAE stock market represents the country with the next highest link along with Bahrain after Saudi Arabia market. Koech (2010) studied the effects of stock splits announcements on stock prices of publicly quoted firms in Kenya. Event study statistical technique was applied to analyze data obtained from the sampled firms. The study established that stock split news generally causes stock prices to increase and that the increases were sustained for an average of thirty days in the event period. It was also found out that stock split announcements are relayed in stock prices at an average of one day.

Ndegwa (2012) studied the prediction of consistent stock performance and low stock price movement in Nairobi Securities Exchange by using underlying firm characteristics. The sampled stocks were initially sorted into three portfolios consisting of high medium and low price volatility stocks based on the standard deviation historical volatility metric. The portfolio with low stock price volatility was then compared with the different types of consistent stock performance in order to establish the specific type that was significantly associated with historical stock price volatility. The low stock price volatility was regressed against underlying firm characteristics to establish their prediction power. The study established that consistent positive stock returns was significantly associated with low stock price volatility. Further, book value, dividends per share and earnings per share predictor variables had significant prediction power over low stock price volatility and consistent stock performance. The basic instrument for investigating the factors affecting stock markets is the fundamental analysis which can be performed on three basic levels: global, sector-specific and corporate. Factors affecting the price behaviour are not only of shares but also other securities and instruments which can be further divided into macroeconomic and microeconomic factors.

King (2011) found out that stock markets are influenced by macroeconomic factors by an average of 50%. A similar view is shared by Musílek (2011) who, unlike King, stays on the general level and claims that if an investor wants to be successful, the investor must focus mostly on price-shaping macroeconomic factors. On the other hand, Protopapadakis (2012) found out that macroeconomic variables are the most important indicators, which affect stock returns, since these factors have an impact on future company´s cash flows. Ogega and Waweru (2016) performed a study of asymmetric and persistence in stock return volatility in the NSE. The study finding confirmed that NSE efficiency is in doubt; the results also indicate non-systematic pattern across all stocks with high volatility in bull periods. The study also confirmed existence of consistent peaks and troughs; the bearish phases were much more frequent than bullish phases. Mahmoud and Shusha (2016) did a study on the attitudinal determinants of adopting the herd behaviour and found out that decision accuracy, hasty decision and investor mood were the main attitudinal determinants that explain why individual investors follow herd behaviour.

2.6 Critique of existing literature

Most of the articles reviewed in the literature cover countries outside Kenya, with very few studies being undertaken in Kenya. This therefore means that more research needs to be done so as to investigate the topic under study. Kothari (2012) underscores the importance of literature review by explaining that it is done with an objective of finding out critical points of current knowledge and any new findings, theoretical and methodological contributions. Sarbapriya (2012) analysis of Dow Theory was more on the trend adopted by stocks and how each of them can either lead to a bull market or bear market. This analysis might not be useful now since so many other factors which didn't exist during Dow Jones time now play a big role in setting trends of stock market; information about stock market is now continuously online as the trading takes place; something which used not to happen during Dow Jones time.

The efficient market hypothesis by Fama (1970) and expounded by Zhang *et al*. (2012) might not be the only theory which can be used to explain stock price movements. Fama (1970) made so many assumptions such as; new information comes to the market independent from other news and in random fashion. This kind of assumption cannot hold now since the trading on stocks is done online and information flow cannot be blocked at the present globally networked countries. There is therefore need to review such theories.

In another analysis done by Mukherjee and Naka (2013) the outcome of the study was that there exists a co-integrating relationship between stock market and exchange rate, inflation, money supply, real economic activity, long term government bond rate and call money rate. This study only talks of a relationship but not a specific aspect such as a bull market or a bear market. Moreover, the analysis only relied on secondary data over a period of time and not on primary and secondary data combined. In another study, Levine and Zervos (2013) did an investigation into the relationship between economic growth and stock market development. Their study was more on whether a relationship exists between economic growth and stock market and not on the effect of economic development and stock prices, stock market development might not necessarily lead to a sudden improvement in stock prices or to a downward trend on stock prices.

Chen *et al*. (2013) did a study which analysed a set of macroeconomic variables as systematic influence on stock market returns was done in the United States of America. The economic conditions existing in the United States which is a developed country might not be existing in a developing country such as Kenya. Also, a study done by Jeffrey *et al*. (2015) on religion and stock price crash risk tried to examine religiosity at the county level and its association with future stock price. They established that firms in regions with higher levels of religiosity exhibited lower levels of future stock price crash risk. This may not apply to developing countries such as Kenya where the majorities are religious but corruption still exists in high proportion. A study done by Robert *et al*. (2013) argue that major bull and bear markets are driven by shifts in assessment of fundamentals and that investors have little knowledge of crucial factors as pertains to

stock price volatility. This finding may be disputed since most investors more so in developed countries are well aware of investment decisions. The same may apply to developing countries since the few investors who exist in the stock market are well aware of what happens at the stock exchange since the trading is nowadays done online and prices for all stocks are shown on respective websites of the stock exchange daily. Locally, Munyaka *et al*. (2014) studied factors influencing individual investor behaviour during initial public offers in Kenya. The study mostly relied on secondary data and was not so much explaining the effects on stock prices.

Mutuku and Kirwa (2015) analysed macroeconomic variables and the Kenyan equity market by performing a time series analysis. This study just relied on secondary data and not on both primary and secondary data. Kirui *et al*. (2014) in their study of macroeconomic variables sought to evaluate the relationship between gross domestic product, treasury bill rate, inflation and stock market return in Nairobi Securities Exchange. This study also relied on secondary data and did not incorporate both primary and secondary data. Luyali (2014) did a study on the effects of use of derivatives on financial performance of companies listed at the Nairobi securities Exchange; the study just relied on secondary data rather than using both secondary and primary data. In another study, Nyangoro (2013) investigated the foreign portfolio flows and stock market performance in Kenya. The variables considered in the study were few and not sufficient to give a full view of the factors affecting share prices.

2.7 Research gaps

From the theoretical review, more research needs to be carried out in Kenya to investigate the determinants of the bear market performance by taking a survey of firms listed at the NSE. Although few studies have been done in Kenya, they have focused on the trends of the bull and bear market and not on the determinants of the bear market performance in the NSE. Studies such as the one done by Kiplagat *et al*. (2010) found out that daily price movements at the NSE are significantly related to investor sentiments and therefore investor psychology is a potential explanation for stock price

movements. Also, Kithinji and Ngugi (2010) found out that stock price performance is influenced by political activities and expectations around the election period in Kenya in the short term. The study done by Mukherjee and Naka (2013) only analyzed the relationship between stock market and exchange, inflation, money supply, real economic activity, long term government bond and call money rate. This study only gave a relationship on the variables to the stock market but left some gap on the effect of the studied variables on specific share prices. Also the study by Islam and Watanapalachaikul (2013) found out that there exists a long- run relationship between stock prices and macroeconomic factors; interest rate, bonds price, foreign exchange rate, price earnings ratio, market capitalization and consumer price index. This study only concentrated on the relationship but not the absolute influence of these variables on share prices which could be associated to a bear market. This study therefore leaves a gap on bear market performance which required establishing.

Levin and Zervos (2013) in their study of the relationship between economic growth and stock market development and long run economic growth left a gap by not finding out the relationship between economic growth and bear market performance. A study done by Maximilano *et al*. (2013) which established that economic geography variables are more relevant for foreign direct investment from non-traditional sources. This study however, left a gap which would have explained the effect of economic geography variables and the bear market performance. Roley (2013) also found out that there is a relationship between anticipative money supply and the development of stock prices. The study however, left a gap by not explaining how money supply could affect bear market performance. Studies such as the ones done by Ray (2013); Sireesha (2013); Maghayereh (2013) and Chen *et al.* (2013) all tried to find out the relationship between macroeconomic variable and stock prices. These studies however, failed to specifically mention the effect of the macroeconomic variables on bear market performance and therefore leaving a gap which still needs to be investigated.

Mutuku and Kirwa (2015) studied macroeconomic variables and Kenyan equity market by performing a time series analysis. Their study found out that macroeconomic

variables drive equity market in the long run. However, this study left a gap by not explaining how micro-economic variables affect bear market performance. Kirui *et al.* (2014) also in a study of macroeconomic variables, volatility and stock market returns left a gap by not explaining how the macroeconomic variables affect bear market performance. Luyali (2014) in his study of the effects of use of derivatives on financial performance at the Nairobi Securities Exchange left a gap by not explaining how the use of derivatives influences bear market performance. Nyangoro (2013) in a study of the foreign portfolio flows and stock market performance also left a gap by not explaining how the foreign portfolio flows affects bear market performance. The data for this study was collected by surveying firms listed at the NSE with an objective to answer the research questions and hypotheses of the study. Ogega and Waweru (2016) in a study of an analysis of asymmetric and persistence in stock return volatility in the Nairobi Securities Exchange only established the existence of bullish phases and bearish phases; the study however left a gap by not establishing the determinants of bear market or bull market.

2.8 Summary

From the literature review, it can be observed that the Dow Theory, Efficient Market Hypothesis and Agency Theory may not be useful when explaining the determinants of the bear market performance. Most studies have analysed the bull and bear market but they have hardly analysed the determinants of the bear market on its own without combining it with the bull market. Other studies have also analysed the effect of macroeconomic variables on share prices but they have not related this effect to the bear market performance. It should therefore be noted that development in this financial discipline is still improving. It was therefore of importance to establish that; transaction costs, mobilization of resources by retail investors', financial literacy and cultural values play a role in determining the bear market performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research design, target population, sampling frame, sample size and sampling techniques, data collection and analysis methods, and the model specification which was adopted so as to address research questions and the hypotheses in chapter one are analyzed.

3.2 Research Design

The function of a research design is to ensure that the evidence obtained from the field enables the researcher to answer the initial question as unambiguously as possible (Yin, 2010). Obtaining relevant evidence entails specifying the type of evidence needed to answer the research question, to test a theory, to evaluate a programme or to accurately describe some phenomenon.

When designing research we need to ask: given this research question (or theory) what type of evidence is needed to answer the question (or test the theory) in a convincing way? Research design deals with a logical problem and not a logistical problem (Kothari, 2012). Designs are often equated with qualitative and quantitative research and evaluated against the strengths and weaknesses of statistical, qualitative research methods and analysis (Creswell, 2014).

Mash (2012) argues that quantitative surveys can provide information and explanations that are adequate at the level of meaning. The need for research design stems from a skeptical approach to research and a view that scientific knowledge must always be provisional. The purpose of research design is to reduce the ambiguity of much of the research evidence. The evidence sought should be a compelling test of the theory. The major strategy for doing this is for eliminating rival explanations of the evidence and

deliberately seeking evidence that could disapprove the theory. This therefore means that we must not simply look for evidence that supports our favourite theory; we should also look for evidence that has the potential to disapprove preferred explanations.

Harwell (2010) observed that identifying a study research design is important because it communicates information about key features of the study. This can differ for qualitative and mixed methods. However, one common feature across research designs is that at one or more points in the research process, data are collected, albeit in different ways and for different purposes. Thus qualitative studies are among other things, studies that collect and analyze qualitative data; quantitative studies are among other things, studies that collect and analyze quantitative data. Crott (2011) described four key features to consider in a research design; the epistemology that informs the research, the philosophical stance underlying the methodology in question (such as post-positivism, constructivism, pragmatism, advocacy/participatory), the methodology itself and the techniques and procedures used in the research design to collect data. Trochim and Land (2011) defined quantitative research as the glue that holds the research work together. He further argued that quantitative research methods attempt to maximize objectivity, replicability and generalizability of findings and are typically interested in prediction.

Hiatt (2010) explains qualitative research to be consisting of a set of interpretive, material practices that makes the world visible. Qualitative researchers study things in their natural settings, attempting to make sense of, or interpret phenomena in terms of meanings that people bring to them. Johnson and Onwuegbuzie (2008) define mixed methods research as the class of research where the researcher mixes or combines qualitative and quantitative research techniques methods and approaches. Caracelli and Greene (2007) identified three typical uses of mixed methods study: testing the agreement of findings obtained from different measuring instruments, clarifying and building on the results of one method with another method, and demonstrating how the results from one method can impact subsequent methods.

In order to perform statistical tests, the study used mixed research design, namely; quantitative and qualitative approach to analyze the determinants of bear market performance. This research used cross-sectional survey method to conduct the study. Cross-sectional design is a design used to estimate the prevalence of an outcome of interest from a population. It involves analyzing information relating to the current status of the issue and also to describe what exists within the variables (Creswell, 2014). This design was of use to the study since it allowed the researcher to familiarize himself with the concepts of the problem under study to facilitate development of insights and hypotheses. Existing literature was of use to verify the perception of the researcher and come up with preliminary ideas regarding the research problem.

3.3 Target Population

Polit and Hungler (2009) refer to population as an aggregate or totality of all the objects, subjects or members that conform to a set of specification. On the other hand Lepkowski (2008) defines population as a collection or aggregation of the individual or other elements about which inferences are to be made. The author further argues that in a survey usage, a population is strictly a finite collection of the units from which information is sought in the survey. Cox (2008) explains target population as the entire set of units for which the survey data are used to make inferences. Target population defines only those units for which the findings of the research are meant to generalize. On the other hand, burns and Grove (2010) argues that the target population is the entire aggregation of respondents that meet the designated set of criteria.

The target population under this study was on 875,056 retail investors (table 3.1) actively participating in the Nairobi Securities Exchange as at 1st October, 2013 (CMA, 2013). The target population also comprised of firms which form the twenty share index at the Nairobi Securities Exchange, this was used for extracting secondary data for the study. The respondents were retail investors at the NSE and were accessed through stock brokers.

3.4 Sampling Frame

Michael *et al*. (2010) explains a sampling frame as a list or other device used to define a researcher's population of interest; the sampling frame defines a set of elements from which a researcher can select a sample of the target population. Cresswell (2014) further argues that a sampling frame is the listing of the accessible population from which the researcher draws the sample from.

The study involved collecting data from retail investors participating at the Nairobi Securities Exchange through brokerage firms, these firms were identified by applying purposive sampling. First, the firms were identified, and then the individuals to be interviewed formed the sample which were retail investors participating at the Nairobi Securities Exchange so as to make the study manageable. There are twenty brokerage firms which are actively participating at the NSE. As pertains to the secondary data, firms forming the twenty share index (see appendix II) were also used for the study.

3.5 Sample and Sampling technique

Sampling is a process that is strategic and mathematical; it involves using the most practical procedures possible for gathering a sample that best represents a larger population (O'Leary, 2004). Kumar (2005) argues that purposive sampling is useful when constructing a historical reality, describing a phenomenon or developing something which is only little known. Brynard and Hanekom (2005) argue that sampling of a population is used to: simplify the research, save time and cut costs. Anderson (2004) argues that there is no clear answers with regards to how large a sample should be while Neuman (2006) suggests that the general principle is that the smaller the population, the bigger the ratio of the sample size to population size.

The study relied on findings from questionnaires distributed through five purposively sampled stock brokers who are registered to trade at the Nairobi Securities Exchange. One hundred questionnaires were dropped in each stock brokerage firm and were filled

by retail investors doing business through stock brokerage firms. The sampling technique which was adopted for the study was purposive in that there are stock brokerage firms under statutory management which do not conduct frequent business so it was advisable to rely on stock brokerage firms which are not under statutory management. In administering the questionnaires, the study adopted convenient sampling technique since retail investors were accessed as they transacted business in the stock brokers' offices. This was done over a period of 30 days to attain a desired sample size of 500 respondents.

Table 3.1: Population Size

Gender	Number of investors	Shares quantity held
Female	287,597	2,715,186,000
Male	587,460	5,965,564,000
Total	**875,057**	**8,680,750,000**

Source: CDSC (2013)

The sample was derived from retail investors participating at the NSE based in Mombasa Town. The sample size at a confidence interval of one percent was calculated as 500 retail investors. The sample size estimate was derived by using the formula by Sekaran and Bouge (2010) which is shown in appendix 3. This sample size was then broken down into administering questionnaires to 200 female retail investors and 300 male retail investors as a representative of the original investors in each category.

Table 3.2: Sample Size

Gender	Number of retail investors
Male	300
Female	200
Total	**500**

Convenient sampling technique was used to administer questionnaires to 500 retail investors for the study. Desired size of 500 retail investors was informed by the need to reduce sampling error; some respondents were not able to completely fill all the details lowering the number to a valid response and also the target population was highly heterogeneous with respect to a number of internal variables under study.

3.6 Data Collection Methods

This sub-section involves the review of how data was collected for the study. Data was collected from both primary and secondary sources. Primary data was collected by administering questionnaires to respondents while secondary data was purchased from the Nairobi Securities Exchange.

3.6.1 Primary data

Primary data is most generally understood as data gathered from the information source and which has not undergone analysis before being in the final research report. Primary data is collected directly from the target population by the researcher through fieldwork. Primary data is most often collected through face to face interviews or discussions with members of the affected sampled population, but can also be gathered through phone interviews, radio communications, e-mail exchange and direct observation (Kothari, 2012).

Structured questionnaires were used with the purpose of finding out the determinants of bear market performance. According to Kothari (2012) questionnaires are useful for a study in that they are practical, the potential information can be collected from a large portion of a group and the quantitative data can be used to create new theories and test existing hypotheses. Questionnaires were useful to this study in that they provided unique data which is contemporary in nature; questionnaires also helped in analyzing the opinion of retail investors in relationship to the determinants of bear market performance. The questionnaire schedule was divided into three sections. The first part

covers the demographic information of the respondents (gender, age, education level, occupation and income levels). The second part covers the determinants of bear market performance and the last part covers the bear market performance. The questionnaires helped in collecting data so as to realize the extent to which each independent variable among the five broad categories influences the determinants of bear market performance. This was done by using a response scale of 5 for very high to 1 for very low. The questions used in the survey provided data to correspond to the area of research.

3.6.2 Secondary data

Secondary data is information which has typically been collected by researchers not involved in the current research and has undergone at least one year of analysis prior to inclusion in the current research. Secondary data can comprise of published research, internet materials, media reports and data which has been cleaned, analysed and collected for the purpose other than the needs assessment for a particular research (Kothari, 2012). Secondary data involving the prices of stocks of firms forming the twenty share index were collected for a period of fourteen years (2002 to 2016). Observation technique was employed on this data to figure out the trends created by specific stocks and this was used to evaluate the performance of the bear market at the Nairobi Securities Exchange.

3.7 Data Collection Procedure

Questionnaires were administered to 500 retail investors through stock brokerage firms trading at the NSE. The five stock brokerage firms which were used were: Kingdom Securities Ltd, SBG Securities Ltd, Equity Investment Bank Ltd, KCB Capital and Dyer and Blair Investment Bank Ltd. These stock brokerage firms were those that are actively participating at the NSE and have their branch offices in Mombasa Town. The questionnaires were personally delivered to stock brokerage firms in their offices on a drop and pick basis. This was done for a period of 30 days in order to attain the desired

sample size. Secondary data of stock prices of firms forming the NSE twenty share index was collected from the Nairobi Securities Exchange data bank. This data was readily available once payment was made to the NSE.

3.8 Pilot Study

Robson *et al*. (2010) defines a pilot study as a small study for helping to design a further confirmatory study. Thabane *et al*. (2010) further argues that such kinds of studies may have various purposes such as testing study procedures, validity of tools and estimation of parameters such as the variance of the outcome variable to calculate sample size. Tujlingen and Hundley (2010) on the other hand argue that a pilot study is a mini-version of full scale study or a trial run done in preparation of the complete study. It is also known as a feasibility study and is a specific pre-testing of research instruments. Graham *et al*. (2010) justifies performing a pilot study by arguing that a pilot study raises a number of fundamental issues related to the process of conducting a large scale survey, including the method of distributing the questionnaire, gaining access to the target population and also administering the questionnaire. They further confirm that pilot study is a test of the methods and procedures to be used on a larger scale.

Reliability is concerned with internal consistency; that is, whether data collected, measured or generated are the same under repeated trials (O'Leary, 2004). Internal consistency was measured under reliability by calculating Cronbach's alpha coefficient. Thus, the coefficients reflect the homogeneity of the scale as a reflection of how well the different items complement each other in their measurement of different aspects of the same variable or quality (Litwin, 2012). Also, according to Robson (2010) the reliability of responses can also be proved if all respondents are presented with the same standardized questions, carefully worded after piloting. Validity on the other hand is defined as the degree to which an instrument measures that what it was intended to measure (Kumar, 2005). O'Leary (2004) further elaborates that validity is premised on the assumption that what is being studied can be measured or captured. It seeks to confirm the truth and accuracy of any findings or conclusions drawn from the data, it

also indicates that the conclusions drawn are trustworthy and indicates that the methods warrant the conclusions. For the current research, a pilot study was conducted with a convenient sample of 50 retail investors served by three stock brokerage firms in Mombasa Town to refine the measurement instrument before performing the final study for administration as guided by Cooper and Schindler (2001).

The pilot study was an initial test of the measurement scale with all constructs of interest operationalized with their respective items. In this sense, the respective items for the independent variables namely: transaction cost, mobilization of resources, financial literacy and cultural values, and the independent variable bear market performance were under examination in the pilot study. The primary purpose of this study was to assess the psychometric properties of the sub-scale measures in order to provide evidence of reliability and validity, as well as the elimination or modification of any problematic items and not to generalize results across a given population. This procedure involved the use of Cronbach's Alpha analysis in order to assess the degree of internal consistency of the measurement sub-scales. Kothari (2012) observed that a high Cronbach's Alpha value indicates higher consistency for a given scale. Consequently, a Cronbach Alpha value greater than 0.7 for each respective measurement sub-scale was accepted. The formula used for calculating cronbach's alpha values as given by Kothari (2012) was:

$$\alpha = \frac{N \cdot \bar{c}}{\bar{v} + (N-1) \cdot \bar{c}}$$

Where N equals to the number of items, c-bar is the average inter-item covariance among the items and v-bar equals to the average variance.

3.9 Data Analysis and Presentation

This study involved the use of descriptive statistics, correlation analysis and a multiple regression analysis. Descriptive statistics was used for the analysis of demographic characteristics of the respondents involved in the study. It consisted of frequency tables and measures of central tendency. Correlation analysis was carried out to determine the relationships between the variables describing the direction, degree and strength of association between the variables using Scientific Program for Social Scientists (SPSS) for windows 20.0. A value of zero represented no correlation while one represented a perfectly strong correlation. Application of a factor linear model was used to compute multiple regression to examine the significance of the relationship between the dependent and independent variables. The multiple regression tool assisted in estimating or predicting the unknown value of one variable from a known value of another variable. It revealed the relationships between the variables which were useful for prediction of an estimate.

All data analysis was done using SPSS version 20.0 so as to compute the descriptive statistics, multiple regression and Pearson correlation for answering questions. Factor analysis was used in this study; its main purpose was to transform data to meet the assumptions of other techniques. For instance, application of the multiple regression technique assumes (if tests of significance are to be applied to the regression coefficients) that predictors--the so-called independent variables--are statistically unrelated (Ezekiel and Fox, 2016). If the predictor variables are correlated in violation of the assumption, factor analysis can be employed to reduce them to a smaller set of uncorrelated factor scores. The scores may be used in the regression analysis in place of the original variables, with the knowledge that the meaningful variation in the original data has not been lost. Chi- square was used to evaluate the independence between variables. According to Kothari (2012) Chi-square assesses whether an association exists between variables by carefully examining the pattern of responses in the cells. Calculating the Chi-square statistic and comparing it against a critical value from the Chi-square distribution allows the researcher to assess whether the association seen

between the variables in a particular sample is likely to represent an actual relationship between those variables in the population. ANOVA test was conducted to test the significance of relationships between the variables based on set hypotheses which was rejected or accepted. The decision to accept the hypothesis was based on ρ – values. The ANOVA test was chosen as the study presumes that the population being tested was normally distributed, have equal variances and the samples are independent of each other. The secondary data was analysed by getting the mean stock prices of firms forming the twenty share index on a monthly basis for ten years (2002 to 2016). The mean stock prices were then graphed so as to determine the trends which lead to a bear market.

3.9.1 Model Specification

A multiple linear regression analysis was preferred. The bear market performance was deemed to be a function of selected variables of financial attributes to an individual adopted from Hardouvelis (2010) given as:

$$Y = \beta_0 + \beta_1 COST + \beta_2 RES + \beta_3 LIT + \beta_4 CUL + \varepsilon$$

Where Y is the bear market performance

β_0 =Constant term

$\beta_1 COST$ = Sensitivity of bear market performance to transaction cost.

$\beta_2 RES$ = Sensitivity of bear market performance to mobilization of resources by retail investors.

$\beta_3 LIT$ = Sensitivity of bear market performance to Financial literacy.

$\beta_4 CUL$ = Sensitivity of bear market performance to cultural values.

ε = Disturbance term with an expected value of zero.

Bear market performance (Y) was measured by the use of Rate of Change (ROC) which was suggested by Martin (2013) and was applied for the calculation of momentum of change for trends. The rate of change formula is given by:

ROC = [(Close – Close n periods ago) / (Close n periods ago)] x 100

A resultant of continuous decreasing value implies a bear market while an increasing value from previous calculation implies a bull market. Sensitivity of bear market performance was computed using the multiple regression in the framework of the model applied by Hardouvalis (2010). The factor model was based on the assumption that the disturbance terms are uncorrelated across various portfolios; implying that bear market performance change only as a reaction to a specific factor.

3.9.2 Variable Definition and Measurement

Convenient sampling technique was used in this research to achieve the required response rate. The respondents were from retail investors trading shares at the NSE through stock brokers operating in Mombasa Town. The study focused on the factors affecting the performance of the bear market (transaction cost, mobilization of resources by retail investors, financial literacy and cultural values) and the extent to which the variables affect the dependent variable (bear market performance). The variables were investigated using a response index scale of 1 to 5 to determine the influence of the independent variables on the dependent variable. This study adopted the measurement procedures used by Hardouvalis (2010). In the first part of the questionnaire, the respondent's demographic characteristics were captured. In the second part of the questionnaire, the questions attempted to capture the extent to which a given variable influences the bear market performance in the areas of transaction cost, mobilization of resources by retail investors, financial literacy and cultural values. Questionnaires with more than 25 percent of the questions left unanswered were excluded from the data set. The bear market performance was also determined by extracting graphs from the mean stock prices of the firms forming the twenty share index for a period of fourteen years (2002 to 2016). These graphs showed the trends adopted by the stock prices over the ten year period and therefore helped to determine the performance of the bear market. Table 3.3 below shows the summary for the operationalization of the variables which were used in the study.

Table 3.3: Measurement of variables

Variable	Manifest variable and its measurement
Transaction cost	The manifest variables were: Commission by brokerage firms, Regulatory authorities, Inflation rate, Use of information technology, agency costs and interest on mutual funds. They were measured on a likert scale of 1 to 5 with 1 being strongly disagree to 5 being strongly agree
Mobilisation of resources by retail investors	The manifest variables were interest on bank loans, level of dependants, price of consumable commodities, level of disposable income, taxation of capital gains, level of remittances and per capita income. All these were measured on a likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree.
Financial literacy	The manifest variables were: dissemination of financial information by capital markets, Availability of financial information, investment promotion incentives. All these were measured on a likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree.
Cultural values	The manifest variables were: keeping up with the Joneses, Family influence, Religious influence, Tradition and time of rewarding employees. All these were measured on a likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree.
Bear market performance	The manifest variables were: Fluctuating share prices, consistent declining trend, and lack of trading activity at the bourse, insolvency and bankruptcy risk. All these were measured on a likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree. Share prices were also extracted from secondary data and a graph was drawn to show the performance of bear market performance.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This study sought to investigate the determinants of bear market performance in the Nairobi Securities Exchange in Kenya. Specifically the study sought to determine the influence of: Transaction cost; mobilization of resources by retail investors; financial literacy and; cultural values on bear market performance. A survey of 500 retail investors was done by administering questionnaires through five purposively sampled stock brokers registered to trade in the NSE, which was preceded by a pilot study on a sample of 50 retail investors in three stock brokerage firms that were not visited during the actual survey. These stock brokers have their main offices in Nairobi City and branches in Mombasa town. In this chapter, the findings of the research study are presented, interpreted and discussed. Whereas the main findings are organized as per the four key objective areas, the first three parts of the chapter describe the response rate and provide background information of the actual study participants, exploring the linkages between the background characteristics and bear market performance variables.

4.1.1 Pilot Study Results

The results of Cronbach's Alpha reliability analysis for the sub-scales were as presented in Table 4.1.Cronbach alpha analysis revealed that the 6-item sub-scale for Transaction Cost had a Cronbach alpha of 0.826; Mobilization of Resources by Retail Investors (7 items) had alpha = 0.819; Financial literacy (4 items) = 0.799; Cultural values (5 items) = 0.846 and; Bear Market Performance (4 items) had Cronbach alpha of 0.787. Overall, the four sub-scales of determinants of bear market performance had a Cronbach alpha of 0.848.

Table 4.1: Cronbach's Alpha Reliability Analysis Results for the Measurements

	Measurement Scale	Initial Item Pool	Cronbach Alpha	Number of Items after Piloting
i.	Transaction Cost	6	0.826	6
ii.	Mobilization of Resources by Retail Investors	7	0.819	7
iii.	Financial Literacy	4	0.799	4
iv.	Cultural Values	5	0.846	5
v.	Bear Market Performance	4	0.787	4

Cronbach alpha statistic assesses the extent to which the items intended to measure a given construct are interrelated and whose variance is derived from a common source (Netemeyer *et al.,* 2003). Highly correlated items suggest that items are measuring the same latent variable. Robinson *et al.* (1991) advocate an alpha score of 0.8 while DeVellis (1991) considers 0.7-0.8 as respectable, 0.8-0.9 as very good whilst greater than 0.9 should result in the scale length being reduced. Clark and Watson (1995) concur with Nunally (1978) that 0.7 should be a minimum figure of acceptability with 0.8 and above adding little to the scale's reliability. Consequently, in line with these authors, the alpha coefficients of the measurement scales in this study which were all above the 0.7 threshold were considered robust, hence all the items for each sub-scale were retained and the questionnaire adopted for the survey.

4.1.2 Response Rate

The designated sample size at the beginning of the study based on the total population size was 500participants. By and large, a 100% response rate was achieved and data

collected from the entire sample as planned. However, during the preliminary data preparation procedures that involved editing and checking on the returned questionnaires in preparation for data entry and analysis, 10 of the returned questionnaires were found to be either incomplete or had more than two responses to some questionnaire items, thus dropped from the final sample. Therefore, a total of 490 questionnaires that had complete information and clear responses made the final sample for data entry and thus included in data analysis. This represented 98% success rate in relation to the originally designed sample size.

4.2 Background Characteristics of the Survey Participants

The background characteristics investigated among the main study participants were sex, age, education and level of income.

4.2.1 Respondents' Sex

Out of the 490 study participants, 297 respondents representing 60.6% were male. A total of 193 respondents (39.4%) were female as shown in table 4.2.

Table 4.2: Distribution of Respondents by Sex

Gender	**Frequency**	**Percentage**
Male	297	60.6%
Female	193	39.4%
Total	**490**	**100%**

Following Pearson's Chi-square tests of independence, the results indicated that differences in the respondent's observation on bear market performance were related to the sex of the respondent as shown in Table 4.3.

Table 4.3: Chi-Square Tests between Respondent's Sex and Bear market Performance

Statements	Pearson Chi-Square Value	df	Sig. (2-sided)	Cramer's V
1. Fluctuating share prices has an effect on bear market performance	16.665	3	.001	0.184
2. Consistent declining primary trend has an effect on bear market performance	26.008	4	.000	0.230
3. Lack of trading activity at the bourse has an effect on bear market performance	21.703	3	.000	0.210
4. Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance	13.379	3	.004	0.165

The effect of bear market performance was not related to sex of the respondent. The respondents' observations on the effect of fluctuating share prices, consistent declining primary trend, lack of trading activity at the bourse and insolvency and bankruptcy risk of firms trading at the bourse differed by gender with Chi-square values of 16.665 (df = 3; p = 0.001); 26.008 (df=4; p=0.000); 21.703 (df = 3; p = 0.000) and; 13.379 (df=3; p=0.004) respectively.

Cramer's *V,* which is used to measure the strength of association between two categorical variables that have more than two levels and ranges from 0 to 1 (Gravetter & Wallnau, 2007; Kline, 2004)indicated that the strength of the associations between sex and respondents' observations of the effect of fluctuating share prices, consistent declining primary trend, lack of trading activity at the bourse and the effect of insolvency and bankruptcy risk of firms trading at the bourse were weak with values of 0.184, 0.23, 0.210 and 0.165 respectively. Cohen (1988) suggested that for chi-square

tests with degrees of freedom equal to 2, a value of Cramer's *V* within the range of .07–.21 indicates a small effect, a value within the range of .21–.35 indicates a medium effect, and a value larger than .35 indicates a large effect. Consequently, the strengths of the associations between sex of the respondents and observed bear market performance indicators ranged from small to medium as indicated by their respective Cramer's *V* values.

4.2.2 Age of Respondents

A clustering of the respondents' age based on class size of 10 years revealed that the highest percentage (38%) were aged over 55 years ; 26.5% were aged 36-45 years; 21.6%fell in the 46-45 years' age category; 11% were aged between 25 and 35 years while less than 3% were below 25 years of age. The age distribution of the respondents is displayed in Table 4.4.

Table 4.4: Distribution of Respondents by Age

Age	Percentage
Below 25 years	11%
25 – 35 Years	26.5%
36- 45 Years	21.6%
46 – 55 Years	38%

Pearson's Chi-square test of independence results (Table 4.4) revealed that the respondents' views on the effects of lack of trading activity at the bourse, consistently declining primary trend, insolvency and bankruptcy risk of firms trading at the bourse and fluctuating share prices on bear market performance were related to age with parameters of χ^2 = 46.153 (df=12; p=0.000; Cramer's *V* =0.177), χ^2= 73.291 (df=16, p=0.000; Cramer's *V* =0.193),χ^2 = 98.879 (df = 12 p = 0.000; Cramer's *V* = 0.256) and χ^2 = 208.367 (df=12 p=0.000; Cramer's *V* =0.376) respectively.

Table 4.5: Chi-Square Tests of Respondent's Age Categories and Bear market Performance

Statements	Pearson Chi-Square Value	df	Sig. (2-sided)	Cramer's V
1. Fluctuating share prices has an effect on bear market performance	46.153	12	.000	0.177
2. Consistent declining primary trend has an effect on bear market performance	73.291	16	.000	0.193
3. Lack of trading activity at the bourse has an effect on bear market performance	98.879	12	.000	0.259
4. Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance	208.367	12	.000	0.376

The Cramer's *V* values accompanying the associations between respondents' age categories and observed bear market performance indicated that while the association between respondents age categories and "Fluctuating share prices has an effect on bear market performance" and "Consistent declining primary trend has an effect on bear market performance" remained relatively weak, the associations between age categories and "Lack of trading activity at the bourse has an effect on bear market performance" was moderate while that between age categories and "Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance" was strong (Cohen, 1988).

4.2.3 Level of Education

Half of the respondents had attained tertiary college level of education, 10.4% had secondary level of education, 23.5% were university level undergraduates and 16.1% were postgraduate finalists. Table 4.6 shows the distribution of the respondents by their levels of education.

Table 4.6: Distribution of respondents by education level

Education Level	Percentage
Secondary school	16.10%
Tertiary College	50%
Undergraduate	25.5%
Post - Graduate	16.10%

The percentages reflect a literate investor population. The Pearson's Chi-square tests of independence results were as shown in Table 4.7.

Table 4.7: Chi-Square Tests of Respondent's Education Level and Bear market Performance

Statements	Pearson Chi-Square Value	d.f.	Sig. (2-sided)	Cramer's V
1. Fluctuating share prices has an effect on bear market performance	86.926	9	.000	0.243
2. Consistent declining primary trend has an effect on bear market performance	59.557	12	.000	0.201
3. Lack of trading activity at the bourse has an effect on bear market performance	106.268	9	.000	0.269
4. Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance	63.477	9	.000	0.208

Following Pearson's Chi-square tests of independence, the respondents' observations on bear market performance in relation to fluctuating share prices; consistently declining primary trend, lack of trading activity at the bourse and insolvency and bankruptcy risk of firms trading at the bourse differed with their levels of education with parameters of χ^2 = 86.926 (d.f.=9; p=0.000; Cramer's V =0.243), χ^2 = 59.557(d.f.=12, p=0.000; Cramer's V =0.201); χ^2 = 106.268 (d.f.=9, p=0.000; Cramer's V =0.269) and χ^2 = 63.477 (d.f.=9, p=0.000; Cramer's V =0.208) respectively. As suggested by Cohen (1988), the Cramer's V values associated with the associations between respondents' education levels and observed bear market performance variables, ranging from 0.201 to 0.269 generally reflect moderate effect size of the associations.

4.2.4 Respondents' Average Monthly Income

A total of 210 respondents (42.9%) had a monthly income ranging within Ksh. 50,001-100,000. This was followed by 156 (31.8%) who recorded an average monthly income range of 30,001-50,000, then72 (14.7%) with an average of Ksh. 150,000 and above monthly income and 39 (8%) with an average of over Ksh. 100,000 - 150,000 per month. Less than 3% of the respondents earned an average of Ksh. 30,000 or less in a month. The distribution of the respondents by their levels of income is shown in Table 4.8.

Table 4.8: Distribution of the Respondents by Average Monthly Income

Monthly Income	Percentage
30,000 and Less	2.7%
30,000 – 50,000	31.8%
50,000 – 100,000	42.9%
100,000 – 150,000	8%
150,000 and above	14.6%

The income levels were categorized into low (Ksh. 30,000 and less), medium (Ksh. 30,001 - Ksh. 100,000) and high (Ksh. 100,001 and above) and used to conduct the Pearson's Chi-square tests of independence between respondents' income levels and observed bear market performance. The results were as shown in Table 4.9.

Table 4.9: Chi-Square Tests of Average Income Level and Bear market Performance

Statements	Pearson Chi-Square Value	df	Sig. (2-sided)	Cramer's V
1. Fluctuating share prices has an effect on bear market performance	103.294	12	.000	0.265
2. Consistent declining primary trend has an effect on bear market performance	86.363	16	.000	0.210
3. Lack of trading activity at the bourse has an effect on bear market performance	88.882	12	.000	0.246
4. Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance	88.870	12	.000	0.246

The Pearson's Chi-square tests of independence results indicated that the respondents' observations on bear market performance in relation to fluctuating share prices; consistently declining primary trend, lack of trading activity at the bourse and insolvency and bankruptcy risk of firms trading at the bourse differed with their levels of average monthly income with parameters of χ^2 = 103.294 (df=12; p=0.000; Cramer's *V* =0.265), χ^2 = 86.363 (d.f.=16, p=0.000; Cramer's *V* =0.210); χ^2 = 88.882 (df=12, p=0.001; Cramer's *V* =0.246) and χ^2 = 88.870 (df=12 p=0.000; Cramer's *V* =0.246) respectively. The Cramer's *V* values associated with the associations between respondents' income levels and observed bear market performance variables, ranging from 0.210 to 0.265 reflect moderate effect size of the associations between the variables (Cohen, 1988).

4.3 Bear Market Performance

The respondents were required to indicate the degree to which they agreed, from "Strongly Agree" to "Strongly Disagree", with the statements listed in relation to bear market performance at the NSE. The distribution of the respondents' responses was as shown in Table 4.10.

Table 4.10: Bear Market Performance

	Statements	SD	D	NAD	A	SA
1	Fluctuating share prices has an effect on bear market performance	1.3%	10.0%	52.9%	35.8%	-
2	Consistent declining primary trend has an effect on bear market performance	1.3%	2.9%	32.0%	60.4%	3.5%
3	Lack of trading activity at the bourse has an effect on bear market performance	4.8%	22.2%	62.2%	10.8%	-
4	Insolvency and bankruptcy risk of firms trading at the bourse has an effect on bear market performance	-	2.0%	20.4%	49.8%	27.8%

Legend: SD = Strongly Disagree, D= Disagree, NAD = Neither Agree nor Disagree, A= agree SA = Strongly Agree

The highest percentage of the respondents (53%) neither agreed nor disagreed that fluctuating share prices had an effect on bear market performance, compared to 36% and 10% who agreed and disagreed respectively. Cumulatively, 64% of the respondents at least agreed that consistently declining primary trend had an effect on bear market performance, as was a cumulative 71% who at least agreed that lack of trading activity at the bourse had an effect on bear market performance. A significant 28% of the

respondents strongly agreed that insolvency and bankruptcy risk of firms trading at the bourse had an effect on bear market performance compared to about half of those who agreed to such effects.

4.3.1 Factor analysis of bear market performance

All the four items of the descriptive bear market performance measurement scale significantly correlated with each other, with five correlation positions meeting the r>.03 to allow for factor analysis (Table 61). In addition, the Kaiser-Meyer-Olkin's MSA was .656, above the recommended minimum value of .5, and Bartlett's test of sphericity was significant (χ^2 (6) = 646.608, $p < .001$) as shown in Table 4.11.

Table 4.11: KMO and Bartlett's Test for Bear Market Performance

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.656
Bartlett's Test of Sphericity	Approximate Chi-Square	646.608
	Degree of freedom	6
	Significance.	.000

Equally important, the diagonals of the anti-image correlation matrix were all over .5(Table 60, page 200). Thus, notwithstanding the few correlations above r > .3 benchmark, all the other preconditions justified factor analysis and hence the inclusion of all the 4 items in the factor analysis.

Based on the PCA and Eigen value benchmark of 1.0 for inclusion of individual items, the results indicated that a single factor was extracted from the 4 items of the descriptive bear market performance measurement scale. The factor (Eigen value = 2.372) explained 59.3% of the variance (Table 61 and 62, page 201). Based on these results, the 4-item bear market performance variable was retained in its original form, with a Cronbach's alpha coefficient of 0.768.

The descriptive statistics for summated final measurement scale for bear market performance is shown in Table 4.12.

Table 4.12: Descriptive Statistics for the Summated Scale for Bear Market Performance

Component	N	Minimum	Maximum	Mean	Std. Deviation
Bear Market Performance	490	1.75	4.75	3.6699	.53324

The summated scale for bear market performance had a mean of 3.67 at a standard deviation of 0.533. Bear market performance was also evaluated by extracting and analyzing secondary data on mean stock prices for the firms that formed the twenty share index for a period of ten years (2002 to 2016). The mean stock prices for corresponding months were then plotted and are presented graphically as shown in Figure 4.1.and 4.2. From figure 4.1 and 4.2; it was confirmed that all the analysed securities experienced bear market within the period of analysis.

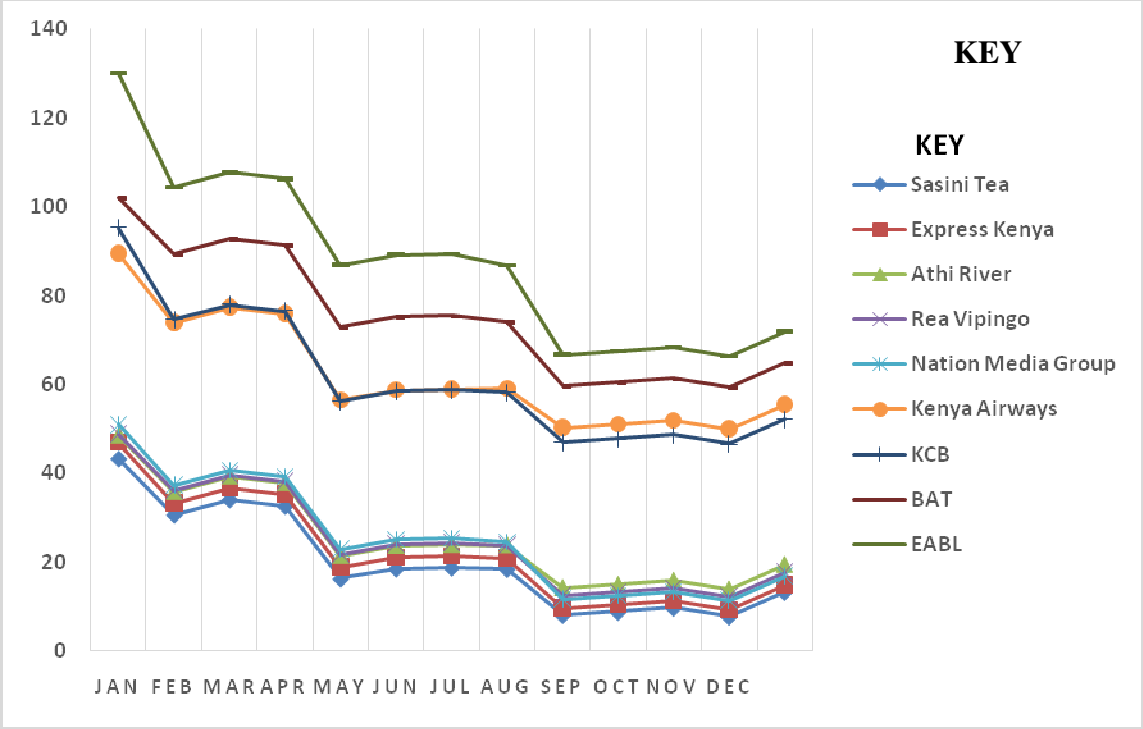

Figure 4.1: Bear Market Performance for the first nine stocks

Bear market was measured using the Rate of Change (ROC) which was given as:

ROC = [(Today's Closing Price – Closing Price n periods ago) / Closing Price n periods ago] x 100

EABL's ROC between January and February was (105-130)/130 = - 0.19 and between April and May was - 0.14. The continuous decline in ROC is an indication of a bear market. The ROC for Sasini Tea between January and February was (30-40)/40 = - 0.25 and between April and May was ((15-30)/30 = -0.5. The continuous decline in ROC confirmed the existence of bear market. All the stocks which lied between EABL and Sasini Tea followed a similar trend and therefore confirmed the existence of bear market between January to May for all the stocks in the chart.

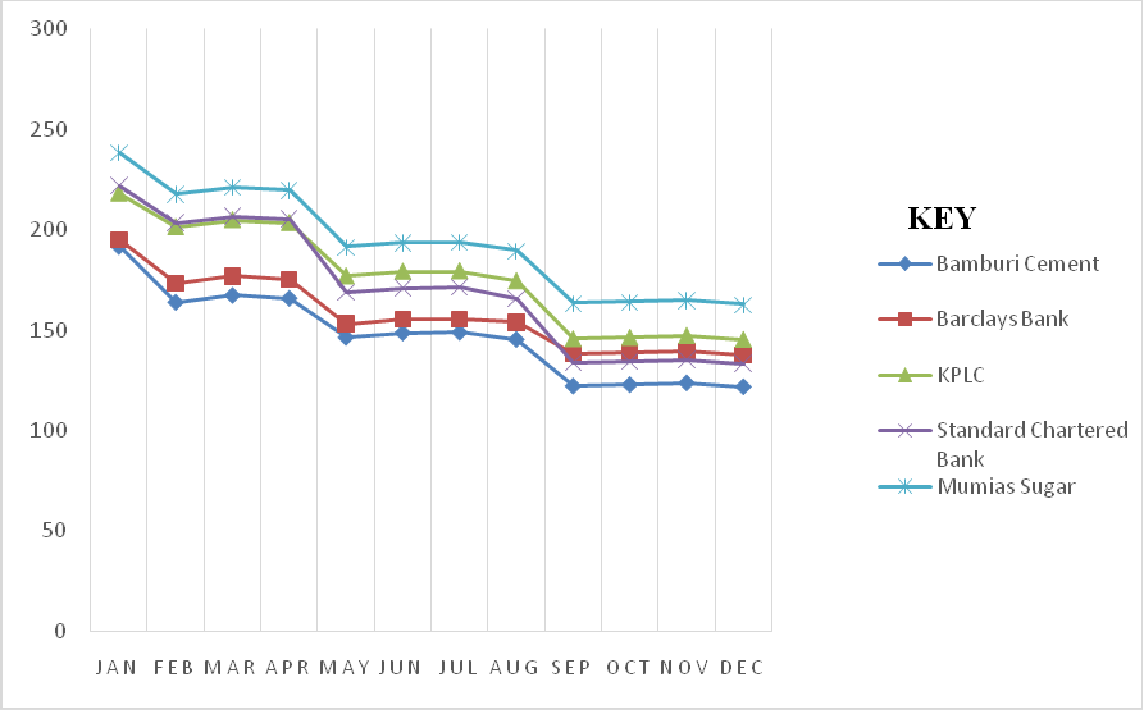

Figure 4.2: Bear Market Performance for the last five stocks

Bamburi Cement ROC January and February was = (225-240)/240 = - 0.0625 and between April and May was = (195-215)/215 = - 0.093. The continuous decline in ROC is an indication of bear market. The ROC for Barclays Bank between January and February was = (175-195)/195 = - 0.1 and the ROC for Barclays Bank between April and May was = (150 – 160)/160 = -0.0625. The continuous decline in ROC between January to May confirms the existence of bear market. All the stocks which lied between Barclays bank and Bamburi Cement experienced more or less a similar decline in stock value and therefore they all experienced bear market between January and May.

4.4 Transaction Cost as a determinant of Bear Market Performance

In this sub-section, a descriptive analysis of the transaction cost as a determinant of bear market performance is presented. Chi-square statistics from cross-tabulation results of each of the items of the independent variables measurement scales and the descriptive bear market performance scale items are presented along with the descriptive statistics of transaction cost as a determinant of bear market performance. Factor analysis was also performed and is presented in this section together with the components derived from the factor analysis and their respective descriptive statistics. Finally, hypothesis testing was performed and is presented at the end of the sub-section. The respondents were required to indicate the extent to which they agreed with the statements listed in relation to the influence of the variables in those statements on bear market performance at the NSE. The distribution of the respondents' responses was as shown in Table 4.13. Over half of the respondents (53%) neither agreed nor disagreed that high commission by brokerage firms was a determinant of bear market performance, compared to a cumulative 36% who at least agreed that high commission by brokerage firms was a determinant of bear market performance. On the other hand, a cumulative majority of the respondents at least agreed that each of the other 5 sub-variables were determinants of bear market performance: high fees by regulatory authorities (64 %); High inflation rate (71%); Extent of incorporation of information technology in doing business (59%); Agency cost (70%) and; High interest rate on mutual funds (88%).

Table 4.13: Transaction Cost as a Determinant of Bear Market Performance

	Statements	SD	D	NAD	A	SA
1	High commission by brokerage firms is a determinant of bear market performance.	1.2%	10.0%	52.9%	35.9%	0.2%
2	High fees by regulatory authorities are a determinant of bear market performance.	1.2%	2.9%	32.0%	60.4%	3.5%
3	High inflation rate is a determinant of bear market performance.	4.7%	-	22.2%	62.2%	10.8%
4	Extent of incorporation of information technology is a determinant of bear market performance	-	2.7%	38.8%	55.5%	3.1%
5	Agency cost is a determinant of bear market performance.	-	1.2%	28.8%	52.0%	18.0%
6	High interest rate on mutual funds is a determinant of bear market performance.	4.3%	-	8.0%	50.6%	37.1%

Legend: SD = Strongly Disagree, D= Disagree, NAD = Neither Agree nor Disagree, A= agree SA = Strongly Agree

The results of the Pearson's Chi-square statistic tests of independence between the respondents' ratings of the influence of transaction cost variables and bear market performance variables indicated that there were significant relationships between the respondents' responses on all the individual items of the transaction costs measurement scale and their responses on all the items on the descriptive bear market performance scale at varying degrees of freedom and p-values <0.01.The Chi-square test results were as shown in Table 4.14.

Table 4.14: Chi-square Tests of Transaction Cost and Bear Market Performance Variables

	Bear Market Performance			
Transaction Costs	Fluctuating share prices	Consistently declining primary trend	Lack of trading activity at the bourse	Insolvency and bankruptcy risk of firms trading at the bourse
High commission by brokerage firms	$\chi^2 = 1470.00$; df=9; p=0.000; Cramer's V =1.0	$\chi^2 = 707.286$; df=12; p=0.000; Cramer's V =0.694	$\chi^2 = 291.306$; df=9; p=0.000; Cramer's V =0.445	χ^2 =126.296; df=9; p=0.000; Cramer's V =0.293
High fees by regulatory authorities	$\chi^2 = 707.286$; df=12; p=0.000; Cramer's V =0.694	$\chi^2 = 1960.00$; df=16; p=0.000; Cramer's V =1.0	$\chi^2 = 273.353$; df=12; p=0.00; Cramer's V =0.431	$\chi^2 = 87.112$; df=12; p=0.000; Cramer's V =0.243.
High inflation rate	$\chi^2 = 291.306$; df=9; p=0.000; Cramer's V =0.445	$\chi^2 = 273.353$; df=12; p=0.00; Cramer's V =0.431	$\chi^2 = 1470.00$; df=9; p=0.000; Cramer's V =1.0	$\chi^2 = 466.834$; df=9; p=0.000; Cramer's V =0.564
Extent of incorporation of information technology	$\chi^2 = 342.901$; df=9; p=0.000; Cramer's V =0.483	$\chi^2 = 562.053$; df=12; p=0.000; Cramer's V =0.618	$\chi^2 = 113.171$; df=9; p=0.000; Cramer's V =0.277	$\chi^2 = 29.959$; df=9; p=0.000; Cramer's V =0.143
Agency cost	$\chi^2 = 516.131$; df=9; p=0.000; Cramer's V =0.593	$\chi^2 = 569.468$; df=12; p=0.000; Cramer's V =0.622	$\chi^2 = 373.124$; df=9; p=0.000; Cramer's V =0.504	$\chi^2 = 233.860$; df=9; p=0.000; Cramer's V =0.399
High interest rate	$\chi^2 = 182.079$; df=9; p=0.000; Cramer's V =0.352	$\chi^2 = 290.828$; df=12; p=0.000; Cramer's V =0.445	$\chi^2 = 261.119$; df=9; p=0.000; Cramer's V =0.421	$\chi^2 = 151.228$; df=9; p=0.000; Cramer's V =0.321

4.4.1 Factor analysis of transaction cost

The operationalisation of the determinants of bear market performance needed some careful consideration before testing the study hypotheses, given that there were hardly any direct measurements of the constructs as conceptualized in this study and the concepts had hardly been previously conceptualized as such. Thus, based on their conceptualization, the four constructs adopted as determinants of bear market performance were expected to be higher-order constructs capturing some latent variables with their related, observable manifest variables. More so, since the scales used had not been previously established and validated, it made sense to conduct initial exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to identify underlying dimensions of the sub-dimensions of the study. This was also necessitated by the need for measurements of optimal length and relevance to the study since the variables were not measured alone but with other related concepts.

Initially, the factorability of the items measuring each construct of the study - transaction cost (6 items); mobilization of resources (7 items); financial literacy (4 items); cultural values (5) and; bear market performance (4) was examined. A number of well-recognized criteria providing justification for the factorability of a correlation were used. Factor analyses for each of the sub-dimensions are described under the following sub-sections.

Correlation analysis indicated that all the 6items measuring transaction cost correlated at least r=0.3 with one other item as shown in the correlation matrix (Table 48, page 193), suggesting that it was reasonable to proceed with factor analysis as advised by Tabachnick and Fidell (2001) cited in Norman and Streiner (2008). In addition, the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was 0.735, against the recommended bare minimum of .5 (Kaiser, 1974), and Bartlett's test of sphericity was significant (χ^2 (15) = 1133.456, $p < .001$) as shown in Table 4.15.

Table 4.15: KMO and Bartlett's Test for Transaction Costs

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.735
Bartlett's Test of Sphericity	Approximate Chi-Square	1133.456
	Degree of freedom	15
	Significance	.000

The individual MSA for the items as appearing in the diagonals of the anti-image correlation matrix were all over .5 (Table 49, page 165), supporting the inclusion of all the 6items in the factor analysis (Field, 2000). Given these overall indicators, factor analysis was conducted with the 6 items of transaction cost.

Principle components analysis (PCA) was used because the primary purpose was to identify and compute composite standardized scores for the factors underlying the manifest observable measurements for transaction costs. Latent root criterion (Eigen value) of 1.0 was used for factor inclusion and a factor loading of>0.40 used as a benchmark to include individual items for each factor. Results of Eigen values indicated that two factors were derived from the 6 items of transaction costs. The first factor explained 50.65% of the variance, while the second factor explained 20.03% of the variance. Cumulatively, the two factor solution explained 70.68% of the variance(Table 49, page 165). Based on the information of factor loadings and content of the factors(Table 51, page 194), the first factor extracted was labeled “brokerage costs” (Eigen value = 3.03); comprising “Extent of incorporation of information technology in doing business" with a loading of .883, " High fees by regulatory authorities" with a loading of .831, “High commission by brokerage firms” with a loading of .69 and “High interest rate on mutual funds” with a loading of 0.51. The second factor was named “agency costs” (Eigen value = 1.202) and comprised “high inflation rate” with a factor loading of .885, and “agency costs” with a loading of0.864.Internal consistency for each of the two factor scales was examined using Cronbach’s alpha. The alphas were 0.800for

"brokerage costs" (4 items) and 0.753for "agency costs" (2 items).The factor loading matrix for the final solution is presented in Table 4.16.

Table 4.16: Factor Loadings of Transaction Cost and Bear Market Performance

Rotated Component Matrix[a]			
Statements	**Component**		**Cronbach Alpha**
	Brokerage costs	**Agency costs**	
1. Extent of incorporation of information technology in doing business	.883		.800
2. High fees by regulatory authorities	.831		
3. High commission by brokerage firms	.687		
4. High interest rates on mutual funds		.509	.753
5. High inflation rate		.885	
6. Agency cost		.864	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 3 iterations.

Composite factor scores were created for each of the two extracted factors and saved as separate variables via the Regression method during the factor extraction process. The factor scores were saved to be used as new scores in multiple regression analysis (Field, 2010). An approximately normal distribution was evident for the composite factor scores data, making the data suitable for parametric statistical analyses.

Having established the two component measurement scale for transaction costs, Table 4.17 shows the descriptive statistics for the summated component sub-scales.

Table 4.17: Descriptive Statistics for the summated component for Transaction Costs

Components	N	Minimum	Maximum	Mean	Std. Deviation
Brokerage Costs	490	1.33	4.33	3.4816	.53909
Agency Costs	490	1.67	5.00	3.9408	.60887

The summated component sub-scales for the transaction costs measurement scale indicated that agency costs had a higher mean of 3.94 (SD=0.61) compared to brokerage costs which had a mean of 3.48 (SD=0.54).

4.4.2 H01: Test of Null Hypothesis one

$H_0$1: Transaction cost has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

Using the factor scores, a Pearson's Product Moment Correlation (PPMC) analysis was conducted to determine the direction and magnitude of the relationship between the two factors of transaction costs (brokerage costs and agency costs) and bear market performance. The correlation results were as presented in Table 4.18.

Table 4.18: Correlation between Transaction Cost and Bear Market Performance

Component		Brokerage Costs	Agency Costs	Bear Market Performance
Brokerage Costs	Pearson Correlation	1	.000	.588**
	Sig. (2-tailed)		1.000	.000
	N		490	490
Agency Costs	Pearson Correlation		1	.721**
	Sig. (2-tailed)			.000
	N			490

***. Correlation is significant at the 0.01 level (2-tailed).*

The PPMC results revealed that transaction cost factors, that is, brokerage costs and agency costs had significant and positive relationships with bear market performance with correlation parameters of r=.588 (ρ = .000; n = 490) and r = .721(ρ=.000; n=490) respectively. These findings implied that retail investors who perceived brokerage costs as being determinants of bear market performance were more likely to report a bear market performance at the NSE. Similarly, retail investors who perceived agency costs as a determinant of bear market performance were more likely to report a bear market performance on the NSE. The factor scores were used to run multivariate regression analyses with the two factors of transaction cost as predictors and bear market performance as the response variable using the regression model below:

$$\mathbf{Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon}$$

Where:

$\mathbf{Y_i}$= Bear Market Performance;

$\boldsymbol{\alpha}$ = Constant/Intercept;

$\boldsymbol{\beta_1}$and $\boldsymbol{\beta_2}$are regression coefficients of the independent variables;

$\mathbf{X_{i1}}$= Brokerage costs;

$\mathbf{X_{i2}}$= Agency costs and;

$\boldsymbol{\varepsilon}$= Error term

When bear market performance was regressed against brokerage costs and agency costs, the regression model had an adjusted R^2 of 0.800, implying that the two independent variables explained only 80% of the variance in bear market performance as shown in Table 4.19.

Table 4.19: Model Summary between Bear Market Performance and Transaction cost

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
	.895[a]	.801	.800	.23838

a. Predictors: (Constant), Agency Costs, Brokerage Costs

The ANOVA results shown in Table 4.20indicate that the regression model was significant ($p<0.001$) with an associated F-statistic of 979.936(d.f. =489).

Table 4.20: ANOVA Results for Bear Market Performance on Brokerage Costs and Agency Costs

ANOVA[a]					
Model	**Sum of Squares**	**d.f.**	**Mean Square**	**F**	**Sig.**
Regression	111.370	2	55.685	979.936	.000[b]
Residual	27.674	487	.057		
Total	**139.043**	**489**			

a. Dependent Variable: Bear Market Performance

b. Predictors: (Constant), Agency Costs, Brokerage Costs

The regression model coefficient results for the independent variables (brokerage costs and agency costs) were as shown in Table 4.21.

Table 4.21: Regression of Brokerage Costs and Agency Costs on Bear Market Performance

Coefficients[a]					
Components	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	.121	.081		1.493	.136
Brokerage Costs	.478	.023	.483	20.783	.000
Agency Costs	.534	.021	.546	25.428	.000
a. Dependent Variable: Bear Market Performance					

The multivariate correlation and regression analysis of the model revealed that at $p<0.001$, brokerage costs and agency costs positively influence bear market performance. Thus, the resulting regression model using unstandardized beta coefficients would be:

Bear Market Performance=0.121 +0.478 (Brokerage costs) + 0.534 (Agency Costs)

Thus, based on the ANOVA results in the regression model highlighted by the foregoing results which revealed that the model was statistically significant, indicating that there was a significant relationship between the transaction cost variables and bear market performance at $p < .001$augmented by the significant effects of the variables at about 87% points, the null hypothesis ($H_0 1$) which stated that: Transaction cost has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected at this point.

4.5 Mobilization of Resources by Retail Investors as a determinant of Bear Market Performance

In this sub-section, a descriptive analysis of mobilization of resources as a determinant of bear market performance is presented. Chi-square statistics from cross-tabulation results of each of the items of the independent variables measurement scales and the descriptive bear market performance scale items are presented along with the descriptive statistics of mobilization of resources as a determinant of bear market performance.

Factor analysis was also performed and is presented in this section together with the components derived from the factor analysis and their respective descriptive statistics. Finally, hypothesis testing was performed and is presented at the end of the sub-section. The respondents' responses on their extent of agreement with statements on the items of the resource mobilization by retail investors' scale as determinant of bear market performance were as shown in Table 4.22.

Table 4.22: Mobilization of Resources as a Determinant of Bear Market Performance

	Statements	SD	D	NAD	A	SA
1	High interest rates on bank loans are a determinant of bear market performance.	4.3%	1.8%	2.7%	54.3%	36.9%
2	High levels of dependants are a determinant of bear market performance.	1.8%	5.7%	14.7%	71.4%	6.3%
3	High prices of consumable commodities is a determinant of bear market performance	3.3%	7.8%	8.0%	70.2%	10.8%
4	Level of disposable income is a determinant of bear market performance.	-	6.7%	-	64.9%	28.4%
5	Taxation of capital gains is a determinant of bear market performance.	-	3.3%	31.2%	49.4%	16.1%
6	Level of remittances is a determinant of bear market performance.	-	1.4%	21.2%	70.4%	6.9%
7	Level of per capita income is a determinant of bear market performance.	-	2.9%	5.7%	61.0%	30.4%

Legend: SD = Strongly Disagree, D= Disagree, NAD = Neither Agree nor Disagree, A= agree SA = Strongly Agree

The results indicated that cumulatively, majority of the respondents at least agreed to all the 7 items of the resource mobilization measurement scale as being determinants of bear market performance: High interest rates on bank loans (91%); High levels of dependants (78%); High prices of consumable commodities (81%); Level of disposable

income (93%); Taxation of capital gains (66%); Level of remittances (77%) and; Level of per capita income (91%). A significant 31% of the respondents neither agreed nor disagreed that taxation of capital gains was a determinant of dear market performance. Pearson's Chi-square tests of independence test results were as shown in Table 4.23.

Table 4.23: Chi-square Tests of Mobilization of Resources and Bear Market Performance

	Bear Market Performance			
Mobilization of Resources	Fluctuating share prices	Consistently declining primary trend	Lack of trading activity at the bourse	Insolvency and bankruptcy risk of firms trading at the bourse
High interest rates on bank loans	χ^2 =209.032; df=12;p=0.000; Cramer's *V* =0.377	χ^2=284.124;df= 16; p=0.000; Cramer's *V* =0.381	χ^2=224.003;df=1 2; p=0.000; Cramer's *V* =0.390	χ^2=47.869;df=12; p=0.000; Cramer's *V* =0.180
High levels of dependants	χ^2=216.413;df= 12; p=0.000; Cramer's *V* =0.384	χ^2=212.717;df= 16; p=0.000; Cramer's *V* =0.329	χ^2=153.121;df=1 2; p=0.000; Cramer's *V* =0.323	χ^2=111.097;df=12; p=0.000; Cramer's *V* =0.275.
High prices of consumable commodities	χ^2=157.551;df= 12; p=0.000; Cramer's *V* =0.327	χ^2=178.669;df= 16; p=0.000; Cramer's *V* =0.302	χ^2=171.148;df=1 2; p=0.000; Cramer's *V* =0.341	χ^2=171.249;df=12; p=0.000; Cramer's *V* =0.341
Level of disposable income	χ^2=171.793;df= 6; p=0.000; Cramer's *V* =0.419	χ^2=60.046;df=8; p=0.000; Cramer's *V* =0.248	χ^2=199.513;df=6; p=0.000; Cramer's *V*=0.451	χ^2=168.965;df=6; p=0.000; Cramer's *V* =0.415
Taxation of capital gains	χ^2=119.785; df=9; p=0.000; Cramer's *V* =0.285	χ^2=80.928; df=12; p=0.000; Cramer's *V* =0.235	χ^2=23.125; df=9; p=0.006; Cramer's *V* =0.125	χ^2=45.5506;df=9; p=0.000; Cramer's *V* =0.176
Level of remittances	χ^2=185.849; df=9; p=0.000; Cramer's *V* =0.356	χ^2=268.950; df=12; p=0.000; Cramer's *V* =0.428	χ^2=178.211; df=9; p=0.000; Cramer's *V* =0.348	χ^2=100.487;df=9; p=0.000; Cramer's *V* =0.261
Level of per capita income	χ^2=46.196; df=9; p=0.000; Cramer's *V* =0.177	χ^2=98.761; df=12; p=0.000; Cramer's *V* =0.259	χ^2=176.65; df=9; p=0.000; Cramer's *V* =0.346	χ^2=95.811;df=9; p=0.000; Cramer's *V* =0.255

The Pearson's Chi-square tests of independence revealed statistically significant relationships between the respondents' ratings of the influence of all mobilization of resources by retail investors' variables and bear market performance variables at varying degrees of freedom and p-values < 0.01.

4.5.1 Factor analysis for Mobilisation of Resources

First, all the 7 items of the mobilization of resources scale correlated at least .3 with at least one other item (Table 51, page 195), thus providing reasonable grounds for factorability. Secondly, the Kaiser-Meyer-Olkin's MSA was 0.733, above the recommended value of .5, and Bartlett's test of sphericity was significant (χ^2 (21) = 1250.683, p <.001) as shown in Table 4.24.

Table 4.24: KMO and Bartlett's Test for Mobilisation of Resources

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.733
Bartlett's Test of Sphericity	Approximate Chi-Square	1250.683
	Degree of freedom	21
	Significance	.000

The diagonals of the anti-image correlation matrix were all over .5 (table 51), supporting the inclusion of each item in the factor analysis. Thus, given these overall indicators, factor analysis was conducted with all 7items. Based on the PCA and Eigen value benchmark of 1.0 for inclusion of individual items, the results indicated that two factors were extracted from the 7 items of the mobilization of resources measurement scale. The first factor(Eigen value = 3.299) explained 47.13% of the variance while the second factor (Eigen value = 1.61) explained 16.58% of the variance. Cumulatively, the two factor solution explained 63.7% of the variance(Table 52, page 167). Four items loaded strongly on the first factor (high prices of consumable commodities = .780; high levels of dependants = .809; level of disposable income = .777 and; high interest rates on bank loans = .719).Three other items loaded strongly on the second factor (level of per capita income = .890; level of remittances = .656 and; taxation of capital gains = .607) (Table 54, page 169).The factor loading matrix for the final solution is presented in Table 4.25.

Table 4.25: Factor Loadings of Mobilization of Resources and Bear Market Performance

Rotated Component Matrix[a]			
Statements	**Component**		**Cronbach Alpha**
	Household resource dynamics	**National wealth**	
1. High prices of consumable commodities	.816		.780
2. High levels of dependants	.809		
3. Level of disposable income	.777		
4. High interest rates on bank loans	.719		
5. Level of per capita income		.890	.718
6. Level of remittances		.656	
7. Taxation of capital gains		.607	

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

The factor labels adopted based on the item concentrations on the two factors were "Household resource dynamics" and "National wealth". Internal consistency for each of the first two factor scales was examined using Cronbach's alpha. The alphas were 0.780for "Household resource dynamics" (4 items) and 0.718for "National wealth" (3items).

The summated final component sub-scales for the two-component measurement scale for Mobilization of resources measurement scale is shown in Table 4.26.

Table 4.26: Descriptive Statistics for Mobilization of Resources

Components	N	Minimum	Maximum	Mean	Std. Deviation
Household resource dynamics	490	1.50	5.00	3.9622	.65247
National wealth	490	2.33	5.00	3.9340	.49671

As shown in Table 4.26, the summated household resource dynamic sub-scale of the mobilization of resources measurement scale had a marginally higher mean of 3.96 (SD=0.65) compared to the national weal sub-scale which had a mean of 3.93 (SD=0.50).

4.5.2 H02: Test of Null Hypothesis two

$H_0$2: Mobilization of resources by retail investors has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

The factor scores for mobilization of resources by retail investors' resource factors (household resource dynamics and national wealth) and bear market performance were used to conduct the Pearson's Product Moment Correlation analysis to determine the direction and magnitude of the relationship between the variables. The correlation results were as presented in Table 4.27.

Table 4.27: Correlation between Mobilization of Resources and Bear Performance

Correlations				
Component		**Household resource dynamics**	**National wealth**	**Bear Market Performance**
Household resource dynamics	Pearson Correlation	1	.000	.344**
	Sig. (2-tailed)		1.000	.000
	N		490	490
National wealth	Pearson Correlation		1	.138**
	Sig. (2-tailed)			.002
	N			490

***. Correlation is significant at the 0.01 level (2-tailed).*

The PPMC results revealed that the two factors for mobilization of resources by retail investor namely household resource dynamics and national wealth had statistically significant and positive relationships with bear market performance. The correlation parameters were r = .344(ρ=.000; n=490) and r = .138; (ρ =.002; n = 490) for namely household resource dynamics and national wealth respectively. The implications of these correlations are that retail investors who perceived household resource dynamics as a determinant of bear market performance were more likely to report a bear market performance at the NSE. Similarly, retail investors who perceived National wealth as a determinant of bear market performance were more likely to report bear market performance at the NSE.

The factor scores were used to run multivariate regression analyses with the two factors of mobilization of resources by retail investors as predictors and bear market performance the response variable using the regression model below:

$$Y_i = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \varepsilon$$

When bear market performance was regressed against household resources dynamics and national wealth, the regression model had an adjusted R^2 of 0.162, indicating that the two independent variables explained only 16.2% of the variance in bear market performance as shown in Table 4.28.

Table 4.28: Model Summary of Bear Market Performance and Mobilization of Resources

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
	.407[a]	.165	.162	.48815

a. Predictors: (Constant), National wealth, Household resource dynamics

The ANOVA results of regressing bear market performance against household resource dynamics and national wealth indicated that the model was statistically significant, indicating that there were significant relationships between mobilization of resources variables and bear market performance in the models at p = .000. The ANOVA results were as shown in Table 4.29.

Table 4.29: ANOVA Results for Bear Market Performance on Mobilization of Resources

ANOVA[a]					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	22.998	2	11.499	48.256	.000[b]
Residual	116.046	487	.238		
Total	139.043	489			

a. Dependent Variable: Bear Market Performance

b. Predictors: (Constant), National wealth, Household resource dynamics

The regression model coefficient results for the independent variables (household resource dynamics and national wealth) were as shown in Table 4.30.

Table 4.30: Regression Model Coefficients of Household Resource Dynamics and National Wealth against Bear Market Performance

Coefficients[a]					
Component	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	2.401	.186		12.908	.000
Household resource dynamics	.339	.038	.414	8.921	.000
National wealth	-.019	.050	-.017	-.380	.011
a. Dependent Variable: Bear Market Performance					

The multivariate correlation and regression results in the table revealed that at $p<0.01$, household resources dynamics and national wealth positively influenced bear market performance. Thus, the resulting regression model using unstandardized beta would be:

Bear Market Performance = 2.401 +0 .339 (Household resource dynamics)-0.019(National wealth)

Thus, based on the foregoing ANOVA results for the regression model which revealed that the model was statistically significant indicating that there was a significant relationship between mobilization of resources by resource investors and bear market performance at $p = .000$ supported by the significant effects of the two factors of mobilization of resources measurement scale on bear market performance, the second null hypothesis ($H_0 2$) which stated that: Mobilization of resources by retail investors has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected at this point.

4.6 Financial Literacy as a determinant of Bear Market Performance

In this sub-section, a descriptive analysis of the financial literacy as a determinant of bear market performance is presented. Chi-square statistics from cross-tabulation results of each of the items of the independent variables measurement scales and the descriptive bear market performance scale items are presented along with the descriptive statistics of financial literacy as a determinant of bear market performance. Factor analysis was also performed and is presented in this section together with the components derived from the factor analysis and their respective descriptive statistics. Finally, hypothesis testing was performed and is presented at the end of the sub-section. The respondents' responses on financial literacy as a determinant of bear market performance were presented in Table 4.31.

A cumulative 71% of the respondents at least agreed that the level of literacy in the country was a determinant of bear market performance. In addition, a cumulative92% at least agreed that dissemination of financial information by the capital markets at the bourse was a determinant of bear market performance as was a cumulative 99% and 96% respectively who at least agreed that availability of financial information at the brokers' outlets and investment promotion incentives were determinants of bear market performance.

Table 4.31: Financial Literacy as Determinant of Bear Market Performance

	Statements	SD	D	NAD	A	SA
1	Level of literacy in the country is a determinant of bear market performance.	-	-	29.4%	42.7%	28%
2	Dissemination of financial information by capital markets at the bourse is a determinant of bear market performance.	-	-	8.0%	53.7%	38.4%
3	Availability of financial information at the brokers' outlets is a determinant of bear market performance.	-	-	1.4%	66.1%	32.4%
4	Investment promotion incentives are a determinant of bear market performance.	-	-	5.5%	51.6%	42.9%

Legend: SD = Strongly Disagree, D= Disagree, NAD = Neither Agree nor Disagree, A= Agree SA = Strongly Agree

Pearson's Chi-square statistic tests of independence showed that statistically significant relationships existed between the respondents' ratings of the influence of all financial literacy variables and bear market performance variables at varying degrees of freedom and p-values < 0.01. The results of chi-square tests are shown in Table 4.32.

Table 4.32: Chi-square Tests of Financial Literacy and Bear Market Performance Variables

	Bear Market Performance			
Financial Literacy	Fluctuating share prices	Consistently declining primary trend	Lack of trading activity at the bourse	Insolvency and bankruptcy risk of firms trading at the bourse
Level of literacy in the country	χ^2 =47.285; df=6; p=0.000; Cramer's *V* =0.220	χ^2=41.031; df=8; p=0.000; Cramer's *V* =0.205	χ^2=131.660; df=6; p=0.000;Cramer's *V* =0.367	χ^2=87.438; df=6; p=0.000; Cramer's *V* =0.299
Dissemination of financial information by capital markets at the bourse	χ^2=106.484; df=6; p=0.000; Cramer's *V* =0.330	χ^2=99.068; df=8; p=0.000;Cramer's *V* =0.318	χ^2=66.866; df=6; p=0.000;Cramer's *V* =0.261	χ^2=87.019; df=6; p=0.000; Cramer's *V* =0.298
Availability of financial information at the brokers' outlets	χ^2=98.111; df=6; p=0.000; Cramer's *V* =0.316	χ^2=282.0578; df=8; p=0.000; Cramer's *V* =0.536	χ^2=172.640; df=6; p=0.000;Cramer's *V* =0.420	χ^2=45.015; df=6; p=0.000; Cramer's *V* =0.214
Investment promotion incentives	χ^2=93.488; df=6; p=0.000; Cramer's *V* =0.309	χ^2=67.376; df=8; p=0.000;Cramer's *V* =0.262	χ^2=79.516; df=6; p=0.000; Cramer's *V* =0.285	χ^2=26.113; df=6; p=0.000;Cramer's *V* =0.163

4.6.1 Factor analysis for Financial Literacy

All the four variables that made the financial literacy measurement scale correlated with each other at r>.36 (Table 54, page 168). For instance, the variable "Level of literacy in the country" significantly correlated with "Dissemination of financial information by capital markets at the bourse" at r=.364($p < .001$) while the variables "Availability of financial information at the brokers' outlets" and "Investment promotion incentives" correlated significantly with each other at r=.538 ($p < .001$). Dissemination of financial information by capital markets at the bourse and investment promotion incentives correlated with each other at r=.756 ($p< .001$). The Kaiser-Meyer-Olkin's MSA surpassed the minimum recommended value of .5to clock .728 for factor analysis to proceed while Bartlett's test of sphericity was significant (χ^2 (6) = 760.781, $p < .001$) as shown in Table 4.33.

Table 4.33: KMO and Bartlett's Test for Financial Literacy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.728
Bartlett's Test of Sphericity	Approximate Chi-Square	760.781
	Degree of freedom	6
	Significance.	.000

The diagonals of the anti-image correlation matrix were all over .5 (Table 54, page 197), thus supporting the inclusion of all the items measuring the construct financial literacy in the factor analysis.

PCA at an Eigen value benchmark of 1.0 resulted in a single factor being extracted from the 4 items of the financial literacy measurement scale. The single factor (Eigen value = 2.569) explained 64.23% of the variance (Table 55 and 56, page 169). Based on these findings, the 4-item variable "Financial literacy", with a Cronbach's alpha of 0.793, was

retained. Consequently, the descriptive statistics for summated final measurement scale for financial literacy is shown in Table 4.34.

Table 4.34: Descriptive Statistics for the Summated Scale for Financial Literacy

Component	N	Minimum	Maximum	Mean	Std. Deviation
Financial Literacy	490	3.25	5.00	4.243422	.48661

Table 4.33 shows that summated scale for financial literacy had a mean of 4.24 at a standard deviation of 0.49.

4.6.2 H03: Test of Null Hypothesis three

$H_0$3: Financial literacy has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

A PPMC analysis using factor scores for the single factor; financial literacy and bear market performance factors was conducted to determine the nature of the relationship between the two variables. The correlation results were as presented in Table 4.35

Table 4.35: Correlation between Financial Literacy and Bear Market Performance

Correlations			
Component		**Financial Literacy**	**Bear Market Performance**
Financial Literacy	Pearson Correlation	1	.205**
	Sig. (2-tailed)		.000
	N	490	490

** *Correlation is significant at the 0.01 level (2-tailed).*

The results of the PPMC analysis revealed that retail investors' financial literacy had a statistically significant and positive relationship with bear market performance (r = .205; ρ=.000; n=490). This means that retail investors with high financial literacy were more

likely to report a bear market performance. The factor scores were used to run a simple regression analyses with retail investors' financial literacy as predictor and bear market performance as the response variable using the regression model below:

$$Y_i = \alpha + \beta_1 X_{i1} + \varepsilon$$

When bear market performance was regressed on financial literacy, the resultant regression model had an adjusted R^2 of 0.04, indicating that financial literacy explained only 4% of the variance in bear market performance as shown in Table 4.36.

Table 4.36: Model Summary between Bear Market Performance and Financial Literacy

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.205[a]	.042	.040	.97966465

a. Predictors: (Constant), Financial Literacy

ANOVA results indicated that the model was statistically significant, indicating that there was a significant relationship between the independent and dependent variables in the model. The ANOVA results were as shown in Table 4.37.

Table 4.37: ANOVA Results for Bear Market Performance on Financial Literacy

ANOVA[a]					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	20.646	1	20.646	21.511	.000[b]
Residual	468.354	488	.960		
Total	**489.000**	**489**			

a. Dependent Variable: Bear Market Performance

b. Predictors: (Constant), Financial Literacy

The regression model coefficient results for the independent variable (financial literacy) were as shown in Table 4.38.

Table 4.38: Regression of Financial Literacy against Bear Market Performance

Component	Coefficients[a]			t	Sig.
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta		
(Constant)	-1.001	.044		-22.75	1.000
Financial Literacy	.205	.044	.205	4.659	.000

a. Dependent Variable: Bear Market Performance

The simple regression analysis results revealed that at p=0.000, financial literacy positively influenced bear market performance Thus, the resulting regression model using unstandardized beta would be:

Bear Market Performance = -1.001 + 0 .205 (Financial Literacy)

Based on the overall results of the relationships between financial literacy and bear market performance variables, the third null hypothesis ($H_0$3) which stated that: Financial literacy has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected.

4.7 Cultural Values as a determinant of Bear Market Performance

In this sub-section, a descriptive analysis of the cultural values as a determinant of bear market performance is presented. Chi-square statistics from cross-tabulation results of each of the items of the independent variables measurement scales and the descriptive bear market performance scale items are presented along with the descriptive statistics of cultural values as a determinant of bear market performance. Factor analysis was also

performed and is presented in this section together with the components derived from the factor analysis and their respective descriptive statistics. Finally, hypothesis testing was performed and is presented at the end of the sub-section. Substantial variability was noted in the respondents' responses on cultural values as determinant of bear market performance. Whereas cumulatively a majority of the respondents at least disagreed that keeping up with the Joneses (62%), religious influence (71%), family influence (59%) and tradition and time for rewarding employees (80%) were determinants of bear market performance, a significant 36% of the respondents agreed that peer influence was a determinant of bear market performance. However, a cumulative 46% at least disagreed that peer influence was a determinant of bear market performance. The distribution of the respondents' responses was as shown in Table 4.39.

Table 4.39: Cultural Values as Determinant of Bear Market Performance

	Measurements	SD	D	NAD	A	SA
1	Keeping up with the Joneses is a determinant of bear market performance.	12.9%	49.8%	19.4%	8.0%	10.0%
2	Family influence is a determinant of bear market performance.	12.4%	46.3%	12.2%	27.6%	1.4%
3	Peer influence is a determinant of bear market performance.	21.2%	24.5%	11.2%	36.1%	6.9%
4	Religious Influence is a determinant of bear market performance.	34.7%	36.1%	6.1%	9.6%	12.7%
5	Tradition and time for rewarding employees is a determinant of bear market performance.	43.3%	36.6%	18.6%	1.4%	-

Legend: SD = Strongly Disagree, D= Disagree, NAD = Neither Agree nor Disagree, A= Agree SA = Strongly Agree

Pearson's Chi-square statistic tests of independence revealed that statistically significant relationships existed between the respondents' ratings of all cultural values variables as determinants of bear market performance and all the descriptive variables of bear market performance variables at varying degrees of freedom and p-values <0.01. These results are shown in Table 4.40.

Table 4.40: Chi-square Tests of Cultural Values and Bear Market Performance Variables

	Bear Market Performance			
Cultural Values	Fluctuating share prices	Consistently declining primary trend	Lack of trading activity at the bourse	Insolvency and bankruptcy risk of firms trading at the bourse
Keeping up with the Joneses	χ^2 =108.226; df=12; p=0.000; Cramer's *V* =0.271	χ^2=107.377; df=16; p=0.000; Cramer's *V* =0.227	χ^2=68.117; df=12; p=0.000; Cramer's *V* =0.215	χ^2=56.749; df=12; p=0.000;Cramer's *V* =0.196
Family influence	χ^2=53.082; df=12; p=0.000;Cramer's *V* =0.190	χ^2=342.491; df=16; p=0.000; Cramer's *V* =0.418	χ^2=173.125; df=12; p=0.000; Cramer's *V* =0.343	χ^2=182.043; df=12; p=0.000;Cramer's *V* =0.352
Peer influence	χ^2=108.972; df=12; p=0.000; Cramer's *V*=0.272	χ^2=138.313; df=16; p=0.000; Cramer's *V* =0.266	χ^2=122.173; df=12; p=0.000;Cramer's *V* =0.288	χ^2=146.194; df=12; p=0.000;Cramer's *V* =0.315
Religious Influence	χ^2=102.805; df=12; p=0.000; Cramer's *V* =0.264	χ^2=131.243; df=16; p=0.000; Cramer's *V* =0.259	χ^2=116.383; df=12; p=0.000;Cramer's *V* =0.281	χ^2=44.780; df=12; p=0.000; Cramer's *V* =0.175
Tradition and time for rewarding employees	χ^2=49.044; df=9; p=0.000; Cramer's *V* =0.183	χ^2=241.592; df=12; p=0.000; Cramer's *V* =0.405	χ^2=36.990; df=9; p=0.000; Cramer's *V* =0.159	χ^2=64.174; df=9; p=0.000; Cramer's *V* =0.209

4.7.1 Factor analysis for Cultural Values

Correlation analysis indicated that all the 5 items measuring cultural values correlated with at least one other item at r>0.3 in 9 positions (Table 57). The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (MSA) was .702, compared to the recommended minimum of .5 (Kaiser, 1974) while Bartlett's test of sphericity was significant (χ^2 (10) = 1291.726, $p < .001$) as shown in Table 4.41.

Table 4.41: KMO and Bartlett's Test for Cultural Values

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.702
Bartlett's Test of Sphericity	Approximate Chi-Square	1291.726
	Degree of freedom	10
	Significance	.000

Individual MSA for the items, appearing in the diagonals of the anti-image correlation matrix were all over .5 (Table 57, page 170) thus justifying the inclusion of all the 5 items in the factor analysis (Field, 2010). Thus, given that the cultural values measurement scale items had satisfied all the preconditions for factor analysis, PCA was conducted with all the 5 items.

PCA at Eigen value benchmark of 1.0 resulted in a single factor solution from the 5 items of the cultural values scale, with an Eigen value of 3.139. The single factor explained 62.77% of the variance (Table 58 & 59, page 171).Thus, given these findings, the 5-item variable "Cultural values" with Cronbach's alpha coefficient of 0.845 was retained. The descriptive statistics for summated final measurement scale for cultural values is shown in Table 4.42.

Table 4.42: Descriptive Statistics for the Summated Scale for Cultural Values

Component	N	Minimum	Maximum	Mean	Std. Deviation
Cultural Values	490	1.0	4.20	2.4023	.90225

The summated scale for cultural values had a mean of 2.4 at a standard deviation of 0.90. As the figures depict, cultural values was the determinant with the least mean among all the determinants of bear market performance in the NSE.

4.7.2 H04: Test of Null Hypothesis four

$H_0$4: Cultural values have no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

The factor scores for cultural values and bear market performance factors were used to conduct the Pearson's Product Moment Correlation analysis to determine the direction and magnitude of the relationship between the two factor groups. PPMC results indicated there was no statistically significant relationship between cultural values and bear market performance as shown in Table 4.43.

Table 4.43: Correlation between Cultural Values and Bear Market Performance

Component		Cultural Values	Bear Market Performance
Cultural Values	Pearson Correlation	1	.033
	Sig. (2-tailed)		.467
	N	490	490

The factor scores were used to run a simple regression analysis with cultural values as the predictor and bear market performance as the response variable in the regression model below:

$$\mathbf{Y_i = \alpha + \beta_1 X_{iI} + \varepsilon}$$

The Model Summary results indicated that the regression model had an adjusted R^2 of 0.001, indicating that cultural values explained an insignificant0.1% of the variance in bear market performance as shown in Table 4.44.

Table 4.44: Model Summary of Bear Market Performance and Cultural Values

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
	.030[a]	.001	.001	.53354

a. Predictors: (Constant), Cultural Values

The ANOVA results (Table 4.45)for regressing bear market performance against cultural values indicated that the model was not statistically significant, indicating that there was no significant relationship between bear market performance and cultural values (p = .467).

Table 4.45: ANOVA Results for Bear Market Performance on Cultural Values

ANOVA[a]					
Model	Sum of Squares	D.f.	Mean Square	F	Sig.
Regression	.530	1	.530	.530	.467[b]
Residual	488.470	488	1.001		
Total	**489.000**	**489**			

a. Dependent Variable: Bear Market Performance

b. Predictors: (Constant), Cultural Values

The bivariate correlation and regression model coefficient results for the cultural values as presented in Table 4.46 cultural values did not have a statistically significant effect on bear market performance, as the regression model failed to compute the standardized β coefficient, while the p value for the unstandardized β was 1.00.

Table 4.46: Regression Coefficients of Cultural Values against Bear Market Performance

Coefficients[a]					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	t	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	-1.056	.056		-18.85	1.000
Cultural Values	-.061	.032	-.086	-1.906	.057

a. Dependent Variable: Bear Market performance

Therefore, to the extent that the ANOVA results in the foregoing model which revealed that the model was not statistically significant, supported by the absence of a statistically significant correlation between cultural values and bear market performance, the study failed to reject the fourth null hypothesis ($H_0$4) which stated that: Cultural values have no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

4.8 Summary Model for the Determinants of Bear Market performance

The standardized factor scores resulting from factor analysis and used in the preceding section for hypothesis testing were entered together into a single, multivariate regression model to determine the integrative effects of the factors on bear market performance. Thus, the following summary regression model with the 5 factors obtained from factor analysis and which exhibited statistically significant relationships with bear market performance, namely brokerage costs, agency costs, household resource dynamics, national wealth, financial literacy and cultural values as predictors and bear market performance as the response variables using the regression model below:

$$\mathbf{Y_i = \alpha + \beta_1 BCOST + \beta_2 ACOST + \beta_3 HRES + \beta_4\ NWEALTH + \beta_5\ FINLIT + \beta_5\ \beta_6 CUL + \varepsilon}$$

Where:

$\mathbf{Y_i}$ = Bear Market Performance

$\boldsymbol{\alpha}$ = Constant/Intercept;

$\boldsymbol{\beta_1 \ldots \beta_6}$ are regression coefficients of the independent variables;

ACOST= Agency Transaction costs;

BCOST= Brokerage costs

HRES =Household Resource Dynamics;

NWEATH = National Wealth

FINLIT= Financial literacy;

CUL = Cultural Values and;

$\boldsymbol{\varepsilon}$= Error term

When bear market performance was regressed against brokerage costs, agency costs, household resource dynamics, national wealth and financial literacy, the ANOVA results indicated that the model was significant (ρ=0.000), with the independent variables explaining 87.1% (R^2 = 0.871) of the variance in bear market performance. The ANOVA results were as shown in Table 4.46.

Table 4.47: ANOVA Results for the Summary Regression Model

ANOVA[a]					
Model	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Regression	426.736	6	71.123	551.721	.000[b]
Residual	62.264	483	.129		
Total	**489.000**	**489**			

a. Dependent Variable: Bear Market Performance

b. Predictors: (Constant), Cultural Values, Agency Costs, Brokerage Costs, National wealth, Financial Literacy, Household resource dynamics

The regression model coefficient results for the determinants of bear market performance were as presented in Table 4.48.

Table 4.48: Regression Model Coefficients for Determinants of Bear Market Performance

Coefficients[a]					
Components	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	1.000	.016		62.5	1.000
Brokerage Costs	.618	.017	.618	36.353	.000
Agency Costs	.748	.018	.748	41.556	.000
Household resource dynamics	-.053	.020	-.053	-2.65	.008
National wealth	-.004	.018	-.004	-.222	.825
Financial Literacy	-.046	.019	-.046	-2.421	.015
Cultural Values	-.040	.018	-.040	-2.222	.023

a. Dependent Variable: Bear Market Performance

The multivariate correlation and regression analysis of the full model revealed that overall, at $\rho < 0.05$, Brokerage Costs and Agency Costs positively influence bear market performance while Household resource dynamics, Financial Literacy and Cultural Values negatively influences bear market performance. However, national wealth did not contribute significantly to bear market performance in the full model. Thus, the resulting summary regression model would be:

Bear Market Performance = 1 + 0.618(Brokerage Costs) + 0.748(Agency Costs) - 0.053(Household resource dynamics) - 0.004(National Wealth) - 0.046(Financial Literacy) -0.040 (Cultural Values)

The overall model revealed that brokerage costs and agency costs which are components from transaction costs positively influences bear market performance; meaning that the more brokerage cots and agency costs increase, the more the Nairobi Securities Exchange experiences bear market. Household resource dynamics and national wealth were components of mobilization of resources by retail investors; they negatively affected bear market performance. This means that when resources by retail investors decrease, the Nairobi Securities Exchange experiences bear market and vice-versa. Financial literacy negatively affects bear market performance at the Nairobi Securities Exchange; meaning that the less literate an investor is the more they are not able to make sound financial decisions and hence the more we can experience bear market performance and vice-versa. Also, cultural values negatively affects bear market performance in that the more cultural values are adhered to, the more we experience bear market performance and vice-versa.

4.9 Discussion of key findings

This section involves the discussion of key findings which attempted to meet the following research objectives:

Research objective one: Influence of transaction cost on bear market performance in the Nairobi securities Exchange in Kenya

The results of Pearson's chi square statistics tests between respondent's ratings of influence of transaction cost on bear market performance indicated a significant relationship. The PPMC results revealed that transaction cost factors; brokerage costs and agency costs had a significant and positive relationship with bear market performance. The ANOVA results also indicated that the regression model was significant and therefore there exists a significant relationship between transaction cost and bear market performance.

The above findings are in line with the findings of Zhang *et al.* (2006) whose study on macroeconomic variables and stock market interactions established that interest rate, money supply and GDP have an effect on share prices. The variable in Zang *et al.* (2006) study such as interest rate is a manifest variable of transaction cost. The findings are also in line with Rakesh *et al.* (2014) whose study was on macroeconomic forces and Indian stock market. Their study found out that exchange rate and increase in inflation had an effect on share prices. The two variables are manifest variables of transaction cost.

Research objective two: Influence of Mobilization of resources by retail investors on bear market performance in the Nairobi securities Exchange in Kenya

The results established that majority of respondents to the seven manifest variables of mobilization of resources by retail investors' measurement scale as being determinants of bear market performance. The Pearson's chi-square test of independence revealed

statistically significant relationship between respondents' ratings of influence of mobilization of resources by retail investors on bear market performance. PPMC results revealed that mobilization of resources by retail investors was significant and a positive relationship existed. The ANOVA result was also significant. The regression results revealed that mobilization of resources positively influences bear market performance.

The above findings are in line with the findings of Aroni (2011) whose research established that money supply has a positive correlation with stock prices. Money supply is a manifest variable of mobilization of resources by retail investors. The findings are also in line with the study done by Humpe and Macmillan (2007) who found out that money supply affects stock prices. This is also corroborated by Mazharul (2008) who found out that bank interest rate influences stock market return. Bank interest rate is a manifest variable of mobilization of resources by retail investors. Also, the study is in line with Hamzah and Maysami (2004) who established that interest rates and money supply have an effect on stock market.

Research objective three: Influence of Financial literacy on bear market performance in the Nairobi securities Exchange in Kenya

Majority of respondents agreed that financial literacy in the country is a determinant of bear market performance. The Pearson's chi-square test of independence showed that statistically significant relationship existed between the respondents' ratings of the influence of financial literacy on bear market performance. PPMC analysis revealed a statistically significant relationship existed between financial literacy and bear market performance. The ANOVA results indicated that the model was significant. The regression results revealed that financial literacy positively influences bear market performance. The above findings are in line with the findings of Luca and Ashok (2015) who investigated financial literacy, human capital and stock market participation in Europe. They found that financial literacy has a positive and significant effect on stock market participation. The finding is also corroborated by Carlin and Robinson (2012) and also Debich (2012).

Research objective four: Influence of Cultural values on bear market performance in the Nairobi Securities Exchange in Kenya

A majority of respondents disagreed with the statement that cultural values are a determinant of bear market performance at the Nairobi Securities Exchange in Kenya. Pearson's chi-square statistics tests of independence revealed that statistically significant relationship existed between cultural values and bear market performance. PPMC results indicated that there was no significant relationship between cultural values and bear market performance. The ANOVA result for regressing bear market performance against cultural values indicated that the model was not statistically significant; meaning there was no relationship between bear market performance and cultural values. The above finding contradicts the study done by Jeffrey and Fang (2015) which studied religion and stock price crash risk. They found out that religion as a set of norms helps to curb news-hoarding activities by managers. Religion was a manifest variable of cultural values. The finding also contradicts Kask (2010) and Moak *et al*. (2012).

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

In this chapter, a summary of the major findings from the study organized as per the specific objective areas are presented. Conclusions that were drawn from the study findings are then presented and recommendations made in line with the findings and conclusions of the study. Areas for further research are also suggested at the terminal end of this chapter.

5.2 Summary

The main objective of this study was to investigate the determinants of bear market performance in the Nairobi Securities Exchange in Kenya. Specifically, the study sought to determine the influence of transaction cost, mobilization of resources by retail investors, financial literacy and cultural values on bear market performance in the Nairobi Securities Exchange in Kenya.

5.2.1 Influence of Transaction Cost on Bear Market Performance

Transaction costs were operationalized as commission by brokerage firms, inflation rate, and extent of incorporation of information technology in doing business, agency cost and interest rate on mutual funds. On the other hand, bear market performance comprised fluctuating share prices, declining primary trend, lack of trading activity at the bourse and insolvency and bankruptcy risk of firms. From the chi-square tests of independence, the results of the study showed that statistically significant relationships existed between the respondents' responses on all the individual items of the transaction cost measurement scale and their responses on all the items on the descriptive bear market performance scale at varying degrees of freedom and p-values <0.01. However,

there was no relationship between extent of incorporation of information technology into the business and bear market performance with respect to lack of trading activity at the bourse.

The PCA results based on Eigen value benchmark of 1.0 revealed that only two factors could be derived from the 6 items of transaction cost measurement scale. Transaction cost measurement items; incorporation of information technology in doing business, high fees by regulatory authorities and high commission by brokerage firms was loaded on the first factor and was labelled "brokerage costs" to represent the charges of the stock brokers providing brokerage services to the retail investors, and also given brokerage commission, was to a large extent based on interest rates on mutual funds. The second factor; "agency costs" brought together transaction cost items; high inflation rate, high interest rates on mutual funds and agency cost based on the understanding that inflation and regulatory fees are economic factors in the country that have an effect on the cost of setting up an agency and providing agency services. The agency costs are passed on to the customer.

The PPMC results revealed that transaction cost factors; brokerage cost and agency costs had significant and positive relationships with bear market performance. These findings implied that retail investors who perceived brokerage costs as being determinants of bear market performance were more likely to report a bear market performance in the Nairobi Securities Exchange in Kenya. Similarly, retail investors who perceived agency costs as a determinant of bear market performance were more likely to report a bear market performance in the Nairobi Securities Exchange in Kenya.

Multivariate correlation and regression analysis of two separate models employing bear market performance as response variables and brokerage costs and agency costs as predictors showed that brokerage costs and agency costs positively influences bear market performance. Therefore, based on ANOVA results that showed that there were significant relationships between the transaction cost variables and bear market performance variables the first null hypothesis ($H_0 1$) which stated that: Transaction cost

has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected at this point.

5.2.2 Influence of Mobilization of Resources by Retail Investors on Bear Market Performance

Mobilization of resources by retail investors' scale comprised of the items: interest rates on bank loans; levels of dependants; prices of consumable commodities; level of disposable income; taxation of capital gains; level of remittances and; level of per capita income. Pearson's Chi-square tests of independence revealed that there were significant relationships between the respondents' ratings of the influence of all the items of mobilization of resources by retail investors' scale and bear market performance measurement scale items at varying degrees of freedom and p-values <0.05.

Principal Component Analysis based on Eigen value benchmark of 1.0 led to the extraction of two factors from the seven items of the mobilization of resources scale. These factors were labelled as "Household resource dynamics" with four items (level of disposable income, levels of dependants, prices of consumable commodities and interest rates on bank loans); "National wealth" (level of per capita income and level of remittances and taxation of capital gains). PPMC analysis revealed that the two factors for mobilization of resources by retail investors namely; household resource dynamics and national wealth had statistically and positive relationships with bear market performance. These findings implied that retail investors who perceived household resource dynamics as a determinant of bear market performance were more likely to report a bear market performance at the NSE. Similarly, retail investors who perceived National wealth as a determinant of bear market performance were more likely to report bear market performance in the Nairobi Securities Exchange in Kenya.

Multivariate regression analyses employing household resource dynamics and national wealth as predictors of bear market performance showed that when bear market performance was regressed on household resource dynamics and national wealth, the

model was statistically significant, indicating that there were significant relationships between the independent and dependent variables in the models at $p = 0.000$. Household resource dynamics and national wealth positively influenced bear market performance. ANOVA results revealed that the model was statistically significant at $p = .000$.Overally, based on ANOVA results in the two models augmented by the significant effects of two factors of the mobilization of resources variables on perceived effect on bear market performance, the second null hypothesis ($H_0 2$) which stated that: Mobilization of resources by retail investors has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected.

5.2.3 Influence of Financial Literacy on Bear Market Performance

Financial literacy was measured on a 4-item measurement scale: Level of literacy in the country, dissemination of financial information by capital markets at the bourse; availability of financial information at the brokers' outlets and investment promotion incentives. The Pearson's Chi-square tests of independence showed that there were associations between the respondents' ratings of the influence of all financial literacy variables and bear market performance variables at varying degrees of freedom and p-values <0.05.

PCA at an Eigen value benchmark of 1.0 resulted in a single factor being extracted from the 4 items of the financial literacy scale. Therefore, the financial literacy with a Cronbach's alpha of 0.793 was retained. PPMC results revealed that retail investors' financial literacy had a statistically significant and positive relationship with bear market performance. This means that retail investors with high financial literacy were more likely to report a bear market performance.

When bear market was regressed on financial literacy, the ANOVA results indicated that the model was statistically significant, indicating that there was a significant relationship between the independent and dependent variables in the model. Therefore from this model, financial literacy positively influenced bear market performance. Thus, based on

the overall results, of the relationships between financial literacy and bear market performance variables, the third null hypothesis ($H_0$3) which stated that: Financial literacy has no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya was rejected.

5.2.4 Influence of Cultural Values on Bear Market Performance

The measurement scale for cultural values comprised four items: keeping up with the Joneses, family influence, peer influence, religious influence and tradition and time for rewarding employees. The Pearson's Chi-square statistic tests of independence revealed that statistically significant relationships existed between the respondents' ratings of all cultural values variables as determinants of bear market performance and all the descriptive variables of bear market performance variables at varying degrees of freedom and p-values <0.01, except the relationships between family influence and consistently declining primary trend and tradition and time for rewarding employees and consistently declining primary trend.

PCA at Eigen value benchmark of 1.0 resulted in a single factor solution from the 5 items of the cultural values scale with a Cronbach's alpha coefficient of 0.845 which was retained. From the Pearson's Product Moment Correlation analysis established that individual cultural values was not statistically significant. ANOVA results indicated that the model was not statistically significant. Therefore, the study failed to reject the fourth null hypothesis ($H_0$4) which stated that: Cultural values have no significant influence on bear market performance in the Nairobi Securities Exchange in Kenya.

Overally, using the composite means for the study variables: Transaction cost, mobilization of resources by retail investors, financial literacy, cultural values and bear market performance, multiple regression analysis results established that transaction costs, mobilization of resources by retail investors and financial literacy were correlates of bear market performance. The positive correlation between transaction cost and bear market performance implied that the more the retail investors perceived transaction costs

as determinant of bear market performance, the more likely it was for them to report lower performance in the bear market. On the contrary, the more the retail investors perceived financial literacy as a determinant of bear market performance, the more likely they were to report higher performance in bear market. The correlations for transaction cost were strong except for mobilization of resources by retail investors and financial literacy. The relationship between bear market performance and cultural values was largely insignificant.

As per the ANOVA results, the overall model in which bear market performance was regressed against transaction costs, mobilization of resources by retail investors, financial literacy and cultural values, was significant(ρ=0.000), with the independent variables explaining 87.1% of the variance in the perceived bear market performance. In the model at $p < 0.05$, transaction costs positively influenced bear market performance while mobilization of resources by retail investors, financial literacy and cultural values negatively influences bear market performance.

5.3 Conclusions

The main objective of the study was to investigate the determinants of bear market performance in the Nairobi Securities Exchange in Kenya. In order to achieve the overall objective, four specific objectives were derived from the main objective. To achieve the specific objectives, four hypotheses were formulated. The hypotheses were subjected to correlation, ANOVA and regression analysis

The first objective of the study was to determine the influence of transaction cost on bear market performance in the Nairobi Securities Exchange in Kenya. Based on the findings of this study, this objective was achieved and it was concluded that various manifest variables of transaction cost as conceptualized by this study (incorporation of information technology in doing business, high fees by regulatory authorities, high commission by brokerage firms, high interest rates on mutual funds, high inflation rate and agency cost) influence bear market performance in the Nairobi Securities Exchange

in Kenya. These manifest variables on the other hand define two main latent factors, which this study labelled as; “brokerage costs” and “agency costs”. Brokerage costs and agency costs positively influences bear market performance. Finally, it was therefore concluded that transaction cost had a statistically significant influence on bear market performance.

The second objective of the study was to establish the influence of mobilization of resources by retail investors on bear market performance in the Nairobi Securities Exchange in Kenya. This objective was achieved and the study concludes that all the manifest variables of the main construct; “mobilization of resources by retail investors” (interest rates on bank loans; levels of dependants; prices of consumable commodities; level of disposable income; taxation of capital gains; level of remittances and; level of per capita income) have influence of varying degrees on bear market performance. The seven manifest variables define two main latent variables named in this study as “Household resource dynamics” and “National wealth”. Household resource dynamics and National wealth positively correlates significantly with bear market performance. The correlations were however weak. Thus, mobilization of resources by retail investors when looked at from the perspective of “Household resource dynamics” and “National wealth” is a determinant of bear market performance. Finally, it was therefore concluded that mobilization of resources by retail investors had a statistically significant influence on bear market performance at the Nairobi Securities Exchange in Kenya.

The third objective of the study was to evaluate the influence of financial literacy on bear market performance in the Nairobi Securities Exchange in Kenya. The objective was achieved. Financial literacy, when measured was considered as a multi-dimensional construct on a four item measurement scale (level of literacy in the country, dissemination of financial information by capital markets at the bourse; availability of financial information at the brokers’ outlets and investment promotion incentives) has a relationship with bear market performance in different ways. PCA at Eigen value benchmark led to a single factor; financial literacy. This study concludes that financial literacy had a weak positive relationship with bear market performance.

The fourth objective of the study was to assess the influence of cultural values on bear market performance in the Nairobi Securities Exchange in Kenya. It is concluded that all the dimensions of cultural values as measured by this study (keeping up with the Joneses, family influence, peer influence, religious influence and tradition and time for rewarding employees) have no relationship with constituent bear market performance variables. It was therefore concluded that cultural values had no statistical influence on bear market performance at the Nairobi Securities Exchange in Kenya.

5.4 Recommendations

From the findings of the study and its implications on determinants of bear market performance, the following recommendations are made. These recommendations include managerial and policy dimensions.

5.4.1 Managerial recommendations

Managers of companies which have invested in the Nairobi Securities Exchange should take it upon themselves to explain to shareholders the reasons as to why bear markets occur and how they can mitigate its effects so as not to erode the financial worth of the investors. Managers should discourage shareholders from disposing their shares during bear market since this in most cases will worsen the situation. Managers should also perform a share buyback during bear market period so as to put the situation under control since when a market is left to control itself, it might take too long. Investors need to have an idea about the determinants of bear market and how it affects performance of share prices at the bourse. Most of the variables that determine bear market performance are normal occurrence of cycles in economic performance of a country such as inflation. Investors should therefore not be in a haste to dispose of their investment in a consistent bear market but they should hold on to their investment since markets always corrects themselves if they are efficient.

Managers should also observe good corporate governance policies. This will improve investor confidence and therefore encourage them to invest in an entity and therefore avoid disposing their stocks which may result into a state of bear market. Board members should be selected from people with investment knowledge so that they can advice management on what to do in an event whereby the entity's stock experiences a bear market

5.4.2 Policy Recommendations

Brokerage costs and agency costs are some of the aspects which influence a stock price; these costs should be maintained at low levels by the regulators. Policy formulators and implementers such as the Capital Markets Authority should take it upon themselves to educate potential investors from abroad and Kenyan Citizens through the available media such as television and radio for Kenyans and online adverts for international investors on the importance of investing at the Nairobi Securities Exchange. They should also educate current and potential investors on the occurrence of bear market as a normal market situation and that after sometime an efficient market will always change from a bear market to a bull market depending on prevailing economic situation and they should also explain to investors that some micro-economic conditions may be beyond the control of the regulators. They should also encourage investors to purchase stocks during a bear market since this action will in the long run create demand for stock in the secondary market and therefore alter the situation. The Capital Markets Authority should also liaise with Central Bank of Kenya so that monetary and fiscal policies should be put in place to mitigate the influence of the business cycle which are likely to have adverse effects on shareholders investments and therefore help to control the erosion of their wealth through macroeconomic conditions such as the state of the global economy, unemployment levels, productivity, exchange rates and inflation.

In order t achieve vision 2030, the Capital Market Authority should encourage private firms to enlist in the Nairobi Securities Exchange. The Capital Markets Authority should take it upon themselves to convince big family businesses in Kenya such as Mabati Rolling Mills that equity funds is one of the cheapest source of financing and in enlisting at the Nairobi Securities Exchange they will get more funds for expansion and therefore create more jobs. When more firms enlist at the Nairobi Securities Exchange, investors will have a broad base of stocks to choose from and this may help alleviate bear market at the bourse.

5.5 Areas for Further Research

This study attempted to establish the determinants of bear market performance in the Nairobi Securities Exchange in Kenya. The findings emphasize the effects of; transaction cost, mobilization of resources by retail investors, financial literacy and cultural values to some extent have an influence on the performance of bear market in the Nairobi Securities Exchange in Kenya. Existing literature indicates that for further research there is need to find out the influence of other variables such as; contangion through global market movements, firm size, level of industrial production in a country and growth rate in gross domestic product, which may lead to bear market performance and more so the business cycles and their influence on bear market performance.

Further research should also be carried out on consumer price index on bear market performance so as to enhance the knowledge on bear market performance and improve on the literature. Though the study established that other sub-variables within the major variables did not have an influence on bear market performance, further research should be done in such areas so as to ascertain their influence. This study mainly dealt with retail investors at the Nairobi Securities Exchange in Kenya. This therefore meant that the conclusions and recommendations were based on their opinions. Future research should attempt to explore more on institutional investors since they have a larger share base as compared to retail investors and therefore more influence on the trade of shares in the NSE as compared to retail investors.

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APPENDICES

Appendix 1: Survey Questionnaire

PART 1: RESPONDENT'S CHARACTERISTICS

Please tick in the appropriate box

(a)	Gender	Male	[ ]
		Female	[ ]
(b)	Age group	Less than 25	[ ]
		25 - 35	[ ]
		36 - 45	[ ]
		46 - 55	[ ]
		Above 55	[ ]
(c)	Education	Primary school level	[ ]
		Secondary school level	[ ]
		Tertiary College	[ ]
		Undergraduate	[ ]
		Postgraduate	[ ]
(d)	Average monthly income	Ksh. 30,000 and less	[ ]
		Ksh. 30,000 – 50,000	[ ]
		Ksh. 50,000 – 100,000	[ ]
		Ksh.100,000 - 150,000	[ ]
		Ksh. 150,000 and above	[ ]

(a) Which stocks have you invested in at the NSE?.....

(b) Out of the stocks you have invested in above, which ones experienced a high frequency of bear market?.....

(c) Which month of the year do you prefer to invest at the NSE?.....

(d) What could be the reason(s) why you would prefer to invest in the month you have stated above?.....

(e) Which month of the year do you prefer to divest at the NSE?.....

(f) What could be the reason(s) why you would prefer to divest in the month you have stated above?.....

PART 2: DETERMINANTS OF THE BEAR MARKET PERFORMANCE

Please indicate with a tick the extent to which you agree with the following statements.

Use the following scale:

1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree

A. TRANSACTION COST

	Description	**1**	**2**	**3**	**4**	**5**
1	High commission by brokerage firms is a determinant of bear market performance.					
2	A high fee by regulatory authorities is a determinant of bear market performance.					
3	High inflation rate is a determinant of bear market performance.					
4	Incorporation of information technology in doing business a determinant of bear market performance.					
5	Agency cost is a determinant of bear market performance.					
6	Interest rate on mutual funds is a determinant of bear market performance.					

B. MOBILISATION OF RESOURCES BY RETAIL INVESTORS

Please indicate with a tick the extent to which you agree with the following statements.

Use the following scale:

1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree

	Description	**1**	**2**	**3**	**4**	**5**
1	High interest rate on bank loans is a determinant of bear market performance.					
2	A high level of dependants is a determinant of bear market performance.					
3	A high price of consumable commodities is a determinant of bear market performance.					
4	Level of disposable income is a determinant of bear market performance.					
5	Taxation of capital gains is a determinant of bear market performance.					
6	Level of remittances is a determinant of bear market performance.					
7	Level of per capita income is a determinant of bear market performance.					

C. FINANCIAL LITERACY

Please indicate with a tick the extent to which you agree with the following statements.

Use the following scale:

1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree

	Description	**1**	**2**	**3**	**4**	**5**
1	Level of literacy in the country is a determinant of bear market performance.					
2	Dissemination of financial information by capital markets at the bourse is a determinant of bear market performance.					
3	Availability of financial information at the brokers' outlets is a determinant of bear market performance.					
4	Investment promotion incentive is a determinant of bear market performance.					

D. CULTURAL VALUES

Please indicate with a tick the extent to which you agree with the following statements.

Use the following scale:

1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree

	Description	**1**	**2**	**3**	**4**	**5**
1	Keeping up with the Joneses a determinant of bear market performance.					
2	Family influence is a determinant of bear market performance.					
3	Peer influence is a determinant of bear market performance.					
4	Religious Influence is a determinant of bear market performance.					
5	Tradition and time for rewarding employees is a determinant of bear market performance.					

PART 3: BEAR MARKET PERFORMANCE

Please indicate with a tick the extent to which you agree with the following statements.

Use the following scale:

1= Strongly Disagree; 2 = Disagree; 3 = Neither Agree nor Disagree; 4 = Agree; 5 = Strongly Agree

	Variable Description		**2**	**3**	**4**	**5**
1	Fluctuating share prices have an effect on bear market performance.					
2	Consistent declining primary trend have an effect on bear market performance.					
3	Lack of trading activity at the bourse has an effect on bear market performance.					
4	Insolvency and bankruptcy risk of firms trading at the bourse have an effect on bear market performance.					

Appendix 2: List of Firms in the NSE Twenty Share Index

Number	Firm's Name	Address	Location
1	Mumias Sugar	P.O.Box, Private Bag,Mumias	Mumias, Kenya
2	Express Kenya	P.O.Box, 56,645-00200, Nairobi	Agakhan Walk, Nairobi
3	Rea Vipingo Plantations	P.O. Box 17648-0500, Nairobi	1st floor Delta Block, Langata Road Nairobi
4	Sasini Tea	P.O.Box 30,151-00200	Sasini House Loita street Nairobi
5	Uchumi Supermarkets	PO. Box 5280-00200, Nairobi	Agakhan Walk, Nairobi.
6	Kenya Airways	P.O.Box 19002-00501 Nairobi	Airport North Road, Nairobi.
7	Safaricom Ltd	P.O.Box 66827-00800 Nairobi	Michael Joseph's Centre, Nairobi
8	Nation Media Group	P.O.Box 49010-00100, Nairobi	Nation Centre, Nairobi
9	Barclays Bank of Kenya	Barclays Bank of Kenya	Waiyaki Way, Nairobi
10	Equity Bank	P.O.Box 75104-00200, Nairobi	Upper Hill Equity Centre, Nairobi
11	Kenya Commercial Bank	P.O.Box 48,400-00100 Nairobi	Kencom House, Nairobi
12	Standard Chartered bank	P.O. Box 30,0003-00100, Nairobi	Chiromo; Nairobi
13	Bamburi Cement Company	P.O. Box 10921, Nairobi	Ragati Road, Nairobi
14	British American Tobacco	P.O.Box 30,000 - 00200, Nairobi	Likoni Road, Nairobi
15	KenGen:	P.O.Box 47,936-00100, Nairobi	Kolobot Road, Nairobi
16	Co-operative Bank of Kenya	P.O. Box 48231-0010, Nairobi	Cooperative House Nairobi
17	East African Breweries	P.O.Box 30,161-00100, Nairobi	Ruaraka, Nairobi
18	Kenol-Kobil	P.O.Box 44,202-00100, Nairobi	ICEA Building, Nairobi
19	Kenya Power Lighting Ltd	P.O. Box 30,099-00100, Nairobi	Stima Plaza, Nairobi
20	Athi River Mining	P.O.Box 41.908-00100, Nairobi	Industrial area, Nairobi

Appendix 3: Calculation of Sample Size

The sample size estimate is derived by using the formula by Sekaran and Bouge (2010) which is calculated as:

$$n_o = \frac{(t)^2 \times (p)(q)}{(d)^2}$$

$$n_o = \frac{(2.58)^2 \times (0.75)\ (0.25)}{(0.05)^2} = 499.23$$

$n_0 \approx 500$ people

where; n_0 = is the sample size

t = is the selected alpha level of 1% to increase precision

(p)(q) = estimates of variance

d = the acceptable margin of error for population being estimated

Table 49: Anti-Image Correlation Matrix for Transaction Cost

Anti-image Correlation Matrix							
		Is high commission by brokerage firms a determinant of bear market performance?	Are High fees by regulatory authorities a determinant of bear market performance?	Is high inflation rate a determinant of bear market performance?	Is extent of incorporation of information technology in doing business a determinant of bear market performance?	Is agency cost a determinant of bear market performance?	Is high interest rate a determinant of bear market performance?
Statement							
Anti-image Correlation	Is high commission by brokerage firms a determinant of bear market performance?	.873[a]	-.315	-.144	-.100	.006	-.033
	Are High fees by regulatory authorities a determinant of bear market performance?	-.315	.709[a]	-.187	-.579	-.169	-.306
	Is high inflation rate a determinant of bear market performance?	-.144	-.187	.700[a]	.201	-.538	-.210
	Is extent of incorporation of information technology in doing business a determinant of bear market performance?	-.100	-.579	.201	.634[a]	.081	.030
	Is agency cost a determinant of bear market performance?	.006	-.169	-.538	.081	.707[a]	.053
	Is high interest rate a determinant of bear market performance?	-.033	-.306	-.210	.030	.053	.843[a]
a. Measures of Sampling Adequacy(MSA)							

Table 50: Eigen Values for Transaction Costs

Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.039	50.650	50.650	3.039	50.650	50.650	2.247	37.449	37.449
2	1.202	20.027	70.678	1.202	20.027	70.678	1.994	33.229	70.678
3	.666	11.097	81.775						
4	.547	9.108	90.884						
5	.315	5.242	96.126						
6	.232	3.874	100.000						

Extraction Method: Principal Component Analysis.

Table 51: Rotated Component Matrix for Transaction Costs

Rotated Component Matrix[a]

Statements	Component	
	1	2
Is extent of incorporation of information technology in doing business a determinant of bear market performance?	.883	-.123
Are High fees by regulatory authorities a determinant of bear market performance?	.831	.374
Is high commission by brokerage firms a determinant of bear market performance?	.687	.320
Is high interest rate a determinant of bear market performance?	.509	.454
Is high inflation rate a determinant of bear market performance?	.189	.885
Is agency cost a determinant of bear market performance?	.103	.864

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Table 52: Anti-Image Correlation Matrix for Mobilization of Resources

Anti-image Matrices

		Are high interest rates on bank loans a determinant of bear market performance?	Are high levels of dependants a determinant of bear market performance?	Are high prices of consumable commodities a determinant of bear market performance?	Is level of disposable income a determinant of bear market performance?	Is taxation of capital gains a determinant of bear market performance?	Is level of remittances a determinant of bear market performance?	Is level of per capita income a determinant of bear market performance?
Statements								
Anti-image Correlation	Are high interest rates on bank loans a determinant of bear market performance?	.834[a]	-.360	-.064	-.096	.061	-.178	-.040
	Are high levels of dependants a determinant of bear market performance?	-.360	.831[a]	-.159	-.127	-.138	.008	.108
	Are high prices of consumable commodities a determinant of bear market performance?	-.064	-.159	.690[a]	-.643	-.399	-.115	.227
	Is level of disposable income a determinant of bear market performance?	-.096	-.127	-.643	.717[a]	.224	-.138	-.200
	Is taxation of capital gains a determinant of bear market performance?	.061	-.138	-.399	.224	.645[a]	-.032	-.334
	Is level of remittances a determinant of bear market performance?	-.178	.008	-.115	-.138	-.032	.836[a]	-.341
	Is level of per capita income a determinant of bear market performance?	-.040	.108	.227	-.200	-.334	-.341	.560[a]

a. Measures of Sampling Adequacy(MSA)

Table 53: Eigen Values for Mobilization of Resources

Total Variance Explained									
Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.299	47.128	47.128	3.299	47.128	47.128	2.683	38.325	38.325
2	1.161	16.583	63.711	1.161	16.583	63.711	1.777	25.386	63.711
3	.800	11.424	75.135						
4	.654	9.346	84.481						
5	.474	6.771	91.252						
6	.422	6.034	97.285						
7	.190	2.715	100.000						
Extraction Method: Principal Component Analysis.									

Table 54: Rotated Component Matrix for Mobilization of Resources

Rotated Component Matrix[a]		
Statements	Component	
	1	2
Are high prices of consumable commodities a determinant of bear market performance?	.816	.275
Are high levels of dependants a determinant of bear market performance?	.809	.036
Is level of disposable income a determinant of bear market performance?	.777	.302
Are high interest rates on bank loans a determinant of bear market performance?	.719	.138
Is level of per capita income a determinant of bear market performance?	-.058	.890
Is level of remittances a determinant of bear market performance?	.394	.656
Is taxation of capital gains a determinant of bear market performance?	.288	.607
Extraction Method: Principal Component Analysis.		
Rotation Method: Varimax with Kaiser Normalization.		
a. Rotation converged in 3 iterations.		

Table 55: Anti-Image Correlation Matrix for Financial Literacy

Anti-image Matrices					
	Statements	Is Level of literacy in the country a determinant of bear market performance?	Is dissemination of financial information by capital markets at the bourse a determinant of bear market performance?	Is availability of financial information at the brokers' outlets a determinant of bear market performance?	Are investment promotion incentives a determinant of bear market performance?
Anti-image Correlation	Is Level of literacy in the country a determinant of bear market performance?	.801[a]	.021	-.307	-.204
	Is dissemination of financial information by capital markets at the bourse a determinant of bear market performance?	.021	.677[a]	-.229	-.647
	Is availability of financial information at the brokers' outlets a determinant of bear market performance?	-.307	-.229	.822[a]	-.162
	Are investment promotion incentives a determinant of bear market performance?	-.204	-.647	-.162	.684[a]

a. Measures of Sampling Adequacy(MSA)

Table 56: Eigen Values for Financial Literacy

Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.569	64.217	64.217	2.569	64.217	64.217
2	.711	17.775	81.993			
3	.482	12.061	94.054			
4	.238	5.946	100.000			

Extraction Method: Principal Component Analysis.

Table 57: Component Matrix for Financial Literacy

Component Matrix[a]

Statements	Component
	1
Are investment promotion incentives a determinant of bear market performance?	.871
Is dissemination of financial information by capital markets at the bourse a determinant of bear market performance?	.848
Is availability of financial information at the brokers' outlets a determinant of bear market performance?	.793
Is Level of literacy in the country a determinant of bear market performance?	.679

Extraction Method: Principal Component Analysis.

1 component extracted.

Table 58: Anti-Image Correlation Matrix for Cultural Values

Anti-image Matrices

	Statement	Is keeping up with the Joneses a determinant of bear market performance?	Is family influence a determinant of bear market performance?	Is Peer influence a determinant of bear market performance?	Is Religious Influence a determinant of bear market performance?	Is tradition and time for rewarding employees a determinant of bear market performance?
Anti-image Correlation	Is keeping up with the Joneses a determinant of bear market performance?	.620[a]	-.288	-.079	-.733	.396
	Is family influence a determinant of bear market performance?	-.288	.798[a]	-.389	-.027	-.350
	Is Peer influence a determinant of bear market performance?	-.079	-.389	.856[a]	-.038	-.091
	Is Religious Influence a determinant of bear market performance?	-.733	-.027	-.038	.672[a]	-.446
	Is tradition and time for rewarding employees a determinant of bear market performance?	.396	-.350	-.091	-.446	.612[a]

a. Measures of Sampling Adequacy(MSA)

Table 59: Eigen Values for Cultural Values

Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.139	62.771	62.771	3.139	62.771	62.771
2	.793	15.854	78.624			
3	.596	11.921	90.546			
4	.328	6.567	97.113			
5	.144	2.887	100.000			

Extraction Method: Principal Component Analysis.

Table 60: Component Matrix for Cultural Values

Component Matrix[a]	
Statements	Component
	1
Is Religious Influence a determinant of bear market performance?	.874
Is family influence a determinant of bear market performance?	.859
Is keeping up with the Joneses a determinant of bear market performance?	.807
Is Peer influence a determinant of bear market performance?	.744
Is tradition and time for rewarding employees a determinant of bear market performance?	.657
Extraction Method: Principal Component Analysis.	
1 component extracted.	

Table 61: Anti-Image Correlation Matrix for Bear Market Performance

Anti-image Matrices					
		Do fluctuating share prices have an effect on bear market performance?	Does a consistent declining primary trend have an effect on bear market performance?	Does lack of trading activity at the bourse have an effect on bear market performance?	Does insolvency and bankruptcy risk of firms trading at the bourse have an effect on bear market performance?
Anti-image Correlation	Do fluctuating share prices have an effect on bear market performance?	.676[a]	-.507	-.135	.022
	Does a consistent declining primary trend have an effect on bear market performance?	-.507	.688[a]	-.234	-.031
	Does lack of trading activity at the bourse have an effect on bear market performance?	-.135	-.234	.645[a]	-.621
	Does insolvency and bankruptcy risk of firms trading at the bourse have an effect on bear market performance?	.022	-.031	-.621	.622[a]
a. Measures of Sampling Adequacy(MSA)					

Table 62: Eigen Values for Bear Market Performance

Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.372	59.299	59.299	2.372	59.299	59.299
2	.927	23.182	82.482			
3	.398	9.957	92.439			
4	.302	7.561	100.000			

Extraction Method: Principal Component Analysis.

Table 63: Component Matrix for Bear Market Performance

Communalities

Statements	Initial	Extraction
Do fluctuating share prices have an effect on bear market performance?	1.000	.515
Does a consistent declining primary trend have an effect on bear market performance?	1.000	.609
Does lack of trading activity at the bourse have an effect on bear market performance?	1.000	.702
Does insolvency and bankruptcy risk of firms trading at the bourse have an effect on bear market performance?	1.000	.546

Extraction Method: Principal Component Analysis.