STOCK MARKETS ANOMALIES: A CRITICAL REVIEW OF THE LITERATURE

By

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DECLARATION

This independent study paper is my original work and has not been submitted to any university or College for academic credit. All information from other sources has been duly acknowledged.

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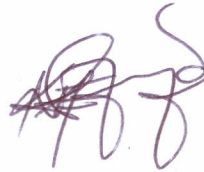
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LIST OF ABBREVIATIONS

EMH	-	Efficient Market Hypothesis
INTV	-	Intervening Variable
IPO	-	Initial Public Offer
IV	-	Independent Variable
KSE	-	Karachi Stock Exchange
MV	-	Moderating Variable
NSE	-	Nairobi Security Exchange
PER	-	Price-Earnings Ratio
ROR	-	Rate of Return
S and P	-	Standard and Poor's
U.S	-	United State
BtM	-	Book to Market Value

CHAPTER ONE

INTRODUCTION

1.1   Background of the Study

The security market is a very important component of any country's economy, in other words, it attracts investors and ultimately contributing to the economic growth of such countries. For example, what an investor may look for before investing is market efficiency. EMH provides that information is fully available and reflected in the prices of security and if this information is available to all investors then abnormal profits are not possible (Fama, 1970). According to Khan, Khan and Khan (2014), if there are opportunities to make abnormal profits, then the market is said to be inefficient, because EMH was established on the idea that no individual has the ability to earn anomalous profit. The inefficiency is referred to as an anomaly. Stock market anomalies are reported by researchers for developed as well as emerging markets. Calendar effect is the most talked anomaly, fundamental anomalies and calendar time anomalies may also be observed in the stock market. For the study, the Kenya and US markets are taken as the representative of emerging and developed markets, respectively.

Brooks (2004) defines calendar anomalies as the tendency of financial asset returns to display systematic patterns at certain times of day, week, month or year. Technical analysis studies the historical price fluctuations through the study of price charts for price patterns and use price data in different calculations to forecast future price movements (Turner, 2007). The technical analysis paradigm is that there is an inherent correlation between price and company that can be used to determine when to enter and exit the market. Fundamental anomalies are the anomalies in trading financial instruments. That is, it depends on everything that can affect the security's value, including macroeconomic factors like the overall economy, industry conditions and company-specific factors like financial condition and management (Bako and Sechel, 2013).

Despite strong evidence that the stock market is highly efficient, there have been scores of studies that have documented anomalies in the stock market that seem to contradict the efficient market hypothesis. This study aimed at revisiting and divulging the existing

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empirical evidence regarding the anomalies in stock markets of developed and emerging markets to identify gaps on research associated with stock market anomalies.

1.1.1 Market Efficiency

An information efficient market is a market where security prices at any time "fully" reflect all relevant information. This means that the price of a security changes every time new information is released into the market. That is, successive price changes (successive one-period returns) are independent. In other words, stocks always trade at their fair value on securities exchanges, making it difficult for investors to either purchase undervalued stocks or sell stocks for bloated prices. There are three types of the efficient market hypothesis, namely the weak form, the semi-strong form and the strong form (Fama, 1970).The weak form of the EMH claims that prices on trade assets like stocks, bonds, or property reflects all past publicly available information. Technical analysts believe that the historical performance of stocks and markets are indications of future performance. However, Fama (1991) expanded the concept of the weak form to include predicting future returns with the use of accounting or macroeconomic variables. Actually, the evidence of predictability of returns provides an argument against the weak form.

In semi-strong-form efficiency, it is implied that share prices adjust to publicly available new information very rapidly and in an unbiased fashion, such that no excess returns can be earned by trading on that information. Semi-strong-form efficiency implies that past market data (technical analysis techniques) or financial reports, economic forecasts and company announcements (fundamental analysis) do not generate abnormal returns (Khan,1986).The strong form of the EMH additionally claims that prices reflect all information in a market, whether public or private, is accounted for in a stock price, for example insider information. This form implies that profits exceeding normal returns cannot be earned regardless of the amount of information investors have access to. Neither technical analysis nor fundamental analysis nor inside information can help predict future price movements (Potock and Swist, 2012). In reality a financial market may be considered not to be extremely efficient, or completely inefficient.

1.1.2 Stock Market Anomalies

George, Frankfurter and McGoun, (2001) define an anomaly as an irregularity, a deviation from the common or the natural order, or an exceptional condition. A variety of anomalies may be witnessed in the stock market and they include Calendar time anomalies, technical anomalies and fundamental anomalies. Calendar anomalies refer to the existence of any irregularities, fluctuations or the specific pattern occurring in a recurring manner during a definite time within one year and may prove to be a threat to market efficiency. The main calendar anomalies are the January effect, the day-of-the-week effect, the turn-of- the-month effect and the holiday effect. These anomalies are of particular interest because their existence violates the weak form of market efficiency (Khan, Khan and Khan, 2014).

January effect shows abnormally high returns in the month of January when compared to the rest of the year (De Bondt and Thaler, 1985). The day-of-the-week effect or weekend effect exhibits significantly higher returns on Friday and lower returns on Monday. Lastly, the holiday effect points to significantly higher returns on the days just before public holidays. Technical analysis involves forecasting the price movements and trends of the market in the future, by studying the market graphs, including the price of the listed instruments and the volume of transactions. Commonly technical analysis use techniques including strategies like resistance support, as well as moving averages (Brock, Lakonishok and Lebaron, 1992).

Many researchers like Bodie et al (2007) have found that when the market holds weak form efficiency, then prices already reflected the past information and technical analysis is of no use. These imply that investor cannot beat the market by earning abnormal returns on the basis of technical analysis and past information. But there are some anomalies that deviate from the findings of these studies because historical performance of stocks and markets are indications of future performance. The fundamental anomalies refer to the anomalies in trading financial instruments, and to the elements of fundamental analysis. The principle is the fact that the market price of any financial instrument is the result of supply and demand for that instrument. That is, it depends on

everything that can affect the security's value, including macroeconomic factors like the overall economy and industry conditions and company-specific factors like financial condition and management (Bako and Sechel, 2013).

1.1.3 Stock Market Anomalies in Developed and Developing Economies

Stock market efficiency is a grossly researched both in developed and emerging countries. Traditionally, markets of developed economies are more efficient as compared to emerging markets. Studies carried out in the developed stock markets show that most stock markets are either efficient in their weak or semi-strong form and hence the existence of market anomalies (Zhou and Phan, 2014). Georgantopoulos and Tsamis (2012) investigated calendar anomalies for three highly developed EU stock markets (Germany, France and Austria) and their developed EU counterparts (Portugal and Greece) examined the day of the week, the January, the half month, the turn of the month and the time of the month effects. Evidence showed that only one calendar effect in Germany and France and two calendar effects for Austria and Portugal exist while calendar effects exist in Greece. These contradictory evidence could imply different levels of efficiency and maturity for the examined equity markets.

Baek, Kim and Kim (2008) investigated the effect of earnings forecast announcement on the level of information asymmetry, which is an indicator of stock market efficiency. They found no significant change in information asymmetry between pre and post announcement periods of a good news forecast whereas on account of a previously declared bad news forecast a firm experienced a decrease in information asymmetry. A few studies conducted on the test of efficient market hypothesis (EMH) in developing countries and more so, east African markets and specifically Kenya compared to the volume of studies published on the developed market. The general assumption is that the developing markets are less efficient than the developed market because they are lowly industrialized with small growth. However; it is not unlikely that the market participants are not well informed and behaving irrational compared to well organize markets. The causes of lack of financial development, especially in capital markets are due in capital markets are due to certain market imperfection such as transaction costs, lack of timely

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information, the cost of acquiring new information, and possibly greater uncertainty about the future (Kuria and Riro, 2013).

Omran and Farrar (2006) tested the random walk hypothesis and calendar anomalies in the emerging stock markets of the Middle Eastern countries. The markets rejected the random walk for all five markets and instead supported the presence of the calendar anomalies. However, the evidence for the Israel stock market showed traces of random walk. Kuria and Riro (2013) examined three types of anomalies namely, day of the week effect, weekend effect and monthly effect in Nairobi Securities Exchange (NSE). They found the presence of the seasonal effect in the NSE. This therefore establishes that stock markets in Kenya are not yet freed from seasonal anomalies despite increased use of information technology and numerous regulatory developments.

1.1.4   Nairobi Security Exchange

The Nairobi Securities Exchange (NSE) was constituted as Nairobi Stock Exchange in 1954 as a voluntary association of stockbrokers in the European community registered under the Societies Act. A stock exchange was first floated in 1922 at the Exchange Bar in the Stanley Hotel in Nairobi. In 1954 the Nairobi Stock Exchange was then constituted as a voluntary association of stockbrokers registered under the Societies Act. In July 2007 NSE reviewed the Index and announced the companies that would constitute the NSE Share Index. The review of the NSE 20-share index was aimed at ensuring it is a true barometer of the market (Kuria and Riro, 2013).

In 2008, the NSE All Share Index (NASI) was introduced as an alternative index. Its measure is an overall indicator of market performance. The Index incorporates all the traded shares of the day. Its attention is therefore on the overall market capitalization rather than the price movements of select counters. In July 2011, the Nairobi Stock Exchange Limited, changed its name to the Nairobi Securities Exchange Limited. The change of name reflected the strategic plan of the Nairobi Securities Exchange to evolve into a full service securities exchange which supports trading, clearing and settlement of equities, debt, derivatives and other associated instruments. (Kuria and Riro, 2013).

1.2   Research Problem

The presence of market anomalies appears universal, they occur in stock markets around the world, in both developed markets and emerging markets. Markets are not perfectly efficient. Many researchers agreed to this in the wake of the financial crisis, despite technological improvement that makes markets faster and more liquid. The aim of this study is to understand why are markets inefficient, or why do anomaly exist? In Kenya, low priced security at NSE may end up with strong sell recommendations to earn superior profit depending on the information available and this is because irrational investors may be convinced that a lowly priced stock is more attractive than highly priced and thus existence of anomaly (Musau , 2006).

There are a lot of researches on causes of various types of abnormalities or deviations of stocks returns from the normal pattern. Calendar anomalies exist due to new information not being adjusted quickly, different tax treatments, cash flow adjustments and behavioral constraints of investors. Next, fundamental anomalies are caused by distortion in value, dividend yield, and overreaction to price earnings ratio and low price to sales. Lastly, technical anomalies are based upon the movement of past prices and trends of stocks. But still a lot of research is needed on the causes of these anomalies because it is debatable (Latif, Arshad , Fatima and Farooq, 2011).

In order to beat the market, with market experience and knowledge gained, investors do re-evaluate and refine investing styles and strategies - that is, realize returns greater than market average First, investors look for market trend with opportunity for accelerated gains. Technical analysis will tell the direction a security will take over short time based on the assumption that history will repeat itself. Experienced investors, on the other hand will over long time measure intrinsic value of stock in order to beat the market based on the argument that superior earnings forecasts significantly outperform the recommendations of inferior earnings forecasters (Loh and Mian, 2006).This however is opposed by EMH which states that it is impossible to outperform the market. Outperforming the market" means trying to earn return greater than expected investment fees are one barrier to abnormal profit, since they will be subtracted from the earnings,

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thus reducing the return. Taxes are another obstacle because when investment tax is paid, a significant percentage of profit is lost. Moreover, investor psychology result from motivation to buy high and sell low when the market starts to drop thus making it impossible to outperform the market.

1.3   Research Objectives

The main objective of the study is to review the existence of stock market anomalies. The study focuses on the following specific objectives:

i.   To provide an overview of the work that has been done in the area of stock market anomalies and focus on identifying and providing information about the knowledge gap.

ii.   The study will help us identify determinants of stock market anomalies.

iii.   The study will help us understand theories of the study. It will discuss the market efficiency and efficient market hypothesis, then the contradicting study market efficiency anomalies are presented

iv.   The study will also try to find out the presence of stock market anomalies in both developed and developing economies with the focus being on USA and Kenya.

v.   Finally, it will help identify potential sources of information for conducting further research.

1.4   Value of the study

This paper contributes to finance literature in several ways. First, it will help identify the gap created contradicting findings of researches that investigated this phenomenon on. Second, by employing recent literatures, it provide an up to date understanding of stock market anomalies and its significance. Third, it will lead to a conclusion regarding the efficiency of stock market that is of value to decision makers.

1.5   Organization of the Paper

This study is organized into 4 sections as follows: chapter 2 provides a theoretical literatures review, while chapter 3 introduces previous studies. Finally, chapter 4 presents the summary of the findings, conclusions and recommendations.

CHAPTER TWO
THEORETICAL LITERATURE REVIEW

2.1 Introduction

This chapter reviews the relevant theories of the study. It will discuss the market efficiency and efficient market hypothesis, then the contradicting study market efficiency anomalies are presented. Closely related to EMH is random walk hypothesis that states that trend of a stock price cannot be used to predict its future movement. The two general techniques for predicting stock market prices used by market professionals are "chartist" or "technical" analysis and fundamental or intrinsic value analysis.

2.2 Theoretical Framework

2.2.1 Efficient Market Hypothesis

An investment theory that states it is impossible to "beat the market" because stock market efficiency causes existing share prices to always incorporate and reflect all relevant information. According to the EMH, stocks always trade at their fair value on stock exchanges, making it impossible for investors to either purchase undervalued stocks or sell for inflated prices. As such, it should be impossible to outperform the overall market through expert stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by purchasing riskier investments (Suri, 2015).

The weak form of the EMH states that today's stock prices reflect all information about the historical prices of the stock. That is, the price changes from one time to another are independent, in other words one cannot superior profit by examining the historical information. Within the weak form of the EMH, historical price information does not expose investment opportunities which lead to abnormal returns, therefore making technical analysis unusable. When looking at historical series, the next outcome return in a series are independent of earlier outcomes returns (Levy and Post, 2005). Excess returns cannot be earned in the long run by using investment strategies based on historical share prices or other historical data. That is, future prices cannot be predicted by analyzing prices from the past. However, some forms of fundamental analysis may still provide excess returns.

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The semi-strong form of the EMH claims that stock prices reflect all relevant publicly available information. Among other things, publicly available information includes historical stock prices and all information concerning financial statements and accounting regulations. It implies that investors should not be able to profit consistently by trading on publicly available information. The investment strategies based on thoroughly studying publicly available information does not lead to earning abnormal returns, because the information will be reflected rapidly in prices once it becomes publicly available. This means that neither fundamental nor technical analysis can be used to achieve superior gains fundamental analyses are unusable, where information from financial statements (especially the price/earnings ratio and the market-to-book value ratio) is used to find investment opportunities (Malkiel, 2003).

According to the strong form of the EMH, today's stock prices reflect all publicly and privately available information. In addition to historical price information and relevant publicly available information, private information is also captured in the strong form of the EMH, which is only known by a small group of persons (for example board members and private bankers). In such a market, prices would always be fair and any investor, even insider traders, cannot beat the market For this reason, none of the technical and/or fundamental analysts can beat the market to make an abnormal return in strong form of efficiency because, if a market is efficient in the strong-form, it must be efficient in both the weak form and the semi-strong form. Thus, the techniques that do not work in the weak form and the semi-strong form efficient markets naturally cannot work in strong form efficient markets. This therefore mean that, if there are legal barriers to private information becoming public, as with insider trading laws, strong-form efficiency is impossible, except in the case where the laws are universally ignored (Brealey, 1999).

2.2.2   The Random Walk Theory

The term random walk describes the movements of a variable whose future changes cannot be predicted (are random) because, given today's value, the variable is just as likely to fall as to rise (Malkiel, 2003). Several researchers had noted that security prices tend to fluctuate randomly in the manner that security returns exhibit a very low degree

of serial correlation. If prices reflect all currently available information and change values immediately only on the receipt of new information, then all price changes will be uncorrelated (Fama, 1965). Therefore, yesterday's prices do not tell us as much about tomorrow's or at least not enough to consistently earn abnormal profits based merely on price data.

However, the critics of RMT argue that, the best prediction you can have about tomorrow's value is today's value. The key arguments is that information is freely and instantaneously available to all the market participants; keen competition among market participants, more or less, ensures that market prices will reflect intrinsic values. This means that market participants will fully hold all available information. Accordingly, prices change only in response to new information that, by definition, is unrelated to previous information (otherwise it will not be new information) and since new information cannot be predicted in advance, price changes too cannot be forecast. Hence, prices behave like random walk and yesterday's prices by themselves apparently do not tell us anything of value for forecasting tomorrow's prices (Ashanu and Abiola, 2012).

2.2.3 Technical/Chartist Theory

The schools of theory on "price prediction" of stock prices are the "chartist" or "technical". The basic assumption of all the chartist or technical theories is that history tends to repeat itself, that is, past patterns of price behavior in individual securities will tend to recur in the future. Thus the way to predict stock prices is to develop a familiarity with past patterns of price behavior in order to recognize situations of likely recurrence. A statistician would characterize such techniques as assuming that successive price changes in individual securities are dependent. That is, the sequence of price changes prior to any given day is important in predicting the price change for that day (Fama, 1965)

Neftci and Policano (1984) and Brock et al (1992) found evidence that technical analysis and associated charting methodologies can provide information beyond what is already contained in stock prices, and thus did have validity in stock prediction Lo and MacKinlay (1988, 1990) also provided evidence of the validity of technical analysis in

their studies they proposed that patterns in returns data series which could be exploited by technical trading rules (concerning testing the Efficient Market Hypothesis) were evident.

2.2.4 The Fundamental Theory

The assumption of the fundamental analysis approach is that at any point in time an individual security has an intrinsic value which depends on the fundamentals of the security (earning potential of the security). Intrinsic value is the actual value of a company. According to Chauhan (2014), to find the intrinsic value, analysts has to use top to bottom approach which is also called as E-I-C (Economy, Industry and Company analysis) approach. Firstly it studies the macro economy that is, overall health of economy as a whole and industry trends, competitors performance. Next is to examine the financial data of the company. If this intrinsic value of the stock is more than its current market price, investor would prefer to purchase the stock because he believes that the stock will perform better in future and it will move towards intrinsic value.

Company factors are reflected through the study of historical data namely balance sheet, income statement, annual report, newspaper, company announcement and industry news. To put it in another way, fundamental analysis involves using real data to evaluate a stock's value through analysis of revenues, earnings, future growth, return on equity, profit margins and other data to determine a company's underlying value and potential for future growth. Kumar and Mohapatra (2013). According to Fama and French (1993). efficient market hypothesis, information available to everyone (publically available information) cannot be used or helpful to predict stock returns, on the other hand literature proof that fundamental analysis was useful tools for investors to predict stock returns. Fundamental signals were positively and significantly correlated with stock returns (Elleuch, 2009).

Ou and Penmen (1989) found that through fundamental analysis investors can get abnormal returns. They also argue that fundamental signals have the power to forecast future stock returns. By using various fundamental signals from leverage, activity, profitability, and market based indicators and found the forecasting power of these

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signals. Ou, (1990), Stober, (1993).; and Kerstein and Kim, (1995) examined information content of individual accounting numbers and looked at their usefulness for predicting future earnings or returns. Ou's (1990) results provided evidence for a "predictive information link" between non-earnings numbers and future earnings changes. They indicated that some non-earnings numbers do contain information useful for predicting future earnings changes that is not contained in either past or current earnings.

Fundamental analysis is mostly criticized by the efficient market theory supporters. According to the efficient market theory, all three possible forms of efficiency ("weak," the "semi-strong" and the "strong)." advocate the general idea that except for long-run trends, future stock prices are difficult (or even impossible). to predict (Fama 1997). The weak form attacks the underpinnings of technical analysis, and the semi-strong and strong forms argue against many of the beliefs held by those using fundamental analysis. Efficient market theory suggests that by using all available and relevant information all market participants arrive at "rational expectations" of future security returns and these forecasts become fully reflected in the price that are observed in financial market (Shostak, 1997). This means that analysis of past data is usefulness because the information that this analysis reveals is already contained in asset prices. Consequently, if past data contains no information for the prediction of future.

2.3 Security Market Anomalies

2.3.1 Value Effect
The value effect refers to the positive relation between security returns and the ratio of accounting-based measures of cash flow or value to the market price of the security. For example, investors mistakenly overestimate the prospects of growth companies and underestimate value companies. (Lakonishok, Shleifer and Vishny, 1994) concluded that value strategies yield higher returns because these strategies exploit the mistakes of the typical investor and not because these strategies are fundamentally riskier. The common accounting-based measures are earnings per share and book value of common equity per share. Ball (1978) argues that variables like the Earnings-to-Price ratio (E/P) are proxies

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for expected returns. Thus, if the CAPM is an incomplete specification of priced risk, it is reasonable to expect that E/P might explain the portion of expected return that is compensation for risk variables omitted from the tests.

Basu (1977) was the first to test the concept of how value-related variables might explain violations of the CAPM. He found a significant positive relation between E/P ratios and average returns for U.S. stocks that could not be explained by the CAPM. Reinganum (1981) confirmed and extended Basu's findings. DeBondt and Thaler (1987) and many others have documented a significant positive relation between returns and the Book-to-Price ratio (B/P). Researchers have also identified a significant relation between security returns and value ratios that use cash flow (earnings plus accounting depreciation expense) in place of earnings in the numerator of the ratio. The value effect in its many forms has been reproduced by numerous researchers for many different sample periods and for most major securities markets around the world.

Dividend yield, the ratio of cash dividend to price, has also been shown to have cross-sectional return predictability. Although similar in construction to the value ratios, the explanatory power of dividend yields is most often attributed to the differential taxation of capital gains and ordinary income as described in the after-tax asset pricing models developed by Brennan (1970) and Litzenberger and Ramaswamy (1979)

2.3.2   Size Effect

Size of a firm has an effect on the relationship between abnormal stock return and market information. Banz (1981) reported that small firms earn higher returns than big firms, a large body of research has evolved on the size effect. Keim (1983). in his study indicated that information dissemination of small firms may have greater impact of the stock price relative to those of large firms for which gathering and processing of information is less costly process. Trahan and Bolster's (1995) found that abnormal returns are inversely related to firm size and this is because smaller firms are likely to be neglected by analysts and therefore the information content of published recommendation would increase as firm sizes decreases leading to a prediction of larger abnormal returns for small firms.

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However, Brennan and Tamarowski (2000) also report finding that the number of analysts covering a stock is a (significantly) increasing function of the stock's market value. When this result is viewed together with their finding of the positive effect of the number of analysts on stock liquidity, it is clear that large stocks enjoy greater liquidity-enhancing opportunities than small stocks.

2.3.3 The prior Return or Momentum Effect

The momentum anomaly says that what was strongly going up in the past will probably continue to go up in the near future. Fama and French (1996) have also tested two versions of momentum strategies. DeBondt and Thaler (1985) found an anomaly whereby past losers in the past three to five years with low stocks returns have higher average returns than past winners for stocks with high returns in the past three to five years, which is a "contrarian" effect.

Using their three-factor model in Equation (2), Fama and French found no estimates of abnormal performance that are reliably different from zero based on the long-term reversal strategy of DeBondt and Thaler (1985), which they attribute to the similarity of past losers and small distressed firms. The momentum effect challenges the validity of the weak form of EMH. Advocates of the rational approach contend that abnormal momentum returns are primarily attributable to bearing higher risk for investors. However, it still seems difficult to explain why the momentum effect occurs. There are several possible explanations for momentum that are broadly divided into rational and irrational reasons.

2.3.4 Weekend Effect

The weekend effect is a theory that stock prices rise on Monday and fall on Friday. The idea behind the weekend effect is that companies tend to release bad news on Fridays, when the market has the weekend to absorb the news and not react as negatively on Monday. Whether the weekend effect actually exists is controversial and often a matter of academic study. Regardless of its consistent appearance, the weekend effect is a reminder that more things affect stock prices than just earnings. Timing is also a factor. Consider

an exchange where trading takes place Monday through Friday. If the process generating stock returns operates continuously, then Monday returns should be three times the returns expected on each of the other days to compensate for a three-day holding period. Alternatively trading-time hypothesis: returns are generated only during trading periods and average returns are the same for each of the five trading days in the week. Inconsistent with both hypotheses, stock returns in many countries are negative, on average, on Monday (French (1980)).

2.4   Summary of the Chapter

The theoretical review consisted of the EMH, with its three degrees of market efficiency: the weak form, the semi-strong form and the strong form. Other theories review criticism of EMH and confirms certain tradable anomalies seem to persist in the stock market. The anomalies relate to the fundamentals of the equity and technical trading rules. Investors use fundamental analysis in stock market analysis to identify mispriced stocks. Accounting research examines the part of traditional fundamental analysis that focuses on the more quantitative measures of financial statements. In this study, fundamental analysis is therefore defined as an analysis of current and past financial statement data to assess underlying firm value to determine when market prices differ. Technical analysis evaluates securities by analyzing the statistics generated by market activity and is based on the assumption that the market discounts everything, price moves in trends and history tends to repeat itself. Technicians believe that all the information they need about a stock can be found in its charts.

The review has shown that stocks tend to move more on Fridays than Mondays, and that there is a bias toward positive market performance on Fridays. Also, stocks with below-average price-to-book ratios tend to outperform the market and smaller firms (that is, smaller capitalization)

CHAPTER THREE
EMPIRICAL LITERATURE REVIEW

3.1   Introduction

The chapter contains the review of literature on stock market anomalies and stock returns which is organized into four sections. The first part includes the review of major empirical studies on stock returns and stock market anomalies. The conceptual framework has been presented in the second section. The related studies in NSE context have been presented in the third section. Finally, the forth section has been devoted for concluding remarks.

3.2   Empirical Studies

3.2.1   Calendar Time Anomalies

Extensive evidence has been provided on the existence of calendar anomalies. The main calendar anomalies are the day-of-the-week effect, the January effect and the holiday effect. There are a lot of studies investigating the day-of-the-week anomaly. In the U.S. market, Cross (1973) studied the returns on the S and P 500 Index over the period of 1953 and 1970. His findings showed that the mean return on Friday is higher than the mean return on Monday. French (1980) who also studied the S and P 500 index for the period from 1953 to 1977, revealed similar results. Gibbons and Hess (1981) found negative Monday returns for 30 stocks of Dow Jones Industrial Index. Keim and Stambaugh (1984) examined the weekend effect by using longer periods for diverse portfolios. Their results confirmed the findings of previous studies.

Dickinson and Murage, (1994) studied the weekly returns at the NSE and reported that the market was weak-form efficient. Most of the studies conducted on market efficiency in Kenya have concentrated on the weak-form efficiency using various corporate announcements, with none vouching for market anomalies. The January effect describes the phenomenon that stock returns in January are on average higher than for the other months. In the US stock market, the January effect was first documented by Rozeff and William (1976). This January effect is related to the size of firms small capitalization firms outperform than large capitalization. January returns are greatest due to year-end

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tax loss selling of shares disproportionally. The argument is that January effect is as a result of tax-loss and investors tend to sell in December and buy back in January. Gultekin (1983). investigated the January effect in seventeen major industrialized countries and found unusually high January returns in most of the countries studied (specifically, Australia, Belgium, Canada, Denmark, Germany, Japan, Netherlands, Norway, Spain, Sweden and Switzerland).

In the Kenyan market, Nyabuto (2011) presented evidence confirming that there exists January effect at the NSE. Moving from its traditional functioning to that required by the opening of the capital markets, the NSE has presented different patterns of stock returns and supports the validity of January effect. Mean returns computed were found to be higher in January compared to the other months. Statistics analysis carried out showed positive significant effect between January and the other months and hence confirmed that returns in January were significantly higher than the other months. Holiday effect is the tendency for a stock market to gain on the final trading day before an exchange-mandated long weekend or holiday such as Labor Day or Christmas. The holiday effect can be beneficial for traders, who may buy a security in the days leading up to the last trading day and then sell for a higher price on the final day. Lakonishok and Smidt (1988) studied

Dow Jones Industrial Average and reported persistent anomalous returns around holidays. Pettengill (1989) confirms the finding that preholiday returns are higher than other days, regardless of the size of firms. Ariel (1990) also finds a statistically significant 10 fold increase in pre-holiday returns in the US, during the period 1963. Similar conclusions were brought by Cadsby and Ratner (1992) who studied calendar anomalies for the capital markets from ten industrialized countries found significant holiday effects for five of them. In Kenya, (Mukhtar, 2007) used AIG index returns from 1st January 1998 to 31st December 2006 and the result showed that there are no holiday effects at the NSE.

According to this calendar anomaly, prices of stocks are likely to increase in the last trading day of the following month, and the first three days of next month. Ariel (1987) examined the pattern of returns within months. For the period running from 1963-1981 he divided months into two parts with the first part beginning with the last day of the previous month He found the mean return for stocks is positive only for days immediately before and during the first half of calendar months, and indistinguishable from zero for days during the last half of the month.

3.2.2 Technical anomalies

Technical analysis is an approach to predicting future price movements based on identifying patterns in prices, volume and other market statistics. Technical analysis employs a number of techniques, the most common of which are charts, trading rules and cycle analysis and are presented in the form of trading rules (Turner, 2007).The trading rules are based on technical indicators. Technical indicators include moving averages, momentum oscillators and volume indicators. Moving averages is a technique in which buying and selling signals of stocks are generated by long period averages and short period averages like daily, weekly or monthly, average of past prices. A moving average smoothes out inconsistent price movements and is supposed to reflect the underlying trend in prices. Grandia (2002) evaluated the forecasting ability of a large set of technical trading strategies applied to stocks quoted at the Amsterdam Stock Exchange in the period January 1973 through December 2001. He found that the best trading strategy, moving averages trading rules can generate excess profits over the buy-and-hold even in the presence of transaction costs.

In addition, Brock et al (1992) show that simple trading rules based upon the movements of a short-run and a long-run moving average return have significant predictive power over a century of daily data on the Dow Jones industrial average. These results are confirmed in the work of Sullivan, Timmermann and White (1999) who test all combinations of 26 variations of four rules over 100 years of daily data. They use methods that correct for data snooping bias which is introduced when a data set is used repeatedly for model selection. Fifield, Power, and Sinclair (1995) investigated the predictive power of the "filter" rule and the "moving average oscillator" rule in eleven

European stock markets covering the period from January 1991 to December 2000. Their main findings indicated that four emerging markets, Greece, Hungary, Portugal and Turkey, were informational inefficient, relative to the other seven more advanced markets. However, such evidences may be criticized for their data interfering bias (Lo, 1990).

Technical analysis technique based upon resistance and support level. A buy signal is created when the prices reach at a resistance level, which is a local maximum. As investor wants to sell at the peak, this selling pressure causes the resistance level to break out than previous levels. This breaks out causes a buy signal. A sell signal is created when prices reach the support level, which is a minimum price level. This technical analysis recommends buying when the prices rise above last peak and selling when prices falls below last trough. But this strategy is difficult to implement (Latif, Arshad, Fatima and Farooq, 2011).Brock, Lakonishok, and Lebaron, (1992) tested two of the simplest and most popular trading rules-moving average and trading range break-by utilizing the Dow Jones Index from 1897-1986. Standard statistical analysis is extended through the use of bootstrap techniques. Overall, their results provide strong support for the technical strategies.

3.2.3   Fundamental anomalies

Fundamental analysis represents the examinations of earning per share, cash flow, book equity value, and sales. They describe, on a basic level, a specific firm's operation and profits and other accounting statement based company data used to assess the value of a company's stock. Also, information regarding such things as a management quality, products, and product markets is examined as well (Corrado and Jordan, 2005).Fama and French prefer to compare stocks based on their book value to market value (BtM) because the book value tends to be more stable than earnings or revenue. Comparing the performance of high BtM companies (value stocks) against low BtM companies (growth stocks) yields very different results. In the long run, high BtM value stocks have earned significantly higher returns than low BtM growth stocks. Fama and French (1993) explain that this disparity is due to the higher risk in value companies. Value stocks therefore tend to have lower earnings growth rates, higher dividends and lower prices

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compared to their book value. In the long run, value stocks have generated higher returns than growth stocks, which have higher stock prices and earnings, albeit because value stocks have higher risk.

Aharony and Swary (1980). argue that company managers use earnings as a signaling tool to convey information about the prospects of a company, and they argue that, if earnings convey useful information, this will be reflected in stock price changes immediately following a public announcement. Mendenhall (1991) found that stock price reaction to semi-annual earnings announcements yielded abnormal returns during both the pre-announcement and post-announcement dates, but Das, Pattanayak and Pathak (2008) found no evidence of significant abnormal returns around quarterly earnings announcements. While a study by Day and Radhakrishna (2008) of earnings announcements concludes that institutional investors do not earn excess returns from trading before or after the announcements. To the contrary, the authors found that individual investors have earned significantly weak positive excess returns just hours after the announcements, but they also suffer significantly negative excess returns on the day after the announcement.

When stock split takes place in a firm, it proportionately increases the number of shares outstanding and lowers the price per share without any change in the market capitalization of the firm. Several researchers, including fame, Fisher, Jensen and Roll (1969) and Grinblatt, Masulis and Titman (1984) have documented the evidence of significant abnormal returns around stock split announcements (Chen, Nguyen and Singal, 2011) shows that stock splits are followed by positive abnormal future earnings growth, which suggests that stock splits contain information about the firm's future operating performance. Also, Pantisa Pavabutr and Kulpatra Sirodom (2008) explored the impact of stock splits on stock price and various aspects of liquidity using daily and intraday data from the Stock Exchange of Thailand from 2002-2004. They provided evidence for reductions in trade frictions and increases in split-adjusted price levels are associated with the size of split factors and post-split trading range. Stocks with high split factors have better post-split adjusted price performance and lower trade bid ask spreads.

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Studies have been conducted in the literature which is of great help to understand the impact of the dividend announcement on stock returns of companies. Hartono (2004) in a study of the impact of dividend and earnings on stock prices in the US from 1979 to 1993 argued that a significant positive impact is made on equity prices if positive earnings information occurs after negative dividend information. Also, a significantly negative impact occurs in equity pricing if positive dividend information is followed by negative earning information. Lonie, et al (1996) found the sensitivity of investors to the increase or decrease of dividend and revealed that on the average, abnormal returns of companies, even one day before the announcement of a dividend were significantly different from zero even for those companies in which there was no change in dividend.

Adelegania (2003) examined the reaction of the stock market to the dividend announcement in Nigeria and concluded that the Nigerian stock market was not found to be an efficient one with respect to semi strong form. Uddin and Chaudhary (2005) in their study regarding investigation of the dividend announcement impact on stock price of Dhaka market found that there was no information content in the dividend for Dhaka market stock prices and returns. No significant abnormal returns in that stock market were found in response to dividend announcement. It has also been suggested that dividend payment to the shareholders is an important source of conflict resolution between shareholders and firm managers. In other words, it can be helpful in reducing the agency problems. When, management of firm pays dividend after investing in all those projects contributing positive net present value to the company, it pays excess cash to them. Therefore, dividend payment contributes positively towards the share price of the firm (Black, 1976).

The theoretical starting point for the five factor model is the dividend discount model as the model states that the value of a stock today is dependent upon future dividends. Fama and French use the dividend discount model to get two new factors from it, investment and profitability (Fama and French, 2014).Recent research by Fama and French (2013) on four factor model shows that expected profitability—as measured by the ratio of

operating profitability minus interest expense to book value—is another reliable and robust dimension of stock pricing and expected returns. The reason for this is easily inferred from the equation that relates the current price of a stock to the discounted present value of future cash flows. Profitability is annual revenues minus cost of goods sold, interest expense, and selling, general, and administrative expenses, all divided by book equity. It measures how many dollars of profit an investor receives for every dollar of book value bought.

Fama and French (2015) in his five-factor asset pricing model, added an investment factor to his four factor model -Profitability, that is, stocks of companies with the high total asset growth have below average returns. The announcement by a company that they are going to invest a lot of money in some new project would either turn out to be a good news or bad news and this would prompt investors to decide whether to buy or sell stocks. This argument is supported by the fact that firms tend to invest a lot when their profitability is high and their cost of capital is low. The increase in capital investment will subsequently lead to achieving sub-par subsequent returns.

Size is the extra risk in small company stocks. Small company stocks tend to act very differently than large company stocks In the long run, small-cap stocks have generated higher returns than large-cap stocks; however, the extra return is not free since they have higher risk. Banz (1981) published one of the earliest articles on the 'small-firm effect. His analysis of the 1936-1975 period finds a negative association between average returns to stocks and the market value of stocks. Reinganum (1981) supported this evidence by indicating that the risk adjusted annual return of small firms was greater than 20 percent. If the market were efficient, one would expect the prices of stocks of these companies to go up to a level where the risk adjusted returns to future investors would be normal. But this did not happen.

Malkiel (2003) reviews empirical findings of the size effect, that smaller firms yield higher returns without increasing the stocks' betas. Also, Fama and French (1993), in there Three-Factor Model which explains the relationship between stock pricing and

expected returns. They found that small company stocks (Factor Two) got higher returns than large company stocks. This is because, there is more risk in small cap stocks than large cap stocks, and the more exposure a portfolio has to small cap, the greater the overall portfolio risk. We therefore realize that

3.3   Summary of Empirical Review and Literature

The literature review reveals that most studies on stock market anomalies concentrated on developed economies. The few existing studies in developing economies pay attention to the calendar anomalies in the emerging equity markets of Africa. In fact very few researches have been done on Nairobi Securities Exchange on technical and fundamental anomalies. The ones that have been done, more so on calendar anomalies, have given mixed results on existence of this anomaly. Anomalies in stock market are associated with the moments when securities prices deviates from their normal behavior, creating opportunities for those who identify them.

Calendar anomalies exist due to deviation in normal behaviors of stocks with respect to time periods. These include turn-of-year, turn-of week effect, weekend effect, Monday effect and January effect. Technical analysis through which there can be identified technical anomalies, involves interpretation of graphic configurations and price movements and the combining of these formations with the interpretation of some indicators like stochastic oscillator and moving averages. Fundamental anomalies are based on the interpretation of fundamental analysis. Analysts monitor various economic indicators and speculate possible market reversals trends that occur due to changes in the economy.

Empirically, the stock price of value firms is mainly made up of tangible assets, which are hard to reduce, while the stock price of growth firms is mainly driven by growth options. Therefore, value firms are much more affected by bad times and the value premium can thus be interpreted as compensation for the risk of suffering from losses in bad times. The same applies to small companies stocks, where low profitability leads to high distress risk

CHAPTER FOUR
SUMMARY, CONCLUSSION AND RECOMMENDATIONS

3.4   Introduction

This chapter presents the summary of the findings, conclusions and recommendations based on the literature reviewed.

3.5   Summary and Conclusion

In summary, literature shows several important forms of stock market anomaly, including calendar anomalies, technical rules and fundamental anomalies. The review confirms the existences of stock market anomalies, French (1980) finds systematically negative stock returns on Mondays. Haugan and Lakonishok (1988), Reinganum (1983) and Roll (1983) find high returns in Januaries; Ariel (1990) finds patterns in stock prices after holidays and at the end of a month. Basu (1977) finds positive abnormal return for firms with a high earning-price ratio, and Rosenberg et al. (1985) find positive abnormal return for stocks of firms with high book-to-market.

The review therefore provided support for the Monday effect, that Mondays are the days with the lowest stock returns, a negative return. The review also found support of the weekend effect that returns on Friday is higher than returns on Mondays. The presence of the monthly effect was also successfully verified by the review with significant positive January and negative December effects identified. Irregular monthly effect has been found for post war period with significant positive April, September and December effects. In general, both day effect the week effect and monthly effect are common in war period than the post war period. The study strongly recommends to investors to follow stock market anomalies appropriately in order to make a fruitful investment decision.

The nature of technical anomalies is subject to controversial. Some economists argue that anomalies do not persist over long-period horizon, thereby are not reliably exploitable for above-normal returns in the long-run (Fama and French, 1988; Timmermann and Granger, 2004). The argument reflects strong believe in the validity of EMH which implies that stock series are characterized by a random walk process. Nonetheless, it is

unavoidable to take into account the presence of technical anomalies when weak-form EMH validated. When a stock series shows predictable pattern which can be reliably exploited for earning above-normal returns, the weak-form EMH can be rejected. In that sense, it is important to assess the practical reliability of the forecast power of technical analysis. An anomaly may disappear once it is known to public. Arbitrageurs may bring stocks back to their intrinsic values. In that case, the value of technical analysis is neglected. Research on earnings response has found that the relation is influenced by four main economic determinants: earnings persistence, growth, risk and interest rates.

Lastly, the review contributes to this evidence relating fundamental information to firm value through an accounting-based valuation model. When markets are efficient, the rewards on fundamental analysis are diminished, because the market correctly assesses the information content of financial statements. However, much evidence is found on market inefficiency which is explained in two manners, risk and mispricing. The risk explanation states that this inefficiency is due to investors wanting a fair compensation for the fundamental risks related to the stock. Nonetheless, prior research finds more support for mispricing that argues that investors fail to correctly assess the available information.

3.6   Knowledge Gaps Identified

It is clear from the above review that most of the studies on anomalies focused the developed markets and reveals a significant gap in academic studies about the anomalies of developing economies like Kenya's NSE. Studies conducted on market efficiency in Kenya have concentrated on the weak-form efficiency using various announcements, with few addressing market anomalies. In addition, though a few studies have attempted to test the existence of different calendar anomalies in NSE; these studies do not address the question in a systematic way of how market information have affected the nature of stock returns.

Some findings give mixed results, for example, Oluoch (2014) established that stock markets in Kenya are not free from seasonal anomalies and are reporting pre-holiday mean greater than the normal trading day while (Mukhtar, 2007) found no presence of

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holiday effect at the NSE. The lack of common ground among the researchers therefore calls for more work on the market anomalies at the NSE. By considering the stated literature, it is obvious that there are relationships with accounting variables and stock return. However this kind of research is very less in developing the security exchange, especially in the east African Region and in particular Kenya.

The five-factor model by Fama and French (2015) on beta, size, value, profitability and investment provides a good description of average returns but doesn't fully explain the cross section of returns and this explains why there are still anomalies. The model further fails to explain how the low average returns on small stocks can invest a lot despite low profitability.

3.7 Recommendations for Further Research

Since the review has identified gaps in the literatures, the study recommends further research on how market information have affected the nature of stock returns. NSE is transforming; therefore it provides an interesting opportunity to explore the changing aspects of market efficiency. It will be interesting to explore what changes have taken place in the nature of anomalies in NSE during the process of this change. Research work may also be carried out to establish whether features of the stock market such as size, volatility, trade volume and, depth in terms of stocks on offer displays different results in different east African countries. In addition, another a cross-border study involving east African countries in order to bring out empirical evidence with regard to the direction of causality between the stock market and economic activity keeping in mind the implication of stock market.

Further research can also be undertaken to investigate whether or not a January effect exists within small firms. Therefore, a deeper look into individual companies should be taken for each calendar anomaly since no seasonal effects are found on an index level. One can also consider another approach for the pre-holiday effect when looking at the unfair comparison of pre-holiday returns and ordinary day returns.

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