PRICE BEHAVIOUR OF NEW SHARE LISTINGS IN NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university or any other award.

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This research project has been submitted for examination with my approval as the University of Nairobi supervisor,

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DEDICATION

I dedicate this project to my loving and caring wife Mrs Annette Wanjiru for her constant encouragement in the entire period of my study. I am greatly indebted to her for her unswerving support.

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I thank the Almighty God for giving me the strength and power to complete this research project. Also my appreciation goes to all those who contributed either directly or indirectly to the successful completion of this project.

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May the Lord splendidly bless you.

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Abstract

This study examines the price performance of initial public offerings (IPOs) in the Nairobi Securities Exchange (NSE) during the period 2006-2011. It investigates the difference between the IPOs listing price and their equilibrium market price through studying a sample of 10 new listed companies. Specifically, it examines the differences between the listing price of IPOs and their equilibrium market prices at the end of the first day, second, third, sixth, ninth, twelfth and fifteenth month. From the derived results it is evident that Nairobi Securities Exchange IPOs have large positive initial returns, especially on the end of the first trading day. The short term performance has been analysed using the Market Adjusted Abnormal Returns (MAAR) while long term performance has been analysed using Wealth Relatives (WRs) and Buy and Hold Abnormal Returns (BHARs). Further, the relationship between the subscription rate and share returns has been evaluated using regression model. Short term results indicate an over-performance of 61.46 per cent. Long term results for investors who bought the shares during offer period, are much lower than initial day's returns and in some cases even underperforming the market. The long term results for investors who bought the shares during listing day are all negative indicating high underperformance. Both these trends are in agreement with the outcomes of international empirical studies. The first day under-pricing phenomenon forces to search for possible factors, which may have caused it. Different variables, used in similar international studies were used to do so. Our research shows that positive initial returns, amongst other factors, may have been affected by time period for issuing the share (hot issue or cold issue), the firms issue size and the proceeds of issue. The rate of subscription does not affect the returns as per the results.

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List of Abbreviations

BHAR - Buy-and-Hold Adjusted Return

EMH – Efficient Market Hypothesis

IPO – Initial Public Offer

MAAR - Market-adjusted abnormal return

MAR – Market Adjusted Return

NSE – Nairobi Securities Exchange

SEOs - Seasoned Equity Offerings

WR - Wealth Relatives

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Firms and companies need to raise capital at one time or another to finance new projects, expand operations, or in many cases, just to start up their business. One of the best ways that newer and less established companies have found to raise quick capital is to make a stock offering through a stock market. A stock market or equity market is a public entity for the trading of company stock (shares) and derivatives at an agreed price.

Since their inception, the stock markets have seen tremendous growth and today they are now in virtually every developed and most developing economies around the world. In Kenya, 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. Since then, NSE have experienced significant growth with the number of securities listed being 63 as of February 2013.

However, in comparison to other developed securities market, NSE is still lagging behind in terms of its financial innovation capabilities. But lately, we have seen NSE increasing its activities by listing more companies and also there is an upsurge of automation at the bourse. Therefore, NSE is an emerging market which is on the process of growth and expansion. Unlike in the developed markets, emerging markets always suffer lack of information in terms of research work in order for them to gain the investors' confidence.

This research paper will seek to determine whether new listings over-perform the market in the short-run and under-perform in the long run.

1.1.1 Initial Public Offers

Companies raise capital through debt or equity financing. Debt financing involves use of preference shares, loans, overdrafts and any other short or long term funds. Equity financing is where the company sells part of the claim of its asset to investors commonly known as shareholders. In equity financing, the shares can be held privately (private companies) or publicly (public listed companies). A company can convert from private to public company through issuing of an Initial Public offer (IPO) in the primary market. The process of issuing IPOs is as per the regulations of the Stock Exchange Market concerned. This process involves a lot of activities with different stakeholders coming together to accomplice that task. Some of the stakeholders involved include the issuing company, investment banks, underwriters, potential investors. Of signal importance to all these stakeholders is how the shares will be priced (Brennan & Franks, 1997).

1.1.2 Pricing of an IPO

A company planning an IPO typically appoints a lead manager, known as a book runner, to help it arrive at an appropriate price at which the shares should be issued. There are two primary ways in which the price of an IPO can be determined. Either the company, with the help of its lead managers, fixes a price (fixed price method) or the price can be determined through analysis of confidential investor demand data, compiled by the book runner. That process is known as book building. After such price is determined, and the

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other conditions fulfilled, the public is invited subscribe for the shares. Shares can be oversubscribed or undersubscribed. In case of an under-subscription, the remaining shares are taken up by the underwriter who assures the subscription of the shares. After completion of the offer period, the shares start trading at the stock exchange market (Brennan & Franks, 1997).

1.1.3 Price Behaviour of New Listings

Various studies have been conducted in different markets regarding price behaviour of new share listing. Evidence and associated results of these studies suggest that IPO companies generate positive short-run (initial) returns, usually known as under-pricing and negative long-run returns. Empirical studies document two different dimensions of post-IPO share price performance. First, that the IPOs are getting listed with significant premium to issue price (large scale underprice). As a result, investors are able to earn abnormal high rate of return in comparison with benchmark index on the listing day (Ibbotson, 1975; Ritter, 1984; Kuklinski, 2003; Purnanandam and Swaminathan, 2004). Second, the underperformance of the IPOs persists in the long run. Hoechle and Schmid (2007) find a significant underperformance of IPO firms over the first year after going public, while there is virtually no under-performance thereafter. Ritter (1991) and Jaskiewicz *et al* (2005) find that the underperformance persists usually up to three to five years after listing.

Seshadev and Prabina, 2010 analyzed 92 Indian firms over a period of 36 months and found that underperformance is most pronounced during the initial year of trading, i.e., up to 12 months from the listing date followed by over–performance. To get possible

explanations for long-run underperformance for Indian IPOs, factors like underpricing rate (listing day return), offer size, leverage at IPO date, ex-ante uncertainty, timing of issue, age of IPO firm, rate of subscription, promoter groups retention, and price-to-book value (as proxy for growth) are considered (Seshadev and Prabina, 2010).

There are various theories that try to explain the reasons behind IPO underpricing. The first theory of IPO underpricing considered is the Adverse Selection Theory. This model, developed in a study by Rock in 1986, divides the investors into two different groups, informed and uninformed (Eisenbeis, McEnally, 1995). According to Rock, the informed investors know the true value of the stock and uninformed investors invest randomly without any knowledge of the company. He also assumes that the investment bank has perfect knowledge of the issuing firm's real value and the issuing firm must rely on the investment bank's audit for this information.

The second theory of underpricing examines the relationship between the investment bank and the issuing firm. The Principal-Agent Theory used by Baron in a 1982 study yielded the Hazard Model of underpricing (Eisenbeis, McEnally, 1995). In this model, it is assumed that the issuing firm does not know its own true value and must rely on the auditing of outside companies and the investment bank to report accurate information. The issuing firm and investment bank agree to an IPO contract based on the report that the investment bank gives the issuing firm concerning its value.

Various studies have been conducted concerning performance of IPOs both locally and outside NSE. Among the studies include, short-run and long-run investment performance of Malaysian initial public offering (IPO) companies, by Nurwati and Lim Boon (2012).

In India, Seshadev and Prabina (2010) examined the aftermarket pricing performance of initial public offerings (IPOs): Indian IPO Market 2002-2006. Dimitrios et al (2004) did a study in the Cyprus Stock Exchange about the short run and long run performance of IPOs. In Nigeria, Olatunde and Makina (2010) examined the price behaviour of new share listings in Nigeria. In Kenya at the NSE, Njoroge (2004) analysed the performance of IPOs from the year 1998 to 2003. Also, Thuo (2009) conducted a research on the short run performance of IPOs in the NSE.

1.1.4 Relationship between Subscription Rate and Share Performance

The theoretically expected relationship between the rate of share subscription and the share price performance is that, when the shares are over-subscribed, the demand for the shares will be high thereby increasing the share price Agarwal et al (2008). However, Seshadev and Rajib (2010) while evaluating the possible factors explaining for long-run underperformance for Indian IPOs indicated that there is no evidence favourable to the rate of subscription impact on the long-run underperformance.

From the above, it is clear that this area of study is gaining importance by the years and therefore this paper is inspired by the findings of some of the aforementioned research. Most of these researches found that the shares in new listings are underpriced in their short run performance. This research will go further to conduct a long run performance of the prices and also depict the relationship, if any, between the share subscription and the performance. The research will also determine the duration of time when the investor consistently make profit out of an IPO.

1.2 Research Problem

For an economy to grow, money needs to shift from less to more productive activities. In other words, idle money and savings should be invested in productive activity for the economy to grow. More private companies are going public and public companies expanding their operations increasing their market share. This is done through the issue of IPOs in the Stock Market.

Since stock exchange activities have often been seen as leading indicator and vehicle for economic growth and development, this has informed Kenyan government policies aimed at facilitating and encouraging privately held companies to go public. It is significant that these policies have yielded desired results of increasing the number of equity listings on the emerging Nairobi Securities Exchange (NSE). It is therefore important for companies seeking to go public to understand the pricing effect of their shares. If the shares are underpriced, the company will loose in terms of monies generated from the offer and conversely if the shares are overpriced, the company may loose in terms of under-subscription. Therefore, the company going public must trade-off between these two pricing extremes.

According to Amiyatosh and Bhaskaran, (2001) examining IPO valuation at offer is important on several fronts. First, it provides a direct way of testing the predictions of asymmetric information models of IPO pricing which predict that IPOs should be undervalued at the offer with respect to fair value. Secondly, it can help clarify the risk verses mispricing explanations of the long-run underperformance of IPOs by relating *ex ante* valuation to *ex post* returns both in the short run and in the long run. Thirdly, it can

help distinguish among alternate behavioral theories of IPO pricing; those that predict initial undervaluation (and hence underpricing) of IPOs followed by subsequent overvaluation and reversals and those that predict initial overvaluation followed by subsequent overvaluation and reversals.

1.2.1 Research Gap

Little attention has been paid to the differences in long-run performance between those IPOs that are under- or over-priced. In this study, I address this gap in the literature by characterizing the relation between IPO firms' pre-offering demand and aftermarket performance. In particular, the study has been interested in the correlation between an IPO's demand and its initial stock return as well as its long-run return. Since investors' assessments result in downward-sloping demand curves for IPO stocks, investor demand should affect IPO performance.

It is well known that investor demand for IPOs is fairly volatile in the emerging stock market. For instance, some 'hot' IPOs are oversubscribed by as much as 1000 times the number of shares offered, whereas, some 'cold' IPOs have to be postponed or even cancelled because of undersubscription. These large variations in subscription ratios provide an excellent setting in which to study the relation between IPOs' investor demand and aftermarket performance.

Also this study seeks to investigate, on an analytical basis, the price behaviour of new share listings in NSE. While various studies have been done on the performance of IPOs in NSE, this study will go further to show whether there is any relationship between subscription of shares and price performance after listing. This study will also investigate

the long term performance of the shares to show whether there is an under-performance or over-performance of the new listed shares. The paper will also seek to determine the period over which investors can consistently beat the market by making profits out of an IPO.

1.2.2 Research Questions

Based on the above problem statement, the study will seek to find answers to the following questions:

1. Is there a relationship between subscription of shares in new listing and their price behavior?

2. Do Initial Public Offers at the NSE overperform the market in the short run and underperform in the long run?

1.3 Research Objectives

The general objective of this research study is to investigate the price of behaviour of new share listings to determine the possibility of abnormal gains at the Nairobi Stock Exchange (NSE) which is an emerging market.

The specific objectives however are:

1. To test the whether there is a relationship between the pre-offering demand rate and the post market share price.

2. To determine whether IPOs at the NSE over-perform the market in the short run and under-perform in the long run.

1.4 Value of the Study

The study will be of great significance to the following parties:

Investors: The study will be of significance to the current and prospective investors in determining whether they can consistently beat the market by buying investing in new shares

Stock brokers and Investment Advisors: Stock brokers and advisers will use this study in providing financial guidance to their clients.

Managers of Companies: Companies seeking to go public will use this study to determine how best they can price their share.

1.5 Scope of the Study

The scope of the study has been confined to the companies quoted in the NSE. All companies listed from the year 2006 to the year 2011 will be analysed for a span of 15 months to determine their price movement.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Various patterns have been associated with IPO pricing. The best known pattern is the occurrence of large positive initial returns that are credited to the investors. A number of explanations have been advanced for this short run return pattern including, Winner's Curse (Rock, 1986), Legal Liability (Tinic, 1988), Dynamic Information Acquisition (Benveniste & Spindt, 1989), Signalling (Allen & Faulhaber, 1989), Informational Cascades (Welch, 1992), and Ownership and Control (Brennan & Franks, 1997).

The other pattern associated with IPO pricing is that IPOs generally underperform in the long run (Ritter, 2003). Theories supporting this pattern include, Signalling (Allen & Faulhaber, 1989), Divergence of Opinion (Miller, 1977), Fad Hypothesis (Aggarwal & Rivoli, 1990); Window of Opportunity (Ritter, 1991) and Measurement Problems (Eckbo, Masulis, & Norli, 2000).

There is another pattern associated with IPOs, namely 'hot issue' markets. This refers to the time-series behaviour of first-day returns and the number of companies coming to market, in which high initial returns tend to be followed by rising IPO volumes (Ritter, 1984).

Several studies have also been done in Kenya on IPO pricing. Most of them have concluded that there is underpricing of new shares though with varying percentages. This

chapter will address the above patterns and the underlying theories, and also highlight the research gaps therein.

2.2 Theoretical Framework on Short-run Performance of IPOs

In general, the theoretical framework underlying IPO pricing suggests that there is significant underpricing of new listings in the short run. This is followed by underperformance in the long run. Various theories have been formulated to explain these patterns.

2.2.1 Winner's Curse (Adverse Selection Model)

Rock (1986) stated that investors have different information (information asymmetry) about the fair value of the shares. While uninformed investors subscribe to every IPO, informed investors only buy new shares if the issue price is less than the fair value. This causes a "winner's curse" for the uninformed investors. Therefore, shares must be offered at a discount to hold uninformed investors in the market because none of the investors group has enough money to absorb the initial public offering.

The winner's curse model is considered as one of the explanations for IPO underpricing. Rock (1986) further argues that, if an IPO is overpriced, the informed investors will withdraw from the market and then the uninformed investors become more likely to receive a larger allocation. By contrast, when an issue is underpriced, the uninformed investors are likely to receive a smaller allocation. Because the uninformed investors will compete with the informed investors, the issuer must compensate the uninformed

investors so that they will join the market. That is, the underpricing of IPOs is to compensate the uninformed investors and induce them to purchase IPO shares.

Among the empirically testable implications generated from the adverse selection models are underpricing should decrease as information becomes less heterogeneous across investor groups (Rock, 1986), the greater the ex-ante uncertainty the higher is the expected underpricing (Beatty & Ritter, 1986), high reputation investment bank will more frequently use high reputation auditor and both reputable investment bank and auditor help to reduce IPO underpricing (Balvers et al., 1988), more reputable investment banks are associated with less risky IPOs and underprice less in expectation (Carter & Manaster, 1990) and the presence of a borrowing relationship lessens the ex-ante uncertainty and the degree of underpricing (James & Weir, 1990; Schenone, 2004).

Amihud et al. (2003), Keloharju (1993), Koh and Walter (1989), and Levis (1993) support the presence of the winner's curse in IPO markets. Under the winner's curse, the uninformed investors will not participate in the IPO market when IPOs are fairly priced. Loughran et al. (1994) noted that underpricing is lower when the offer price is set after ascertaining information about the demand for the IPO shares. However, for fixed-priced offerings, IPO offer price is set well in advance. Typically, the subscription period lasts for several days so that investors can place their orders. During the subscription period, the revealed information about the demand for the IPOs may be good, but the issuers and underwriters also face the risk that the revealed information could be bad. Consequently, issuers and underwriters underprice the offers to make failure less likely when the offer price has to be set in advance. Chowdhry and Sherman (1996) argue that the problem of

information leakage during the subscription period for fixed-priced offering is worse when investors have to pay in advance for the shares they subscribe to.

Ljungqvist (2005) identified the following implications of the winner's curse model. First, after adjusting for the possibility of winning an IPO allocation, uninformed investors earn zero initial return and informed investors earn only enough conditional returns to cover their costs of being informed. Second, with greater the ex-ante uncertainty, there is more underpricing. Third, reducing the information asymmetry between informed and uninformed investors can reduce the extent of underpricing.

Dennis et al. (2009) examined winner's curse model where the investor has the option of withdrawing on subscription (or on allocation). Investors' option to withdraw reduces the information asymmetry between informed investors and uninformed investors but increases the firm commitment underwriting risk. Consequently, the winner's curse in IPO could be effectively alleviated by the investors' option to withdraw after learning the allocation rate. This special feature is common in Taiwan IPO markets.

2.2.2 Signalling Theory

In contrast to the adverse selection models, signalling theory of IPO underpricing assumes informational asymmetries between the IPO companies and outside investors whereby certain amount of inside information such as potential future cash flows, investment opportunities and management expertise are known only to insiders. The three pioneering signalling models of IPO underpricing that have attracted the most attention are Allen and Faulhaber (1989), Grinblatt and Hwang (1989) and Welch (1989). In all

these models, underpricing is used as a signal that the company is of high quality whereby an IPO company that underpriced more is considered a better company.

However, this theory seems inconsistent with the adverse selection model that argues high reputable underwriters are in favour of taking public high quality companies that are expected to exhibit lower underpricing. In addition, signalling models expect companies to raise additional funds in the future through seasoned equity offerings (SEOs). In signalling model, the SEO is an important mechanism by which high quality companies recoup the underpricing costs. Relative to the greater empirical success of the adverse selection models, support for the signalling models is mixed. The absence of unanimity in prior work on the signalling model of IPO underpricing is perhaps due to the varying time interval between IPO and SEO. Arguably, the longer the interval, the more ambiguous the IPO underpricing signal becomes as there may be other confounding factors that come into play. Further, Ritter and Welch (2002) argue that on theoretical ground it is unclear why throwing money away in the form of underpricing is a more efficient signal than advertising or philanthropy. However, a new study by Brau and Fawcett (2005) shows that from finance perspectives, IPO underpricing provides an external show of confidence and therefore is associated with a positive signal.

2.2.3 Window of Opportunity

The window of opportunity hypothesis argues that companies choose to go public in times of prosperity in the economy where the market conditions are favourable and the stock prices are attractive (Brau & Fawcett 2006). Therefore, the timing of an IPO is very

important and a critical issue for management to consider when becoming listed (Brau & Fawcett 2006).

The window of opportunity hypothesis predicts that firms going public in high volume periods are more likely to be overvalued than other IPOs. This has the testable implication that the high-volume periods should be associated with the lowest long-run returns (Ritter, 1998).

2.2.4 Fad Hypothesis

Aggarwal and Rivoli (1990) and Ritter (1991) based on the long term underperformance of the market reported that excess initial returns are caused by overvaluation of IPOs by investors and the presence of fads in the early aftermarket. The Fad Hypothesis explained that IPOs were priced well but it was the investor's high interest that overvalued the IPOs.

Underpricing also helps in creating an assured return for the initial day investors. By doing this, they succeed in creating an impression that the brokers and underwriters are giving good investment advice (Shiller, 1990).

2.2.5 Monopsony Power Hypothesis

The Monopsony Power Hypothesis by Ritter (1984) provides an alternative explanation to the phenomenon of Baron and Holmstrom (1980) and Baron (1982). Investment banker community in a small economy has full information on the number of firms that will go public in the following period, given that investment bankers take side with the institutional investors, they attempt to lower offering prices on behalf of the influential clients. As a result, in the Hot market, the first day closing are higher due to bullish

investors and the offering prices are lower due to a high bargaining power of investment bankers.

2.2.6 Factors Influencing the Level of Initial Returns

Nurwati A. et al (2012) identified several factors that may influence the level of initial returns, including sector (technology or non-technology) and issue period (hot or cold). Prior studies suggest that the level of under-pricing is higher in riskier IPOs and vice versa. Riskier IPOs will be more underpriced than less risky ones.

The performance of IPOs, both in the short term and long term, can vary according to the market conditions in which they are issued (Ibbotson & Jaffe, 1975; Ritter, 1984). Loughran and Ritter (1995) defined years with large numbers of IPOs as 'hot issue' periods, and they defined years with small numbers of IPO's as 'cold issue' periods. This IPO activity variable is also used by Kooli and Suret (2004), Boubakri, Kooli and L'Her (2005), and Jaskiewicsz, Gonzalez, Menendez and Schiereck (2005), among others. Ritter (1984) shows that IPOs tend to cluster at certain hot issue periods. Ritter also demonstrates that IPOs issued during a hot issue period experience higher initial returns. Therefore, it is expected that hot issue period IPOs have a positive relationship with initial returns.

The age of the company, issue size and company size are used as control variables to test the relationship between ex ante uncertainty and short-run performance. It is expected that there will be a negative relationship between ex ante uncertainty variables and short-run performance (i.e., the younger the company or the smaller the issue/company size, the higher the short-run returns). Beatty and Ritter (1986), Titman and Trueman (1986),

and Carter and Manaster (1990) suggested a negative relationship between underwriter prestige and underpricing. They advocated that prestigious underwriters will reduce agency costs experienced by companies related to the IPO. In addition, more prestigious underwriters tend to underwrite less risky IPOs to protect their reputations. Therefore, we expect a negative relationship between underwriter prestige and underpricing.

2.3 Theoretical Framework Long Run Performance of IPOs

The literature within initial public offerings has focused a great deal on the long-run performance of newly listed firms. The stock return on a 3-5 year horizon has been the primary area of analysis, and these studies show that IPO firms underperform the matching firms (Ritter 1991; Loughran & Ritter 1995; Amiyatosh K. Purnanandam & Bhaskaran Swaminathan 2002; Eckbo & Norli 2005). Chi and Padgett (2006) also find a significant positive correlation between long-term returns and the operating performance of the firm. Furthermore, Loughran and Ritter (1995) show that companies issuing equity during high-volume years underperforms severely, while those issuing during years with little IPO activity only shows little underperformance.

The seminal article by Ibbotson (1975) reported a negative relation between initial returns at the IPO and long-term share price performance. Ibbotson found that although initial returns were not erased in the aftermarket, average returns for one month holding periods were positive in the first year after the IPO, negative during the following three years, and again positive in the fifth year. Ritter (1991) analysed the performance of US IPOs issued between 1975 and 1984 and found that for a three-year holding period, IPOs underperformed a control sample of matching seasoned firms. He concluded that IPOs

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make bad medium- to long-term investments. In the UK, Levis (1993) identified IPO underperformance of a similar magnitude over the longer-term.

Just as the underpricing, long-run underperformance of IPOs has been extensively investigated and various explanations of these phenomena have been provided.

2.3.1 Divergence of Investors' Opinion

One of the first hypotheses justifying underperformance of IPO was the divergence of investors' opinion Miller (1977). Miller claimed that price of the issue in its initial trading was determined by the most optimistic investors. With time as availability of information on the stock increases, divergence of the opinions subsides and price necessarily adjusts downwards resulting in poorer long-run performance of IPOs.

One argument is that investors who are most optimistic about an IPO will be the buyers. If there is a great deal of uncertainty about the value of an IPO the valuations of optimistic investors will be much higher than those of pessimistic investors. As time goes on and more information becomes available, the divergence of opinion between optimistic and pessimistic investors will narrow, and consequently, the market price will drop (Ritter, 1998).

Miller (1977, 2000) empirically confirms the existence of divergence of opinion hypothesis. He suggests that divergence of opinion or uncertainty about an IPO can attract more overvaluation on the listing day, followed by underperformance in the long run. Magnitude of divergence of opinion among IPO investors and long-run

underperformance is found to be positively related. This theory is based on the argument that the most optimistic investors tend to buy the IPOs from the market.

2.3.2 Pre - IPO factors

Khurshed, Mudambi and Goergen (1999) suggested that long-run performance of the firm depends on the pre-IPO factors, such as management and firm's performance prior to becoming public. They found that long-run performance of an IPO stock is inversely related to its profitability before the issue as well as to the degree of change in ownership in the process of IPO. It was also found to be positively related to the size of the firm.

However, Mikkelson (1997) tested the hypothesis of the dependence of long-run stock performance on post-IPO ownership structure of the firm. He found no evidence of the ownership effect.

2.3.3 Impresario Hypothesis

Impresario hypothesis set forth by Shiller (1990) suggests that investment banks managing the issue are inclined to underprice it in order to create an impression of excess demand. As a result the stock price is hyped initially.

The "impresario" hypothesis argues that the market for IPOs is subject to fads and that IPOs are underpriced by investment bankers (the impresarios) to create the appearance of excess demand, just as the promoter of a rock concert attempts to make it an "event." This hypothesis predicts that companies with the highest initial returns should have the lowest subsequent returns. There is some evidence of this in the long run, but in the first six months, momentum effects seem to dominate. One survey of individual investors in

IPOs found that only 26 percent of the respondents did any fundamental analysis of the relation between the offer price and the firm's underlying value (Ritter, 1998).

Theoretically, the operating performance should improve after listing since market forces will provoke sound corporate governance, the managerial incentives will be improved, and the firm will experience a loosening in their financial constraints (Chi & Padgett 2006).

2.4   Theoretical Framework on Subscription Rate and Share Price

Focusing mainly on the causes of IPO underpricing, the theoretical work of Rock (1986), Aggarwal and Rivoli (1990) provide predictions regarding the demand-performance relation of shares. According to Rock (1986), informed investors with superior information have the ability to distinguish between "good" and "bad" IPOs. Hence, informed investors subscribe only to high quality issues, leading to high demand (demand of informed investors plus uninformed investors) for good IPOs and low demand (demand of only uninformed investors) for bad IPOs. Rock's hypothesis implicitly suggests, therefore, that high-demand IPOs exhibit relatively higher returns both during the first days of trading and in the long run. Chowdhry and Sherman (1996) also posit a positive relation between investor demand and underpricing of IPOs, arguing that a severely underpriced IPO will attract a large number of investors who seek to exploit the resulting short-run profit opportunities. Their model suggests that high-demand IPOs experience a relatively large positive return on the first post-IPO trading day, but that the difference in post-issuance performance between high and low-demand IPOs occurs only in the short run, with mispricings potentially corrected rapidly in opening-day trading.

A number of empirical studies also find evidence consistent with a relation between investor demand and IPO performance. Hanley (1993) demonstrates that the relation between an IPO's offer price and preliminary filing range predicts the direction of initial stock returns in US stock markets. Cornelli and Goldreich (2003) find that oversubscription for an IPO is positively correlated with aftermarket returns. Kandel et al. (1999) document a positive relation between IPO demand schedules and abnormal returns on the first trading day for a small sample of Israeli IPOs. Overall, the above studies all indicate that pre-offering demand for IPOs plays a nontrivial role in the pricing of these IPOs the first trading day. However, it is worth pointing out that there is virtually no direct empirical evidence on the relation between the level of investor demand and the long-term performance of IPOs.

2.5   Empirical Evidence

2.5.1 IPO Activity

IPO activity tends to cluster in certain time periods, thus it appears in waves. These waves, or hot IPO markets, new listings show discrete particularities. Ibbotson/Jaffe (1975), were the first to relate IPO waves to underpricing, detecting certain years in the 60s and 70s where IPOs generated very high initial returns. They conclude that underpricing follows a distinct pattern. Based on their discovery, Ritter (1984) advanced with this finding and applied it to the year 1980 in his article "The "Hot Issue" Market of 1980", which gives significant insights and is still referenced to in recent works. Ritter points out that underpricing is not solely a function of risk, but it depends on the time frame chosen, in which one industry type strongly participates in the IPO market.

On the U.S. market, the number of IPOs between 1980 and 2001 exceeded one per business day. These 6,249 offerings generated a total of over 448 billion US dollars. However, focusing on averages hinders the view for patterns. In the years 1996 to 2000 there was a drastic peak, in which up to 621 (1996) companies became listed per year. In this time frame, a total of 2,123 listings generated over 224 billion US dollars in gross proceeds. In Germany, 790 IPOs were performed in the time frame from March 1997 until January 2007, whereby 367 of these apply only to the years 1999 and 2000. Firms going public in these two years were predominantly technology-related companies (92%). In an international comparison, firms going public in Germany have a higher average firm age and a larger market capitalisation than their U.S. counterparts.

Santos (2010) shows on the set of the USA IPOs conducted in the period from 1973 to 2008 that firms that conduct their IPO during the periods of low undepricing do not underperform as much in the long-run compared to firms going public during high underpricing periods. Moreover, he finds that "IPOs in later stages of high underpricing periods underperform even relative to their offer prices, which suggests that many of the most "underpriced" IPOs are in fact overpriced". This result contradicts the common notion that underpricing is a discount to fundamental value. Santos shows that underperformance of underpriced IPOs does not stem from the difference in risk or difference in growth opportunities. As was shown by Santos these stocks were actually not less but more risky and were weaker operationally, in terms of the return volatility, operating profitability, betas and delisting rates.

2.5.2 IPO Performance

Ritter (1991) found a significant long run under performance of -24.33% at the end of three year following the offering for a sample of 1526 IPOs over the period 1975- 1984. The result of the performance was found to be time sensitive. A positive mean for the period 1975-1980 and negative mean performance for the period 1981-1984 was observed.

Mumo (2009) analysed the initial and long-run returns of IPOs in NSE and found that firms with a superior performance have the opportunity to appreciate in value and can raise additional capital whereas the poor performers do not get a second chance to sell shares to the public. This means that companies have to earn at least their cost of capital in order to receive confidence from the investors.

Njoroge (2004) analyzed initial and long run performance of IPOs for companies listed in the Nairobi Stock Exchange during the period 1984-2001. From a sample of 14 IPOs, he observed that all the IPOs recorded an overall negative cumulative growth of -68.46%.

In 2006, Ngahu examined the relationship between book value per share, issue price and first trading day prices of IPOs at NSE. His study revealed that the book value of the share, a historical accounting number has little significance in predicting the issue price. The relationship between the two variables is not significant. The study findings show that the book value per share, combined with the issue-price, have a significant relationship with the initial market price.

Jumba (2002) studied the initial public offers in Kenya for the period 1992-2000. Using a sample of 9 IPOs, she found that the average daily return is 0.06% in 3 years after going public, whereas a market model produced daily returns of .3% over the same period. She also found out that for the 3 years buy and hold period, all IPOs produced below the market average with Beta values below 1.

Evidence of short-run IPO over-performance in 18 countries is as shown in appendix 1. Long-run underperformance of IPOs has been recorded on various international capital markets in various years. The results of the studies on underperformance were compiled by Ritter (1998) and are provided in the Table 2. According to these data abnormal long-run returns on IPOs were as low as -47% in Brazil in the period from 1980 to 1990.

2.6 Relationship between IPO Performance and Subscription Rate

Aggarwal, Liu and Rhee (2008) studied the after-market pricing behaviour of IPOs issued in the Hong Kong market during 1993 to 1997. They studied the after-market performance of the IPOs in relation to the subscription rate (the times at which an IPO is subscribed by the investors) and found that IPOs with high investor demand realize a high initial excess return, but a negative long-run return, while the reverse is true for the low demand IPOs. They further argued that in the early phase of trading, the IPOs are unable to be priced at their intrinsic values, but eventually their true values are reflected in their pricing.

2.7   Summary

In summary, the existing empirical evidence is unanimous on underpricing of IPOs (positive market-adjusted initial day return). Literature has also shared common views on the most observed IPO pricing performance anomaly, i.e., overperformance followed by underperformance for IPOs. However, the literature indicates divergent findings regarding the continuity of underperformance in the post-listing scenario. Most of the studies document underperformance for the new issues up to a period of three to five years from listing.

Research on the overall price behavior of IPOs issued in the Kenyan market has remained a relatively unexplored area, one of the objectives of this paper is to study the after-market pricing performance on the listing day as well as in the long run, i.e., up to 15 months from the listing day. Besides, this paper explores the predictive relationship between the IPO performance and the subscription rate.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter presents the methodology adapted to address the study objectives, and it will cover the research design, target population, samples and sampling procedure, data collection and data analysis.

3.1 Research Design

This is an analytical study, designed to test the price behaviour of new listings in Kenya. The research included the test of initial under pricing, long term price under-performance and also the relationship between investor demand for IPO and the aftermarket performance. The NSE 20 share index has been used as a benchmark for market performance indicator.

3.2 Population

The population of the study consists of all the 61 firms listed and subsequently trading on the NSE up to the period December 31, 2011.

3.3 Sample Design

The sample has been selected using purposive sampling method where the firms that meet my criteria for the study where selected. The criterion for study is firms listed and traded in NSE from 01st January 2006 to 31st December 2011. Therefore my study

contained 10 companies listed on the NSE Primary Market. The extensive data set allows for the analysis of the long-run performance on Secondary Markets up to 15 months.

3.4 Data Collection

The sample data has been collected from different sources. First, the IPO sample is derived from the Prime Database annual reports for the period 2006 to 2011. Second, multiple online databases, including NSE, https://www.nse.co.ke, and http://www.nellydata.com/CapitalFM/livedata.asp for listing and post-listing price information has been used. The sample data covers all IPOs (equity only) issued in NSE during the period, January, 2006 – December, 2011. For the purpose of evaluating the price performance of the IPOs for a period of 15 months from listing, IPO activity up to December, 2011 has been used. As one of my objectives is to investigate the long run-performance of aftermarket share price, the entire period of analysis has been divided into 8 phases as follows;

    i. Listing date

   ii. One month after listing

  iii. Two months after listing

  iv. Three months after listing

   v. Six months after listing

  vi. Nine months after listing.

 vii. One year after listing.

viii. Fifteen months after listing

Therefore, quoted price for each new listing has been obtained as per the above dates:

A sum total of 10 IPOs are issued during the period 2006-2011. Each of the 10 IPOs was tracked for 15 months from the date of listing to evaluate the long-run price performance. These data were cross-checked with the original offer documents. Secondary market price data for all sample IPOs up to a period of fifteen months starting from the listing day has been taken from https://www.nse.co.ke.

3.5   Data Analysis

3.5.1 Short-run Price performance Analysis

To determine the short-run price performance of new listings, the Raw Initial Returns (RIR) and Market-adjusted abnormal return (MAAR) has been used.

$$\text{RIR } (r_{i,1}) = ((P_{i,1} - P_{i,0}) / P_{i,0}) \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\text{.Eq. (1)}$$

Where, $r_{i,1}$ is the raw initial return for company i on the first day of trading, $P_{i,1}$ is the first day closing price of company i, and $P_{i,0}$ is the issue price of the company i.

To examine the degree of under pricing of the Kenyan IPOs, market-adjusted initial returns were calculated for all IPOs. Market-adjusted abnormal return (MAAR) for the listing day will be calculated as the difference of initial return calculated for the security (i) on day one to the benchmark return on that day. The formula that has been used for calculating MAAR is the one that was used by Miller and Reilly (1987) as given in Eq. (2).

The MAAR for the IPO stock (i) on day 1 is calculated by using Eq. (1) below;

$$\text{MAAR}_{i1} = \left[\frac{(1 + R_{i,1})}{(1 + R_{m,1})}\right] \times 100 \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots\text{Eq. (2)}$$

Where, MAAR_{i1} is the market-adjusted abnormal rate of return for the stock i on day 1, $R_{i,1}$ reflects the percentage change in list price *vis-à-vis* offer price which is basically the Raw Initial Return (RIR).

$R_{m,1}$ is calculated as the percentage change in closing market index value on the listing day to market index on the date of closure of issue, as below.

$$R_{m,1} = ((I_{i,1} - I_{i,0}) / I_{i,0})$$

Where, $R_{m,1}$ is the percentage change in NSE 20 share index on the first day of trading, $I_{i,1}$ is the closing NSE 20 share index at the first day of trading of company i, and $I_{i,0}$ is the closing NSE 20 share index at the closure of issue of the company i share. The initial day price performance of each IPO has been calculated by using Eq.(2) above. The higher the percentage of MAAR, the higher the share will be underpriced.

Average underpricing for each of the benchmarks applied is estimated as a simple mean of the individual stock MAARs. The statistical significance of the average underpricing is determined with the t-test of the difference in means of the stock returns in the first day of trading and of the respective benchmark index returns on the same day.

3.5.2 Long-run Price performance Analysis

Benchmark-adjusted buy-and-hold return (BHAR) and wealth relatives (WR) are used to evaluate the long-run after-market returns for IPOs.

3.5.2.1   Wealth Relatives

The performance of a group of IPOs on using the wealth relatives is evaluated for a specific point of time. Levis (1993) studied the long-run performance of 712 IPOs issued in the UK for the period 1980-88 by calculating the wealth relatives (WR), which he defined as follows:

$$WR_{it} = \frac{1 + \frac{1}{N}\sum_{i=1}^{N} R_{it}}{1 + \frac{1}{N}\sum_{i=1}^{N} R_{mt}}$$ ....Eq. (3)

Where, R_{it} is the return of the individual IPO stocks i on day t from the offer day; R_{mt} is the market index return for NSE 20 share Index for the corresponding time period. Wealth relatives has been calculated for different time periods, i.e., listing day, at one month, two months, three months, six months, nine months, one year, and fifteen months time from the listing day. The total size of IPOs in the portfolio for discussion is represented by N. The methodology for the computation of WR is consistent with Ritter (1991).

The WRs of more than one indicates better performance of IPOs over the market index, while a value of less than one indicates underperformance of IPOs.

3.5.2.2   Buy-and-Hold Abnormal Returns (BHAR)

Market-adjusted BHAR has been computed with reference to both offer price and list price. Through this method, the change in the wealth of the investors has been accessed

for the sample IPOs by assuming that the same amount of money is passively invested in the initial day and held for a specified period (excluding initial day) and then compare these with a market benchmark. The market-adjusted BHAR as the excess return for the IPOs over and above the market return is computed as:

$$BHAR_{iT} = \prod_{t=1}^{T}(1+R_{it}) - \prod_{t=1}^{T}(1+R_{mt})$$

………………………………….Eq. (4)

Where, R_{it} is the return of the individual IPO stocks i at time t and R_{mt} is the market index return for NSE 20-share index for the corresponding time t.

The average BHAR for the entire sample is also calculated to find out the overall performance of the portfolio of IPOs for a specific period of time. The mean BHAR is computed as the arithmetic average of abnormal returns on all IPOs in the sample of size N. Mean BHAR is computed by the following formula:

$$\overline{BHAR} = \frac{1}{N}\sum_{i=1}^{N}BHAR_{iT}$$

…………………………………………………...Eq.(5)

A positive BHAR for a specific time period is interpreted as a better performance for the IPOs compared to the benchmark return for the same period. The advantage of this method is that the terminal values of both of the investment strategies, i.e., investment on a portfolio of IPO and market index, are compared. From the investors' point of view, BHAR indicated whether the benefit (positive initial day return) accrued in terms of investing through IPO subscription is extended to the late buyers or is completely exhausted on the listing date.

The statistical significance of the difference in means of the stock returns during the period of interest and of the respective benchmark index returns during the same period is tested with the t-test.

3.5.3 Relationship between subscription and price behaviour analysis

The rate of subscription (Sub_r) has been calculated as the number of shares subscribed less the number of shares offered divided by the number of shares offered.

$$Sub_r = \left[\frac{\text{Subscribed Shares} - \text{Offered Shares}}{\text{Offered Shares}} \right] \text{ X } 100 \quad\ldots\ldots\ldots\ldots\ldots\ldots\ldots..Eq.(6)$$

The initial price behaviour of new share listing has been determined by calculating average MAAR (Av. MAAR) for the first 1 month from the first trading day.

The relationship between the two variables (Sub_r and Av. MAAR) has been determined using the correlation coefficient (r) analysis. The subscription rate (Sub_r) will be the independent variable and the Average Market Adjusted Abnormal Return (Av. MAAR) will be the dependent variable.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the research findings and the results of the data analysis. The data were collected using secondary data whereby the share prices of the sampled companies were collected from the NSE.

The short-run performance has been analysed by computing the initial return (day 1 trading return) while the long-run performance has been computed by measuring the returns in the subsequent 15 months of trading after listing (with three months intervals). The relationship between IPO demand and post-trading share returns has been analysed by computing the share returns in the subsequent 15 months after listing.

The first section deals with the short-run performance of IPOs which is seeking to find out whether the shares over-perform the market in the short-run. The other section is the analysis of the long-term performance of shares to determine whether the share under-perform the market in the long run. The third section will seek to determine whether there is a relationship between the subscription rate and share performance.

Descriptive statistics are shown below;

Companies Listed in NSE from year 2006 to 2011

	Company Name	Year of Listing	Shares Offered	Rate of Subscription (%)	Closure of Issue	First Trading Date	Issue Price	First Trading Price
1	Kengen	2006	659,510,000	236	13/04/2006	17/05/2006	11.90	40.00
2	Equity Group	2006	By way of Introduction			7/8/2006	70.00	158.00
3	Scan Group	2006	69,000,000	520	7/8/2006	29/08/2006	10.45	15.00
4	Eveready	2006	63,000,000	800	24/11/2006	18/12/2006	9.50	11.00
5	Access Kenya	2007	80,000,000	363	30/04/2007	4/6/2007	10.00	13.45
6	Kenya Re	2007	240,000,000	334	31/07/2007	27/08/2007	9.50	16.00
7	Safaricom Ltd	2008	40,000,000,000	532	23/04/2008	9/6/2008	5.00	7.35
8	Co-operative Bank	2008	3,636,427,600	70	14/11/2008	22/12/2008	9.50	10.45
9	Trans-Century Ltd	2011	By way of Introduction			14/07/2011	50.00	57.00
10	British American Investment Co.	2011	650,000,000	60	5/8/2011	8/9/2011	9.00	8.45

4.1 Raw Initial Returns (RIR)

Raw Initial Returns for each company are calculated using the formula, $(r_{i,1}) = (P_{i,1} - P_{i,0}) / P_{i,0}$. The Raw Initial Returns for the ten firms are shown in table 1 below.

Table 1 : Raw Initial Returns – Day 1 of Trading

	Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$ (%)
1	Kengen	40.00	11.90	236.13
2	Equity Group	158.00	70.00	125.71
3	Scan Group	15.00	10.45	43.54
4	Eveready	11.00	9.50	15.79
5	Access Kenya	13.45	10.00	34.50
6	Kenya Re	16.00	9.50	68.42
7	Safaricom Ltd	7.35	5.00	47.00
8	Co-operative Bank	10.45	9.50	10.00
9	Trans-Century Ltd	57.00	50.00	14.00
10	British American Investment Co.	8.45	9.00	-6.11
	Average Raw Initial Returns (RIRs)			58.90

From Table 1 above, Kengen had the highest percentage of RIR – 236.13%, while British American Investement Co. had the lowest RIR of -6.11%. On average, the 10 companies which listed between January 2006 and December 2011 had a positive RIR of 58.90%. This means that based on the Raw Initial Returns, the investors who bought the shares during the offer period and sold them at the first day of trading were able to earn premium averaging to 58.90%.

4.2 Market Adjusted Abnormal Returns (MAAR)

MAAR for the listing day is calculated as the difference of initial return calculated for the security (i) on day one to the benchmark return on that day. Benchmark return is the closing NSE 20 Share Index for the particular day. The NSE 20 Share Index is used because it represents all shares in the NSE and also the data is available over the period under research. However, Equity Group and Tran-Century Ltd have been listed by way of introduction. Therefore, for purposes of this analysis it is assumed that the closing day of offer is one month prior to the first trading day. This is based on the fact that after the close of offer period, many other shares start trading after within one month. For consistency with the existing empirical evidence and to facilitate comparison with other empirical evidence, the market adjusted abnormal returns were calculated using the

formula $$MAAR_{i1} = \left[\frac{(1+R_{i1})}{(1+R_{m1})} - 1 \right] \textbf{X } \textbf{100}$$ (Miller and Reilly (1987).

MAAR for the 10 firms is as shown in table 2 below.

Table 2: **Market Adjusted Abnormal Returns**

	Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	MAAR
1	Kengen	40.00	11.90	236.13	3,973.79	4,447.99	-10.66	**276.25**
2	Equity Group	158.00	70.00	125.71	4,271.72	4,384.35	-2.57	**131.67**
3	Scan Group	15.00	10.45	43.54	4,384.35	4,489.60	-2.34	**46.99**
4	Eveready	11.00	9.50	15.79	5,752.57	5,624.84	2.27	**13.22**
5	Access Kenya	13.45	10.00	34.50	5,199.44	5,043.35	3.09	**30.46**
6	Kenya Re	16.00	9.50	68.42	5,340.08	5,274.53	1.24	**66.35**
7	Safaricom Ltd	7.35	5.00	47.00	5,156.53	5,445.67	-5.31	**55.24**
8	Co-operative Bank	10.45	9.50	10.00	3,625.59	3,367.24	7.67	**2.16**
9	Trans-Century Ltd	57.00	50.00	14.00	4,009.31	3,746.00	7.03	**6.51**
10	British American Investment Co.	8.45	9.00	-6.11	3,721.53	3,400.68	9.43	**-14.21**
	Average Market Adjusted Abnormal Returns (MAARs)							**61.46**

Table 2 above indicates that Kengen has the highest percentage of MAAR, that is 276.25% and British American Investment Co. has the lowest MAAR of -14.21%. This means that Kengen over-performed the market while, British American Investment Co. under-performed the market at the initial day of trading.

The graph below shows a declining pattern of MAAR from year 2006 to 2011. Kengen, Equity Group and Scan Group registered high initial trading adjusted returns. This pattern can be associated with 'hot issue' markets. This refers to the time-series behaviour of first-day returns and the number of companies coming to market, in which high initial returns tend to be followed by rising IPO volumes (Ritter, 1984).

Figure 1: Market Adjusted Abnormal Returns
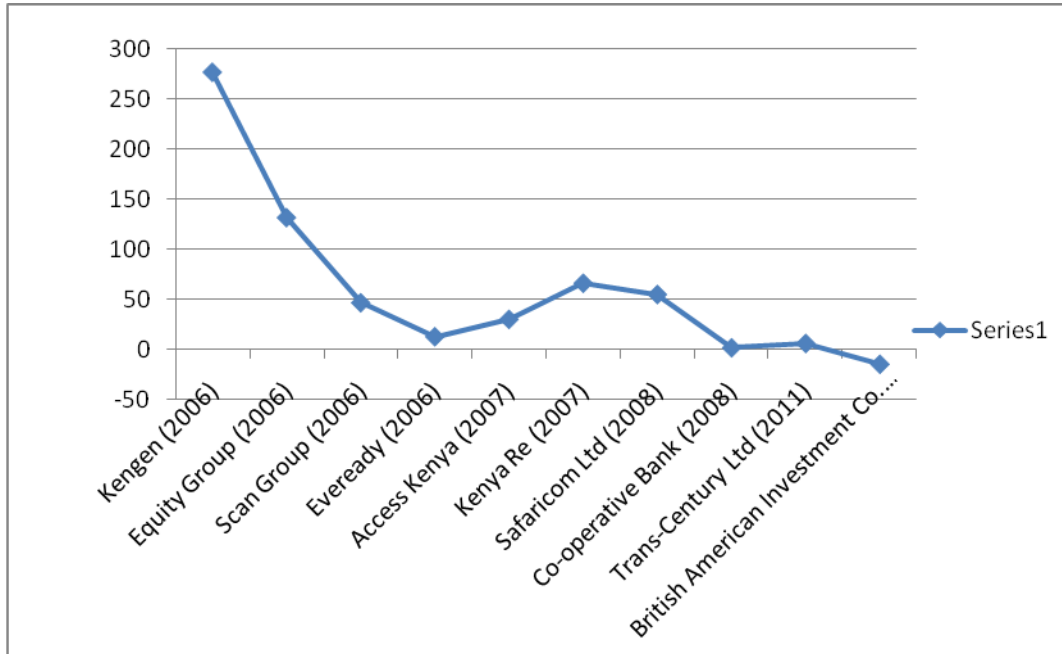
4.2.1 Explanation for IPO Over-performance

This study performs a multivariate analysis to identify factors that may influence the short- run performance. A regression analysis is performed to examine the level of IPO raw initial return in comparison to variables relating to the IPO issue period (hot or cold), along with several additional control variables including, company age, issue size and subscription rate. The choice of potential control variables is based on prior studies (Thuo, 2009 Nurwati A. et al, 2012) and other studies on short-run performance. The Ordinary Least Squares (OLS) multiple regression model is estimated as follows:

$MAAR_i = \alpha_0 + \beta_1 (HOTCOLD) + \beta_1 (AGE) + \beta_1(SUB) + \beta_1(lnPROCEEDS) + \beta_1(lnSIZE) + \acute{\varepsilon}$

where:

MAAR$_i$ - initial return (%) measured by adjusting the raw initial returns (change in price of the share – Offer price to List price) to the bench mark returns (change in NSE 20 Share Index)

α_0 - constant value. It is the value of MAAR when the other variables in the equation equals to zero

HOTCOLD - dummy variable - 1 for companies that went public in the hot period (2006) and zero otherwise;

AGE - company age in years;

lnPROCEEDS - natural log of the gross proceeds raised from the IPOs;

SUB - Subscription rate for the shares;

lnSize - natural log of the total number of shares issued

$\acute{\varepsilon}$ - error term

For hot and cold issue periods, we employed the definition used by Loughran and Ritter (1995), Kooli and Suret (2004), Boubakri et al. (2005), and Jaskiewicz et al. (2005), defining hot issue periods as periods that have IPOs above the mode number of IPOs during the period of study. The total number of the NSE IPO companies over the period 2006-2011 is 10 companies, with a mode value of 4 companies in the year 2006. As a result, the hot issue period dummy variable takes a value of '1' if the IPO for the company is issued in year 2006. The dummy variable takes a value of '0' if the IPO is issued in the year 2007 to 2011. Therefore, year 2006 is categorized as hot issue periods. However, companies listed for the years 2007 to 2011 are categorised as cold issue.

Table 3: Correlation matrix for variables in the determinants of short-run performance

	MAAR	*HOTCOLD*	*AGE*	*SUB*	*lnPROCEEDS*	*lnSIZE*
MAAR	1					
HOTCOLD	0.4748	1				
AGE	0.3077	0.4402	1			
SUB	-0.0715	0.5103	-0.3728	1		
lnPROCEEDS	0.0981	-0.4605	-0.1631	-0.3475	1	
lnSIZE	0.0534	-0.4767	-0.2232	-0.2920	0.9966	1

The results show that the coefficient of the hot/cold issue period dummy is positive and significant (at the 47.48% level). This is consistent with Ritter (1984), which suggest that the level of initial returns for companies listed during hot periods in is higher than for those listed during the cold periods. Also there is positive relationship between the returns and the age of the firms (30.77%).

We find that the issue size variable is positively related to short-run performance (at 5.34%), suggesting that large-size issues have high ex ante uncertainty that produces a higher return to initial investors.

4.3 Wealth Relatives

Table 3 reports 15 months' wealth relatives for all the 10 IPOs issued during the period 2006-2011 in the NSE IPO market. The period of study taken for estimation of wealth relatives includes listing day, one month, two months, three months, and six months, nine months, twelve months and fifteen months from the date of listing. Following is the formulae by which the wealth relatives are computed:

$$WRit = \left(1 + \tfrac{1}{N}\sum_{i=1}^{N} Rit\right) \Big/ \left(1 + \tfrac{1}{N}\sum_{i=1}^{N} Rmt\right)$$, which is consistent

with Ritter (1991).

Where, R_{it} is the return for individual IPO stocks i at time t, R_{mt} is the market index return for the corresponding time. The total size of IPOs in the portfolio for discussion is represented by N.

Table 4: Wealth Relative with respect to Offer Price and Listing Day Closing Price

Time Period	WR Calculated with reference to List Price COLUMN (A)	WR Calculated with reference to Offer Price COLUMN (B)
Listing Day (L)	N/A	1.57
L + 1 month	1.06	1.44
L + 2 months	0.96	1.34
L + 3 months	0.89	1.25
L + 6 months	0.94	1.53
L + 9 months	0.84	1.20
L + 12 months	0.91	1.31
L + 15 months	0.96	1.47

Table 4, Column (A) reports a decreasing trend in the WRs starting from one month to three months from the date of listing. Less than one values for the WRs are reported from second month throughout to 15 months from the listing date. WRs are decreasing from month 9 to month 15 from the listing date. The WRs of more than one indicates better performance for IPOs over the market index, while a value of less than one indicates underperformance for the portfolio of IPOs. The findings suggest that the IPOs over-perform during the first month of trading and thereafter the set of IPOs under-perform the market index. This means that, the portfolios of sample IPOs for the period 2006-2011 are consistently losing their values with respect to the market benchmark from the second

month till the end of the period of the study, which is 15 months from listing. It can also be interpreted in such a way that the initial day investors who have purchased the IPOs at the initial day closing price and have held it for not longer than one month can expect positive market-adjusted returns. However, investors who have purchased the IPOs at the initial day closing price and have held it for two, three, six, twelve and fifteen months, cannot expect positive market-adjusted returns.

Figure 2: Wealth Relative with respect to Offer Price and Listing Day Closing Price
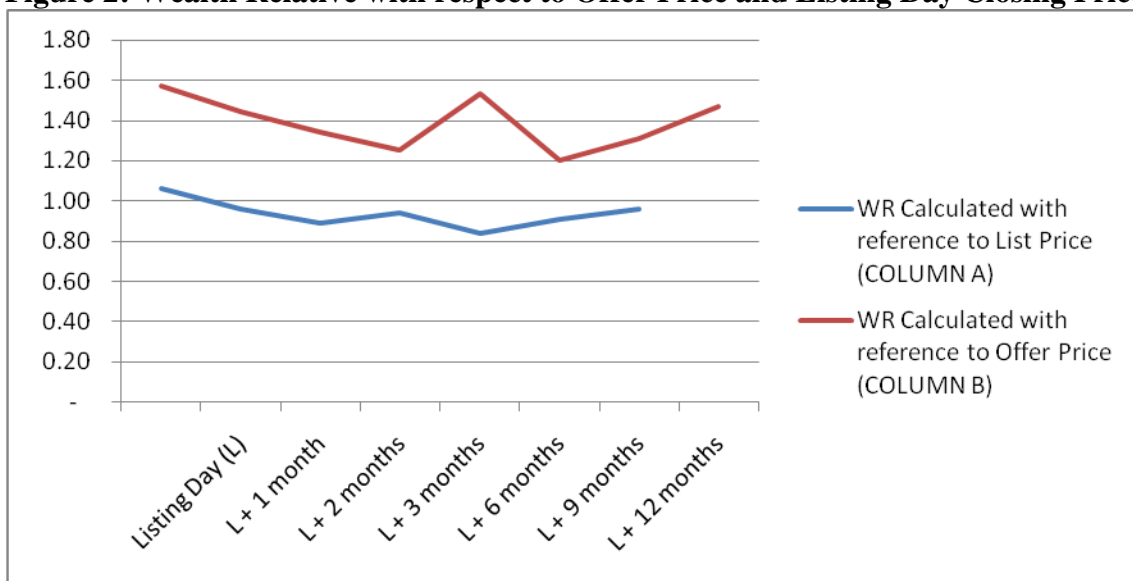
Table 4, Column (B) reports WRs with respect to offer price. WRs are greater than one across all time periods, i.e., one, two, three, six, nine, twelve, and fifteen months. This is an indication that underperformance does not exist when offer price is considered. In other words, those investing in shares during IPO offer period are able to get positive returns at least up to fifteen months from listing. However, there is a continuous declining trend of WRs up to three months and the pattern fluctuates thereafter in the month six. On the listing day, WR is found at 1.57, indicating that the IPOs generate 57 per cent return when compared to the offer price. This means that the IPOs are under-priced at a rate of

57 per cent on the listing date. Hence it can be concluded that IPO investors should either sell their shares on the listing day or should wait for a period longer than fifteen months before selling it to earn an abnormal return.

On comparing the results for Column (A) and Column (B), it can be concluded that investors buying at the list price do not benefit until probably after 15 months from the listing date. The investors who are investing at offer price are able to earn an abnormal rate for a longer period of even more that 15 months from the date of listing.

4.4 Evaluating Long-run Price Performance on using BHAR

Table 4 reports buy-and-hold abnormal returns. The BHAR_list is measured from the listing day closing price and the BHAR_offer is measured from the offer price.

The sample consists of 10 IPO firms, which are subsequently listed in the Nairobi Securities Exchange, from 2006-2011. The buy-and-hold abnormal return (BHAR) is defined as follows:

$$BHAR_{iT} = \prod_{t=1}^{T}(1 + R_{it}) - \prod_{t=1}^{T}(1 + R_{mt})$$

Where, *Rit* is the return of the individual IPO stocks *i* at time *t* and *Rmt* is the market index return for NSE 20 share index for the corresponding time *t*.

Table 5 details the long-run performance of IPOs using BHAR. It reports the distribution of BHAR from the listing day up to 15 months, with reference to both offer price and list price. Panel 'A' shows market-adjusted BHAR computed from the list price. Panel 'B' reports BHAR computed with reference to offer price.

Table 5: Buy and Hold Abnormal Returns (BHARs) - Offer Price and Listing Day

Time Period	Panel A: BHAR Calculated with reference to List Price		Panel B: BHAR Calculated with reference to Offer Price	
	Mean	Standard Deviation	Mean	Standard Deviation
Listing Day (L)	N/A	N/A	0.38	0.41
L + 1 month	(0.02)	0.46	0.36	0.43
L + 2 months	(0.09)	0.45	0.29	0.45
L + 3 months	(0.18)	0.30	0.01	0.34
L + 6 months	(0.14)	0.52	0.24	0.53
L + 9 months	(0.35)	0.81	0.03	0.56
L + 12 months	(0.30)	0.79	0.09	0.58
L + 15 months	(0.19)	0.66	0.19	0.65

The empirical results in Panel A of Table 5 shows negative BHARs throughout the study from the date of listing. Negative BHARs can be interpreted as IPOs underperforming the market benchmark during the period, while positive BHARs indicate over-performance in relation to the market index. This suggests that there is significant underperformance throughout the 15 months of the study, with the first 9 month registering a consistent decline to a level of -0.35 and thereafter there is an increase. This suggests that if the curve is extrapolated, at one point the underperformance vanishes and the shareholders can have positive returns. The results also suggest that the investors who are investing in IPOs at a list price must hold these shares beyond 15 months to earn a positive return on it.

Table 5, Panel B reports average BHAR_Offer at 0.38 on the listing day, which fails to keep its momentum as the trading continues. However, throughout the period of study, the IPO portfolio records positive BHAR, suggesting that the investors investing at the offer price are able to get positive returns throughout the holding period.

Figure 3: Buy and Hold Abnormal Returns (BHARs) – Offer Price and Listing Price
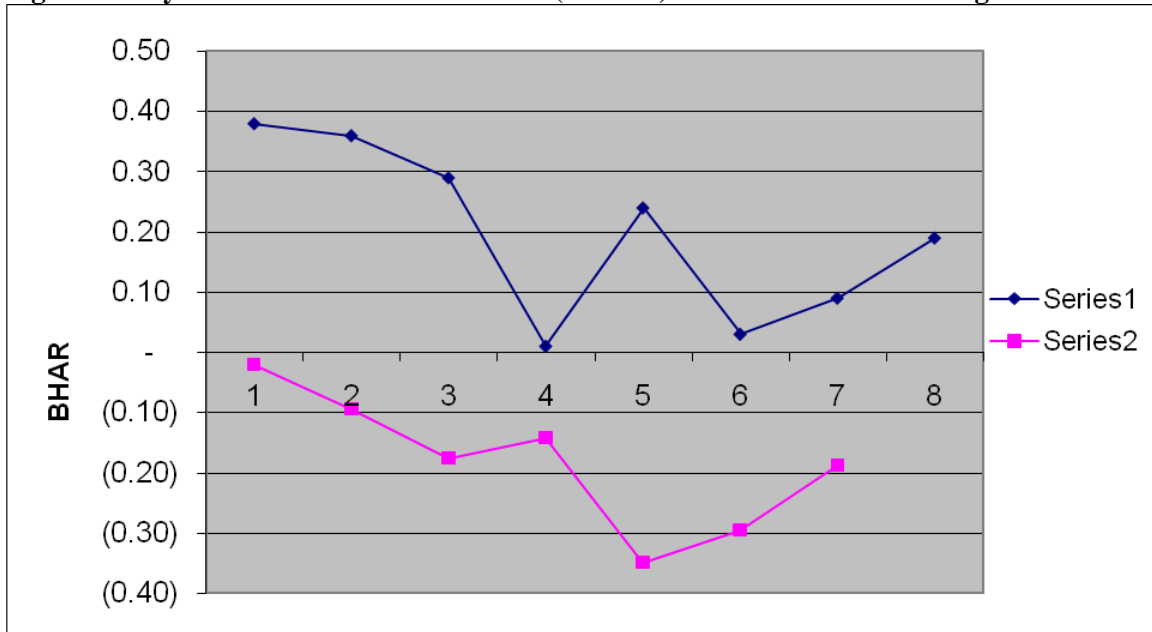
While comparing the BHAR_List and the BHAR_Offer, it is apparent that the list day traders cannot get short-term excess returns in NSE, at least up to two years from listing. It is only those investors who acquire stocks through direct subscription to IPOs are able to earn excess returns compared to the market index. Hence it can be concluded that if investors buy shares during IPO offer period at offer price, they will get a return higher than the market return across all periods.

4.5 Relationship between Subscription Rate and Price Behavior

The evaluation of relationship between subscription rate and price behaviour (under or over-performance) has been determined by calculating the subscription rate and thereafter comparing this rate with the Market Adjusted Abnormal Returns for every company under study.

Table 6: Subscription Rate and Returns

	Company Name	Shares Offered	Rate of Subscription (%)	MAAR
1	Kengen	659,510,000	236	**276.25**
2	Scan Group	69,000,000	520	**46.99**
3	Eveready	63,000,000	800	**13.22**
4	Access Kenya	80,000,000	363	**30.46**
5	Kenya Re	240,000,000	334	**66.35**
6	Safaricom Ltd	40,000,000,000	532	**55.24**
7	Co-operative Bank	3,636,427,600	70	**2.16**
8	British American Investment Co.	650,000,000	60	**(14.21)**

Correlation Coefficient (r) = (0.07)

The Pearson product-moment correlation coefficient which is a measure of the linear correlation (dependence) between subscription rate and MAAR is computed giving a value of -0.07. Correlation coefficient ranges from +1 and −1 inclusive, where 1 is total positive correlation, 0 is no correlation, and −1 is negative correlation.

Figure 4: Subscription Rate per Company
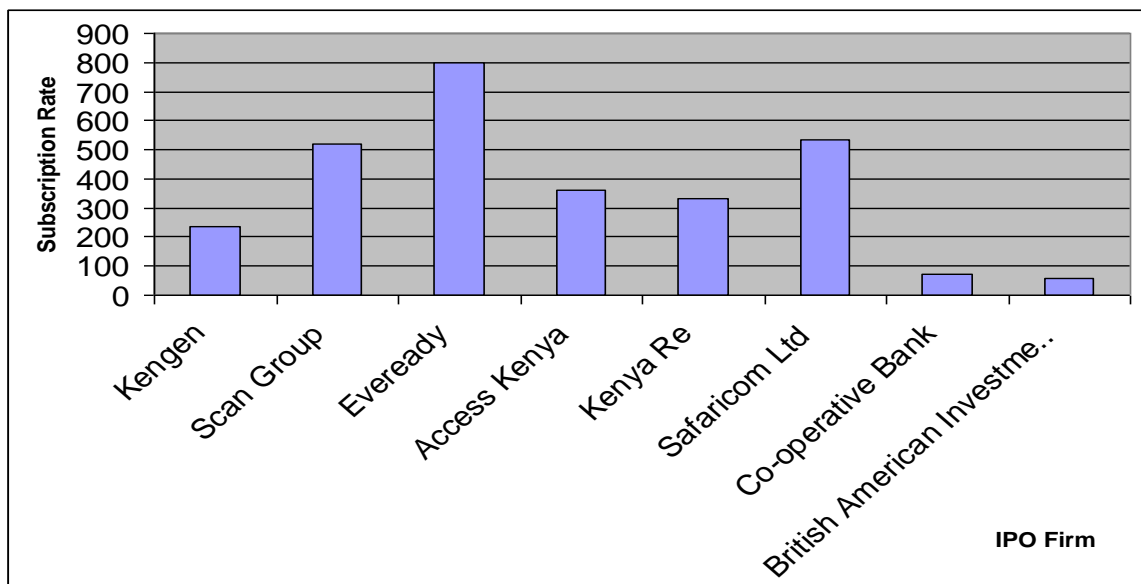
Figure 5: Returns against the Subscription Rate
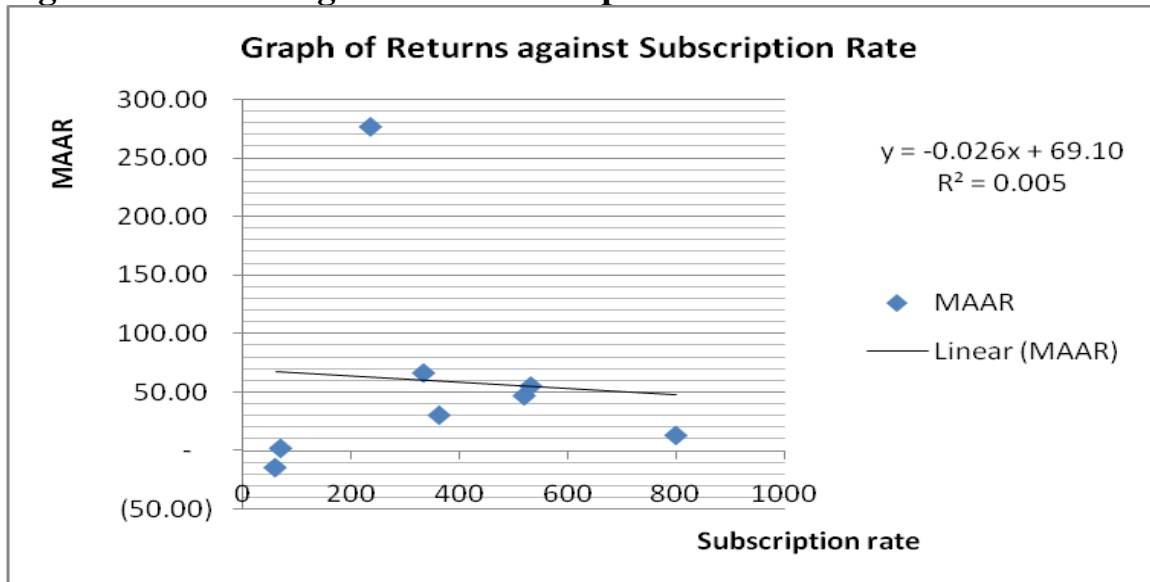
Therefore, according to the result which shows a correlation coefficient of -0.07, it means there is a very weak negative relationship between the two variables. Correlation coefficient of -0.07 is very close to 0 which means no correlation. Accordingly, as per the results of the study, there is no relationship between the rate of subscription and the aftermarket share performance at least for the first day of trading.

4.5.1 Testing the Significance of r

In order to know the applicability of r, there is need to ask the question whether the coefficient representing the relationship between the returns and the subscription rate is real or occurring by chance. This will discover whether r, is a chance deviation from a population p of zero. r's significance should be checked before is used in other calculations or comparisons. Z-test or t-test may be used for the null hypothesis, $p = 0$.

Table 7: Regression Statistics

Regression Statistics	
Multiple R	0.0715
R Square	0.0051
Adjusted R Square	(0.1607)
Standard Error	269.7365
Observations	8.0000

ANOVA

	df	SS	MS	F	Significance F
Regression	1.0000	2,245.0740	2,245.0740	0.0309	0.8663
Residual	6.0000	436,546.8010	72,757.8002		
Total	7.0000	438,791.8750			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	376.0019	116.0851	3.2390	0.0177	91.9519	660.0519
X Variable 1	(0.1952)	1.1114	(0.1757)	0.8663	(2.9146)	2.5242

With n – 2 degree of freedom, the statistical program calculates the value of t (-0.1757) at significance level of 5 per cent. The hypothesis is accepted that there is no relationship between the initial returns and the subscription rate. The proportion of variation in returns which is explained by variation in subscription rate is only 0.51 per cent.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Conclusions

This paper studies the short-term and the long-term performance of 10 IPOs issued in Nairobi Securities Exchange between January 2006 and December 2011. Consistent with results from previous studies, it is found that there is high under-pricing of NSE IPOs, as the market adjusted average return of new issues at the entrance day to the stock market calculated to be 61.46 per cent. Results for over-performance have been reported at the NSE by Njoroge (2004) 22.57 per cent, Thuo (2009) 70.06 per cent, and Njuki (2011) 59.69 per cent.

Dimitrios et al (2004) while studying the short term and long term performance of IPOs in the Cyprus Stock Exchange noted that, IPOs are priced substantially below their actual price because of the high level of uncertainty (confusion among the investors), which exists in the market. Investors take advantage and they make very good initial returns once they buy shares in the issue price period. This situation is precisely the same at the market for IPOs in NSE.

Using both Wealth Relatives and Buy and Hold Abnormal Returns, the long-term performance has been analyzed with reference to both offer price and list price. Investors who subscribe for shares during the offer period are able to earn significant premiums if they sell their shares during the fifteen months from listing day, with the highest premium being 57 per cent earned during the first day of trading. However, those investors who

buy the share at the list price (during the first day of trading), are earning negative returns for the entire period safe for the one month after listing day.

A strategy of investing in IPOs during the offer period and holding the shares for a fifteen month period would have left the investors with 47 per cent premium. This suggests that it is a good strategy to buy IPOs during offer period. However it is not a good strategy to buy shares during the first day of trading (at list price) because the shares are normally overpriced and the investor will not be able to earn positive returns at least for the first fifteen month of the share trading.

The results from regression analysis highlight a significant finding. The IPO price performance is slightly negatively related to the pre-market share demand (subscription rate), suggesting that there is almost no relationship between short-run price performance and the subscription rate (-0.07).

Also results suggest that there is massive oversubscription from the period April 2006 to April 2008. This can be positively attributed to the prevailing market conditions by the time IPOs goes public, suggesting that the large oversubscription is due to 'hot issue' markets. This is consistent with Loughran and Ritter (2002) who find the performance of the market to be significantly related to the magnitude of under-pricing in the U.S. Another explanation for oversubscription may be as a result of heavy advertisement of Kengen IPO which opened the gates to NSE IPOs market in that period. After Kengen IPO, investors scooped more than 276 per cent returns during the first day of trading. This triggered IPO crave in Kenya and consequently firms began listing in NSE through primary market. Investors continued enjoying abnormal returns in IPOs until when the

Safaricom IPO was issued. Safaricom IPO was massively over-subscribed by 532 per cent but the initial trading day returns were a disappointment to many. This changed the whole perception of IPOs as evidenced thereafter with the Co-operative bank and British American Investment Co. IPOs.

The interpretation of the above phenomenon might be that large information asymmetry causes the market to be irrationally optimistic about the initial public offerings. This fact leads investors to pay too much in the immediate aftermarket period for an IPO and then discover the mistake in the following years as argued by Ritter (1991), who concludes that the offering price is not too low, but the first aftermarket price is too high. Although the results are consistent with this fact, this simple irrationality during IPOs offering does not seem to explain the whole phenomenon.

5.2 Recommendations

The results obtained from the study provide important information to investors intending to invest in IPOs. The results show that IPOs are underpriced on the listing day. Investors investing in IPOs at the offer price and holding these shares over a longer period are better-off compared to investors investing in shares on the listing day. Investors investing at the list price would not get excess returns at least for the entire period of the study safe for the first month from listing day.

On the basis of the empirical findings, it is suggest that the long-term investors should exercise caution before investing in IPOs. Issuing firms and investment banks could be able to make a trade-off in the short-term under-pricing and long-run underperformance. In a broader sense, the empirical research can be referred to as a manual for assessing

potential returns ascribed to the IPOs as regard to the pre-market share demand. The research is acquiescent to filling up the gap in identifying the reasons for explaining the long-run underperformance of IPOs. Last but not least, the research would be able to provide a new dimension to the research on IPO value and its impact on the post-listing performance.

5.3 Limitations of the Study

The research has primarily used secondary data. As a result of using these historical data, there is the chance that perception of people in regard to dividend will change over time. Therefore the findings will only be applicable within certain limit of time beyond which new researches need to be conducted to confirm or contest this research.

This research did not take into account other factors that affect the share performance. There are other factors that may affect the share price including, inflation, interest rates and the overall financial market conditions.

5.4 Suggestions for further Research

This study concentrated on the reasons for short-term over-performance of IPOs, a research therefore is recommended to find out the possible reasons for long-term underperformance of IPOs.

Also a research is recommended to find out the cross-sectional performance of IPOs in different industries at the NSE.

A similar study can be undertaken with longer period of 3 years to 10 years of the IPO performance.

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APPENDICES

Appendices 1: International Evidence on IPO Under-pricing

Country	Source	Sample Size	Period	Initial Return
Australia	Lee, Taylor & Walter; Woo; Pham; Ritter	1,103	1976-2006	19.8%
Brazil	Aggarwal, Leal & Hernandez; Saito	180	1979-2006	48.7%
China	Chen, Choi,and Jiang (A Shares)	1,394	1990-2005	164.5%
France	Loughran, Ritter and Rydquist	686	1983-1992	10.7%
Germany	Ljungqvist; Rocholl: Ritter	652	1978-2006	26.9%
Greece	Nounis, Kazantzis & Thomas	363	1976-2005	25.1%
India	Marisetty and Subrahmanyam	2,811	1990-2007	92.7%
Indonesia	Hanafi; Ljungqvist & Yu; Danny; Suherman	321	1989-2007	21.1%
Ireland	Ritter	31	1999-2006	23.7%
Malaysia	Isa; Isa & Yong; Yong	350	1980-2006	69.6%
New Zealand	Vos & Cheung; Camp & Munro; Ritter	214	1979-2006	20.3%
Norway	Emilsen, Pedersen & Saettem; Liden; Ritter	153	1984-2006	9.6%
Poland	Jelic & Briston; Ritter	224	1991-2006	22.9%
Russia	Ritter	40	1999-2006	4.2%
Spain	Ansotegui & Fabregat; Alvarez Otera	128	1986-2006	10.9%
Turkey	Kiymaz; Durukan; Ince	282	1990-2004	10.8%
United Kingdom	Dimson; Levis	3,986	1959-2006	16.8%
United States	Ibbotson, Sindelar & Ritter	12,007	1960-2007	16.9%

Sources: http://bear.cba.ufl.edu/ritter/Int2008.pdf

Appendices 2: International Evidence on Long-run IPO Underperformance

Country	Author(s)	Number of IPOs	Issuing years	Total abnormal return
Australia	Lee, Taylor and Walter	266	1976-89	-46.5%
Austria	Aussenegg	57	1965-93	27.3%
Brazil	Aggarwal, Leal and Hernandez	62	1980-90	-47.0%
Canada	Jog and Srivistava	216	1972-93	-17.9%
Chile	Aggarwal, Leal and Hernandez	28	1982-90	-23.7%
Finland	Keloharju	79	1984-89	-21.1%
Germany	Ljungqvist	145	1970-90	-12.1%
Japan	Cai and Wei	172	1971-90	-27.0%
Korea	Kim, Krinsky and Lee	99	1985-88	+2.0%
Singapore	Hin and Mahmood	45	1976-84	-9.2%
Sweden	Loughran, Ritter	162	1980-90	+1.2%
U.K.	Levis	712	1980-88	-8.1%
U.S.	Loughran and Ritter	4,753	1970-90	-20.0%

Source: Ritter Jay, Initial Public Offerings, 1998

Appendices 3: Descriptive Statistics for BHARs

Listing Day								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	40.00	11.90	2.36	3,973.79	4,447.99	(0.11)	1.33	0.89
Equity Group	158.00	70.00	1.26	4,271.72	4,384.35	(0.03)	0.84	0.21
Scan Group	15.00	10.45	0.44	4,384.35	4,489.60	(0.02)	0.39	0.00
Eveready	11.00	9.50	0.16	5,752.57	5,624.84	0.02	0.12	0.07
Access Kenya	13.45	10.00	0.35	5,199.44	5,043.35	0.03	0.27	0.01
Kenya Re	16.00	9.50	0.68	5,340.08	5,274.53	0.01	0.51	0.02
Safaricom Ltd	7.35	5.00	0.47	5,156.53	5,445.67	(0.05)	0.44	0.00
Co-operative Bank	10.45	9.50	0.10	3,625.59	3,367.24	0.08	0.02	0.13

Trans-Century Ltd	57.00	50.00	0.14	4,009.31	3,746.00	0.07	0.06	0.10
British American Investment Co.	8.45	9.00	(0.06)	3,721.53	3,400.68	0.09	(0.15)	0.28
							3.82	**1.72**
						Mean BHAR	**0.38**	**0.41**

L + One Month								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	33.50	11.90	1.82	4,286.00	4,447.99	-0.04	1.07	0.51
Equity Group	120.00	70.00	0.71	4,524.00	4,384.35	0.03	0.51	0.02
Scan Group	29.25	10.45	1.80	4,880.00	4,489.60	0.09	0.95	0.34
Eveready	15.15	9.50	0.59	6,025.00	5,624.84	0.07	0.40	0.00
Access Kenya	13.85	10.00	0.39	5,165.00	5,043.35	0.02	0.30	0.00
Kenya Re	16.20	9.50	0.71	5,146.00	5,274.53	-0.02	0.56	0.04
Safaricom Ltd	6.95	5.00	0.39	5,056.00	5,445.67	-0.07	0.40	0.00
Co-operative Bank	8.75	9.50	-0.08	3,256.00	3,367.24	-0.03	(0.05)	0.17
Trans-Century Ltd	38.75	50.00	-0.23	3,502.00	3,746.00	-0.07	(0.19)	0.30
British American Investment Co.	6.2	9.00	-0.31	3,294.00	3,400.68	-0.03	(0.34)	0.49
							3.61	**1.88**
						Mean BHAR	**0.36**	**0.43**

L + Two Months								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	33.50	11.90	1.82	4,246.00	4,447.99	-0.05	1.08	0.63
Equity Group	135.00	70.00	0.93	4,890.00	4,384.35	0.12	0.55	0.07
Scan Group	24.75	10.45	1.37	5,178.00	4,489.60	0.15	0.72	0.18

Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Eveready	12.30	9.50	0.29	5,766.00	5,624.84	0.03	0.23	0.00
Access Kenya	14.95	10.00	0.50	5,277.00	5,043.35	0.05	0.36	0.00
Kenya Re	15.05	9.50	0.58	5,005.00	5,274.53	-0.05	0.51	0.05
Safaricom Ltd	5.60	5.00	0.12	4,651.00	5,445.67	-0.15	0.27	0.00
Co-operative Bank	7.40	9.50	-0.22	2,638.00	3,367.24	-0.22	(0.01)	0.09
Trans-Century Ltd	33.00	50.00	-0.34	3,465.00	3,746.00	-0.08	(0.34)	0.39
British American Investment Co.	5.5	9.00	-0.39	3,449.00	3,400.68	0.01	(0.51)	0.63
							2.87	**2.05**
					Mean BHAR		**0.29**	**0.45**

L + Three Months								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	33.50	11.90	1.82	4,451.00	4,447.99	0.0007	(0.08)	0.01
Equity Group	136.00	70.00	0.94	5,638.00	4,384.35	0.29	0.05	0.00
Scan Group	21.25	10.45	1.03	5,615.00	4,489.60	0.25	(0.02)	0.00
Eveready	9.50	9.50	0.00	5,104.00	5,624.84	-0.09	0.10	0.01
Access Kenya	17.80	10.00	0.78	5,420.00	5,043.35	0.07	0.50	0.24
Kenya Re	14.95	9.50	0.57	5,162.00	5,274.53	-0.02	0.47	0.22
Safaricom Ltd	5.25	5.00	0.05	4,431.00	5,445.67	-0.19	0.25	0.06
Co-operative Bank	6.40	9.50	-0.33	2,639.00	3,367.24	-0.22	(0.15)	0.03
Trans-Century Ltd	30.00	50.00	-0.40	3,278.00	3,746.00	-0.12	(0.38)	0.15
British American Investment Co.	4.2	9.00	-0.53	3,116.00	3,400.68	-0.08	(0.67)	0.47
							0.07	1.18
					Mean BHAR		**0.01**	**0.34**

L + Six Months							
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	31.75	11.90	1.67	5,642.00	4,447.99	0.27	0.74	0.25
Equity Group	225.00	70.00	2.21	5,710.00	4,384.35	0.30	0.90	0.44
Scan Group	23.25	10.45	1.22	5,246.00	4,489.60	0.17	0.64	0.16
Eveready	7.90	9.50	-0.17	5,142.00	5,624.84	-0.09	(0.09)	0.11
Access Kenya	20.50	10.00	1.05	5,246.00	5,043.35	0.04	0.68	0.19
Kenya Re	14.80	9.50	0.56	4,844.00	5,274.53	-0.08	0.53	0.08
Safaricom Ltd	3.30	5.00	-0.34	3,206.00	5,445.67	-0.41	0.11	0.02
Co-operative Bank	10.80	9.50	0.14	3,322.00	3,367.24	-0.01	0.14	0.01
Trans-Century Ltd	27.00	50.00	-0.46	3,187.00	3,746.00	-0.15	(0.45)	0.48
British American Investment Co.	4.00	9.00	-0.56	3,402.00	3,400.68	0.00	(0.81)	1.11
							2.39	2.86
						Mean BHAR	0.24	0.53

L + Nine Months							
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	$I_{i,1}$	$I_{i,0}$	$R_{m,1}$	BHAR	Standard Deviation
Kengen	7.40	11.90	-0.38	5,766.00	4,447.99	0.30	(0.73)	0.58
Equity Group	88.50	70.00	0.26	5,101.00	4,384.35	0.16	0.08	0.00
Scan Group	25.00	10.45	1.39	5,051.00	4,489.60	0.13	0.75	0.52
Eveready	7.95	9.50	-0.16	5,488.00	5,624.84	-0.02	(0.15)	0.03
Access Kenya	26.00	10.00	1.60	5,378.00	5,043.35	0.07	0.89	0.74
Kenya Re	15.80	9.50	0.66	5,101.00	5,274.53	-0.03	0.54	0.26
Safaricom Ltd	2.70	5.00	-0.46	2,365.00	5,445.67	-0.57	0.22	0.04
Co-operative Bank	9.00	9.50	-0.05	3,040.00	3,367.24	-0.10	0.05	0.00

Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	Ii,1	Ii,0	$R_{m,1}$	BHAR	Standard Deviation
Trans-Century Ltd	22.50	50.00	-0.55	3,444.00	3,746.00	-0.08	(0.71)	0.55
British American Investment Co.	5.25	9.00	-0.42	3,639.00	3,400.68	0.07	(0.61)	0.41
							0.33	**3.15**
					Mean BHAR		**0.03**	**0.56**

L + Twelve Months								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	Ii,1	Ii,0	$R_{m,1}$	BHAR	Standard Deviation
Kengen	8.15	11.90	-0.32	5,167.00	4,447.99	0.16	(0.53)	0.38
Equity Group	117.00	70.00	0.67	5,256.00	4,384.35	0.20	0.33	0.06
Scan Group	26.50	10.45	1.54	5,341.00	4,489.60	0.19	0.76	0.44
Eveready	7.30	9.50	-0.23	5,288.00	5,624.84	-0.06	(0.20)	0.09
Access Kenya	32.50	10.00	2.25	5,402.00	5,043.35	0.07	1.11	1.04
Kenya Re	15.75	9.50	0.66	4,665.00	5,274.53	-0.12	0.63	0.29
Safaricom Ltd	2.85	5.00	-0.43	2,953.00	5,445.67	-0.46	0.05	0.00
Co-operative Bank	9.00	9.50	-0.05	3,190.00	3,367.24	-0.05	0.00	0.01
Trans-Century Ltd	24.00	50.00	-0.52	3,795.00	3,746.00	0.01	(0.75)	0.70
British American Investment Co.	5.95	9.00	-0.34	3,860.00	3,400.68	0.14	(0.54)	0.40
							0.86	**3.41**
					Mean BHAR		**0.09**	**0.58**

L + Fifteen Months								
Company Name	$P_{i,1}$	$P_{i,0}$	$r_{i,1}$	Ii,1	Ii,0	$R_{m,1}$	BHAR	Standard Deviation
Kengen	28.50	11.90	1.39	5,171.00	4,447.99	0.16	0.72	0.28
Equity Group	118.00	70.00	0.69	5,081.00	4,384.35	0.16	0.37	0.03
Scan Group	28.50	10.45	1.73	5,235.00	4,489.60	0.17	0.85	0.44

Eveready	6.80	9.50	-0.28	4,809.00	5,624.84	-0.15	(0.18)	0.14
Access Kenya	31.00	10.00	2.10	4,542.00	5,043.35	-0.10	1.24	1.09
Kenya Re	11.85	9.50	0.25	3,341.00	5,274.53	-0.37	0.68	0.24
Safaricom Ltd	2.65	5.00	-0.47	3,090.00	5,445.67	-0.43	(0.07)	0.07
Co-operative Bank	10.00	9.50	0.05	4,011.00	3,367.24	0.19	(0.12)	0.10
Trans-Century Ltd	22.00	50.00	-0.56	4,030.00	3,746.00	0.08	(0.89)	1.18
British American Investment Co.	5.5	9.00	-0.39	4,012.00	3,400.68	0.18	(0.66)	0.72
							1.94	**4.28**
						Mean BHAR	**0.19**	**0.65**