

**MISPRICING AND LONG RUN PERFORMANCE OF IPOS AT THE  
NAIROBI SECURITIES EXCHANGE (NSE)**

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## DECLARATION

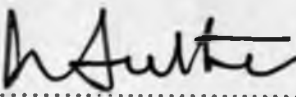
This project research is my original work and has been submitted for a degree award in any other university.

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

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## ABSTRACT

Initial Public Offer (IPO) is the first sale of stock by a private company to the public with the objective of raising funds for expansion and growth. Studies have shown that most IPOs long run underperformance of listed companies in the developed economies is because of a time-varying phenomenon. According to Rock and Ritter (1986), under pricing is necessary to induce uninformed investors to participate in IPO offering when faced with adverse selection from informed investors. This often leads to first day price not reflecting a fair value of the IPO. Ritter (1991) and Loughran and Ritter (1995) posit that a long-term investor who buys shares of a firm right after it goes public may realize abnormal negative risk-adjusted returns and long run underperformance. This study tried to show whether these findings apply to initial public offers issued at the NSE with the overall objective of determining the relationship between IPO mispricing and long run performance of companies listed on NSE in Kenya. The study is empirical in nature and involves the use of secondary data available at the NSE and CMA data base. Out of the 58 companies registered and trading at the NSE, only 13 were chosen for the study; that is companies that got listed between 2005 and 2011. Data analysis involves the use of descriptive statistics such as mean, variance, standard deviation, Pearson's correlation coefficient and regression analysis. Out of the 13 firms chosen for study, only 10 of them were underpriced which constituted to 76.92% of the population. The results of the study found that there is a positive relationship between offer price in the first day price with a significance level of + 0.021 and that under pricing has a negative relationship with long run performance with a negative coefficient of -0.158. The conclusion is that offer price affects under pricing.  $R^2$  of 0.395 showed that 39.5% is explained by the model with a lower standard error of estimate of 8.46. This study would be useful to various stakeholders such as institutions intending to list, policy makers, investors and the academia .Policy Makers would also use the study to design policies that guide the operations in the market with respect to IPO pricing and information dissemination in prospectuses about the companies intending to list in future. The findings of this study would also be important to academia as would help them identify any gaps existing in the initial public offer process.

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# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Competition for resources and desire for growth and expansion has led firms into coming with innovative ways of raising funds. While each individual firm intends to retain control, scarcity of funds often make companies let go control. At the onset, most companies start their businesses from 'bootstrapping'. This literally refers to individual savings when one 'pulls' himself from the ground with 'bootstrapping'. Besides this, there are venture capitalists who join into a collective investment vehicle and lend out the funds.

Initial Public Offer (IPO) is another method by which firms raise large amount of capital for growth and expansion. Using prospectuses, organizations woo future investors by selling the prospects of the company. Investment bankers act as an intermediary between the investors and the issuing firm through origination (giving financial advice), underwriting (undertaking risk) and distribution (reselling the securities to the public).

Recent studies have shown that most IPOs long run underperformance of listed companies in the developed economies is because of a time-varying phenomenon. Ritter (1991) find the matching firm adjusted cumulative average returns in three years are -29.1%. Aggarwal and Rivoli (1990) reports market adjusted returns of -13.7% from first day of trading to the 250 days of trading. The existence of abnormal initial surrounding IPOs implies that the first market price is on average significantly higher than the offering price. Factors such as level of IPO under pricing, market index fluctuations prior to and during IPO issue, size of the firms, and value of issue on the first day trading, age of the firm and level of subscription explain the abnormal return. There is room for research in this area in the developing economies to determine if these same factors also apply. This study therefore seeks to explore these determinants using the secondary data on listed companies at the Nairobi Securities Exchange (NSE), which recently made their IPOs. The secondary objective is to demonstrate the trends in returns of these listed companies in Kenya over a period of one year and be able to link mispricing and long run performance.

## **Initial Public Offers (IPOs)**

Initial Public Offer (IPO) is the first sale of stock by a private company to the public. IPOs are often issued by smaller, younger companies seeking the capital to expand, but can also be done by large privately owned companies looking to become publicly traded

At the Nairobi Securities Exchange (NSE), growth of IPOs has been associated with legal and regulatory framework by Capital Markets Authority (CMA). The government's investor incentives in the 2001/2002 national budget reduced the corporation tax rate from 30% (for local companies) and 32.5% (for foreign companies) to 25% on newly listed companies for three years from the date of listing encouraged companies to attain listing status. The companies are required to offer at least 20% of their share capital to the public. In addition, companies interested in listing at the NSE that have not paid their due taxes are eligible for a tax amnesty (forgiving past evasions of tax) subject to their full disclosure of assets, liabilities and income during the period immediately following their listing and subsequent payment of taxes due in full.

## **IPO Mispricing and Performance at the NSE**

In Kenya, some IPOs such as that of Safaricom Ltd. proved to be risky investment. Investors find it hard predicting what the stock will do on its initial day of trading and in the near future, because there is often no information to evaluate the company. In addition, most IPOs are of companies going through a transitory growth period, that exhibit high uncertainty with respect to their future values.

Improvement of market infrastructure through the development of an automated Central clearing, settlement and Depository System (CDS) intended to serve the East African region encouraged investments. The central depository system is a frontier in modernizing the stock trading process that reduced the period it takes to transfer the share from the seller to the buyer.

In an effort to recruit new investors into newly formed stock exchanges, policy makers in many developing and transition economies, employ politicized offer terms when conducting IPOs (Dewenter and Malatesta 1997)). Politicized offer terms consist of a number of state regulations that require shares of listing firms to be made accessible to large portions of the domestic population, which in developing countries includes lower income groups that do not normally have access to intangible securities. In what some describe as a populist approach to deepening

capital market participation, regulators often require that initial share prices be set artificially low (making shares affordable to a large portion of a low income country's population). They prohibit the use of book building or other competitive tender offers in setting initial share prices, and allocate large portions of shares to retail rather than institutional investors (Price Waterhouse 1998; Menyah et al. 1996; Jones et al. 1999)).

Considering that the majority of firm listings on emerging stock exchanges are privatizations of state-owned firms (Boutchkova and Megginson 2000), most listing firms do not object to these offer terms because the state owns both the listing firm and the regulatory agency that craft the terms of the IPO. One common outcome of these policies is that share prices in newly listed firms tend to increase dramatically in early trading. Since an underwriter sets an IPO's offer price without knowing its market value (arbitrary), investors can acquire information about its value and avoid overpriced deals ("lemon-dodge" i.e. engage in research and avoid an IPO that has been overpriced by the investment banker). The marked variation in average IPO initial returns (or under pricing) across time and across issuer types (tech firms and non-tech firms) has thus far eluded explanation just purchasing at the offer price knowing that there is a chance that he may lose money (a choice we refer to as "buying-the block") (Jagannathan and Sherman (2006)).

Since having a deal fail is very costly for the bank and the issuer (Jagannathan and Sherman (2006)), the bank's objective is to maximize the offer price subject to the condition that the deal succeeds. As there is a chance that the deal will fail if investors choose to 'lemon-dodge', the bank sets an IPO's offer price at the maximum level such that an investor finds remaining in his state of natural ignorance and buying-the-block to be the more profitable choice. Some theories seek to explain the fact of under pricing (most notably, the information extraction theory developed by Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990), but these theories cannot account for the variation in under pricing. Other theories seek to identify factors that might increase or decrease under pricing relative to what it would otherwise have been (Ploughman and Ritter (2002), Ljungqvist and Wilhelm (2003), but these theories take the fact of under pricing as given. Undervaluation of IPO shares is measured as the increase in share price during early secondary trading (Ritter 1991)).



Uncertainty surrounding the latest financial crisis has caused the average amount of IPO proceeds to decrease. There are substantial risks associated with the undertaking of an IPO for both managers and the firm (Latham and Braun, 2010)). Making the transition from public to private takes time, ( more than one year) requiring a huge commitment in terms of time, effort and financial resources on behalf of the organization. The financial costs tend to average approximately 7%-14% of the gross proceeds and eminent failure can lead to IPO withdrawal (Latham and Braun, 2010). The pecking order hypothesis posited by Myers and Majluf (1984) predicts equity to be the least desirable source of financing due to information asymmetry between managers and investors (Leary and Roberts, 2009). The theory sets funding priorities in financing the gaps as retained earnings (availability), debt (tax savings), and equity for cost and risk minimization.

## **Pricing of IPOs**

IPO pricing is one of the most intriguing topics in finance. Empirical evidence shows that underwriters do not incorporate all available information into the IPO offer price with the objective of under pricing. Researchers, including Beatty and Ritter (1986), Megginson and Weiss (1991), and Koh and Walter (1989), find empirical support for the importance of information asymmetry as a determinant of under pricing. The process of going public requires companies to issue a prospectus. The preliminary prospectus contains audited financial statements and information about the proposed offering, company background, risk factors, auditors and underwriters involved in the issuance. The prospectus generally provides a high and low filing price estimated before the underwriters market the stock. The underwriters or investment bankers market the stock to assess the market demand. Usually, the day before the stock begins trading; the final IPO offer price is set. The offer price incorporates both available financial information and what the underwriters learn about investor demand (book-building) during the marketing phase. Benveniste and Spindt (1989), Benveniste and Wilhelm (1990), and Spatt and Srivastava (1991) argue that the common practice of “book building” allows underwriters to obtain information from informed investors. Benveniste and Spindt (1989) posit that under pricing is related to the information underwriters obtain from informed investors during the registration period thus allows them to earn high returns on the first day of trading.

Consistent with this theory, Lundqvist and Wilhelm (2001) find that institutions who reveal valuable information during the registration period are rewarded with higher allocations when such information is positive. Cornelli and Goldreich (2001) and Hanley (1993) show that this private information learned during the registration period is only partially incorporated into the offer price. Loughran and Ritter (1999) find evidence that the first day return is related to publicly available information about pre-offer market returns. Benveniste and Spindt (1989), Hanley (1993) and Loughran and Ritter (1999), posit that only part of the information available about IPOs is impounded into offer price; the rest is incorporated into the first day return by investors. Hanley (1993) and Loughran and Ritter (1999) provide two pieces of empirical evidence that a partial adjustment phenomenon is present in IPO returns. First, an offer price that is higher than the filing price range leads to higher initial returns. Second, pre-offer market return is correlated with both the appreciation from filing price range to offer price and the first day return. Loughran and Ritter (1999) offer a prospect theory to explain why underwriters can under price issues on average without reproach. They suggest that under pricing by underwriters is intentional because it provides them with an indirect form of compensation. Issuers tolerate under pricing because it is associated with positive adjustments from filing price to offer price.

## **Performance of IPOs**

Ritter (1991) and Loughran and Ritter (1995) posit that a long-term investor who buys shares of a firm right after it goes public may realize abnormal negative risk-adjusted returns. Using a sample of more than 2000 IPOs during 1980-1997, Purnanandam and Swaminathan (2004) find that on average the offer price substantially exceeds the corresponding intrinsic value computed using multiples of firms in the peer group of the issuing firm. According to them, overvalued IPOs have large first-day returns but low long-run risk-adjusted returns. Krigman et al. (1999) find a link between the initial trading volume and the long-term performance. They conclude that first-day winners continue to be winners over the first year, and first-day losers continue to be losers except for extra-hot IPOs, which are seriously underpriced, and yield the worst future performance since major informed investors sell shares on the first trading day. Thus, sales of insiders indicate long-run negative performance. Loughran and Ritter (2000) posit that underperformance is more severe in high-volume trading periods than in low-volume periods.

## **Pricing and Performance of IPOs**

Empirical studies show that IPOs, on average, are underpriced relative to the first trading day closing price. Welch (1989) conducted a study on 1028 IPOs in the USA between 1977-reports an average under pricing of 26 %, Ritter's (1984) analysis shows an average under pricing of 26.5 %, Booth and Chua (1996) find an average under pricing of 13.1 % for a sample of 2151 IPOs during 1977-1988, and Keloharju (1993) cites an average under pricing of 8.7 % for Finnish IPOs. Ritter (1991) finds a positive relation between the initial day return and aftermarket underperformance. Loughran and Ritter (2000) posit that underperformance is more severe in high-volume trading periods than in low volume periods.

## **The Nairobi Securities Exchange (NSE)**

NSE is a market where securities are traded in Kenya. CMA is the regulatory body that formulates laws that regulate both the financial and the securities market traded at the NSE. Both CMA and NSE databases indicate that 12 companies were listed from different sectors between the year 2000 and 2011. The companies listed at the NSE are grouped into four major categories. These are: (1) Main Investment Market Segment (MIMS). This is further categorized into Agricultural, Commercial, Finance and Investments and Industrial and Allied firms; (2) Alternative Investment Market Segment (AIMS); (3) Fixed Income Securities and market Segment, and (4) Bonds market. Currently NSE has 58 companies listed in the market NSE 20 Share Index. Of these, one company was delisted from the securities exchange for flouting trading regulations during the period. Year 2006 had 3 listings, 2007 and 2008 had 2 listings each, while 2000, 2001, 2008 and 2010 had one each respectively. Improved corporate governance at the CMA and the NSE, demutualization of the securities exchange increased investor confidence has led to many companies going public.

The IPO market serves as an economic indicator due to its proven pro-cyclical nature (Lowry, 2003)). During an economic expansion, IPOs experience a —hot market characterized by an increased number of firms going public and increased proceeds, while —cold markets, occurring during a recession, exhibit low levels of IPO activity. Consistent with this hypothesis, Derrien and Kecskés (2009) report empirical evidence suggesting that 40% of the variation in equity issuance can be explained by economic fundamentals and information asymmetry— contributing

to the fluctuations in IPO volume. Investor sentiment hypothesis asserts that firms time an IPO in order to take advantage of overly optimistic investors. During these times, the market has a tendency to overvalue the company, decreasing the relative cost of equity. According to Ernst and Young, the IPOs can result in a number of benefits in addition to the immediate influx of capital due to proceeds raised during the offering. Once publicly listed on a stock exchange, a firm gains access to the public equity market, a source of capital previously inaccessible to the private firm. The Nairobi Securities Exchange (NSE), like many other markets has had an improvement in the number of companies getting listed. According to Ngugi and Njiru (2005) only three companies were listed on NSE between 1980-1989 while between 1990 and 1999 only nine companies were listed, four of which were part of the ongoing privatization process of government parastatals. Between 2000 and 2011 only 12 companies got listed on the NSE that raised over 72 billions Kenya shillings.

## **1.2 Research Problem**

Major securities exchanges in the world continue to record new issues annually injecting liquidity into the markets. Given the current state of the financial world, the lack of funding alternatives forces more companies to go public at an otherwise non-optimal time when investors are extremely wary about the future state of economy and consequentially potential investments. Several theories of IPO mispricing are based on information asymmetry thus underwriters encourage participation and price discovery by offering IPO shares at a discount. According to Rock and Ritter (1986), under pricing is necessary to induce uninformed investors to participate in IPO offering when faced with adverse selection from informed investors. This often leads to first day price not reflecting a fair value of the IPO. Ritter (1991) and Loughran and Ritter (1995) posit that a long-term investor who buys shares of a firm right after it goes public may realize abnormal negative risk-adjusted returns. Ritter (1991) finds a positive relation between the initial day return and aftermarket underperformance. Loughran and Ritter (2000) posit that underperformance is more severe in high-volume trading periods than in low volume periods. This is consistent with Krigman et al. (1999) who find a link between the initial trading volume and the long-term performance. Because of the information asymmetry that leads to IPO mispricing and long run underperformance, this study tries to show whether these findings apply to IPOs issued at the NSE.

### **1.3 Objective of the Study**

The overall objective of this study was to determine the relationship between IPO mispricing and long run performance of companies listed on Nairobi Securities Exchange, Kenya.

### **1.4 VALUE OF THE STUDY**

The findings of this study are useful to various stakeholders such as institutions intending to list, policy makers, investors and the academia .Policy Makers would also use the study to design policies that guide the operations in the market with respect to IPO pricing and information dissemination in prospectuses about the companies intending to list in future. The available information in the company prospectuses would enable investors make informed investment choices decision making. The findings of this study are important to academia as would help them identify any gaps existing in the IPO process and do research that would be able to fill these gaps while institutions intending to list will take advantage of researches about IPO to understand the market dynamics and list when appropriate.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

Most classic studies in the literature, including Rock (1986) and Benveniste and Spindt (1989), consider IPO initial returns as deliberately underpriced to compensate investors for information asymmetry. Hanley (1993) provides empirical support to Benveniste and Spindt (1989) by showing that IPOs with upward offer price adjustments have higher levels of under pricing. This implies that investors that show demand for shares are compensated by higher levels of under pricing. In contrast, there is another line of research suggesting that IPO prices are subject to investor sentiment. Miller (1977) developed a model under short-selling constraints and finds that the divergence of investors' opinions drives the IPO price higher than its intrinsic value due to optimistic investors. There is much empirical support for this kind of argument. Using valuation multiples, Purnanadam and Swaminathan (2004) find that IPO offer prices are actually higher than their intrinsic value as implied by comparable firms.

IPO has been a subject of debate among many finance scholars for decades. IPO firms are either older or larger with a track record (Panago et al., 1998; Chemmanur and Fulghieri, 1999) or young, but with higher cash flows (Schultz, 2003; Benninga et al., 2005,). Chemmanur and Fulghieri (1999) found that public firms are older and larger. Only firms with entrepreneurs who have accumulated a significant track record for successful performance find it optimal to go public. The transition from public to private can take a long time, requiring huge commitments in terms of time, effort and resources on behalf of the organization. The financial costs tend to average approximately 7%-14% of the gross proceeds (Latham and Braun, 2010) and eminent failure can lead to IPO withdrawal. The pecking order hypothesis posited by Myers and Majluf (1984) predicts equity to be the least desirable source of financing due to information asymmetry between managers and investors (Leary and Roberts, 2009). The theory sets funding priorities in financing the gaps as retained earnings (availability), debt (tax savings), and equity for cost and risk minimization. Growth of IPOs in Kenyan market has been associated with legal and regulatory framework by the Capital Markets Authority (CMA) between 2001/2002 and the

government's investor incentives in the 2001/2002 national budget. The finance minister made incentives in his budget speech that reduced the corporation tax rate from 30% (for local companies) and 32.5% (for foreign companies) to 25% on newly listed companies for three years from the date of listing. Lowery and Schwert (2002) argue that recent first-day stock performance of firms going public leads other firms to decide to go public. Choe, Masulis, and Nanda (1993) argue that firms prefer to go public when other good firms are currently issuing. Choe, Masulis, and Nanda (1993) and Lowery (2002) argue that firms go public when they reach a certain point in the business growth cycle and need external equity capital to continue to grow.

IPOs have been characterized with mispricing, and long run underperformance. These have been attributed to different valuation methods, industry and market conditions. Various theories have been advanced by scholars to explain these factors. Mispricing of initial public offerings is measured as the difference between the offer price and market price at the end of the first day of trading. Most studies in the literature related with IPO mispricing take the first-day market price as the "fair value" of the issuing firm and identify IPO mispricing by differentiating between the offering price and the first-day market price. This measurement presumes that the capital market is efficient. Extended from Purnanandam and Swaminathan's viewpoint (2004), the market might not be efficient and investors tend to be optimistic or overconfident on the first trading day of IPOs. Initial public offerings (IPOs) represent a group of shares about which relatively little is known when they appear on the market (Anderson et al., 1995; Draho, 2004, Jenkinson and Ljungqvist, 2001). Beatty and Ritter (1986), Rock (1986), and Baron (1982) assert that underpricing results from information asymmetry between the various parties involved in the IPO. Klein (1996) concludes that accounting information is important in IPO pricing. However, her measurement of book value is problematic because it uses ex post information affected by the offer price to explain the offer price itself. Kim and Ritter (1999) employed Price Earnings Ratio (P/E) on a sample of 190 IPOs in the US between 1992 and 1993 and concluded that historical accounting information is unimportant in pricing of IPOs.

## **2.2 Theories of Mispricing**

Theoretical literature classifies the theories of under pricing based on whether the information between issuer, underwriter and different groups of investors is assumed symmetric or not. Many scholars have advanced theories that explain mispricing based on the availability of information.

### **2.2.1 The ‘Winner’s Curse’ Hypothesis**

This theory is based on information asymmetry. It explains that since the number of shares being sold are fixed at a fixed time, those who have informational disadvantage relative to others will be worse off if they get the shares they ask for since they will create an excess demand that leads to oversubscription. This is evident from CMA data where out of the 12 IPOs issued between the years 2000 to 2011, 80% were oversubscribed by very wide margins [CMA Table I]. Information asymmetry surrounding firm value leaves the IPO market subject to the classic ‘lemons’ or ‘adverse selection’ problem (Akerlof, 1970). To overcome the problem associated with such informational asymmetries, signals are transmitted between the sellers of the company and market participants (Spence, 1973) who then make decisions to buy or not.

### **2.2.2 Ownership Dispersion Hypothesis**

The theory justifies the existence of IPO mispricing. Booth and Chua (1996) proposed that the benefit of greater ownership dispersion is that it increases stock liquidity that in turn reduces the firm’s cost of capital. Brennan and Franks (1997) proposed that greater ownership dispersion serves the interest of managers who do not want to be monitored by large shareholders, in which case under pricing may be viewed as agency cost. Evidence shows that under pricing is greater when the IPO is preceded by a rise in market prices, meaning that issuers are not fully raising the issue price when market conditions are favorable. This evidence is consistent with the Loughran and Ritter’s (2001) proposition that issuers do not mind “leaving money on the table” when they rise in the IPO more than they have expected. Rudd (1993) suggested that IPOs generate an average positive excess returns because underwriters are engaged in price stabilization. The price stabilization reduces the incidence of negative IPO returns and thus the average IPO return is positive.



### 2.2.3 Lawsuit Avoidance Hypothesis

Tiniç (1988) and Hughes and Thakor (1992) argue that issuers and underwriters under price IPOs as a form of insurance to cushion themselves against the likelihood and magnitude of future legal liability claims against them. According to them under pricing serves as a form of insurance for underwriters against legal liability and the associated damages. Consistent with this theory, empirical results showed that differences in legal risk factors can partially explain differences in under pricing across countries. Lowry and Shu (2002) examined the link between litigation risk and IPO under pricing by postulating two implications of the lawsuit avoidance hypothesis: the insurance effect and the deterrence effect of IPO under pricing. Under the insurance effect, IPO firms associated with higher litigation risk should under price their shares more to avoid being sued. Under the deterrence effect, higher levels of under pricing reduce the possibility of being sued and the expected legal liability costs. In order to resolve the methodological problems of previous studies, Lowry and Shu adopted a simultaneous equations system in a cross-sectional framework using a sample of 1,841 IPOs between 1988 and 1995. Their empirical results provide support for both the insurance effect and the deterrence effect of IPO under pricing. Turtle and Walker (2004) used a sample of 1,669 IPOs filed in the US between 1996 and 2000, and find no support for the lawsuit avoidance hypothesis in a simultaneous equations framework similar to Lowry and Shu (2002). They do not reject the lawsuit avoidance hypothesis as a potential explanation for IPO under pricing but point out that it has become less important in the US in recent years. They argue that two recent security law reforms, the 1995 Private Securities Litigation Reform Act and the 1998 Securities Litigation Uniform Standards Act, have significantly reduced the litigation risk borne by US issuers and their underwriters and have reduced the need to buy litigation insurance through under pricing. In addition, they observe that IPO characteristics, including under pricing, have little influence on plaintiffs' decision to file a lawsuit and that a firm's litigation risk is largely determined by events in the IPO aftermarket including unrelated industry downturns. Ritter (2003) points out that while class action lawsuits are frequent in the US, they are rare in Europe because of the difference in legal environments.

## **2.2.4 Information Cascades Hypothesis**

The 'information cascades' or 'herding hypothesis', developed by Welch (1992), assumes that, in aggregate, investors hold perfectly accurate information about the issuing firm. However, information concerning the value of the shares is highly uncertain for investors. Furthermore, it is assumed that it takes investment bankers time to approach interested investors because of their limited distribution channels. The hypothesis draws from the notion that potential investors base their investment decisions not only on their own information about the issue, but also on whether or not other investors, who were approached earlier, are purchasing. Welch (1992) further states that if investors learn about the value of the issued company by observing the behavior of other investors, issuers will under price their stock to create a cascade or herding of buyers. Subsequently investors either subscribed overwhelmingly to new issues or largely abstained, with very few cases in between, which is consistent with information cascades.

## **2.3 IPOs Mispricing and Long Run Underperformance**

The relationship between short-run and long run IPO returns are institutional arrangements in the IPO aftermarket that are unrelated to fundamentals seem to affect the IPO price dynamics. One observed pattern in IPOs concerns the existence of abnormal initial returns, whereby the first market price is on average significantly higher than the offering price. This adjustment is usually interpreted as evidence of IPO under pricing. Over the years, a large body of literature has documented the under pricing phenomenon (Logue (1973), Ibbotson (1975), Ritter (1984), Ibbotson, Sindelar and Ritter (1988). Ritter and Welch (2002) find an average first-day return of 18.8 percent when looking at 6,240 US IPOs issued between 1980 and 2001. The empirical evidence supporting under pricing is of the view that the closing price on the first day may not reflect fair value. A long-term investor who buys shares of a firm right after it goes public may realize abnormal negative risk-adjusted returns. Ritter (1991) and Loughran and Ritter (1995) provide empirical support for this observation. However, Brav, Geczy, and Gompers (2000) argue that the long-run underperformance of IPO may be due to insufficient correction for risk. They find that IPO firms have long-run returns that are similar to non-issuing firms matched by firm size and book-to-market ratios. Neither the initial-day return nor the fraction held by insiders seems to explain the value of the firm two years after going public. Jegadeesh,

Weinstein and Welch (1993) find that returns after the first day are just as effective in inducing future issuing activity as the first-day returns are. While providing evidence suggesting a positive relationship between managerial ownership retention and post- IPO operating performance, Jain and Kini (1994) find no support that firms that under price more produce superior operating performance after the IPO. There is strong evidence to support the fact that aftermarket performance is positively related to under pricing and negatively related to the size of the public float. Most of the literature on aftermarket performance concentrates on how IPO shares perform over three- to five years. Over those time horizons, IPO shares seem, on average, to perform poorly when measured against various benchmarks. Ritter (1991) finds that every dollar invested in a portfolio of IPOs purchased at the closing market price on the end of the first day of trading results in a terminal wealth of \$1.3447 over three years, while every dollar in the matching firm results in \$1.6168, a ratio of only 0.841 during the same period. He performed the study for a total sample of 1,526 US IPOs of common stock in 1975-84. The international evidence also supports the notion of poor long-run performance. Álvarez and Gonzáles (2001), Espenlaub, Gregory and Tonks (1998), Giudici and Paleari (1999), Leleux and Muzyka (1998) or Schuster (1996) all highlight low market-adjusted long-run returns for various European IPO markets. Jain and Kini (1994) extended this evidence to show that long-run performance is also accompanied by poor financial accounting performance post-IPO relative to pre-IPO performance.

However, because there has been a sustained effort to extend empirical evidence on IPO performance beyond the past two decades, it has become apparent that the results on long-run performance are sensitive to the time-period chosen. In a large out-of-sample test, Gompers and Lerner (2001) studied the five-year aftermarket performance of a sample of 3,661 US IPOs from 1935 to 1972 and found that the long-run performance of IPOs depends considerably on the method used for calculating returns and performance. The authors conclude...‘while the results do not rule out the possibility of more broad-based sentiment-driven mispricing, they provide little support of a distinct IPO effect..’ Another facet that has attracted much academic interest addresses the relation between short- and long-run IPO returns. One of the first to document the dynamics in aftermarket trading was Stoll and Curley (1970). They find that investors in new small issues floated in the US under Regulation A in 1957, 1959, and 1963, experienced lower

long-run performance. However, short-run price appreciation of the 643 companies in the sample was considerably greater than the appreciation of large-cap stocks. Bradley, Jordan and Ritter (2002) investigated the performance of IPOs around the expiration of the quiet period typically the first 25 calendar days in aftermarket trading when a company is still in registration and subject to a number of regulatory restrictions that prohibit certain activities, such as analyst coverage. Using a sample of 1,611 firms going public over the period 1996 to 2000, they find that firms, for which coverage is initiated, experience a significantly positive abnormal return of 4.1 percent in a five-day period surrounding the end of the 'quiet period'. This compares to an insignificant 0.1 percent for firms that do not have coverage initiated. Ritter (1991), Lerner (1994), Loughran and Ritter (1995, 2001) or Baker and Wurgler (2000) discuss another set of behavioral explanations for poor long-run performance. They suggest that stock prices periodically diverge from fundamental values, and that managers and investment bankers take advantage of overpricing by selling stock to overly optimistic investors. This in line with De Bondt and Thalers (1985) conjecture that, at least for low-capitalization stocks, there is a negative relation between past and subsequent abnormal returns on individual securities using holding periods of one year or more which they interpret as evidence of market overreaction. Timing, however, is driven by the attractiveness of the IPO market.

Investors seem to obtain losses due to holding shares of the firms that have recently carried out an IPO, compared to those firms that have not done so Ritter (1991). Recently, papers such as Barber and Lyon (1997), Kothari and Warner (1997), Fama (1998), Lyon *et al.* (1999) and Loughran and Ritter (2000) have argued that the method of performance measurement influences both the magnitude of the abnormal returns as well as the size and power of the statistical test. In consequence, the analysis of the long-run returns is directed towards a methodological approach. Evidence on the long-run performance of IPOs in Spain is limited and the results of the existent papers differ from each other. Ansótegui and Fabregat (1999) report the existence of long-run underperformance in the three-year period after the IPO. On the other hand, Farinós (2001) shows that IPO firms do not underperform in the period of 1 and 3 years after the IPO. The differences in the results of both papers can be explained by the different data base and also, by the different methodology followed to estimate the abnormal returns.

## CHAPTER THREE

### RESEARCH METHODOLOGY

#### 3.1 Introduction

The objective of the study was to determine the relationship between IPO mispricing and long run performance of companies listed on Nairobi Securities Exchange, Kenya. From a set of 58 companies currently listed at the NSE, 12 of them listed between 1996 - 2012 are selected for the study. Companies which were delisted or have not traded for over a period of one year are excluded from the list of companies whose data was collected for analysis.

#### 3.2 Research Design

The research design of study was empirical in nature involving the use of secondary data which was available at the NSE and the CMA data base. The data was collected, cleaned in Excel package before being analyzed using SPSS software.

Offer price of each IPO was compared with the opening sale price of the first day of sale to note if there was any price variation. Mispricing was determined as the difference between the offer price and the first day trading price. This figure is then adjusted with the index before and on the first trading day to get the intrinsic value. Similarly, for long run performance, the same regression model is developed with the same factors for a period of 12 months. This was applicable for investors who bought shares and held then for a period equal to or more than 12 months.

The research design of the study involves the use of secondary data available at the NSE and the CMA data base. Mispricing of IPOs is predicted on the first day of trading using the predictor variables in a multiple regression equation. Mispricing is determined as the difference between the offer price and the first day trading price. This figure is then adjusted with the index before and on the first trading day to get the intrinsic value. The adjustment is to correct the mispricing for market anomalies.

### 3.6 Data Analysis

This research was empirical in nature. The methodology involved determination of IPO mispricing by calculating the abnormal initial return. The abnormal initial return is a percentage return from the offering price to the first day market price. The result is further adjusted for what the market offered to get the performance level. Data was analyzed using descriptive statistics such as mean, variance and standard deviation and Pearson's correlation coefficient.

#### 3.6.1 IPO Mispricing

##### 3.6.1.1 Calculation Abnormal initial return (R<sub>i,t</sub>)

The abnormal initial return is the under pricing/overpricing of the IPO price. It is estimated as the difference between the closing price (P<sub>i,t</sub>) at time t offering price (P<sub>i,0</sub>) divided by the offer price as shown by the following model:

$$R_{i,t} = [P_{i,t} - P_{i,0}] / P_{i,0} \times 100$$

Where R<sub>i,t</sub> is the return of stock i at time t, P<sub>i,t</sub> is the price of stock i at time t, and P<sub>i,0</sub> is the offer price of stock i.

It was assumed that any price volatility between issue price and trading date is irrelevant to the investors who buy and hold till date of sale.

##### 3.6.1.2 Adjustment of abnormal initial return with the market index

This price is further adjusted against the market index a day before trading and on the first day trading to get the Market Adjusted Return (r<sub>mt</sub>) calculated as follows:

$$R_{mt} = [P_{m1} - P_{m0}] / P_{m0} \times 100$$

Where P<sub>m1</sub> is the NSE market index value 1<sup>st</sup> day of market trading, P<sub>m0</sub> is NSE index day on a day before trading. To adjust the initial abnormal returns, the following formula is applied:

$$A R_{it} = r_{it} - r_{mt}$$

To determine the level of mispricing, a multiple regression model was employed to find out factors that significantly affect under pricing of IPOs at the NSE as follows:-

$$Art = \alpha_0 + \alpha_1 F_{Age} + \alpha_2 F_{Size} + \alpha_3 O_{Offer\ Size} + \alpha_4 I_{Industry\ Type} + \alpha_5 S_{Level} + \epsilon$$

Where:

$A_{it}$  = Initial Abnormal Returns,  $F_{Age}$  = Age of the firm,  $F_{Size}$  = Size of the firm,  $O_{Offer\ size}$  = Size of the offer, and  $I_{Industry\ type}$  = Type of industry,  $S_{Level}$ -Subscription Level

*(Faint, illegible text, likely bleed-through from the reverse side of the page)*

	Model	Variable	Parameter	Standard Error	t-Statistic	p-value
Constant	1	Intercept	1.0372	0.2447	4.24	0.0001
		Age	0.0000	0.0000	0.00	1.0000
Size	2	Intercept	1.0372	0.2447	4.24	0.0001
		Age	0.0000	0.0000	0.00	1.0000
Offer Size	3	Intercept	1.0372	0.2447	4.24	0.0001
		Age	0.0000	0.0000	0.00	1.0000
Industry Type	4	Intercept	1.0372	0.2447	4.24	0.0001
		Age	0.0000	0.0000	0.00	1.0000
Subscription Level	5	Intercept	1.0372	0.2447	4.24	0.0001
		Age	0.0000	0.0000	0.00	1.0000

## CHAPTER FOUR

### Data Analysis, Results and Discussion

#### 4.1 Data Analysis

This chapter concentrates data analysis and presentation. Data was collected, analyzed and presented in frequencies and converted in percentage and thereafter presented in tabular forms. Analysis was done based on each question.

##### 4.1.1 Descriptive statistics

##### The under pricing Model

Under pricing is calculated as the difference between the offer price (Po) and first day returns (P1) in the model.

**Table 4.1: descriptive statistics**

Descriptive Statistics					
	N	Mean		Std. Deviation	Variance
	Statistic	Statistics	Std. Error	Statistic	Statistic
IPO share price_P0	12	11.8417	2.23573	7.74479	59.982
First day closing price_P1	12	17.2667	3.08908	10.70088	114.509
Percent under pricing*	12	1.00E10	18200.715	63049.127	3.975E9
Price_12 Months	10	14.241	3.4121	10.7900	116.424
Price_24 months	10	13.481	3.1617	9.9981	99.961
Price_36 months	10	10.403	2.5285	7.9959	63.935
Price_48 months	10	12.085	4.7189	14.9224	222.678
Valid N (listwise)	10				

Source: research data, 2012



Results from Table 4.1 shows that 10 out of 13 firms were underpriced and this constituted to 76.92% of the population. It can be read from the table 4.1 above that the longer the period the higher the variance the price is from the offer price e.g. price after 48 months had the highest variance of 222.678 which is also showing the highest deviation from the offer price with a standard deviation of 4.789.

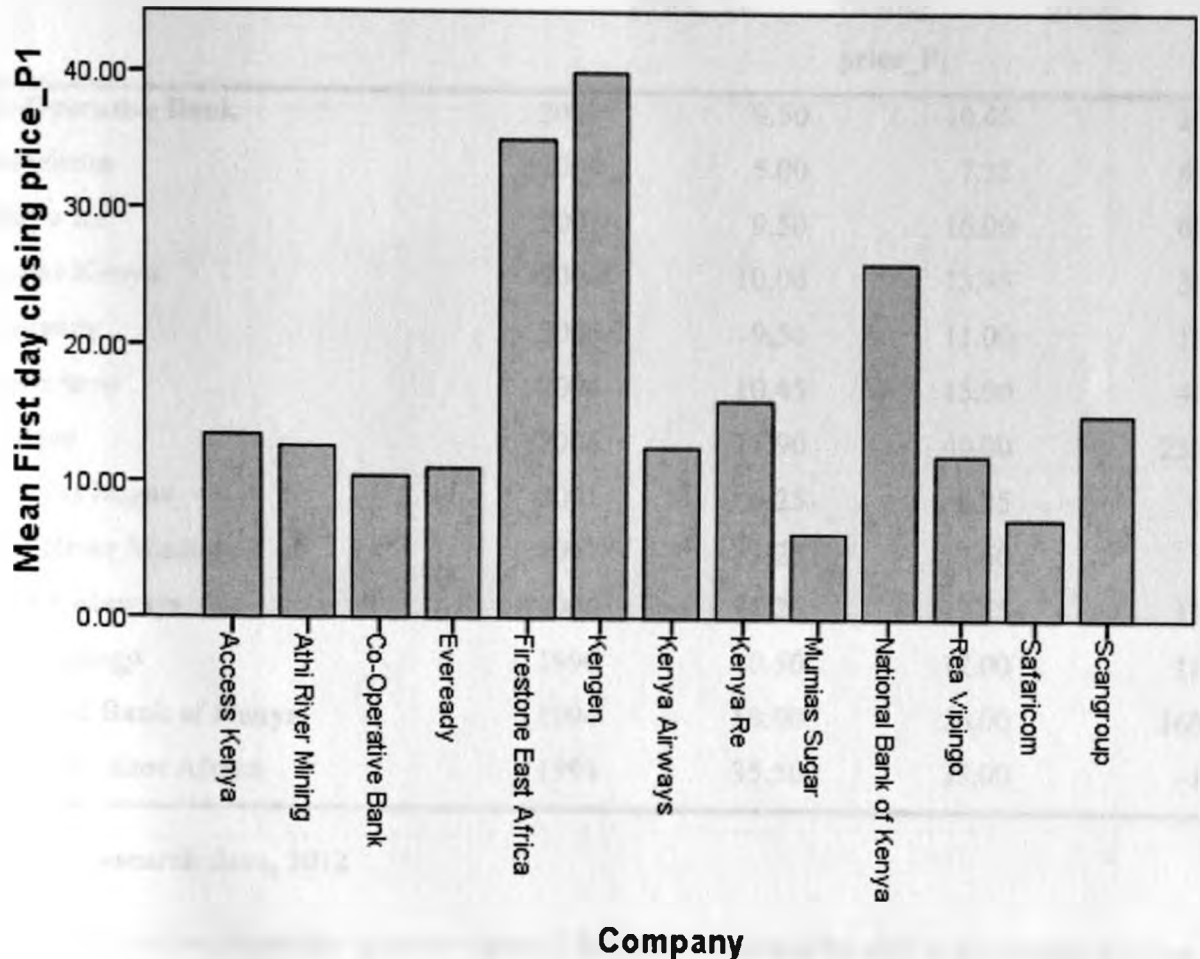


Figure 4.1: percentage under pricing

Source: research data, 2012

Figure 4.1 above also show the percentage under pricing of various companies listed in the NSE where Kengen has the highest percentage of under pricing of 40% and Mumias having the least of 6.25%. The same information is also shown on table 4.2 below

**Table 4.2: Table showing percentage under pricing**

<b>Company</b>	<b>IPO Year</b>	<b>IPO share price_ P<sub>0</sub></b>	<b>First day closing price_ P<sub>1</sub></b>	<b>Percent under pricing*</b>
<b>Co-Operative Bank</b>	2008	9.50	10.45	10%
<b>Safaricom</b>	2008	5.00	7.35	47%
<b>Kenya Re</b>	2007	9.50	16.00	68%
<b>Access Kenya</b>	2006	10.00	13.45	35%
<b>Eveready</b>	2006	9.50	11.00	16%
<b>Scangroup</b>	2006	10.45	15.00	44%
<b>Kengen</b>	2006	11.90	40.00	236%
<b>Mumias Sugar</b>	2001	6.25	6.25	0%
<b>Athi River Mining</b>	1997	12.25	12.60	3%
<b>Kenya Airways</b>	1996	11.25	12.55	12%
<b>Rea Vipingo</b>	1996	10.50	12.00	14%
<b>National Bank of Kenya</b>	1994	10.00	26.00	160%
<b>Firestone East Africa</b>	1994	35.50	35.00	-1%

**Source: research data, 2012**

The first day price shows the intrinsic value of the shares as would be sold in the market that day. Only one firm traded at par while one was overpriced by 1% and sold below offer price in the market.

Firms ranked by offer price show a trend show that there is no consistent trend that directly links the degree of under pricing to offer price. Firms that issued IPOs in the same year would be expected to have similar trend in the level of under pricing given the market conditions was the

	IPO share price_P0	First day closing price_P1	Percent under pricing*	Price_12 Months	Price_24 months	Price_36 months	Price_48 months
IPO share price_P0 Pearson Correlation	1	.625*	-.158	.517	.419	.347	.195
Sig. (2-tailed)		.030	.624	.126	.228	.326	.589
N	12	12	12	10	10	10	10
First day closing price_P1 Pearson Correlation	.625*	1	.665*	.571	.560	.282	.230
Sig. (2-tailed)	.030		.018	.085	.093	.430	.522
N	12	12	12	10	10	10	10
Percent under pricing* Pearson Correlation	-.158	.665*	1	.478	.497	.214	.191
Sig. (2-tailed)	.624	.018		.162	.144	.552	.597
N	12	12	12	10	10	10	10
Price_12 Months Pearson Correlation	.517	.571	.478	1	.890**	.790**	.482
Sig. (2-tailed)	.126	.085	.162		.001	.006	.158
N	10	10	10	10	10	10	10

Price_24 months	Pearson Correlation	.419	.560	.497	.890**	1	.911**	.754*
	Sig. (2-tailed)	.228	.093	.144	.001		.000	.012
Price_36 months	Pearson Correlation	.347	.282	.214	.790**	.911**	1	.854**
	Sig. (2-tailed)	.326	.430	.552	.006	.000		.002
Price_48 months	Pearson Correlation	.195	.230	.191	.482	.754*	.854**	1
	Sig. (2-tailed)	.589	.522	.597	.158	.012	.002	
		10	10	10	10	10	10	10

\*. Correlation is significant at the 0.05 level (2-tailed)

same. This is not true as there are disparities in the level of under pricing suggesting that there are other variables that responsible for under pricing.

#### 4.1.2: Correlations

Correlation table displays Pearson coefficients, significance values, and the number of cases with non-missing values and assumes that data is normally distributed. Pearson correlation is a measure of linear association between variables and varies between -1 and +1.

Results from Table 4.2 shows that Offer price is positively correlated with First day price with a coefficient of 0.628 with a significance level of 0.021. However, Pearson's correlation show

there is negatively related to the degree of under pricing at -0.158 at 5% significance level with a coefficient of 0.606.

**Table 4.3: Correlations**

**Source: research data, 2012**

A positive coefficient of .021, .326, .126, .030 and .589 for first day, after 12 months, after 24 and after 48 months consecutively shows that mispricing has an effect on the long run price performance of a share in the market. This information is shown on table 4.3 below

This shows that lower offer prices have higher degrees of under pricing and vice versa. This is consistent with the findings of (Megginson & Weiss, 1991), age of the firm (Muscarella & Vetsuypens, 1987; Barry & Brown, 1994; Megginson & Weiss, 1991; Logue, 1973; McDonald & Fisher, 1972) that offer size is largely associated with mispricing.

**4.2 REGRESSION RESULTS AND DISCUSSIONS**

**Table 4.4: Regression Models**

<b>Model Summary</b>				
<b>Model</b>	<b>R</b>	<b>R<sup>2</sup> Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
<b>Percentage under pricing</b>	0.158	0.025	-0.064	73.08377%
<b>First day Closing Price_P1</b>	0.628	0.395	0.340	8.46497

**a. Predictors: (Constant), IPO share price\_P0**

**Source: research data, 2012**

Table 4.4 shows the R, R<sup>2</sup> (squared), adjusted R and standard error of estimate. R is the correlation between the observed and predicted values of the dependent variable. R for the first day closing price is 0.628 showing that there is a strong correlation between under pricing and future price of the share.

**Table 4.5: Coefficients**

Coefficients(a)						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
First day closing price_P1	(Constant)	6.486	4.491		1.444	0.177
	IPO share price_P0	0.879	0.328	0.628	2.679	0.021
Percentage underpricing	(Constant)	66.998	38.773		1.728	0.112
	IPO share price_P0	-1.506	2.834	-0.158	-	0.606
					0.531	

Source: research data, 2012

A significant level 0.017, 0.021 from the table above shows that first day price of a share price has a significant effect on the performance of the share

**Table 4.6: ANOVA**

ANOVA(b)						
Model		Sum of Squares	df	Mean Square	F	Sig.
Percentage under pricing	Regression	1,507.727	1	1,507.727	0.282	0.606
	Residual	58,753.613	11	5,341.238		
	Total	60,261.340	12			
First day closing	Regression	514.276	1	514.276	7.177	0.021

price_p1	Residual	788.213	11	71.656
	Total	1,302.489	12	

a. Predictors: (Constant), IPO share price\_P0

b. Dependent Variable: Percent under pricing\*, First day closing price\_P1

Source: research data, 2012

$R^2$  is the proportion variation of the dependent variable (under pricing and first day price) explained by the model. Adjusted R corrects the anomalies in  $R^2$  values and shows the goodness of fit in the model.

From the table,  $R = 0.628$  shows that there is a strong relationship between offer price and under pricing and  $R^2 (0.395)$  shows that 39.5% is explained by the model with a lower standard error of estimate of 8.46. The significance value of 0.021 is less than 0.05 and therefore shows that offer price affects under pricing. This result therefore shows that initial offer price has significant effect on the future price performance.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATION

#### 5.1: Introduction

This chapter presents the summary of findings, conclusions and makes recommendations based on the study findings in chapter four. It also presents suggestion for further study in specific area related to the variables under study.

#### 5.2 SUMMARY

From the results, the first day price shows the intrinsic value of the shares as would be sold in the market that day. Only one firm traded at par while one was overpriced by 1% and sold below offer price in the market (see table 4.1)

The results show that Offer price is positively correlated with First day price at (0.628) with a significance level of 0.021. It is negatively related to the degree of under pricing at (-0.158) at 5% significance level of 0.606. This shows that lower offer prices have higher degrees of under pricing and vice versa.

A significant level 0.017, 0.021 from the tables 4.5, 4.6 shows that first day price of a share price has a significant effect on the performance of the share.  $R^2$  (0.395) shows that 39.5% is explained by the model with a lower standard error of estimate of 8.46. The significance value of 0.021 is less than 0.05 and therefore shows that offer price affects under pricing.

#### 5.3 CONCLUSION

Firstly, it can be concluded that there is a positive relationship between Offer price in the first day price with a significance level of +0.021. This value shows a there is a significance effect of the offer price on the performance of shares price in the market.

Secondly, It can also be concluded that under pricing has a negative relationship is negatively related to performance of shares with a negative coefficient of -0.158. This shows that lower offer prices have higher degrees of under pricing and vice versa.



Finally, A significant level 0.017, 0.021 from the table 4.4 shows that first day price of a share price has a significant effect on the performance of the share

It can also be concluded that offer price affects under pricing.  $R^2$  of 0.395 shows that 39.5% is explained by the model with a lower standard error of estimate of 8.46. The significance value of 0.021 is less than 0.05 and therefore shows that offer price affects under pricing.

### **5.3: RECOMMENDATIONS**

Firstly, since the study shows that there is a significant effect of the offer price on the performance of shares price in the market; where a negative coefficient of -0.158 shows lower offer prices have higher degrees of under pricing, the study recommends that the companies should set a higher price for the share to remain high in the market after offer.

### **5.4: LIMITATIONS**

The research study was limited to only 13 companies listed in the Nairobi Stock exchange due to finance and time constraints. Therefore, to generalize the results for a larger group, the study should have involved a larger area of study, may be in all the companies listed in the Nairobi stock exchange

### **5.5: SUGGESTIONS FOR FURTHER STUDIES**

In order to improve this study, the researcher would like to suggest the following for further investigation. Further research should be conducted on a longer period of study other than the period between 2005 and 2010 to get more reliable results

Further research could be conducted to all the companies listed in the Nairobi stock exchange and Comparisons could be done on whether or not there is any variation or similarity.

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