

**PRICING AND PERFORMANCE OF INITIAL PUBLIC OFFERING  
(IPO): A COMPARISON BETWEEN STATE OWNED ENTERPRISES  
AND PRIVATELY OWNED ENTERPRISES AT THE NSE**

**BY: SIMIYU EMILY NABUCHA**

**A Management Research Project submitted in partial fulfillment of the  
requirements for the degree of Masters in Business Administration,  
University of Nairobi.**

**October 2008**



## DECLARATION

This Research Paper is my original work and has not been submitted for examination in any other university.

Signed.....

Simiyu Emily Nabucha

D61/8939/05

Date.....22/11/08.....

This research paper has been submitted for examination with my approval as a University Supervisor.

Signed.....

Mr. Jay Gichana

Lecturer

Department of Accounting

University of Nairobi.

Date.....22.11.08.....

## **DEDICATION**

This research project is dedicated to my loving parents, dad Joseph Simiyu, mum Loice, my brothers and sisters, nephews and nieces for their immeasurable love, care and support.

## **ACKNOWLEDGEMENT**

I am greatly indebted to my supervisor Mr. Jay Gichana for his constant guidance, support and constructive comments throughout the research process.

To the MBA 2007 class particularly Hesbon, Angela, Beatrice, Caro and Patrick for their great comradeship.

To God, be all the honour and glory without whom I would not have made it this far.

To my family for the encouragement and urging me to press on even when the going was too tough.

## LIST OF APPENDICES

Appendix 1: Share Issues between 1992 -2008.....	47
Appendix 2: Privatization and private issues from 1992 - 2008 .....	47
Appendix 3: Three year Cumulative average Returns for Govt and Private IPOs.....	48
Appendix 4: NSF 20 Share Index constituent Companies.....	50
Appendix 5: Offer prices and 1 <sup>st</sup> day prices of IPOs and NSF Index .....	51
Appendix 6: Initial Underpricing .....	51
Appendix 7: t-test for short run underpricing.....	52
Appendix 8: t – test for long run performance .....	53
Appendix 9: Abnormal monthly returns for the IPOs.....	55

## LIST OF TABLES

Table 1: Level of initial Underpricing of IPOs on NSE.....	31
Table 2: Level of initial underpricing in privatization (Govt) IPOS .....	32
Table 3: Level of initial underpricing in private IPOS.....	32
Table 4: Descriptive statistics of Government IPOs and Private IPOs .....	33
Table 5: Testing for Differences in the Market –adjusted Returns on IPOs of Government IPOs versus Private IPOs.....	33
Table 6: Descriptive statistics on long run performance of Government IPOs and Private IPOs.	34

## **LIST OF ABBREVIATIONS**

<b>CAR</b>	<b>Cumulative Abnormal Return</b>
<b>DDM</b>	<b>Dividend Discount Model</b>
<b>DFCF</b>	<b>Discounted Free Cash Flows</b>
<b>IPO</b>	<b>Initial Public Offering</b>
<b>KCB</b>	<b>Kenya Commercial Bank</b>
<b>NSE</b>	<b>Nairobi Stock Exchange</b>
<b>US</b>	<b>United States</b>

## ABSTRACT

The study sought to examine the pricing and long term performance of IPOs of state owned enterprises and compared it with the performance of privately owned enterprises. The study was specifically motivated to find out whether there were differences in the underpricing and long run performance of privatization IPOs and private IPOs at the NSE.

Secondary data on new issues was obtained from the NSE. The data was analyzed for abnormal returns and a statistical test was performed using the t- test to establish whether there existed significant difference in the level of underpricing and the three year long run cumulative abnormal returns.

The results reveal that there seems to be a general tendency for privatizations to be underpriced to a greater degree than the private company IPOs. The average underpricing of privatization IPOs and private company IPOs was at 62.15% and 25.42% respectively. However, the difference in underpricing in initial mean returns is not statistically significant. In addition, over the long run, three year after listing, both the privatization and private IPOs underperformed the market. They both experienced negative three year cumulative abnormal returns with the private IPOs greatly underperforming with a CAR of negative 6% while privatizations had negative 32 %. Both the privatization and private IPOs are very popular as they experienced massive oversubscription. The high initial return on privatization IPOs may be as a result of deliberately chosen behaviour by the government as they pursue their political motives of wider stock ownership and political support for the privatization programme.

The major implication of this study is that for speculative investors both the private and privatization IPOs are a good investment in the short run due to the incidence of high initial returns as a result of average underpricing. However, the privatizations IPOs fetch higher initial returns as compared to the private IPOs. The long run underperformances imply that investors should not hold on to their private and privatization IPOs for the long term as they are better off buying stock in the market and selling it within the first month of trading.



## TABLE OF CONTENTS

DECLARATION.....	I
DEDICATION .....	II
ACKNOWLEDGEMENT.....	III
LIST OF APPENDICES.....	IV
LIST OF TABLES.....	V
LIST OF ABBREVIATIONS.....	VI
ABSTRACT .....	VII
<b>CHAPTER ONE.....</b>	<b>1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
1.1 BACKGROUND TO THE STUDY.....	1
1.1.1 IPO history in Kenya.....	3
1.1.2 General listing requirements.....	3
1.1.3 The going public process.....	4
1.2 STATEMENT OF THE PROBLEM.....	4
1.3 OBJECTIVES OF THE STUDY.....	5
1.4 IMPORTANCE OF THE STUDY.....	5
<b>CHAPTER TWO.....</b>	<b>7</b>
<b>2.0 LITERATURE REVIEW.....</b>	<b>7</b>
2.1 BACKGROUND.....	7
2.2 REASONS WHY COMPANIES GO PUBLIC.....	7
2.3 PRIVATIZATION PROCESS.....	9
2.4 OBJECTIVES OF PRIVATIZATION.....	10
2.5 IPO'S VALUATION METHODOLOGIES.....	11
2.6 IPO UNDERPRICING.....	12
2.7 THEORIES OF IPO UNDERPRICING.....	12
2.7.1 Asymmetric information.....	13
2.7.2 Institutional theories.....	16
2.7.3 Ownership and Control theories.....	16
2.7.4 Behavioral theories.....	17
2.8 WHY STATE OWNED IPO TEND TO BE MORE UNDER PRICED.....	18
2.9 LONG RUN PERFORMANCE.....	22
2.10 THEORIES OF LONG RUN PERFORMANCE.....	23
2.11 LONG RUN PERFORMANCE OF STATE OWNED IPOs.....	24
2.12 SUMMARY.....	25
<b>CHAPTER THREE.....</b>	<b>27</b>
<b>3.0 RESEARCH METHODOLOGY.....</b>	<b>27</b>
3.1 RESEARCH DESIGN.....	27
3.2 POPULATION AND SAMPLING.....	27

3.3	SOURCE OF DATA, DATA COLLECTION AND DESCRIPTION.....	27
3.4	HYPOTHESIS .....	30
3.5	DATA ANALYSIS .....	30
<b>CHAPTER FOUR .....</b>		<b>31</b>
4.0	<b>DATA ANALYSIS, FINDINGS AND INTERPRETATIONS.....</b>	<b>31</b>
4.1	SHORT RUN UNDERPRICING .....	31
4.2	LONG RUN PERFORMANCE .....	34
4.3	EXPLAINING THE SHORT RUN UNDERPRICING .....	35
4.4	EXPLAINING THE LONG RUN UNDERPERFORMANCE .....	36
<b>CHAPTER FIVE.....</b>		<b>38</b>
5.0	<b>SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH.....</b>	<b>38</b>
5.1	SUMMARY AND CONCLUSIONS .....	38
5.2	LIMITATIONS OF THE STUDY .....	39
5.3	RECOMMENDED AREAS FOR FURTHER RESEARCH.....	40
<b>REFERENCES .....</b>		<b>41</b>

## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 Background to the study

Going public is generally perceived as one of the most important milestones in a firm's life cycle (Ritter, 1991). It brings a long very many benefits that can't be obtained by staying private. It provides access to capital as well as increases the financing alternatives available to a company thus considerably lowering the cost of funding the company's operations and investments. Thus the role of raising capital on the securities market cannot be underplayed. By going public, a firm enjoys increased liquidity, publicity and prestige. In cases where employee stock purchase plan are instituted, there is increased employee commitment to productivity and work quality. However, at the same time, the company acquires new obligations in form of transparency and disclosure requirements, and becomes accountable to a large group of relatively anonymous shareholders.

Privatization is the modern word used to describe the transfer of the ownership and control of productive assets from government hands to the private sector. The goals of privatization include fostering the development of capital markets, institutions broadening share ownership, improving the economic performance of privatized enterprises and raising revenue (Dewenter & Malatesta, 1997). The pace, scope, and structure of privatization program indicate, however, that government place different weights on these various goals. Issuing of initial public offering is one of the ways in which governments divest from state owned enterprises. Accordingly, as noted by Weche (2005) Kenya has had highly successful public share offering of privatized enterprises.

Most companies that go public do so via an initial public offering (IPO) to investors. Thus IPO is the first sales of stock by a company to the public through investment banking firms. Private IPOs are issued by private companies while privatizations IPOs originate from state owned enterprises. IPO may involve issuing securities to the public in any of the following forms:

shares, notes and debentures. However, this study will focus on stock or equity issues of state owned and private firms.

The empirical literature on IPO has established three stylized empirical regularities or anomalies (Ibbotson, Sindelar and Ritter, 1994). The first known as the "new issue anomaly," is that on average IPO's are substantially under priced leading to frequent incidence of large initial returns for the investors who are able to buy shares at offer price. Considerable evidence shows that most IPO's across the globe are under priced on average leading to positive initial returns. However, there has been a general tendency for governments around the world to under price the privatization IPOs to a greater degree than their counterparts of private IPO's. Jenkinson and Mayer (1998) and Menyah and Paudyal (1996) have shown that underpricing on U.K privatization sales is greater than that on IPOs in the private sector.

The second regularity is that cycles exist in both volume and average initial returns of IPOs, "hot issue markets" in which average initial returns are unusually high and there are also high volumes and "cold issue markets" in which the average initial returns are unusually low (Ritter, 1998)

The third anomaly focuses on long run returns of IPOs, where it has been typically found that over a period of several months or years, the abnormal returns relative to the benchmark portfolio are usually significantly negative. Ritter (1998) documented international evidence on long run underperformance and established that most countries experienced poor stock price performance in the long run. However, Boardman and Laurin (2000) note that unlike private IPOs, privatization IPOs tend to outperform the domestic stock markets in the long run.

The pricing of IPO is one of the more puzzling phenomena in finance (Ritter, 2003). Share pricing is a delicate balancing game involving three parties namely investor, transaction adviser, and the issuer. The ultimate aim is to achieve 100% subscription i.e perfect equilibrium. If the price is set too high, it may fail and be withdrawn. If too low, there will be an opportunity loss to the issuing company. A major reason why most of the initial public offering is not correctly priced is because there is no observable market price prior to the

offering and most of the issuing firms have little or no operating history. The market decides that the IPO price is either undervalued or overvalued. Thus it might end up being overpriced or under priced.

### **1.1.1 IPO history in Kenya**

Over the last three years (2006 – mid 2008), there has been an upsurge of private and government owned firms approaching the Nairobi Stock Exchange (NSE) to issue new equity for the first time. Seven firms have been listed within this period showing a marked improvement relative to the period 2001- 2006 within which no IPO was floated. The government's commitment to the privatization programme and the insufficiency of traditional sources of funds like retained earnings and bank loans to finance the many profitable investment projects and expansion of young firms has immensely contributed to this increase.

Since 1984 to mid 2008, there have been a total of 24 IPOs, of which 9 were privatization IPOs while 15 were private IPOs. The first privatization IPO was the successful sale of government 20% stake in KCB in 1998. The recent June 2008 Salaricom issue where the government offloaded 25% of its shareholding was the largest IPO in the history of sub Saharan Africa, which was oversubscribed by a massive 432%.

IPO's on the Nairobi Stock Exchange have been successful as most of them have been characterized by overwhelming oversubscription clearly indicating their potential and popularity. The only dismal performance of IPO was in 2000 when the Anglo African Holding Ltd could not even meet their minimum subscription. Two companies, African Lakes and Kenya Finance Corporation have been since delisted from the NSE.

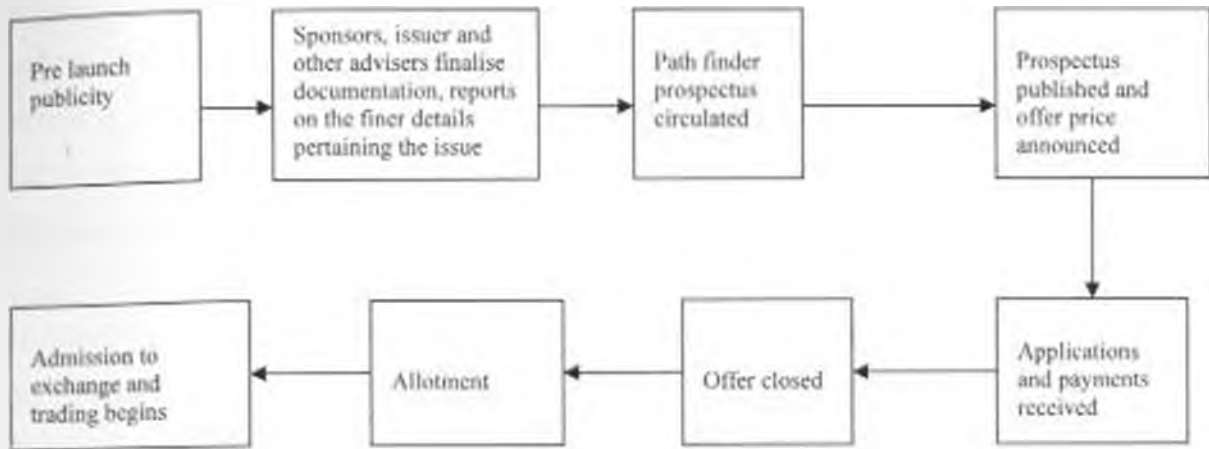
### **1.1.2 General listing requirements**

In Kenya, IPO's are regulated under the Capital Markets Act, Cap 485A (Capital Markets Securities, Public Offers, Listing and Disclosures) regulations. The general requirements for a company to be listed include the following; incorporation under the companies act, availability of reliable financial records, companies management, shareholding and core business must have remained substantially the same, an undertaking to comply with the rules of the market and an approved prospectus which is usually given for free.

### 1.1.3 The going public process

At NSF the listing stages follows the following steps in sequence.

Figure 1: NSE listing process



Source: *Nairobi stock exchange*

## 1.2 Statement of the Problem

Despite the existence of voluminous literature on IPOs, work explicitly comparing offers of state owned enterprises (privatization IPOs) to those of privately owned companies in terms of the level of underpricing and long run performance is scarce. The few studies that have compared the two IPOs have had conflicting findings and conclusions.

Choi and Nam (1998) compared the initial returns of privatization initial public offering to private sector IPOs internationally and concluded that there is a general tendency for privatization IPOs to be underpriced to a greater degree than IPOs from private owned enterprises. Vickers and Yarrow (1998), Jenkison and Mayer (1998) and Perotti and Guney (1993) in their study of the privatization process suggest that underpricing is greater for IPOs of state owned than of privately owned enterprises. On the other hand, Dewenter and Malatesta (1997) in their study on the international comparison of state owned public offerings and privately owned enterprises concluded that greater underpricing of privatization IPOs was evidenced only in the UK while in the other countries there was no significant difference

In addition, privatization IPOs are documented to outperform in the long run while the private IPOs underperform. Thus, the privatization IPO significantly outperform the market return of each nation, while private IPOs underperform the market (Choi, 1998)

Similarly, in the developing countries no study comparing the state owned and private IPOs has been done. Previous research in Kenya, Jumba (2002) and Maina (2004) only sought to analyze the performance of initial public offering. They concluded that the anomalies of short run underpricing and long run underperformance existed on the Nairobi Stock Exchange. This study therefore improved on their earlier research by seeking to find whether there exists any difference in the pricing and performance of state owned and private IPOs.

It's due to the apparent conflicting conclusions on the previous studies done that there was need to undertake the study on the Nairobi Stock Exchange. Therefore the study further attempted to investigate and compare the short run underpricing and long run underperformance of initial public offering of state owned firms and private owned firms

### **1.3 Objectives of the Study**

- To compare the average initial returns of privatization IPOs and initial public offerings of private companies.
- To compare long run IPO performance of state owned and privately owned firms.

### **1.4 Importance of the study**

#### **i. Investors**

The study will be important to the investors as they would know the IPO in which to invest in to take advantage of any potential underpricing and whether to hold on to the investment for the long term. The investors would also be enlightened on when to dispose off their investment in order to maximize their gains.

## **ii. Brokers**

They would be able to advise their clients appropriately on their choice of IPO depending on their investment objective of whether to invest for long term or short term so as to tap the higher initial returns.

They would also have a point of reference from where to start in the process of marketing the IPO. The more successful the IPO, the higher the commissions brokers make.

## **iii. Researchers and academicians**

The study will add value to other local and international studies on the area of IPOs. It will create more understanding on IPO pricing and performance hence adding to the existing pool of knowledge. In the local scene, it will form a basis for further research.

## **iv. Regulators**

The right price discovery, gains from privatization and success of past IPOs will encourage other companies to list thereby expanding the NSE. Growth of market will benefit the regulators.

## **v. Underwriters / investment bankers**

Right pricing increases their credibility in price discovery making them reliable. The study will also help them to minimize what to spend while buying the shares underwritten in the case of under subscription.



## CHAPTER TWO

### 2.0 LITERATURE REVIEW

#### 2.1 Background

Going public through an IPO is one of the most critical decisions a firm makes. It's also a complex and long process and requires that a firm complies with the set rules and regulations governing the stock market. Thus it requires proper planning and expertise. For the private firms, fresh capital is injected into the business for expansion and growth purposes. On the other hand, as noted by Weche (2005) many state enterprises to be privatized through public share offering must first be restructured to make them viable.

#### 2.2 Reasons why companies go public

Financing decision is one of the most important decisions in finance. Firms, decide to go public through initial public offering because they want to enjoy the benefits that they would not experience if they stayed private. Access to new finance, enhanced company image and publicity, motivation of management and employees and enhancement of business relationship are some reasons why firms go public (Roell, 1996).

Going public, provides the company access to a substantial source of corporate funding. The motives for new finance include prospects for growth by acquisition, funds for organic expansion and refinancing of current borrowings (Roell, 1996). Therefore, the company's financing alternatives are increased since additional capital can be raised through a secondary equity offering or bond issues. In most cases, public companies may enjoy a more favorable balance of equity to debt thus allowing for greater bank financing and better terms.

A successful initial public offering generates prestige, publicity and visibility which are an effective marketing tool for a company. Public listing provides not only an initial certification by financial market professionals but also a longer time price signal to suppliers, work force and customers (Stoughton, Wong and Zechner, 2001). The activities following an IPO

issuance like press releases, interviews, analyst's reports, daily stock performance and the mandatory quarterly and annual financial reports increases investors, consumers and financial community awareness. Though going public enhances product marketing, Stoughton et al (2001) argue that consumers react to the information contained in the stock price and do not base their purchase decision only on the going public decision of the firm.

Similarly, listing motivates management and employees. It's a natural response to the company's signal for growth, but more importantly, share participation schemes help retain and motivate senior management and employees (Roell, 1996). By instituting a stock purchase plan for employees, public companies elicit a stronger employee commitment to productivity and work quality. Stock option bonus arrangements are attractive compensation to executives as they link a portion of executive compensation to the company's future. A public offering helps a company gain prestige by creating a perception of stability which is important in recruiting key employees

The stock market also provides a managerial discipline advice both by creating the danger of hostile takeovers and by exposing the markets assessment of managerial decisions. Moreover, the shareholders of public company can use the information embodied in stock price to design more efficient compensation schemes for their managers (Holmstrom and Tirole, 1993).

Business relationship are also expanded and enhanced due to the closer scrutiny a listed company receives. In meeting the stringent disclosure and reporting requirements, the level of confidence of prospective suppliers, distributors, potential partner companies for joint venture is enhanced. Corporate governance requirements are also followed, leading to less corruption, tax compliance and maximization of shareholder wealth.

A successful initial public offering increases the visibility and appeal of the company, thereby increasing the demand and value for its shares. The decision to go public affects the liquidity of the company's stock as well as the scope for diversification by the initial holders of the company (Pagano, Panetta and Zingales, 1998). Share trading on an organized exchange is cheaper, especially for small shareholders who want to trade on short notice. Amihud and

Mendelson (1998) suggest that the liquidity increasing motive may explain why some firms list on the national exchange despite the costs and restrictions with such listing.

Lastly, going public facilitates mergers and acquisitions because of the increase in the companies valuation. Issuing of a firm's shares on a stock exchange is a means of cashing out for the initial owners. Divestment by the initial owners does not necessarily happen at the IPO, but rather tends to continue in the years following the IPO. The pattern of ownership post IPO is consistent with the view that going public is a vehicle for the disposal of shares by non directors (Brennan and Franks, 2003). For acquisition being financed by exchange of stock, public companies can offer a valuation determined by the market avoiding the complications that would face a private company. Zingales (1995) concludes that by selling the company by first going public the initial owners facilitate the acquisition of their company for a higher value than they would get from an outright sale.

### **2.3 Privatization process**

Privatization refers to the procedures through which a government transfers ownership of assets and control of commercial activities to the private sector (Dewenter and Malatesta, 1997). The sale of the government owned companies is carried out by three methods: fixed price share sales, tender and private placement. Private placement occurs when the government sells its assets to a private company or group of companies. Tender occurs when investors bid for shares of a state owned enterprises: specifying both price per share and quantity of shares they are willing to buy. In fixed price share sales, the government sets an offering price for shares and investors submit application for the number of shares they want.

Weche (2005) suggests granting leases and management contracts as suitable methods for privatization of strategic enterprises. For non strategic enterprises, the privatization method depends on factors as to whether the enterprises are operational and profitable and also the existing legal requirements. These include: liquidation, sale of assets, public share offering and private placement.

## 2.4 Objectives of privatization

The objectives of privatization are financial, efficiency and economic development, income distribution and political consideration which are briefly highlighted below.

Financial objectives largely contribute to privatization of state owned enterprises. Sader (1993) note that state owned enterprises all around the world performed poorly in spite of their relative competitive advantage. Their overall profitability was insufficient and the end result is that they have often become a drain to the exchequer and a means of patronage and sources of power and wealth for the policy makers. Privatization is aimed at maximizing net privatization receipts in order to fund other government expenditures, reduce the public sector/government fiscal deficit or repay domestic and foreign debt outstanding (Sader,1993). Privatization is also aimed at mobilizing private sources to finance investments that can no longer be funded from public finances. Privatization helps to reduce the government's financial burden and generates more revenue to the government because of better financial performance.

Privatization is usually implemented to achieve objectives of raising the operational efficiency and performance of the enterprise by introducing profit oriented decision making process (Vickers and Yarrow, 1988) It enhances efficiency and economic development. Privatization enhances private sector culture by introducing competition and entrepreneurship resulting in improved level and quality of products and services. Thus, privatization enhances efficiency and economic development.

The objective of privatization is to enhance economic distribution or redistribution. Jenkison and Mayer (1998) noted that privatization entails fostering broader widespread capital ownership and promoting development of national middle class. The government sells the shares to the public, allowing participation of the people in the exercise, allowing more people to be shareholders of entities created by public resources.

Political consideration is also an objective of privatization. Dewenter and Malatesta (1997) suggested that privatization is aimed at reducing the size and scope of public sector or its share

in economic activity which allows the government to concentrate on core governmental functions.

The pace, scope and structure of the privatization program undertaken indicate that governments place different weights on these various goals (Dewenter and Malatesta, 1997).

## 2.5 IPO's valuation methodologies

A firm conducting an initial public offering (IPO) needs to have its stock valued before the IPO, in order to determine a price range within which the stock will be offered to the public. The most widely used valuation approaches are the dividend discount model (DDM), the discounted free cash flow (DFCF) method, and the comparative valuation approach. However, in most cases lead underwriters use several methods to estimate the offer price (Kim and Ritter, 1999). Brealey and Myers (2002) argue that the issuer and underwriter compare the price earning ratio of the issuer with those of competitors. Working with discounted cash flows, the two parties are then able to point out a certain market value. While the issuer is anxious to secure the highest price of their stock, the underwriters are more cautious.

The Discounted Cash Flow method involves estimating future cash flows. A discounting factor is then applied to the estimated future earnings to give a fair equivalent present value (PV) of the firm. The estimated present value of the firm is then applied to determine a fair price for the shares based on the number of shares on offer. The higher the present value of the shares the higher the price of the share. Though several valuation methods are used for IPO valuation, DFCF is the most popular (Deloof, Maeseneire and Kone, 2002)

The comparative valuation method involves looking at comparable companies that are public and in the same business. Here the comparison is made on earning per share, market share, size of business, price earning multiples. The underwriter fixes the price by multiplying the firm's current P/E ratio with an industry wide P/E. A higher P/E ratio (the ratio of the price of a share to earnings) reflects confidence in the firm's future leading to a higher share price. Alford (1992) tests the accuracy of the price-earnings (P/E) valuation model for United States when comparable firms are selected on the basis of industry, firm size and earnings growth, by

comparing actual stock prices to predicted stock prices. His results show that selecting comparable firms by industry is relatively effective. Multiples can be based on historical earnings and cash flows or forecasted cashflows or earnings. Kim and Ritter (1999) valued a sample of IPOs in the US using P/E and price-to-book comparables, and found that when forecasted earnings are used, the accuracy of the valuation improves.

Multiples valuation and discounted cash flow appear to have similar valuation accuracy. Kaplan and Ruback (1995) examined the discounted cash flow and comparable firm approaches in the context of highly leveraged transactions, and concluded that both approaches are useful and reliable.

Lastly, the dividend discount model procedure values the price of stock by using predicted dividends and discounting them back to the present value. It's based on theory that a stock is worth the discount sum off all its future dividend payments. Underwriters base their fair value estimate on the DDM to a higher degree when the issuing firm is planning to pay out a higher proportion of its future earnings as dividends (Roosenboom, 2005)

## **2.6 IPO underpricing**

Financial literature suggests that on average most IPO are underpriced. IPO's are often priced at subscription significantly below the price at which they first trade allowing initial subscribers to earn abnormal positive returns on average. It's a recurring phenomenon in many markets and has been noted as one of the 10 puzzles in financial research (Brealey and Myers, 2002). Previous empirical research has also found that IPOs tend to be under priced leading to positive initial short run returns. A common perception is that the underpricing of IPOs is a challenge to market efficiency and may hurt emerging firms trying to raise capital for expansion. (Loughran and Ritter, 1995)

## **2.7 Theories of IPO underpricing**

According to Ljungqvist (2006) theories of underpricing can be grouped under four broad headings namely asymmetric information, institutional reasons, control considerations, and

behavioral approaches. The best established of these are the asymmetric information based models

### 2.7.1 Asymmetric information

The key parties to an IPO transaction are the issuing firm, the bank underwriting and marketing the issue and investors. Asymmetric information models assume that one of these parties knows more than the others. Underpricing is therefore an incentive used to stimulate the uninformed group to act in the interest of the informed one.

#### a) Winners curse hypothesis

An important rationale for the underpricing of IPOs is the "winners curse" explanation introduced by Rock (1986). This theory considers underpricing as a competitive outcome in an IPO market in which some investors are viewed as informed while a large group is viewed as uninformed. The informed group knows well the prospects of firms and therefore is able to avoid buying low value IPO shares. On the other hand, the uninformed investors have no information on firms value which results in a bias in the purchase towards less profitable equity shares. Further, the model posits that informed investors subscribe to IPOs only when they are underpriced while uninformed investors subscribe to every IPO. Anticipating this rationing bias, the uninformed group has no incentive to participate in buying shares. Thus underpricing is necessary to induce this group to enter the IPO market.

Rock's model thus predicts that uninformed investors face a winners curse adverse selection externalities. Thus, IPOs have to be underpriced on average so as to provide uninformed investors with acceptable rates of return. Beatty and Ritter (1986) extended the model and noted that expected underpricing increases in the ex ante uncertainty about the value of the IPO firm. The post floatation variability of share price is used as a proxy for this variability. A positive relationship is found between this proxy and discount involved in the offer price. An increase in uncertainty should be associated with higher underpricing (Beatty and Ritter, 1986).

### **b) Costly information acquisition hypothesis**

Book building involves underwriters eliciting indications of interest from investors which are then used in setting the price. If as Rock assumes some investors are better informed than either the company or other investors, eliciting their information before setting the price becomes one of the key tasks for the investment bank taking a company public. However, in the absence of inducements, it's difficult to revealing positive information to the underwriter. Thus investment bankers underprice IPO's to induce investors to reveal information during the pre-selling period. This is then used to assist in pricing the issues. Underpricing compensates investor for truthfully revealing their valuations.

Benveniste and Spindt (1989) develop a model where underwriters use underpricing to acquire superior information from regular clients. The underwriters, who control both price and allocation of IPO, conduct a road show during which they use underpricing to induce regular investors to truthfully reveal their private information.

### **c) Principal agent theory**

Barons (1982) model combines principal agent theory, asymmetric information and costly monitoring. The underwriters are assumed to have superior knowledge relative to issuing firm about pricing conditions in capital markets. Since the issuing firm (principal) cannot be able to perfectly monitor the underwriters (agents) efforts in marketing the new issue, the model predicts that underwriters tend to under price IPOs both to minimize their selling efforts and to maximize the probabilities of a successful offering. Besides, the underwriters' compensation is a function of the proceeds from the issue and post flotation price. The price discount serves to induce the investment banker to put enough effort in advising and selling the firm's shares.

Evidence found by Muscarella and Vetsuypens (1989) on investment banks going public, however refuted this model. Underpricing proved to be significant at IPOs by investment bankers as well even though no asymmetric information existed since issuers acted on their own agents in the going public process.



#### d) Signaling theory hypothesis

Signaling theories of underpricing focus on the differential information asymmetry between firms and investors. The models assume that the issuer has superior information about the value of the IPO firm. To overcome adverse selection of firms companies with favorable prospects are interested to signal their value and thereby convince potential investors to buy shares.

Equity retention by a firm is a mechanism of signaling high quality. The signaling theory applies to an issuer who intends to sell shares through an IPO and subsequent seasoned public offering. The underwriter may be induced to underprice an IPO to leave a good taste in the investor's mouth in order to capture buyers for the subsequent seasoned offerings (Ibbotson, 1975). Retaining equity can serve as a credible signal since it's costly for owners of low value firms to retain higher level of equity as the residual investment will be lower and the undiversified risk of their portfolio will be higher. Signaling of good quality by ownership retention is then only in the interest of high value firms (Ritter, 1994)

Underpricing is another signaling mechanism of quality. This reputation argument has been formalized by Allen & Faulber (1989), Welch (1989) and Grinblatt and Hwang (1989). Pricing initial offerings at a discount is a credible signal of firm quality; only good firms are expected to recoup the loss due to the initial underpricing. Thus high value companies may choose to underprice to signal to investors that they are high quality companies. This is clearly costly but if successful, signaling may allow the issuer to return to the market to sell equity on better terms at a later date.

However, a firm that retains a large portion of its equity may not need to discount substantially the offer price. Alternatively, when the issuer wants to sell a large proportion of its ownership, underpricing is necessary to convince investors that the firm is of high value.

The original shareholders can also signal firm's quality by the name and reputation of advising agents they hire. Titman and Trueman (1986) argue that the choice of a quality adviser or underwriter for a new market issue might provide signals about a company's IPO. Normally,

enterprises that have favorable information about their companies will go for a high quality underwriter. This would provide a good signal about the company's IPO to the market.

### **2.7.2 Institutional theories**

Institutional theories focus on three features of the marketplace: litigation, banks' price stabilizing activities once trading starts, and taxes.

#### **a) Law suit avoidance theory**

Stringent disclosure rules in the U.S expose underwriters and issuers to considerable risk of litigation by investors on the grounds that material facts were mis-stated or omitted from the IPO prospectus. Lowry and Shu (2002) estimate that nearly 6 percent of companies floated in the U.S between 1988 and 1995 subsequently were sued for violations relating to the IPO, with damages awarded to plaintiffs averaging 13.3% of IPO proceeds. Tinic (1988) argue that intentional underpricing may act like insurance against such securities litigation.

To avoid any negative legal effects, as well as adverse publicity and damage to reputation, a risk averse underwriter may try to keep investors happy by persistently underpricing IPOs.

#### **b) Stabilization hypothesis**

Stabilization is the process of buying large numbers of shares in the immediate aftermarket in an effort to prevent the price from falling.

According to Ruud (1993) IPOs are not deliberately underpriced but rather are priced at expected market value but offerings whose prices threaten to fall below the offer price are stabilized in the after market trading. He argues that the practice of stabilization by investment bankers results in average initial returns that are substantially overstated

### **2.7.3 Ownership and Control theories**

Control theories argue that underpricing helps shape the shareholder base so as to reduce intervention by outside investors once the company is public.

### **Ownership dispersion hypothesis**

Brennan and Franks (2003) argue that underpricing gives managers the opportunity to protect their private benefits by allocating shares strategically when taking their company public. It's a means to entrench managerial control. Issuing firms may intentionally underprice their shares in order to generate excess demand resulting to oversubscription and rationing in share allocation process. Rationing allows discrimination between applicants for shares, and limits block size of the new shareholdings. This in turn reduces the possibility of management being subject to either close scrutiny by a larger shareholder or to a hostile takeover.

### **2.7.4 Behavioral theories**

Behavioral theories assume either the presence of 'irrational' investors who bid up the price of IPO shares beyond true value, or that issuers suffer from behavioral biases causing them to put insufficient pressure on the underwriting banks to have underpricing reduced.

#### **a) Cascades**

Welch (1992) shows that 'informational cascades' can develop in some forms of IPOs if investors make their investment decisions sequentially: later investors can condition their bids on the bids of earlier investors, rationally disregarding their own information. Successful initial sales are interpreted by subsequent investors as evidence that earlier investors held favorable information, encouraging later investors to invest whatever their own information. Conversely, disappointing initial sales can dissuade later investors from investing irrespective of their private signals. As a consequence, demand either snowballs or remains low over time. The possibility of cascades gives market power to early investors who can 'demand' more underpricing in return for committing to the IPO and thus starting a positive cascade. It is in this sense that cascades may play a role in explaining IPO underpricing.

#### **b) Investor sentiments**

The investor sentiment approach focuses on after market pricing, and argues that irrational investor over optimism may drive up the prices of IPOs resulting in the underpricing. Investor demand for IPOs is subject to "fads" rather than valuation based fundamentals, this investor sentiment leads to initial underpricing and long run underperformance of IPOs.

Ijungqvist, Nanda, and Singh (2004) assume that some sentiment investors hold optimistic beliefs about the future prospects for the IPO company. The issuer's objective is to capture as much of the 'surplus' under the sentiment investors' downward-sloping demand curve as possible, that is, to maximize the excess valuation over the fundamental value of the stock. In their model underpricing is fair compensation to the institutional investors for the risk of holding inventory given that the sentiment demand is uncertain and could suddenly end. Eventually, nature reveals the true value of the stock and the price reverts to fundamental value. That is, in the long-run IPO returns are negative, consistent with the empirical evidence in Ritter (1991) and others. Most obviously, the model predicts that companies going public in a hot market subsequently underperform, both relative to the first-day price and to the offer price.

#### **c) Prospect theory and mental accounting**

Loughran and Ritter (2002) propose an explanation for IPO underpricing that stresses behavioral biases among the decision-makers of the IPO firm, rather than among investors. This theory assumes that entrepreneur care more about the change in their wealth rather the level of wealth. It predicts that in most IPOs wealth loss from initial underpricing will be less than the gains on shares retained by the pre issue shareholders. The share holders are therefore happy with a net gain in wealth.

#### **2.8 Why state owned IPO tend to be more under priced.**

Political motives dominate the theories on underpricing of state owned enterprises IPO's. Choi and Nam (1998), Vickers and Yarrow (1998), Jenkinson and Mayer (1998) and Perotti and Ciuney (1993) postulate theories suggesting that governments deliberately underprice IPO's to achieve political objectives such as wider stock ownership, buying political support for the privatization programmes, promoting capital market development and increased probability of re election.

Government issuers would pursue either political or economic objectives (Dewenter and Malatesta, 1997). For some, maximizing privatization proceeds may be part of a strategy for attaining some specific fiscal objective like reduction of public debt. Government officials

would underprice shares to build domestic political support for an overall program of privatization. Underpricing can serve to also to promote widespread development of liquid domestic capital markets (Vickers and Yarrow (1998), Jenkison and Mayer (1998). In addition, allocation rules can be used to direct underpriced shares to firm employees who might otherwise impede privatization transactions (Dewenter and Malatesta, 1997). In some instances, government officials may seek to benefit indirectly by underpricing shares and allocating them to political allies. These political objectives suggest that government officials have stronger incentives than private issuers to underprice IPOs and that they do so to a greater degree. Given the greater underpricing, the initial returns to investors in privatizations tend to exceed those to investors in private company IPOs.

On the contrary, since the privatized state owned enterprises are typically large and well known with a long track record as compared to most private IPOs which are for new and little known companies, the privatization IPOs are subject to less business risk, and hence should be far less underpriced (Perotti, 1995). In addition, the extent of information asymmetry and its impact underpricing should be greater for the private company.

The traditional view supports that governments around the world tend to underprice initial offers to a greater degree than do the issuers of private IPOs. Vickers and Yarrow (1998), Jenkison and Mayer (1998), Choi and Nam (1998) and Perotti and Guney (1993) all suggest that underpricing is greater for IPOs of state owned than for privately owned companies. These underpricing are mostly attributed to political motives which are highlighted as below.

#### **a. Policy uncertainty**

Underpricing of privatization IPOs is attributed to uncertainty of government policy towards the privatized firm. Perotti (1995) presents a signaling model where IPOs of state owned enterprises are associated with the uncertainty regarding the direction of future government policies that may affect firm value. He argues that the degree of underpricing is positively related to uncertainty. If the market is efficient, a discount will be required to induce private investors for this ex ante uncertainty.

Based on the government's inability to commit to future policy and the resulting uncertainty for investors, privatization IPOs are characterized by partial sale, gradual sales and underpricing. A partial sale and its underpricing are signals of commitment and gradual sale are signs of a government's willingness to bear residual risk (Perotti, 1995). It will therefore not effect a policy change that will affect the value of the firm, since it knows it will sale its remaining stake at a higher value. Moreover, an uncommitted government cannot expect higher proceeds from subsequent sale and is therefore not willing to underprice the initial sale. In addition, Dewenter and Malatesta (1997) argue that underpricing occurs only when the optimal stake retained by the government is high.

However, policy uncertainty is less likely to affect private IPOs. Ritter (1984) found no relationship between initial returns and value of uncertainty of private IPOs. Perotti (1995) also confirms that unlike state owned enterprises, private ones are not as much affected by policy uncertainty.

Privatizing governments can alleviate investors' worries about future government's interference by allocating underpriced shares to favored constituencies, who are median income voters (Bias and Perotti, 1997). If this is the case, the number of shares sold at privatization IPOs and the associated underpricing will increase with the income inequality in the country.

#### **b. Wider stock ownership**

The greater underpricing of state owned enterprises could also be in support of wider stock ownership hypothesis. Jenkinson and Mayer (1988) and Vickers and Yarrow (1988) hypothesized that underpricing is greater for IPOs of state owned enterprises when the government objective is wider stock ownership. Governments typically prefer share issue privatizations which involve millions of domestic investors to generate considerable spill over benefits to for their economies. In the interest of developing their capital markets by enhancing liquidity and broadening equity ownership, privatizing governments often gladly sacrifice some proceeds from IPO transactions by underpricing the IPOs (Guedhami and Pittman, 2006). It will intentionally underprice their shares in order to generate excess demand

and attract a large number of small investors. Governments in countries with relatively primitive capital markets are those most likely to promote broader share ownership by deeply discounting privatization shares in IPOs (Dewenter and Malatesta, 1997).

Significant underpricing may induce excess demand, requiring rationing thereby encouraging diffuse ownership by favoring domestic retail investors as Bias and Perotti (1997) indicate. The dispersed ownership will increase both liquidity of the market and a future takeover difficult. Subrahmanyam and Titman (1999) argue that share issue privatizations can precipitate a snowball effect with countries enjoying impressive growth as the greater market liquidity and efficiency becomes an important catalyst for firms to go public.

#### **c. To enlist employee support**

In many government owned firms, a portion of stock is reserved for purchase by employees of a privatized firm. Selling underpriced shares to employees helps to create support from insiders which is an essential condition for the success of privatization. Without an employee's acceptance, a change in ownership might be impossible to realize.

Dewenter and Malatesta (1997) postulate that where the shares are greatly underpriced, allocation preferences are used to enlist employee political support. They suggested that initial returns in IPOs where a stock tranche is reserved for employee should exceed initial returns where there is no such reserved tranche. They found that the average initial return for 90 privatization with an employee share allocation equals 28.2 % and that the average initial return for 13 privatization without employee share allocation equal 6.7%.

The practice of allocation of shares to employees creates stronger labour support for privatization and stimulates employee contribution to an efficient company operation following the ownership change which are necessary conditions for the success of the transition (Perotti, 2002)

#### **d. Barring of foreign participation**

It's plausible that when governments choose to deeply discount privatization shares, they also seek to bar foreigners from taking up any part of the offer. Otherwise the offer would transfer wealth to foreigners. Therefore, in offers barring foreign participation, relatively high initial returns are predicted. Dewenta and Maletsa (1997) found that the average initial return for 15 privatization without foreign share tranche is 31.2% which exceeds the average for 84 privatization with foreign tranches which equals 25.8%. However, this is not the case for Kenya.

#### **e. Lack of listed comparable firms**

Furthermore, similar to Mauer and Senbet (1992), Perotti and Giuney (1993) argue that underpricing is greatest when the privatized firm is entirely new to the market and there are no companies in the same industry listed. Most state owned enterprises tend to be monopolies and therefore there are no comparable companies listed thus information which can be used to price the privatized firm is limited. Consequently, the pricing decision becomes more difficult and as a result the level of underpricing is greater.

However, Vickers and Yarrow (1998) do not elaborate on the precise cause of underpricing, whether it is due to a risk premium to compensate investors, a conservative price setting decision due to lack of information or an alternative reason.

#### **f. Defense against hostile takeovers**

Moreover, sizeable underpricing of privatization IPOs as Shleifer and Vishny (1986) pointed out may be used as a good defense against hostile takeover attempts. Diverse ownership makes it infeasible and very expensive to assemble a large block of shares for a takeover attempt.

### **2.9 Long run performance**

A large body of evidence shows that on average, IPOs underperform in the aftermarket. Ibbotson and Ritter (1995) provide international evidence of long run underperformance.



Ritter (1991) finds a significant mean market return of - 24.33% at the end of 3<sup>rd</sup> year following the offering of a sample of 1526 IPOs over the period 1975 to 1984.

Similar underperformance has been documented in many other countries including London (Levis, 1993) and Latin America (Aggarwal, Leal and Fernandez, 1993). In Kenya, long run IPO underperformance is documented by Jumba (2002) and Maina (2004).

## **2.10 Theories of long run performance**

The following three theories have been advanced to explain the phenomenon of long run underperformance of IPOs.

### **a. Window of opportunity hypothesis**

If there are periods when investors are especially optimistic about the growth potential of companies going public, the large cycles in volume may represent a response by firms attempting to time their IPO's to take advantage of these swings in investor sentiment. Managers will therefore time their offerings to coincide with periods of unusually high and transitory high performance. As noted by Jain and Kiini (1994), successful timing or window dressing actions undertaken by the issuers may lead potential investors to have high and systematically biased expectations of earnings growth in the post issue period.

Ritter (1991) and Loughran and Ritter (1995) argue that the long run returns on IPOs are consistent with issuers taking advantage of windows of opportunity in which markets is willing to overpay for equity. Maina (2004) maintains that the implication of long run underperformance of IPOs mean that the shareholder of these shares who hold them over a long time lose value through time.

### **b. Impresario hypothesis**

This hypothesis argues that IPOs are subject to fads and investment bankers create an appearance of excess demand. Shiller (1990) advances an impresario theory whereby the investment bankers (impresarios) underprice IPOs to create the appearance of excess demand.

The *Impresario hypothesis* predicts that companies with the highest initial returns should have the lowest subsequent returns (Ritter 1991)

### c. Divergence of opinion hypothesis

Optimistic investors may value the IPO higher than the pessimists. If there is a great deal of uncertainty about the value of the IPO then the valuations of optimistic investors may be much higher than those of pessimistic investors. Ritter (1991) and Loughran and Ritter (1995) argue that the long-run stock under-performance of IPOs can be explained by the investors' high expectations upon the issue (optimism) and their downward adjustments of these expectations in the aftermarket (pessimism). Miller (1977) notes that over time, information becomes available and thus the market price drops implying that the IPO underperforms in the long run. Thus fads or over optimism may lead to overvaluation of equity market which leads to underperformance in the long run.

## 2.11 Long run performance of state owned IPOs

Privatization IPOs, unlike private IPOs tend to significantly outperform their domestic stock markets in the long-run. Boardman and Laurin (2000) in their comparison of British and non-British share issue privatization document an over performance of share issue privatization over three years following privatization on both raw and market adjusted buy and hold returns.

Dewenter and Mulutesta (2000) also document statistically significant positive long run market adjusted returns for a sample of 102 share issue privatization from developing and developed countries.

State owned enterprises especially in developing countries are usually perceived as bad performers and few of them appear as profitable as private firms. Therefore, investors are expected to have rather low expectations as to whether privatized firms will be turned around in the near future. However as the firms undergo change in their ownership, management and objectives, released information about their improved performance in the post privatization could build confidence among investors who will then value the firm accordingly. In this case we should observe an increasing confidence among the investors as to the profit prospects of newly privatized firms.

Boubakri and Cosset (2000) note that investors expectations are low at the time of issue but readjust upwards over time, which could provide a possible explanation for positive returns for share issue privatizations over the three year they documented. This implies that the privatization firms are valued below their market counterparts subsequently. Therefore while investors in private initial public offering are optimistic but grow disillusioned over time, investors in initial public offer of state owned enterprises are pessimistic at the beginning of the privatization process but grow more confident with time. Thus by the third year, they seem to value the earning potential of privatized firms more than the private firms in the market. These results for privatization seem to confirm that the stock price performance of equity offering reflects the change in investor expectation.

According to Boubakri and Cosset (2000) the percentage retained by the government has a positive and significant coefficient. Therefore, the more the shares the government retains in the privatized firm, the higher the probability that it intervenes in firms operations through its retained ownership. Investors in turn, are compensated for this additional risk by higher returns over the years.

Boubakri and Cosset (2000) note that the percentage of foreign investor involvement in an IPO enhances the value of the firm and benefits the investors in the long run. Thus IPOs which allow foreign investor participation will tend to outperform in the long run.

Improved profitability will impact positively on the share prices. Since performance of privatized firms mostly improves they tend to outperform in the long run. Weche (2005) noted that performance of privatized firms through the NSSE improved in terms of profitability, liquidity, leverage and action ratios. Also, Hongo (2006) compared the partial and rapid privatization of firms through NSSE found that in both cases profitability of firms increased significantly after privatization. The performances increases are usually reflected in the share prices and thus this positive impact is noted in the long run.

## 2.12 Summary

There have been few studies comparing the level of underpricing and long run performance of state owned enterprises to those of privately owned companies. There has been a general

tendency for governments around the world to under price the privatization IPOs to a greater degree than their counterparts of private IPO's. Jenkison and Mayer (1998), Vickers and Yarrow (1998), Choi and Nam (1988) and Perotti and Gunev (1993) all suggest that underpricing on privatization sales is greater than in the private sector IPOs. In the long run, they documented outperformance of privatization IPOs and underperformance for the private IPOs. However, Dewenter and Malatesta (1997) in their study on their international comparison of state owned public offerings and privately owned enterprises concluded that greater underpricing of privatization IPOs was evidenced only in the UK while in the other countries there was no significant difference. The greater underpricing in privatization IPOs was mostly attributed to political motives such as wider stock ownership, buying political support for the privatization programmes, promoting capital market development and increased probability of re election.

In Kenya, Jumba (2002) and Maina (2004) analysed the performance of IPOs and concluded that short run underpricing and long run underperformance existed on the NSE. They did not go further to compare the private and privatization IPOs. This study therefore compares the pricing and performance of state owned enterprises and privately owned enterprises at the NSE.

## **CHAPTER THREE**

### **3.0 RESEARCH METHODOLOGY**

#### **3.1 Research Design**

The study sought to analyze and compare the short run and long run performance of privatization (state owned enterprises) IPO's to those of private firms. The study sought find out if there was significant difference between the level of underpricing and long run performance of privatization IPO's to private IPO's. The initial average returns and cumulative average returns for the three-year period of the two sets of IPOs was compared. The parametric t test was used to measure the statistical significance.

#### **3.2 Population and Sampling**

The population of the study comprised all companies quoted at NSE between 1992 and 2008 as shown in (Appendix 1). However, the companies deregistered during these periods were excluded. There was no sampling since all the new issues offered between 1992 and 2008 and thus the census method was applied. These issues related to common stock only.

#### **3.3 Source of data, Data collection and description**

The study made use of secondary data, which was obtained from the NSE. The data of interest was from initial public offers, which were quoted between 1992 and 2008. These included; the offer price of the listed firms, the daily prices and performance of NSE index.

The initial time period was used to measure the level of underpricing and was defined as offering date to the first day closing price listed on the NSE. After market period, measuring the long run performance was defined as three years after IPO exclusive of the initial return period. The NSE 20 share index a proxy of the market index was used as the benchmark or performance indicator.

### Initial performance

The methodology used by Aggarwal, I eal and Hernandez (1993) was adopted to measure the short run performance for each IPO and groups of IPOs

The return of stock  $i$  at the end of the first trading day is calculated as

$$R_{i1} = (P_{i1} / P_{i0}) - 1 \quad (i)$$

Where  $P_{i1}$  is the closing price of stock  $i$  on the first trading day

$P_{i0}$  is the offering price.

$R_{i1}$  is the total first day return on the stock

The return on the NSE index for the corresponding time period is

$$R_{m1} = (P_{m1} / P_{m0}) - 1 \quad (ii)$$

where  $R_{m1}$  is the first day comparable market return

$P_{m1}$  is the closing NSE index value on the first trading day.

$P_{m0}$  is the value of the NSE index corresponding to the offering stock price of firm  $i$  (the closing value of the index on the day prior to the issue date or opening value of the index on the issue date).

Using these two returns, the market adjusted abnormal return for each IPO on the first trading day is;

$$MAAR_{i1} = \left\{ \left[ \frac{(1 + R_{i1})}{(1 + R_{m1})} \right] - 1 \right\} \quad (iii)$$

The sample was then divided into the private (seven IPOs) and government owned (nine IPOs.) Thus the mean abnormal return for the first trading day AR was calculated as follows:

$$AR = \frac{1}{N} \sum_{i=1}^N MAAR_{i1} \quad (iv)$$

where AR is the sample mean return

$N$  is the number of issues in a sample

MAAR is the market adjusted abnormal return

### Long run performance

Cumulative adjusted returns are used to measure the long run performance. The market adjusted long term returns are calculated for a period of 36 months following the first trading month. Therefore, the long run performance period was from 1992 to 2003. Allowing for severe initial underpricing and the time these prices take to adjust downwards to the market equilibrium, the first month of trading is excluded.

The monthly return is measured by comparing the closing price on the last trading day of the month on which the stock is traded to the closing price of the previous month.

The long run returns did not incorporate dividend payments and the monthly return of stock  $i$  is

$$r_{it} = (P_{it} / P_{i0}) - 1 \quad (v)$$

where  $P_{it}$  is the closing price on the last trading day of the month

$P_{i0}$  is the closing price of the previous month

The monthly return of the NSE index of the corresponding time period is

$$r_{mt} = (P_{mt} / P_{m0}) - 1 \quad (vi)$$

where  $P_{mt}$  is the closing NSI index value on the last trading day of the month

$P_{m0}$  is the closing NSE index value of the previous month

The cumulative average returns (CARs) will be calculated as follows:

Abnormal return for firm  $i$  is

$$ar_{it} = r_{it} - r_{bt} \quad (vii)$$

Where:  $r_{it}$  is the return for the firm  $i$  in the month  $t$

$r_{bt}$  is the return on the NSE index in month  $t$

Further, a break up was provided in terms of 6 private IPOs and 4 privatization IPOs

The average abnormal return of the portfolio of  $n$  firms in month  $t$  is the average of the abnormal returns of all firms in the month  $t$ ;

$$AR_t = \frac{1}{n} \sum_{i=1}^n ar_{it} \quad (\text{viii})$$

Therefore the cumulative abnormal returns over a period of 36 month are given by

$$CAR_{i,36} = \sum_{t=1}^{36} AR_t \quad (\text{ix})$$

### 3.4 Hypothesis

HO: There is no significant difference between underpricing of state owned enterprises IPOs with those of private firms.

HA: There is significant difference between underpricing of state owned enterprises IPO's with that of private owned enterprises

Ho: There is no significant difference between long run performances of state owned enterprises IPOs with those of private firms.

HA: There is significant difference between long run performance of state owned enterprises IPO's with that of private owned enterprises

### 3.5 Data analysis

The average market adjusted returns (AR) and cumulative average returns (CAR) in percentages for the public and private IPOs with their associated t-statistic for the 36 months after going public were computed. Descriptive statistics are used to evaluate the performance.



## CHAPTER FOUR

### 4.0 DATA ANALYSIS, FINDINGS AND INTERPRETATIONS

#### 4.1 Short Run Underpricing

The average market adjusted initial return for the sample of 16 IPOs on the first trading day is 41.48% (Table 1). This finding is consistent with other studies done on IPOs performance at the Nairobi Stock Exchange. Apaku, (1998) reported a mean of excess returns of 34.46% for primary offerings, Junba (2002), 41.17% and Maina (2004), 22.57%. This clearly indicates that there is considerable underpricing of IPOs at the NSE.

Table 1: Level of initial Underpricing of IPOs on NSE

IPO	% market Adjusted initial Returns
Housing Finance	10.8
Uchumi	41.7
Kenya Airways	10.6
Mumias	-0.2
Kengen	231.9
Kenya Re	94.0
Safaricom	46.4
Crown Berger	4.0
Firestone	21.9
NIC	2.2
Rea Vipingo	41.5
TPS	47.6
Athi River Mining	2.6
Scan Group	91.1
Eveready	15.2
Access Kenya	2.7
<b>Mean market Adjusted Return</b>	<b>41.48</b>

Among the privatization IPOs, Kengen recorded the highest market adjusted initial return of 231.9% while Mumias had the lowest return of negative 0.2% as shown in Table 2.

Table 2: Level of initial underpricing in privatization (Govt) IPOs

IPO	% market Adjusted initial Returns
Housing Finance	10.8
Uchumi	41.7
Kenya Airways	10.6
Mumias	-0.2
Kengen	231.9
Kenya Re	94.0
Safaricom	46.4
<b>Mean market Adjusted Return</b>	<b>62.15</b>

On the other hand, for the private IPOs, Scan group registered the highest market adjusted initial return of 91.1% and National Industrial Credits a low of 2.2% (Table 3).

Table 3: Level of initial underpricing in private IPOs

IPO	% market Adjusted initial Returns
Crown Berger	4.0
Firestone	21.9
NIC	2.2
Rea Vipingo	41.5
TPS	47.6
Athi River Mining	2.6
Scan Group	91.1
Eveready	15.2
Access Kenya	2.7
<b>Mean market Adjusted Return</b>	<b>25.42</b>

When comparing the mean market adjusted initial returns of privatizations, (Government) IPOs and private IPOs, the returns of state owned enterprises IPOs were higher than private IPOs and so was their standard deviation. The Government IPOs had an average market adjusted initial return of 62.15% and standard deviation of 81.32 % as compared to those of private IPOs with an average market adjusted return of 25.42% and standard deviation of 30.03% as shown in the table 4 below.

Table 4: Descriptive statistics of Government IPOs and Private IPOs

	Full Sample	Govt IPOs	Private IPOs
MAAR, %	41.48	62.15	25.42
Standard Deviation, %	58.9	81.32	30.03
Median,	18.5	41.7	15.2
Number (n)	16	7	9

However, although the average market adjusted initial return of private IPOs is lower than that of Government IPOs, they are not significantly different from each other. The difference in returns of 36.73% with a t- statistic of 1.26 is not significant at 5% level of significance. A t- test for the equality of means shows that the excess initial return of the two groups IPOs are not significantly different as shown in table 5.

Table 5: Testing for Differences in the Market –adjusted Returns on IPOs of Government IPOs versus Private IPOs

	Govt IPOs	Private IPOs	Difference
MAAR, %	62.15	25.42	36.73
t-statistic			1.26

## 4.2 Long Run Performance

For the long run returns, this is 3 years after listing, the sample reduced to 10 IPOs. The average market adjusted cumulative return for both the private and privatization IPOs was found to be negative 38% as shown in Appendix 3.

Both the two groups of IPOs considerably underperformed the market with private IPOs underperforming more at negative 32% as compared to the Government IPOs at negative 6% as shown in the table below.

Table 6: Descriptive statistics on long run performance of Government IPOs and Private IPOs

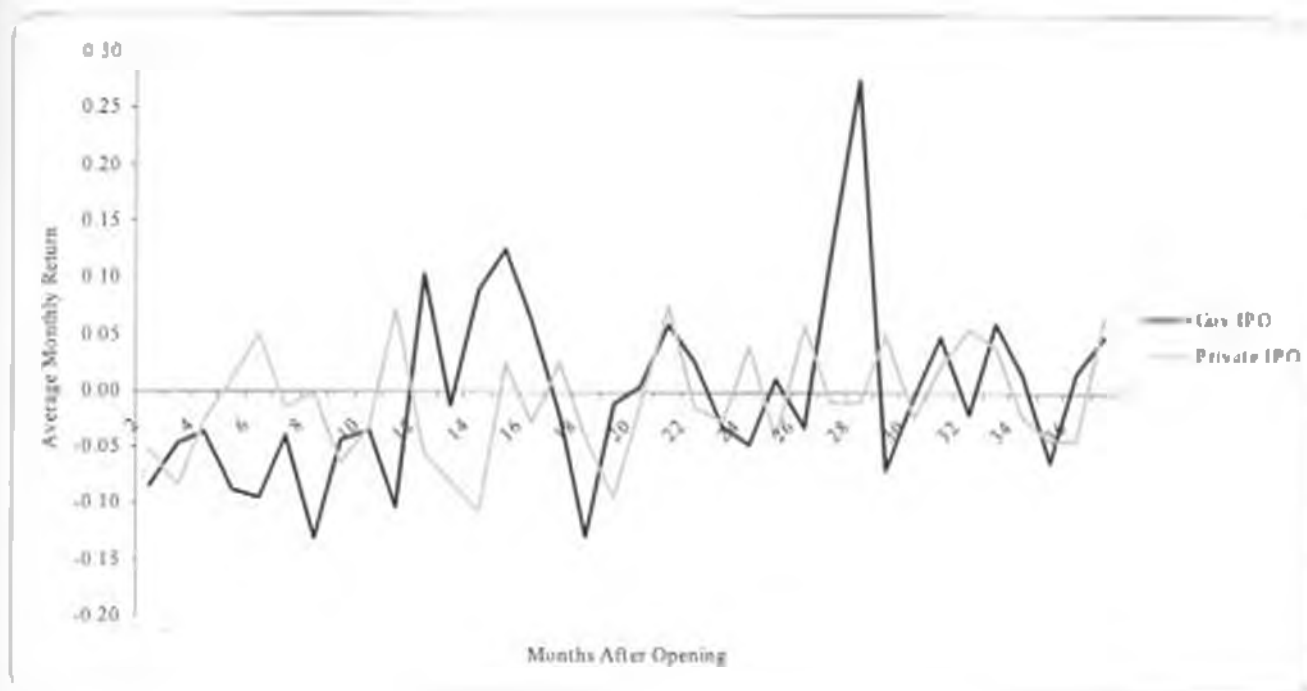
	Full Sample	Govt IPOs	Private IPOs
CAR, %	-36	-6	-32
Standard Deviation, %	6.7	8.1	4.9
Number (n)	10	4	6
t-statistic			-0.453

At 95% level, with a t- statistic of negative 0.453, there is no significant difference between privatization IPOs and private IPOs as shown in Appendix 8.

The figure 2 below compares the three year monthly average returns of privatization and private IPOs. The excess returns for government IPOs vary between 28% and negative 8%, the return peaks at 28% in the 28<sup>th</sup> month of trading. A minimum return of negative 8% is recorded in the 8<sup>th</sup> and 18<sup>th</sup> month after listing.

For the private IPOs the returns vary between 8% and negative 8%, with the return peak at 8% in the 21<sup>st</sup> month and minimum return of negative 8% in the 3<sup>rd</sup> and 13<sup>th</sup> month of trading.

**Figure 2: 3 Year Monthly Average Adjusted Returns for Privatizations (Govt) and Private IPOs after listing**



Source: *NSE Data*

The findings are consistent with empirical evidence of long run performance of firms going public which indicates that the privatization IPOs and private IPOs do not perform quite in the same way. Unlike in the research of Menyal and Paudyal (1996) where privatization IPOs depict long run performance, both the two sets have negative long run abnormal performance showing that they both underperformed the market.

#### 4.3 Explaining the short run underpricing

The high initial return on privatization IPOs may be as a result of deliberately chosen behavior by the government as they pursue their political motives. These political motives include: promotion of capital markets through wider stock ownership, encouraging political support for privatization programme and defense against hostile takeover. To achieve the political objectives, the privatization IPOs tend therefore to be more underpriced.

The greater underpricing in the privatization IPOs could be explained by the greater level of ex ante uncertainty of government's policy towards the privatized firm. In most privatization IPOs, the government retained ownership and underpriced the offerings to signal the good quality of state owned enterprises. Thus this finding is consistent with Perotti (1995) model where retained ownership and underpricing signals the government's commitment to the privatization.

#### **4.4 Explaining the long run underperformance**

Findings reveal that both privatization and private IPOs on the NSE are very popular and subject to fads rather than valuation based fundamentals as they experience massive oversubscription (Appendix 1) Thus the impresario theory can explain underpricing on the NSE as most IPOs have experienced excessive demand created by the investment bankers as a result of underpricing leading to rationing. The temporary overvaluation leads to underperformance in the long run as advanced by Shiller (1990).

Findings show that though privatizations IPOs are more underpriced than the private IPOs, they perform better in the long run. This is contrary to the findings of Ritter (1991) and the impresario hypothesis which predicts that the companies with higher initial returns should have lower subsequent long term returns. This could be explained by the change in investor expectation over time where initially, potential investors are pessimistic towards privatization policy and newly privatized firm which they perceive as bad performers. However, as the firms undergo change in their ownership, management and objectives, released information about their improved performance in post privatization period builds confidence among the investors who value the firm accordingly.

Weche (2005) in his study on the pre and post financial performance of firm privatized through the NSE noted that the privatized firms performance tremendously in terms of profitability, liquidity, leverage and action ratios. This is in turn reflected in the shares prices. Thus, Investors' expectations towards privatization IPOs increase over time relative to the year of issue. Therefore, while investors in private IPOs are optimistic but grow disillusioned over time, investors in privatization IPOs are pessimistic at the beginning of the

privatization process but grow more confident with time given the improved performance. This provides a possible explanation why a better performance of privatization is documented.

## CHAPTER FIVE

### 5.0 SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

#### 5.1 Summary and Conclusions

The underpricing (initial returns) and long run performance of privatization and private IPOs was carefully analyzed and compared and the following were the conclusions.

##### **Initial underpricing**

The findings suggest that both the privatizations and private IPOs are deliberately underpriced in the pre market leading to incidence of high initial returns. In addition, the findings support that there has been a general tendency for the privatizations IPOs to be underpriced to a greater degree as compared to their private counterparts. The privatizations IPOs reported a mean initial adjusted return of 62.15% and standard deviation of 81.32% while the private IPOs, 25.42% and 30.33% respectively.

However, there was no significant difference between the initial returns of privatizations and private IPOs due to the small sample size. Therefore, the alternative hypothesis that there is significant difference between the levels of underpricing of state owned enterprises IPO's with that of private owned enterprises is rejected.

The implication emanating from this study is that for speculative investors both the private and privatization IPOs are a good investment for the short run as it is highly profitable due to the average underpricing. However, investors will gain higher initial returns if they invested in privatizations IPOs as compared to the private IPOs. Going by the greater underpricing of privatization IPOs which signals and explains the government commitment to the privatization programme, prospective investors should take advantage of the government policy of offering Kenyans a good return on public investments by going for privatization IPOs.



Underpricing of privatization IPOs have had a great impact on the growth of the NSE. Privatization IPOs have supported the wider stock ownership seeing majority of retail investors participating in IPOs and in the process significantly increasing market capitalization and liquidity.

In the bid to achieve the privatization objectives of maximum revenue collection, wider stock ownership, efficiency and economic development and improvement of corporate governance a privatization commission has been set up to ensure the successful divestment of the government through the NSE.

### **Long run performance**

Further, the findings show that in the long run, both the privatization and private IPOs underperformed the market. However, though both the privatization and private IPOs depicted negative cumulative abnormal returns of negative 6% and negative 32% respectively, privatization IPOs seem to be a better investment. Thus a long term investor is better off investing in privatization IPOs as compared to private IPOs.

A further implication of the long run underperformance is that investors should not hold on to the private and privatization IPO investment for the long term. Instead they are better off buying stock in the pre market and selling off stock within the first month of trading. Thus a short term investor earns higher returns than a long term investor.

It's also apparent that due to massive oversubscription as a result of excessive demand for the IPOs at the NSE leading to rationing of shares, an investor could use the refund money to purchase shares in the aftermarket once the prices falls or stabilizes to fundamental or intrinsic value.

There was no significant differences between the three year cumulative abnormal return between privatization IPOs and private IPOs. Thus the null hypothesis cannot be rejected.

## **5.2 Limitations of the study**

The study made use of a small sample size, it concentrated only on the period from 1992 to 2008. NSE data on share prices for the year prior to 1992 was not available since the operations had not been computerized thus limiting data collection. Also, comparison of privatization IPOs and private IPOs was limiting in that matching of IPOs in terms of industry and size was not possible due to the small sample size.

## **5.3 Recommended areas for further research**

A study to determine factors which might explain why privatization IPOs are more underpriced leading to higher initial returns than private IPOs on the NSE could be done.

A similar study to cover all IPOs issued since the inception of the NSE could be carried out thus forming a larger sample to allow for a more comprehensive evidence of the performance of Privatizations and private IPOs on the NSE.

## REFERENCES

- Aggarwal, R. Leal and Hernandez, F. (1993), "Aftermarket Performance of Initial Public offering in Latin America," *Financial Management* 22, 42-53
- Allford, A.W. (1992), "Effect of the Set of Comparable Firms on the Accuracy of the
- Allen, F and Faulhaber, G.R. (1989), "Signaling by Underpricing in the IPO Market," *Journal of Financial Economics* 23, 303-323.
- Amihud, Y and Mendelson, H. (1998), "Liquidity and Asset Prices, Financial Management Implications," *Financial Management*, Vol. 17, Iss.1, 5 - 15
- Price-Earnings Valuation Method," *Journal of Accounting Research* 30, 94-108.
- Baron, D.P. (1982), "A Model of the Demand for Investment Banking Advising and Distribution Services for New Issues," *Journal of Finance* 37, 955-976
- Beatty, R.P. and Ritter, J.R. (1986), "Investment Banking, Reputation, and Underpricing of Initial Public Offerings," *Journal of Financial Economics* 15, 213-232.
- Benveniste, L.M. and Spindt, P.A. (1989), "How Investment Bankers Determine the Offer Price and Allocation of New Issues," *Journal of Financial Economics* 24, 343-361.
- Biais, B. and Perotti, E. (1997), "Machiavellian privatization." *Working paper*: Amsterdam University and University of Toulouse.
- Boardman, A. and Laurin (2000), "Factors affecting the Stock Price Performance of Share Issue Privatization," *Applied Economics*, Forthcoming.
- Boubakri, N. and Cosset, J. (2000), "The Aftermarket Performance of Privatization Offerings in Developing Countries" *Journal of Finance* 53:

- Brealey, R. and Myers, S. (2002), "Principles of Corporate Finance" (McGraw-Hill, New York).
- Brennan, M and Franks, J. (2003), "Underpricing, Ownership and Control in Initial Public Offering of Equity Securities in the UK." *Journal of Financial Economics* 45:391- 413
- Capital Markets Act, CAP 485A (Capital Markets Securities, Public Offers, Listing and Disclosures) Regulations, 2002
- Choi, S. and Nam, S. (1998), "The short run performance of IPOs of privately and publicly owned firms: international evidence." *Multinational Finance Journal* 2: 225-244
- Choi, S.D. (1998), "Short- and long-run performance of privatization IPOs," *unpublished Ph D. dissertation*: Korea University.
- Dewenter, K. and Malatesta, P. (1997), "Public offerings of state-owned and privately-owned enterprises: An international comparison," *Journal of Finance* 62: 1659-1679.
- Deloof, M, Maescineire D, Koine I (2002). "Valuation of IPOs by Investment Banks and Stock Market: Empirical Evidence," EFMA London meeting, *Discussion Paper*
- Grinblatt, M. and Hwang, C. (1989), "Signaling and the pricing of new issues," *Journal of Finance* 44(2): 393-420.
- Guedhami, O. and Pittman J. (2006). "Ownership concentration in privatized firms: The role of disclosure standards, auditor choice, and auditing infrastructure," *Journal of Accounting Research* 44: 889-929.
- Holmstrom, B. and Tirole, J. (1993), "Market Liquidity and Performance Monitoring" *Journal of Political Economy* 101, 678-709.
- Ilungu, A. (2006) "Gradual vis a vis a rapid privatization and financial performance of privatized quoted companies quoted on the NSE." *Unpublished MBA Research project*, University of Nairobi

- Ibbotson, R. (1975), "Price Performance of Common Stock New Issues," *Journal of Financial Economics* 2, 235-272.s 34, 153-175.
- Ibbotson, R., Sindelar, J. and Ritter, J. (1994), "The Markets Problem with Pricing Initial Public Offering: International insights," *Pacific Basin Finance Journal* 2, 165-199.
- Jenkinson, I. and Mayer, C. (1988). "The privatization process in France and the U.K.," *European Economic Review* 32: 482-90.
- Jumba, N. (2002) "IPO performance in Kenya," *Unpublished MBA Research project*, University of Nairobi.
- Kaplan, S. and Ruback R. (1995), "The Valuation of Cash Flow Forecasts: An Empirical Analysis," *Journal of Finance* 50, 1059-1093.
- Kim, M. and Ritter, J. (1999). "Valuing IPOs," *Journal of Financial Economic* 53, 409- 437
- Levis, M. (1993), "Long Run Performance of Initial Public Offering;" the U.K Experience, 1990-1988, *Financial Management*, 45- 57
- Ljungvist, A. (2006), "IPO Underpricing," *Working paper*, Tuck School of Business at Dartmouth
- Ljungqvist, A., Nanda V. and Singh R. (2004), "Hot Markets, Investor Sentiment, and IPO pricing," *Journal of Business Finance*.
- Loughran, I. and Ritter J (1995). "The new issues puzzle," *Journal of Finance* 50, 23-52.
- Loughran, T., and Ritter J. (2002), "Why Don't Issuers Get Upset About Leaving Money on the Table in IPOs?" *Review of Financial Studies* 15, 413-443.

- Lowry, M. and Shu S. (2002), "Litigation Risk and IPO Underpricing," *Journal of Financial Economics* 65, 309-335
- Maina N. (2004) "An analysis of Performance of Initial Public Offers; A case for NSE," *Unpublished MBA Research project*, University of Nairobi.
- Mauer, E. and Senbet L. (1992), "The Effect of the Secondary Market on the Pricing of Initial Public Offerings: Theory and Evidence," *Journal of Financial and Quantitative Analysis* 27, 55-79.
- Menyah, K. and Paudyal, (1996), "Share Issue Privatization: The U.K experience in Empirical issues in raising equity capital," M.I evis, ed, *Advances in Finance, Investment and Banking*, Vol 2 17-48
- Miller, E. (1977). "Risk, Uncertainty, and Divergence of Opinion." *Journal of Finance* 32, 1151- 1168.
- Muscarella, C. and Vetsuypens, M. (1989), "A Simple Test of Baron's Model of IPO Underpricing," *Journal of Financial Economics* 24, 125-135.
- Pagano, M., Panetta, F. and Zingales, L. (1998), "Why Do Companies Go Public? An Empirical Analysis," *Journal of Finance*, Vol. 53, No. 1, 27- 64
- Perotti, F. (1995), "Credible Privatization," *American Economic Review* 85: 847-859.
- Perotti, F. and Guncy, (1993), "Structure of Privatization Plans," *Financial Management* 22, 84-98
- Ritter, J. (1984), "The Hot Issue Market of 1980," *Journal of Business* 57, 215-240.
- Ritter, J. (1988), "Initial Public Offerings," *Warren Gorham & Lamont Handbook of Finance*.

- Ritter, J.R., (1991), "The Long-Run Performance of Initial Public Offerings," *Journal of Finance* 46, 3-27.
- Ritter, J.R., (2003), "Investment Banking and Securities Issuance in: G.M. Constantinides, M.Harris, and R. Stulz (eds.)," *Handbook of the Economics of Finance*, North-Holland.
- Rock, K., (1986), "Why New Issues Are Underpriced," *Journal of Financial Economics* 15, 187-212.
- Roell A. (1996), "The decision to Go Public: An Overview," *European Economic Review*, 40 1071-1081
- Roosenboom, P. (2005), "How do Underwriters value IPO? An Empirical analysis of French IPO market," *Journal of Finance*.
- Ruud, J.S., (1993), "Underwriter Price Support and the IPO Underpricing Puzzle," *Journal of Financial Economics* 34, 135 - 151
- Sader, I. (1993) "Privatization and Foreign Investment in the Developing World 1988 - 92," World Bank Research Paper, Washington DC
- Shiller, R. J. (1990), "Speculative Prices and Popular Models," *Journal of Financial Economics* 4, 55 - 65
- Shleifer, A. and Vishny, R. (1986), "Large Stakeholders and Corporate Control," *Journal of Political Economy* 94, 461-488.
- Stoughton, N., Wong, P. and Zechner, J. (2001), "IPOs and Product Quality," *Journal of Business*, Vol. 74, No.3, 375- 408

Subrahmanyam, A. and Titman, S. (1999), "The going public decision and the development of financial markets." *Journal of Finance* 54: 1045-1082.

Trinic, S.M., (1988), "Anatomy of Initial Public Offerings of Common Stock," *Journal of Finance* 43, 789-822.

Titman, S., and Trucman, B. (1986), "Information Quality and the Valuation of New Issues," *Journal of Accounting and Economics* 8, 159-172.

Vickers, J. and George, Y. (1988), "Privatization: An economic analysis," MIT Press, Cambridge, Mass.

Weche, A. (2005) "Pre and post financial performance of firms privatized through the NSF." *Unpublished MBA Research paper*, University of Nairobi.

Welch, I. (1989), "Seasoned Offerings, Imitation Costs, and the Underpricing of Initial Public Offerings," *Journal of Finance* 44, 421-449.

Welch, I. (1992), "Sequential Sales, Learning and Cascades," *Journal of Finance* 47, 695-732.

Zingales, I. (1995), "Insider Ownership and the Decision to Go Public," *Review of Economic Studies* 62, 425-448.



## APPENDICES

Appendix 1: Share Issues between 1992 -2008

Year	Company	Type of Issue	No of Shares Floated	Issue Price	Subscription Rate %
1992	Uchumi Supermarkets	Public Issue	16 M	14.50	103
1992	Crown Berger	Public Issue	8.636 M	16.00	104
1992	Housing Finance	Public Issue	18 M	7.00	400
1994	Firestone East Africa	Public Issue	40 M	33.50	101
1994	National Bank of Kenya	Public Issue	40 M	10.00	300
1995	National Industrial Credit	Public Issue	17.929 M	52.00	77
1995	Rea Vipingo	Private	12M	8.50	100
1996	Reu Vipingo	Public Issue	8 M	10.50	216
1996	Kenya Airways	Public Issue	2.354 M	11.25	194.6
1997	National Bank of Kenya	Second Issue	40 M	15.00	275
1997	Kenya Commercial Bank	Third Issue	11.88 M	50.00	150
1997	TPS	Public Issue	12.893 M	13.00	400
1997	Athi River Mining	Public Issue	23 M	12.25	250
1998	Kenya Commercial Bank	Fourth Issue	28.05M	65.00	100
1999	Housing Finance	Second Issue	30 M	14.00	100
2000	African Lakes	Public Issue	4 M	94.50	150
2001	Mumias Sugar	Public Issue	300 M	6.25	60
2001	ICDC	Introduction	8.591 M	37.00	64
2006	Kengen	Public Issue	658.9	11.90	333
2006	Scan Group	Public Issue	69 M	10.45	620
2006	Equity Bank	Public Issue		-	
2006	Eveready	Public Issue	63 M	9.50	830
2006	Access Kenya	Public Issue	80M	14.00	363
2007	Kenya Reinsurance	Public Issue	240 M	9.50	406
2007	Safaricom	Public Issue	10 B	5.00	432

Appendix 2: Privatization and private issues from 1992 - 2008

Year	Company	Issuer
1992	Housing Finance	Government
1992	Crown Berger	Private
1992	Uchumi	Government
1994	Firestone	Private
1994	National Industrial Credit	Private
1996	Rea Vipingo	Private
1996	Kenya Airways	Government
1997	TPS	Private
1997	Athi River Mining	Private
2001	Mumias	Government
2006	Kengen	Government
2006	Sean Group	Private
2006	Eveready	Private
2007	Access Kenya	Private
2007	Kenya Re	Government
2008	Safaricom	Government

### Appendix 3: Three year Cumulative average Returns for Govt and Private IPOs

#### Average Abnormal returns for Govt and Private IPOs

Month	Govt IPO	Private IPO
2	-0.08	-0.05
3	-0.05	-0.08
4	-0.04	-0.03
5	-0.09	0.01
6	-0.09	0.05
7	-0.04	-0.01
8	-0.13	0.00
9	-0.04	-0.06
10	-0.04	-0.03
11	-0.10	0.07
12	0.10	-0.05
13	-0.01	-0.08
14	0.09	-0.11
15	0.13	0.02
16	0.06	-0.03
17	-0.02	0.02
18	-0.13	-0.04
19	-0.01	-0.10
20	0.00	-0.01
21	0.06	0.08
22	0.03	-0.01
23	-0.03	-0.03
24	-0.05	0.04
25	0.01	-0.04
26	-0.03	0.06
27	0.12	-0.01
28	0.28	-0.01
29	-0.07	0.05
30	0.00	-0.02
31	0.05	0.02
32	-0.02	0.06
33	0.06	0.04
34	0.02	-0.02
35	-0.06	-0.04
36	0.02	-0.04
37	0.05	0.07
<b>CAR</b>	<b>-0.06</b>	<b>-0.32</b>

Total

- 38

**Total CAR = -38%**

#### Appendix 4: NSE 20 Share Index constituent Companies

1. Mumias Sugar Company
2. Express
3. Rea Vipingo
4. Sasini Tea
5. CMC
6. Kenya Airways
7. Safaricom
8. Nation Media Group
9. Barclays Bank
10. Equity Bank
11. Kenya Commercial Bank
12. Standard Chartered Bank
13. Bamburi Cement
14. British American Tobacco
15. KenGen
16. ICDC
17. East African Breweries Limited
18. East African Cables
19. Kenya Power and Lighting
20. Athi River Mining

Appendix 5: Offer prices and 1<sup>st</sup> day prices of IPOs and NSF Index

Company	Opening Date	Pi0 IPO Offer price	Pi1 IPO Price day 1	Pm0 opening Index	Pm1 Index day 1
Housing finance	4th Nov 92	7.00	7.75	1230.90	1230.39
Uchumi	8th Dec 92	14.50	20.50	1217.56	1213.56
Kenya Airways	19th April 96	11.25	12.45	2904.22	2907.12
Mumias	14th Nov 01	6.25	6.25	1463.28	1466.83
Kengen	17th May 06	11.90	39.50	4444.57	4447.99
Kenya Re	27th Aug 07	9.50	18.50	5234.41	5274.53
Safaricom	9th June 08	5.00	7.35	5413.64	5445.67
Crown berger	1st Dec 92	16.00	16.50	1257.15	1246.65
Firestone	12th Oct 94	33.50	40.50	3587.87	3553.08
NIC	14th Sept 94	52.00	53.00	3866.41	3854.11
Rea Vipingo	17th April 96	10.50	14.86	2897.75	2897.43
TPS Athi River Mining	12th May 97 15th Aug 97	13.00 12.25	19.35 12.55	3338.80 3434.55	3379.54 3429.64
Sean group	29th Aug 06	10.45	20.00	4476.07	4489.6
Eveready	18th Dec 06	9.50	11.00	5589.56	5624.84
Access Kenya	4th June 07	14.00	14.50	5001.77	5043.35

Appendix 6: Initial Underpricing

Issue	Company	Rit Return day1	Rml Day1 Mkt Return	MAAR	
Govt	Housing Finance	0.107	0.000	0.108	
Govt	Uchumi	0.414	-0.003	0.417	
Govt	Kenya Airways	0.107	0.001	0.106	
Govt	Mumias	0.000	0.002	-0.002	
Govt	Kengen	2.319	0.001	2.319	
Govt	Kenya Re	0.947	0.008	0.940	
Govt	Safaricom	0.470	0.006	0.464	Mean = 0.6215
Private	Crown Berger	0.031	-0.008	0.040	
Private	Firestone	0.209	-0.010	0.219	
Private	NIC	0.019	-0.003	0.022	
Private	Rea Vipingo	0.415	0.000	0.415	
Private	IPS Athi River	0.488	0.012	0.476	
Private	Mining	0.024	-0.001	0.026	
Private	Scan group	0.914	0.003	0.911	
Private	Eveready	0.158	0.006	0.152	
Private	Access Kenya	0.036	0.008	0.027	Mean = 0.2542
			MeanMAAR	0.415	
			Std Dev	0.590	

Appendix 7: t-test for short run underpricing

	Issue type	N	Mean	Std. Deviation	Std. Error Mean
Market Adjusted Abnormal Return	Gov	7	.6215	.81316	.30734
	Pri	9	.2542	.30033	.10011

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Market Adjusted Abnormal Return	Equal variances assumed	3.471	.081	1.259	14	.229	.36723	.29165	-.25829	.99276
	Equal variances not assumed			1.136	7.279	.292	.36723	.32324	-.39120	1.12567

Appendix 8: t – test for long run performance

Group Statistics

Return	Issue	N	Mean	Std. Deviation	Std. Error Mean
	P	36	-.0089	.04940	.00823
	G	16	-.0017	.08156	.01359

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference		
										Lower	Upper
Return	Equal variances assumed	4.464	.038	-.453	70	.652	-.00719	.01589	-.03889	.02450	
	Equal variances not assumed			-.453	57.635	.652	-.00719	.01589	-.01901	.02462	



## Appendix 9: Abnormal monthly returns for the IPOs

Abnormal monthly Returns						
Monthly Return	Houssine finance	Crown Bergees	Lehman	Firestone	NIC	
2	-0.22	0.14	-0.360	0.500	-0.02	
3	0.13	-0.05	0.178	-0.231	-0.01	
4	-0.04	-0.05	0.010	-0.061	-0.16	
5	-0.18	0.10	-0.283	0.382	0.06	
6	-0.11	0.10	-0.210	0.307	0.00	
7	0.07	-0.05	0.124	-0.175	0.08	
8	-0.28	-0.07	-0.210	0.142	0.04	
9	-0.06	0.12	-0.181	0.297	0.00	
10	-0.10	-0.57	0.473	-1.045	0.02	
11	-0.06	0.01	-0.066	0.071	0.05	
12	-0.03	-0.04	-0.004	-0.038	0.07	
13	-0.24	-0.17	-0.070	-0.100	0.04	
14	0.29	-0.56	0.846	-1.401	-0.23	
15	0.44	0.26	0.176	0.088	0.02	
16	-0.13	-0.29	0.155	-0.444	0.02	
17	0.26	0.17	0.091	0.083	0.02	
18	0.02	-0.04	0.067	-0.111	0.06	
19	-0.15	-0.14	-0.004	-0.140	-0.06	
20	0.00	0.00	0.005	-0.004	0.04	
21	0.03	0.01	0.021	-0.014	-0.17	
22	-0.24	0.02	-0.257	0.276	0.01	
23	0.06	0.10	-0.043	0.141	-0.03	
24	0.02	-0.07	0.097	-0.171	-0.05	
25	0.00	-0.18	0.185	-0.368	0.06	
26	-0.21	0.07	-0.277	0.344	0.00	
27	0.09	0.07	0.016	0.054	0.03	
28	0.04	0.02	0.022	-0.001	-0.03	
29	0.05	0.08	-0.033	0.114	0.10	
30	0.00	-0.01	0.007	-0.019	-0.05	
31	-0.02	-0.09	0.067	-0.151	0.03	
32	0.07	0.07	0.002	0.064	0.08	
33	0.10	0.11	-0.014	0.127	0.06	
34	0.11	0.09	0.020	0.072	0.07	
35	-0.06	-0.03	-0.027	-0.003	0.01	
36	-0.19	-0.26	0.067	-0.322	-0.07	
37	0.07	0.00	0.066	-0.064	-0.04	

Ben Vjingsu	Kenya Airways	IPS	Aibi River	Mumma
-0.25	-0.07	-0.22	0.06	0.06
-0.04	-0.08	-0.07	-0.13	-0.18
-0.05	-0.01	0.03	0.00	-0.07
0.01	-0.06	-0.09	-0.02	-0.04
0.01	-0.06	0.16	-0.03	-0.15
-0.03	-0.04	-0.13	0.01	-0.10
-0.06	-0.07	0.03	0.04	-0.10
0.05	-0.11	-0.31	-0.25	0.06
-0.08	0.01	0.25	0.14	-0.02
-0.02	-0.02	0.09	0.24	-0.07
-0.08	0.06	-0.11	-0.21	0.02
-0.07	-0.10	0.07	-0.11	0.17
0.02	0.00	0.03	0.09	0.28
-0.07	0.00	-0.08	0.00	-0.17
0.06	0.20	0.04	-0.01	0.07
-0.07	-0.21	0.02	-0.06	-0.12
0.01	-0.02	-0.01	0.12	-0.38
0.03	0.08	-0.19	-0.17	0.00
-0.03	0.00	-0.02	-0.11	0.00
0.02	-0.07	0.31	0.19	0.09
0.04	0.02	-0.09	-0.08	0.07
-0.14	-0.01	0.02	0.02	-0.11
0.00	0.04	0.09	0.08	0.00
-0.02	-0.02	0.02	0.01	-0.08
0.00	0.08	0.00	0.12	-0.04
0.00	0.11	-0.03	-0.06	0.29
-0.11	-0.11	0.03	0.05	1.14
0.03	0.06	0.05	0.03	-0.38
0.04	0.04	0.11	-0.12	0.00
0.07	0.03	0.11	0.00	0.16
-0.05	0.02	0.00	0.31	-0.18
0.03	-0.07	-0.02	0.05	0.15
-0.15	-0.03	-0.12	-0.03	-0.01
0.05	0.11	0.02	-0.25	-0.10
-0.06	0.03	0.15	0.05	0.00
0.14	-0.04	0.27	0.02	0.28