

**A COMPARATIVE EVALUATION OF THE PERFORMANCE OF INITIAL  
PUBLIC OFFERINGS OF PRIVATE AND STATE OWNED COMPANIES AT  
THE NAIROBI STOCK EXCHANGE**

**BANTE, ABDUB H.**

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## Declaration

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

Signature.....Date.....

Bante, Abdub H

Reg No.D61/8727/06

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

Signature.....Date.....

Mr Lishenga J.L

LECTURER, DEPARTMENT OF ACCOUNTING AND FINANCE  
UNIVERSITY OF NAIROBI

## **Dedication**

This research project is dedicated to my Mum.

## **Acknowledgement**

I wish to most sincerely thank Mr. J.L Lishenga for his invaluable input, support and for all the long hours he took to review this project and also for his guidance, understanding and encouragement.

To my brother Molu and sister-in-law Barwaqo for being so supportive during my study.

### **Abstract**

This research sought to document, analyze and compare the IPO performance of privately-owned and government-owned companies at the NSE. The population of the study consisted of all initial public offers of common stock at the NSE during the period 1984-2008. A total of 14 privately-owned and 7 government-owned companies were included in the study.

The findings of the research indicate that both the IPOs and PIPOs were heavily underpriced. The mean adjusted abnormal return of the IPOs was 9.79% with a standard deviation of 12.6 while PIPOs experienced a mean adjusted abnormal return and standard deviation of 22.219% and 14.71 respectively. In the long-run, both the IPOs and the PIPOs registered negative returns with the latter been more negative indicating long-run underperformance.

The two null hypotheses were rejected because the table values of t at 5% level of significance for both the short-run and long-run were less than the calculated values of t therefore indicating that there is a significant difference in the initial and MBHR of initial public offerings of state-owned and privately-owned companies. This research will hopefully enrich finance literature and provide significant contribution to previous findings and be of invaluable importance to investors.

## **Acronyms**

CMA- Capital Market Authority

IPO- Initial Public Offering

MAAR- Market Adjusted Abnormal Return

MBHR- Market Buy-and-Hold Return

NSE- Nairobi Stock Exchange

PIPO- Privatization Initial Public Offering

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# **1 CHAPTER ONE: INTRODUCTION**

## **1.1 BACKGROUND**

Companies have at their disposal several methods of raising long-term capital. In choosing a particular method, the problems of financial gearing and the likely impact on the cost of capital must be considered so as to obtain the best financing mix or the optimum capital structure. According to Conte and Carr (2001), there are three primary methods used by companies to generate capital.

First, a company may issue bonds. A bond is a written promise to pay back a specific amount of money at a certain date or dates in the future. In the interim, bondholders receive interest payments at fixed rates on specified dates. Holders can sell bonds to someone else before they are due. Companies benefit by issuing bonds because the interest rates they must pay investors are generally lower than rates for most other types of borrowing and because interest paid on bonds is considered to be a tax deductible business expense. However, companies must make interest payments even when they are not showing profits. If investors doubt a company's ability to meet its debt obligations, they will either refuse to buy its bonds or will demand a higher rate of interest to compensate them for their increased risk. For this reason, smaller companies can seldom raise much capital by issuing bonds.

Second, a company may choose to issue preference shares. Buyers of preference shares have special status in the event the underlying company encounters financial trouble. If profits are limited, preferred-stock owners will be paid their dividends after bond holders

receive their guaranteed interest payments but before any common stock dividends are paid.

The third method that is commonly used is the sale or issuance of common stock. If a company is in a good financial health, it can raise capital by issuing common stock. Typically, investment banks help companies issue common stock, agreeing to buy any new shares issued at a set price if the public refuses to buy the stock at a certain minimum price. Although common have the exclusive right to elect a corporation's board of directors, they rank behind holders of bonds and preferred stock. Investors are attracted to stocks in two ways. Some companies pay large dividends offering investors a steady income. But others pay little or no dividends, hoping to attract shareholders by improving corporate profitability and hence the value of the shares themselves.

There are four main ways of issuing common stock, namely; private placements, rights issues, offer for subscription and initial public offering (Barnes and Walker, 2006). A rights issue is an offer to existing shareholders to subscribe for or purchase additional securities in proportion to their holdings. An offer for subscription occurs when the management team invites a small number of targeted investors usually institutions or block holders, to take up new shares at a stated price. Private placement is when management invites a small number of targeted investors to subscribe for shares of a firm. A placing is conceptually similar to an offer for subscription in outcome, but differs somewhat in implementation. A lead issue manager or underwriter undertakes to purchase new issue shares from the firm at a given price and in turn to sell these to (or

place them with) institutions, in exchange for the placing fee. The underwriter in this instance suffers any risks of offer failure, and the price at which the issue is placed will be pitched to ensure that all shares are taken up. Thus a placing can potentially be either very lucrative or highly costly for the underwriter (Barnes and Walker, 2006).

Initial public offerings, the focus of this study, is when a company issues common stock or shares to the public for the first time and are subsequently traded on the stock market (Barnes and Walker,2006). Few events in the life of a company are as great in magnitude and consequences as an initial public offering. A public listing fundamentally alters the firm's legal and economic structures. Management is responsible to a new group of dispersed shareholders unlike the concentrated ownership of a private company. Information regarding the firm's financial health and operations that had been kept private must be publicly divulged when a company goes public. IPOs are often issued by smaller, younger companies seeking capital to expand, but can also be done by large privately-owned companies wanting to become publicly traded. In an IPO, the issuer may obtain the assistance of an underwriting firm, which helps it determine what type of security to issue(common or preferred), best offering price and the time to bring it to market. IPOs can be a risky investment. For the individual investor, it is tough to predict what the stock or the shares will do on its initial day of trading and in the near future since there is often little historical data with which to analyze the company. IPOs generally involve one or more investment banks as 'underwriters.' The company issuing its shares, called the 'issuer', enters a contract with the lead underwriter to sell its shares to the public. The underwriter then approaches investors with offers to sell the shares. A

large IPO is usually underwritten by a syndicate of investment banks led by one or more major investment banks (lead underwriter). Upon selling the shares, the underwriters keep a commission based on a percentage of the value of the shares sold.

According to Dewenter and Malatesta (1997), IPOs are generally underpriced. The objective of underpricing is normally to generate additional interest in the stock when it first becomes publicly traded. This can lead to significant gains for investors who have been allocated shares of the IPO at the offering price. However, underpricing an IPO results in 'money left on the table' i.e lost capital that could have been raised for the company had the stock been offered at a higher price. The danger of overpricing is also an important consideration. If a stock is offered to the public at a higher price than the market will pay, the underwriters may have trouble meeting their commitments to sell shares. Even if they sell all the issued shares, if the stock falls in value on the first day of trading, it may lose its marketability and hence even more of its value. Investment banks therefore, take many factors into consideration when pricing an IPO and attempt to reach an offering price that is low enough to stimulate interest in the stock, but high enough to raise an adequate amount of capital for the company. A company that is planning an IPO appoints lead manager to help it decide on an appropriate price at which the shares should be issued. There are two ways in which the price of an IPO can be determined: either the company, with the help of its lead managers, fixes a price or the price is arrived at through the process of book building.

Abundant empirical evidence indicates that initial public offerings (IPOs) of common stock generate large short-run returns on average for investors fortunate enough to purchase the stock at the offer price. Ibbotson (1975), Ibbotson, Sindelar and Ritter (1994) study IPOs in the United States. All conclude that initial offer prices are significantly less than early after-market prices. Moreover, IPO underpricing is not peculiar to the United States. Loughran, Ritter and Rydqvist (1994) review more than 30 studies of IPOs in 25 countries including the U.S. In every case, evidence indicates that IPOs are underpriced providing large initial returns to investors who are able to buy shares at the offer price.

Vickers and Yarrow (1988) and Jacquillant (1987) report on privatizations initial public offerings of state-owned enterprises (PIPOs, hereafter) in the U.K and France respectively. Uniformly, the evidence presented in these studies indicates that IPOs of state-owned companies, like those of privately owned companies tend to be underpriced. It is however important to note that despite the rich literature on private sector IPOs, work explicitly comparing the offers of state-owned companies and privately-owned companies is scarce. Besides, studies in this field have produced conflicting results (Choi and Nam, 1998; Steen et al 2001; Vieira and Serra 1996; Breda et al 1997)

Isnurhadi (2005) argues that the number of companies going public over the last one and half decades has increased tremendously, and especially so, in the developing economies. One of the most important and visible aspects of this has been the enthusiasm with which

governments of all political persuasions have sold their state-owned enterprises to private investors.

The goals of privatization vary considerably from country to country depending on historical, cultural, fiscal and political situations. Consequently, the weights put on the various goals-fostering developments of capital markets, broadening share ownership, improving economic performance of privatized firms and raising new capital- are different. Depending on the situation, governments may end up deeply discounting privatization shares. Shares may be underpriced so as to gain political support from the citizenry. This study aims at documenting, analyzing and comparing short and long-run returns of IPOs of privately-owned and state-owned companies quoted at the NSE.

Though the Privatization Act (Kenya) is yet to be gazetted, several public-sector companies are expected to be listed at the NSE. At this point, it is only imperative to take some historical perspective on the performance of public and private-sector IPOs, by documenting and analyzing both first day (initial) returns and long-run performance of those that have already gone public. While the outcome of this study would not give a guarantee on the direction future returns of the IPOs of the two categories will take, it will nonetheless give a clue on what to expect of their performances.

## **1.2 Statement of the Problem**

Despite the voluminous literature on IPOs, work explicitly comparing initial public offerings of privately-owned companies to privatization IPOs of state-owned enterprises

is scarce. In fact, even the few studies that compare privatization IPOs to private sector IPOs have produced conflicting results.

Choi and Nam (1998) compared the initial returns of privatization IPOs to private-sector IPOs. Their sample included 185 privatizations in 30 countries. They found that the former were on average more underpriced than the latter.

Studies in Australia give conflicting results. Choi and Nam (1998) report an average initial return of 16.6 % and 11.9 % for Australian privatization IPOs and private-sector IPOs respectively. A study of the Australian market by Steen et al (2001) suggests that the opposite is the case. They report that private-sector IPOs outperform the privatization IPOs both in the short-run and the long-run. This conclusion is supported by Breda et al. (1997) who compared 6 Australian privatization IPOs to 20 private sector IPOs.

In Portugal, Vieira and Serra (1996) reveal that Portuguese privatization IPOs are less underpriced than private sector IPOs. They also provide evidence indicating that in the long-run, IPOs of government-owned enterprises under perform the private sector IPOs.

Isnurhadi (2005) indicates that while in the short-run Malaysian privatization IPOs offer higher returns than private-sector IPOs, the pattern reverses in the long run.

Dewenter and Malatesta (1997), taking a more global perspective, used samples from Canada, the United Kingdom, France, Hungary, Malaysia, Japan, and Poland. They

conclude that on average, IPOs of government-owned firms are more underpriced than private-sector IPOs. Though much of the evidence indicates that privatization IPOs offer more initial returns than private-sector IPOs, it is clear that in some countries it is quite the opposite.

Much of the local research, mainly MBA studies (Moko, 1995; Jumba, 2002; Maina, 2006) focus on the general performance of IPOs and the relationship between certain variables such as subscription rates, book value per share and issue price. There is no study that takes a comparative evaluation of the performance of private sector IPOs and privatization IPOs. This research aims at filling this gap by documenting, analyzing and comparing the performance of the two categories.

For the NSE, IPOs of government-owned enterprises and private sector IPOs have gained momentum in the last six years and the trend is expected to continue into the future as more private companies and state-owned companies are listed. It is therefore important to know if indeed there is any difference in the degree of underpricing or overpricing and the long-run performance of privatization IPOs and private-sector IPOs in a developing nation like Kenya. This leads to the problem question: how do the initial returns and long-run performance of private-sector IPOs compare to the privatization IPOs at the NSE? The findings of this research will give direction in answering the problem statement above.



### **1.3 Objectives**

1. Document the short/long-run performance of private and public-sector IPOs
2. Analyze and compare the IPO performance of privately-owned and government-owned companies at the NSE

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

There has been increased interest in the stock market since the government of Kenya sold 30% of its stake in Kengen shares in 2006. Before Kengen IPO, the Moi regime had privatized a number of state owned enterprises e.g. Kenya Airways. In the last six years over 6 companies have undertaken initial public offerings, 3 of which are companies in which the government has a stake. The NSE is expected to attract more companies in the years to come. This study is expected to add another strand to enrich fiancé literature. The results of this study coupled with other considerations will give a clear guide to investors on making informed decisions when investing in initial public offerings.

The study will help both the institutional and retail investors who invest in the stock market for speculative reasons and long-term returns. For example, for the speculators, it will answer the question: who benefits more between an investor who invests short term in the IPO of a privately-owned company and one who puts his money in the IPO of a government-linked company. Long term investors are expected to benefit by making investment decisions based on the study. For example, if one category under performs the market compared to the other, it is only prudent to offload your shares on the first day of trading or invest in the category that provides higher return.

The institutional investors e.g. pension funds, insurance companies, fund managers are also expected to benefit from the study as both the short-run and long-run performance of the IPOs of the two categories are compared. From an investor's point of view, the existence of return patterns may present opportunities for active trading strategies to produce higher returns. The study will also prove important to academicians, governments, Capital Markets Authority and other regulatory agencies.

## **2 CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

Studies done in the area of IPOs seems to fall into three categories. These are: short-run under pricing, long-run underperformance and hot and cold cycles. The first known as short-run anomaly states that IPOs are, on average, substantially under priced on the first day of trading. Second, what appears to be under pricing in the short-run turns out to be overpricing in the long-run. The third anomaly in the pricing of stocks is that cycles exist in both the volume and the average initial returns of IPOs. The periods of high average returns are known as ‘hot’ issue markets while the periods of low average returns are called ‘cold’ issue markets.

### **2.2 Theory and Empirical Study on short-run underpricing**

International evidence on IPOs reveals strong underpricing in the short-run and long-run underperformance. Some studies show overpricing (negative returns) while others reveal underpricing (positive returns). A large number of evidences of IPO underpricing in the short run come from studies of U.S. capital markets (Ibbotson and Jaffe, 1975; Ritter, 1991; Ibbotson, Sindelar, and Ritter, 1994) as well as other developed countries such as European countries (Husson & Jacquillant, 1990; Levis, 1993; Kunz & Aggarwal, 1994).

In Canada, Kooli and Suret (2001) report that IPOs underperform significantly in comparison to seasoned firms with the same market capitalization. By comparison, IPOs in developing countries show even greater initial excess returns e.g. Malaysia 166.67%

and Singapore 39.4% (Dawson, 1987). In Chile, average initial return is 16.3% (Aggarwal et.al., 1993).

Jumba, (2002) concludes that IPOs are deliberately underpriced in the pre-market leading to high initial returns. She reports an average daily return for a sample of nine IPOs (1992-2000) of 0.06 % in the three years of going public. A market model of the NSE index constituent companies produced an average daily return of 0.3% over the same three-year period.

Baron (1982) suggests that the issuer wants to maximize net sale proceeds, and offers a delegation contract to the underwriter, who sets the price and distributes the shares. Both issuer and underwriter are risk neutral. The issuer is less informed than the underwriter, in that it does not observe some demand parameters prior to contracting and it cannot monitor the underwriter's distribution effort. In this setting, Baron shows that the optimal offer price is a decreasing function of the issuer's uncertainty about the capital market conditions.

Rock (1986) posits that there are two groups of investors, and one group is better informed than the other and the issuer about the actual value of the company. The better informed investors subscribe to the not overpriced issues. This is called winner's curse. To overcome this winner's curse, the offers have to be underpriced on average otherwise; the uninformed investors will not participate in IPOs. More asymmetry of information about the value of the issue will require more underpricing.

Beatty and Ritter (1986) analyzed the effects of investment bank reputation and share value uncertainty on IPO underpricing. The share value uncertainty is referred to ‘ ex- ante uncertainty’. They argue that the greater the degree of ex- ante uncertainty, the higher the degree of underpricing. They suggest that underwriters play an important role in enforcing an equilibrium whereby the relatively riskier companies are underpriced more. The underwriter will always select offer prices which are neither too high nor too low in order to maintain their market share in underwriting IPOs.

Allen and Faulhaber (1987), Grinblatt and Hwang (1989) and Welch (1989) model the underpricing in IPOs as a signal of the firm’s value. In these models, the issuer knows the true value of the offer, while investors are uninformed. The high value firm optimally signals its type through underpricing in the initial sale, because this will allow charging higher prices in subsequent offers. Here, underpricing occurs in partial sales.

Leland and Pyles’ (1977) model is one of the first signaling models which described the issuer’s function in the IPO process. Their model is a simple static equilibrium model where the ownership retention rate signals to investors the quality of the issuer. They argue that the level of retention of shares by original shareholders can be a convincing signal of the firm value to the outsiders. This idea is very much tied to the principal-agent conflict which should be less of a problem when owners of a company retain large amount of shares after the IPO, thus these companies are regarded as high quality ones.

Investors are expected to make their IPO purchasing decisions based upon this crucial information.

Allen and Faulhaber (1987) also used the bivariate signaling model. In addition to ownership retention rate being a signal of a company's quality, the issuer deliberately undervalues his IPO as a second signal to convey the high quality of the company to investors. By doing this, the issuer is conveying the message that it is financially sound and will be able to recoup losses incurred by undervaluing the issue.

Choi and Nam (1998) compared the initial returns of Privatization Initial Public Offerings (PIPOs) to private-sector IPOs. Their sample included 185 privatizations in 30 countries. They found that PIPOs were on average more underpriced than IPOs of privately-owned firms. One of the countries included in the sample was Australia. They report that their sample of seven Australian PIPOs, covering the period 1991-97, had an average initial return of 16.6 percent. They then compared their public sector sample to a sample of 266 privately issued IPOs covering the period 1976- 89 and reported an average initial return of 11.9 %.

Using the same sample period (1991-1997) and the method of calculating returns as Choi and Nam (1998), Steen et al (2001) find that Australian PIPOs have mean initial returns of 11.57 % or 10.25 % depending on whether retailer or institutional prices are used. This compares to 17.55 % for all Australian private-sector IPOs covering the same sample period. While the standard deviation of initial returns of PIPOs is 17.09 and 16.27 percent

(retail and institutional prices respectively), the equivalent figure for private-sector IPOs is 55.49 %, roughly, three times the size. These figures are consistent with IPO literature that generally supports the notion that risk and return should be positively correlated. Hence, PIPOs have significantly lower risk and therefore lower initial return than private sector IPOs.

In the UK, privatization IPOs offers a significant underpricing of 38.7% while private-sector IPO generate 3.4% (Menyah & Paudyal, 1996). Paudyal et.al. (1998) reports that privatization IPOs in Malaysia are underpriced more than private sector IPOs. In short, most evidences show that in the short-run IPOs are underpriced either in developed or emerging economies.

Different theoretical arguments have been put forward to account for the observed privatization initial returns (Huang and Levich, 2003)

### **2.2.1 Asymmetric Information Theory**

According to this theory, it is reasonable to expect that there should be less uncertainty about larger and mature firms, operating in stable industries, as they are likely to be followed by more analysts, produce more information about their activities, and possibly have longer periods of operation, than small and young firms established in new industries. If so, a larger underpricing should be observed for privatizations of smaller state-owned firms. Given that companies involved in private IPOs are younger and in more dynamic industries, privatization IPOs should be less underpriced and thus yield

lower returns. Yet limited demand in small capital markets may dictate greater underpricing for larger issues to ensure the success of the operation. Therefore a higher degree of underpricing may be observed in larger privatization offerings. Asymmetric information theories also predict that underpricing is larger for transactions where the length of time between offer price setting and first trade date is greater, and for privatization offerings. As the scope and implications of the privatization program are revealed, uncertainty about offer characteristics is reduced yielding diminishing initial returns over time.

### **2.2.2 Political Economic Theories**

Political economic theories argue that governments pursue above all, political objectives. This view argues, for example, that shares are allocated for purchase at a discount by firm employees to gain employee political support in the process. This suggests that, initial returns in privatizations for which a share tranche is reserved to employees, should exceed initial returns observed when there is no such reserved tranche. Similarly, governments try to build political support during the early stages of a privatization program by underpricing first privatization offers, which satisfies investors and increases their confidence for the next offers. Higher initial returns should also be expected whenever a privatization offer occurs on a year of parliamentary elections, before those elections take place, to avoid shifting voting preferences of the population.

According to Biais and Perotti (2002), strategic privatization of allocating significant share ownership to a targeted section of the population is mainly used by right-wing



parties. Consequently, higher initial returns should be observed when right-wing parties are leading the country. In some instances government officials may seek to benefit indirectly by underpricing shares and allocating them to political allies. All of these political objectives suggest that government officials have stronger incentives than private issuers to under price IPOs and that they do so to a greater degree. Initial returns to investors in privatizations should therefore exceed those to investors in private company IPOs.

It is also argued that governments in countries with relatively primitive capital markets are most likely to promote broader share ownership by deeply discounting privatization shares in IPOs. In addition, there is probably greater uncertainty about the intrinsic value of initial share offers in primitive capital markets than in developed ones. In primitive capital markets there are few, if any existing publicly-traded firm that are closely comparable to an offering firm. There are also fewer security analysts specializing in primitive capital markets. Thus, the appraisal of offering firms is more difficult and the production and dissemination of information pertaining to share values is less extensive under primitive capital market conditions. Greater uncertainty about the value of an offer prevails under these conditions. Therefore, differences in valuation uncertainty and in government political objectives suggest that initial returns for privatizations in countries with relatively primitive capital markets should exceed those for privatizations in countries with highly developed capital markets, other factors held constant.

### **2.2.3 Foreign Participation Theory**

A privatization program represents a wealth transfer from the state to investors and, for a given level of underpricing, governments will be more subject to criticism the greater is the foreign allocation. The prediction is thus that higher initial returns should be lower when foreign allocation increases. Yet, international diversification benefits would dictate that offer prices are higher in offerings with foreign international investors. Besides, the cross-listing of the shares of a privatized firm may be seen as a signal of quality and government's commitment through the privatization program. This could resolve part of the uncertainty regarding the firm value and result in higher offer prices in the first place and therefore lower underpricing for those offers with a listing in foreign markets.

### **2.2.4 Agency Theory**

Agency theory models argue that managerial incentives and market monitoring are ineffective in partial sales because the control shift to the private sector is not complete, given the likelihood of government intervention later after the sale, and that impacts expected economic performance. This is also true for sales of firms in regulated industries. The prediction is that partial privatization offerings are riskier and therefore a larger underpricing is required to reassure and convince investors to buy shares. Yet a government mainly concerned with revenue maximization would be unwilling to underprice and would prefer total privatization.

### **2.3 Theory and Evidence on the Long-run under-performance**

Studies indicate that in the long run there is a severe underperformance of IPOs. In the U.S. empirical evidence shows that, in the long-run, IPOs under perform relative to the overall market. Ritter (1991) and Loughran and Ritter (1995) document several underperformance of initial public offerings. Ritter (1991) finds that the matching firm adjusted cumulative average returns in three years to be -29.1%. Aggarwal and Rivoli (1990) report market adjusted returns of -13.7 % from the first day of trading to the 250 days of trading.

In other countries, the findings are consistent with those of U.S. Levis (1993) reports a long-run under-performance of -30.59 % by the third year after the offer in the U.K. Finn and Higham (1988) reports -6.5% one year market adjusted returns in the U.K. However, Dawson (1987) reports interesting evidence that in the long-run, IPOs on average outperform the overall market by 18.2 % in one year.

Kim et al. (1995), using a sample of 169 firms listed on the Korea Stock Exchange during period 1985-1989, report that Korean IPOs outperform seasoned firms with similar characteristics.

Stern and Bornstein (1985) found that for the period from January 1975 through June 1985, IPOs had underperformed the market in the long run. The average new issue was down 22% relative to the broad Standard and Poor's 500 stock index.

Ibbotson, Sindelar and Ritter (1988) present three possible explanations for the long-run performance of IPOs: divergence of opinion, the impresario hypothesis and windows of opportunities.

### **2.3.1 Divergence of opinion**

According to this theory, IPOs are usually subscribed by investors who are the most optimistic about the issue and their prices are set by this group rather than the appraisal of the typical investor. Further, the greater the uncertainty about the value of the IPO, the higher is the price that optimistic investors are willing to pay relative to pessimistic investors. In the long-run, as more information about the issuing firm becomes available, the divergence of opinion between these two groups of investors will narrow and, consequently, market price will drop. Miller (1977) predicts that IPOs will generate abnormal returns in the short-run but they will have smaller price appreciation than the seasoned firms in the long-run. He also expects IPOs' long-run return to be negatively related with its ex ante characteristics.

### **2.3.2 Impresario theory**

Shiller (1990) advances an impresario theory that, investment bankers (impresarios) under price IPOs to create an appearance of excess demand. According to Ritter (1991), companies with the highest initial returns should have the lowest subsequent returns. In his analogy, Shiller (1990) illustrated that impresarios who manage musicians and entertainers know that they should not always price tickets so as to maximize profit on that single event. To do so, they run the risk that the event may be attended by few people, a case of under-subscription. It is often better to create a situation of excess

demand for the tickets. This impression would ensure that greater demand for subsequent event is created. By the same token, underpricing of IPOs will create high initial returns giving the impression that the stockbroker or underwriter is giving good investment advice.

### **2.3.3 The Windows of Opportunity Theory**

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 to ‘time’ the IPOs to take advantage of the swings in investor sentiments. Ritter (1991 and Loughran and Ritter (1995) argue that the low returns on IPOs are consistent with issuers taking advantage of ‘windows of opportunity’ in which the market is willing to overpay for their equity. Myers (1984) viewed this framework as a dynamic financing hierarchy or windows of opportunity model. External financing is sometimes the first choice for financing because sometimes firms can issue overvalued equity. The windows of Opportunity predict that there will be low long-run returns on firms conducting IPOs than on firms conducting seasoned equity offerings.

Ritter (1984) also proposes a number of reasons that explain the long-run underperformance of IPOs

#### **Risk management**

According to him, when firms decide to go public, they usually engage in activities necessary to obtain clearance from the authorities. The months preceding the issue witness management activities geared towards making the offers attractive. Sometimes,

companies engage in expansion programs and even change of management. The end result usually gives companies a positive outlook. What may happen in the aftermarket is that companies may adopt strategies where they lack adequate capacity or the changes may be too drastic to cope with leading to risk mismanagement leading to low returns.

### **Bad luck**

Bad luck may be attributed to the perception of investors on the stock market or adverse environmental factors beyond the control of the company which may adversely affect performance of the company. An example would be a severe drought on an agricultural-based company.

### **Fads and over-optimism**

Shiller (1990) examined the relationship between stock prices and social dynamics and argued that mass psychology may well be the dominant cause of movements in the price of the aggregate stock market. Fads or over-optimism can lead to overvaluation of the equity market, which leads to under-performance in the long-run

Several studies have been carried out in different countries comparing long-run performance of IPOs of privately owned and publicly owned firms. Menyah and Paudyal (1996) state that long-run performance of privatization IPO is 60.97% in contrast to only 3.01% for private sector.

Isnrhadi (2005) argues that initial underpricing has consistent significant long-run performance. His results support the proposition that privatization initial public offerings which experienced heavy underpricing will in the long run have difficulty in recuperating.

Rizwan and Khan (2007), using a sample of 35 Pakistani offerings from 2000-2006 conclude that PIPOs are statistically significantly underpriced more than the private sector IPOs in the short run. In the longrun, PIPOs remarkably better than than IPOs. Sohail and Nasr (2007), using a sample of 50 Pakistani IPOs during the period 2001-2005 find significant underpricing for Pakistani IPOs reporting an average first day return of 35.66 % for subscribers. In analyzing the longer-term performance of IPOs, they find a buy (at the closing price of the listing day) and hold (to the end of the twelfth month) strategy resulting into a mean 38.1 % return by using market adjusted model. However, their study of new equity issues in Pakistan market only examines initial performance and one-year long-run performance.

Using different samples from 59 countries across the world, Jones et al. (1999) document an average initial return of 34.1 % for privatization IPOs. Meyah et al. (1990) proposes that UK privatization should not possess differential information because of large amount of information available prior to going public. Contrary to their hypothesis, they found excess returns that significantly exceeded private sector IPO returns for initial and long run performance. On the other hand, jelic and Briston (1999) find no general tendency for privatizations to be underpriced more than private sector IPOs. Similar result is provided by Easto and Pinder (1996) for seven Australian PIPOs from 1989 to 1995 who conclude these PIPOs were no more underpriced than non-public sector IPOs. In contrast,

Ausennege (2000) reports that the average initial return on Spanish PIPOs is significantly higher than on private sector IPOs respectively.

In Malaysia, Paudyal et al. (1998) find that long-run performance over the first three years shows no significantly positive or negative performance for both privatization and private sector IPOs. Isnurhadi (2007) however, indicates that while in the short-run Malaysian PIPOs offer higher returns than private-sector IPOs, the pattern reverses in the long run.

International evidence of long-run privatization IPOs performance reveals mixed results. In developed capital markets, it seems that in the long-run privatization IPOs performance is significantly negative but in emerging capital markets it is in contrast.

In Portugal, Vieira and Serra (1996) reveal that Portuguese PIPOs are less underpriced than private sector IPOs. They also provide evidence indicating that in the long-run, PIPOs under perform the private sector IPOs.

Ritter (1991) states that long-run performance is associated with management shifts resulting from the transfer of state to private ownership and the resulting improvements in economic efficiency. Political risk is an obvious feature of privatization offerings that may play an important role in understanding the behavior of returns overtime.

Isnurhadi (2005) analyzed the short run and long run performance of privatization IPOs in Malaysia. He found out that in the long-run, initial underpricing has consistent significant impact on three-year and five-year returns. His results support the proposition that IPOs which experience heavy underpricing in the short-run will have difficulty in



recuperating in the long-run. This is why the degree of underpricing strongly affects long-run aftermarket return. What appears to be underpricing in the short-run turns out to be overpricing in the long-run. His results also suggests that investors buying privatized IPOs from the market on the first day of trading would not, on average, receive any significant excess return over the first three years and at the end of fifth year.

Boardman and Laurin (2000) use a variable to measure the timing of a particular offering within the process of privatization in a country. They also account for the portion of retained government ownership and for different regulating and competitive environments.

Perotti and Van Oijen (2001) also used a proxy for political risk and suggest that the progressive resolution of political risk as the privatization program evolves, leads to more positive returns. Yet, in the long-run, after the initial correction, one should observe lower returns reflecting lower risk.

Ayber (2002) shows that emerging market PIPOs under-perform developed markets issues.

Other hypotheses that have been advanced to explain underpricing of IPOs are as follows:

### **The Lawsuit Avoidance Hypothesis**

In the U.S., the securities Act of 1993 makes all participants in the offer who sign the prospectus liable for any material omissions. One way of reducing the frequency and severity of future lawsuits is to under-price.

### **The Stabilization Hypothesis**

Ruud (1993) argues that the practice of stabilization by investment bankers results in average initial returns that are substantially overstated. Stabilization is the practice of buying large numbers of shares in the immediate aftermarket in an effort to prevent the price from falling.

### **The Ownership Dispersion Hypothesis**

Issuing firms may intentionally under price their shares in order to generate excess demand and be able to have a large number of small shareholders. The dispersed ownership will both increase the liquidity of the market for the stock and make it more difficult for outsiders to challenge management.

## **2.4 IPO cycles: Theory and Evidence**

The initial public offering (IPO) market follows a cycle with dramatic swings often referred to as hot and cold markets (Ibbotson and Jaffe 1975; Ritter, 1984). A hot IPO market is characterized by an unusually high volume of offerings, severe underpricing, frequent oversubscription of offerings and to a certain extent, by concentrations in particular industries. In contrast, cold IPO markets have much lower issuance, less underpricing, fewer instances of oversubscription and larger offerings.

Some researchers have argued that these swings in the IPO market reflect changes in investor sentiment, while others have argued they arise from changes in factors that affect the decision to issue equity, such as asymmetric information between investors and firms.

The empirical evidence describing issuers in hot and cold markets is mixed. Choe et al (1993) and Bayless and Chaplinsky (1996) provide evidence that announcement effects are less negative in hot markets, suggesting that better quality firms issue equity in hot markets. Tests of the IPO signaling models by Jegadeesh, Weinstein and Welch (1993), Michaely and Shaw (1994), cast doubt on the strength of the relationship between underpricing and firm quality, suggesting that hot issue market may not reflect greater participation by high quality IPOs. Loughran and Ritter (1995) suggest that equity issuers are below-average quality firms, especially if they issue equity in a hot market. They argue that the underperformance results are evidence of investor over optimism and managers' willingness to take advantage of such sentiments.

Bayless and Chaplinsky (1996) argue that hot issue markets need not occur solely because of swings in GDP. A window of opportunity could occur in any period in which the cost of issuing equity is lower for all firms, such as when events known by both managers and investors dominate firm specific information.

Jain and Kini (1994) and Mikkelsen and Shah (1994) do not specifically study hot markets in comparison to cold markets, but their results based on accounting data indicate that IPO firms time their offerings to coincide with peak operating performance.

Hewlwege and Liang (1995) suggest that long-run operating performance of hot and cold market issuers doesn't differ substantially in the five years following the IPO. They argue that there is no evidence in favour of the asymmetric information theories of equity issuance cycles that hot markets are characterized by better firms. According to them, pricing is affected by over optimism in hot markets.

### **3 CHAPTER THREE: METHODOLOGY**

#### **3.1 Research design**

The study sought to document, analyze and compare the performance of initial public offerings of private -and state-owned companies at the NSE. The study is empirical in nature. The empirical design was deemed appropriate as it enables testing of hypotheses in line with research objectives. This research design has been successfully used by Dewenter and Malatesta (1997) and Isnurhadi (2005) among others.

#### **3.2 Population**

The population of the study consists of all initial public offers of common stock at the NSE during the period 1984-2008; therefore, there was no need of sampling. A total of 16 companies were listed at the NSE between 1984-1997 (Maina 2006). The period 1998-2008 saw an additional 10 companies listing at the NSE, bringing the total number to 26 companies, 9 among them being government-owned firms. However, only those companies whose trading data were available were included in the study. The period chosen was considered adequate enough to comprehensively document, analyze and compare the performance of the two categories (private and government-owned firms). For long-run performance analysis, a company must be at least 3 years old since going public.

### **3.3 Data collection**

Secondary data was used in this research. The data was obtained from the Nairobi Stock Exchange database, Capital Markets Authority and data vendors namely; MediaCorp, NellyData and Rich Management. Daily Nation market reports were also used to supplement the aforementioned sources. For a company whose trading details were not available in the NSE data base, every effort was made and assistance sought to obtain relevant data from Daily Nation market reports. This was especially so for those companies listed before 1990.

### **3.4 Hypothesis**

In line with the research objectives, data was analyzed and tested to yield conclusions in respect of the hypotheses below.

#### Hypothesis A

H<sub>0</sub>: The mean initial return of an IPO of a government-owned company and that of a privately-owned company are the same.

i.e.  $\mu_1 = \mu_2$

H<sub>a</sub>: The mean initial return of a government-owned company and that of a privately-owned company are not the same.

i.e.  $\mu_1 \neq \mu_2$

#### Hypothesis B

H<sub>0</sub>: The mean buy-and-hold abnormal return (BHAR) of an IPO of a government-owned company and that of a privately-owned company are the same.

i.e.  $\mu_1 = \mu_2$

Ha: The mean buy-and-hold abnormal returns (BHAR) of an IPO of a government-owned company and that of a privately owned company are not the same. i.e.  $\mu_1 \neq \mu_2$

### **3.5 Return computation**

#### Short-run returns

The first day return for each IPO has been calculated as follows, as proposed by Dewenter and Malatesta (1997)

$$r_{i1} = \log (P_{i1}) - \log (P_{i0})$$

Where  $r_{i1}$  is the raw, unadjusted return of stock  $i$  on the first day of trading.  $P_{i1}$  is the first day closing price of stock  $i$  and  $P_{i0}$  is the initial offering price of stock  $i$ . Here, the initial return has not been adjusted for overall market movement so it is called “raw” return. To calculate initial abnormal returns of IPOs, the raw return has to be adjusted with the return of market index so as to remove the impact of any general movement in the share prices.

The return on the market index during the same time period is computed as:

$$r_{m1} = \log (I_{m1}) - \log (I_{m0})$$

Where:  $I_{m1}$ - is the market index value at the close of the first trading day.

$I_{m0}$ - is the market index value on the offer day of the appropriate stock and

$r_{m1}$ - is the first day's market return

Using the two returns above, the market adjusted abnormal return (MAAR) for each IPO on the 1<sup>st</sup> day of trading was computed as follows.

$$MAAR_i = r_{i,t} - r_{m,t}$$

The market adjusted abnormal return measures the extent to which the rate of return on a newly issued share exceeds the rate of return earned on the market as a whole. The reason for adjusting the return as said earlier is to remove the impact of any general movement in the share prices. The return computations of IPOs and PIPOs are shown in schedules 1 and 2.

#### Long-run returns

The long-run aftermarket performance is examined by computing buy-and –hold returns (BHRs).according to Barber and Lyon (1997), abnormal return calculated as a simple buy-and-hold return on a simple firm less the simple buy-and-hold return on a reference portfolio or control firm. In addition, buy-and-hold returns accurately reflect the actual return that investors receive from their investments. The buy-and-hold return, as proposed by Ritter (1991) for company i, is defined as:

$$MBHR_i = \ln (P_{i,t}/P_{i,t-1}) - \ln (I_{m,t})/I_{m,t-1}$$

Where; MBHR<sub>i</sub> represents the market buy-and-hold return for a firm over a period of 36 months.

$P_{i,t}$  and  $I_{m,t}$  denote the end of month t share price for the firm i and the corresponding end of the month index respectively while  $P_{i,t-1}$  and  $I_{m,t-1}$ , represent end of month t-1 share price and the corresponding month index respectively. The computations of the MBHR are contained in schedules 3-21 and the analysis thereof in figures 1-17.



## 4 CHAPTER FOUR: Data analysis, Findings and Interpretations

### 4.1 Data analysis

Data collected for the 7 PIPOs and 14 IPOs have been analyzed as shown in tables 1 and 2, figures 1-17 and schedules 1-21.

Descriptive statistics were used to summarize the data. This comprised of an analysis by using means, standard error, variances and t- statistic. The hypotheses were tested by calculated the t-statistics and comparing it with the table values of t. A 5 % level of significance was used with  $N_1+N_2$  d.f.

Tables 1 and 2 show the descriptive statistics of the PIPOs and IPOs in the short run and the long-run respectively. The mean, standard deviation and the t-statistic have all been computed.

<b>Table 1: Difference of means of IPOs and PIPOs</b>			
<b>SHORT-RUN</b>	<b>ALL</b>	<b>PIPOs</b>	<b>IPOs</b>
Mean	13.9	22.219	9.79
Standard deviation	14.32	14.71	12.6
Maximum	52.68	52.68	39.72
Minimum	-11.96	7.18	-11.96
Level of significance (%)	5	5	5
observations	21	7	14
Calculated t		2.187	2.187
Table t		2.093	2.093
d.f		19	19
<b>Decision: Reject H0</b>			

<b>Table 2: Difference of means of IPOs and PIPOs</b>			
<b>LONG-RUN</b>	<b>ALL</b>	<b>PIPOs</b>	<b>IPOs</b>
Mean	-0.05886	-0.0725	-0.0532
Standard deviation	0.129	0.1536	0.1257
Maximum	0.163	0.14	0.16
Minimum	-0.244	-0.227	-0.24
Level of significance		5	5
observations	17	5	12
Calculated t		3.194	3.194
Table t		2.131	2.131
d.f		15	15
<b>Decision: Reject H0</b>			

Schedule 1 shows the computations of the market adjusted abnormal return of private companies while schedule 2 gives a summary of the return computations of the PIPOs.

The long-run analysis is contained in schedules 3 and 4. Figures 1-17 show the behavior of the returns of 17 companies over a 36- month period.

## **4.2 Findings and interpretations**

### **4.2.1 Short-run Performance of PIPOs and IPOs**

The study was undertaken with the objective of documenting, analyzing and comparing the short-run and long-run performance of PIPOs and IPOs. From the schedules 16 and 18, it can be deduced that both the IPOs and PIPOs were underpriced. The latter experiencing a mean return and standard deviation of 9.79% and 12.63 respectively and the former posting mean return and standard deviation of 22.22% and 14.72 respectively. These figures are consistent with IPO literature that generally supports the notion that risk and return should be positively correlated.

Besides, in the category of the privatization initial public offerings, Kengen had the highest mean initial return of 52.68% while Kenya Airways had the lowest mean initial return of 7.18.

In the category of IPOs, scan group was heavily underpriced posting 39.72% while Athi River Mining experienced negative initial return of 11.96. During the listing of Kengen, investor confidence was at its peak resulting into first trading day closing price of 40 from the listing price of 11.90.

From tables 1 and 2, mean return of 13.9% of initial return shows that if an investor invests equal amount of money in each IPO at the issue price and selling each IPO on its first trading day, he would have earned an average of 13.9% on his investment.

On the other hand, if the investor had invested only in the privatization IPOs, his investment would have yielded 22.2% while the strategy would have earned him 12.6 % return had he invested in IPOs of privately-owned companies. For the long-run return, both the IPOs and PIPOs yielded negative returns. However, it must be noted that MBHR of IPOs were more negative.

The null hypothesis A, which states that the mean initial return of both IPOs and PIPOs are the same, was tested at 5% confidence level with 19 d.f. The hypothesis was rejected because the calculated t statistic is more than the table t. The means are statistically different from zero.

These findings are consistent with previous studies. For example, Choi and Nam (1998) compared the initial returns of Privatization Initial Public Offerings (PIPOs) to private-sector IPOs and found that PIPOs were on average more underpriced than IPOs of privately-owned firms. Menyah & Paudyal, (1996) found that in the UK, privatization IPOs offers a significant underpricing of 38.7% while private-sector IPO generate 3.4%. There are however other studies that are contrary to the findings of this study and others before it, e.g Steen et al (2001) find that Australian PIPOs have mean initial returns of 11.57 % .This compares to 17.55 % for all Australian private-sector IPOs covering the same sample period.

#### **4.2.2 Long-run performances of IPOs and PIPOs**

A comparative evaluation of the long-run performance of both IPOs and PIPOs was done and hypothesis tested. The results as shown in schedules 3 & 4 show that both the IPOs and PIPOs had negative MBHRs with the former experiencing a negative return of 0.05321 and the latter showing a negative of 0.0724 A test for the difference of the two MBHRs rejects equality at 5% level of significance. The null hypothesis  $H_0$ , which states that the Market-Buy-and-Hold return of the PIPOs and IPOs are the same, is therefore rejected since the calculated  $t$  is more than the table  $t$ . Previous studies have also indicated that short run under pricing of PIPOs results into long-run underperformance. Previous studies that have produced similar results include analysis of Portuguese IPOs by Vieira and Serra (1996) which provide evidence indicating that in the long-run, PIPOs underperform the private sector IPOs. Isnurhadi (2007) indicates that while in the short-run Malaysian PIPOs offer higher returns than private-sector IPOs, the pattern reverses in the long run.

## **5 CHAPTER FIVE: Conclusion and recommended areas for further study**

### **5.1 Conclusion**

The objective of this study was to comprehensively document, analyze and compare the performance of IPOs of state-owned companies and those of privately-owned companies at the NSE. The study took a comparative approach. It revealed that PIPOs were more underpriced than their counterparts in the private sector, the result of which was increased initial return for those investors who were lucky enough to subscribe to the shares at the offer price.

Governments the world over are known to underprice PIPOs in the pre-market and Kenya is no exception. The Kenyan government under president Kibaki, has sold several big and well-known enterprises. The government is committed to generate support for its privatization program, fully develop the capital markets and also improve the efficiency of state-owned enterprises.

As revealed by this study, most of those companies that were privatized experienced huge initial returns. Kengen for instance produced the highest return of 52.68 %. PIPOs tend to post huge returns in the after-market albeit in the short run only. The possible reasons for this practice by governments include political reasons i.e. gain political support from the citizenry, economic reasons in terms of giving the public the chance to own substantial shares in companies and also to create investor confidence in subsequent offerings. The government has stronger incentive than private issuers to underprice IPOs and that they do so to a greater degree.

In the long-run, the trend changes in favor of private companies' IPOs i.e while both the PIPOs and IPOs underperform the market, the former does that to a greater extent. Again, possible reasons for this behavior emanate from the fact that government enterprises are often interfered with by the political or ruling class and the dichotomy between management and ownership is not clearly defined; a problem commonly referred to as the agency problem. Many believe that government-enterprises are poorly managed hence perform dismally compared to private companies. It is however clear that any investor who buys a PIPO is better placed to benefit immensely in the short run than one who invests in an IPO.

It is expected, as shown by this study that initial returns to investors in privatization IPOs should exceed those to investors in private company IPOs. This research will hopefully add another strand to finance literature, enrich and provide significant contribution to previous findings and be of invaluable importance to investors.

## **5.2 Limitations of the study**

### Corporate earnings

The study did not directly incorporate dividend earnings in the return computations. It is however expected that any earnings announcement would definitely be reflected in the market prices even before such announcements are made at least as per the Efficient Market Hypothesis

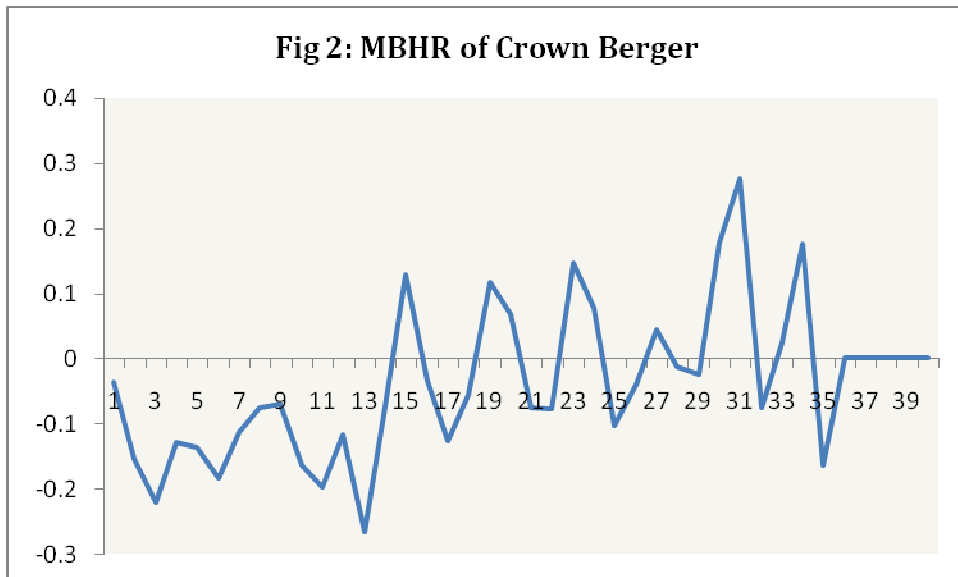
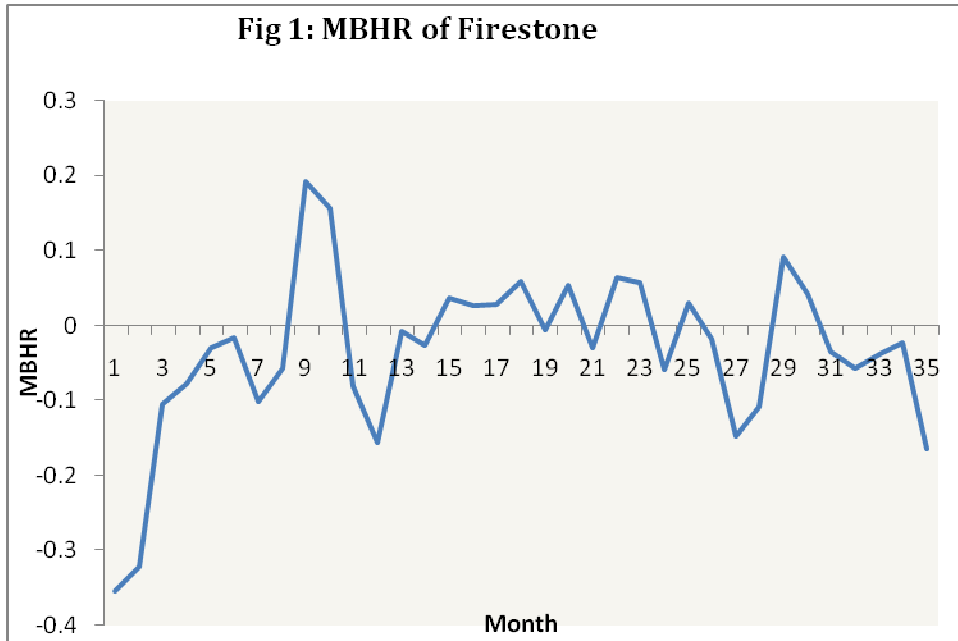
### Lack of market information

It was very difficult to get the necessary market/trading details/information of several companies, e.g NBK. Besides, information about companies that were listed before 1984 was never found though the inception of the NSE dates back to 1

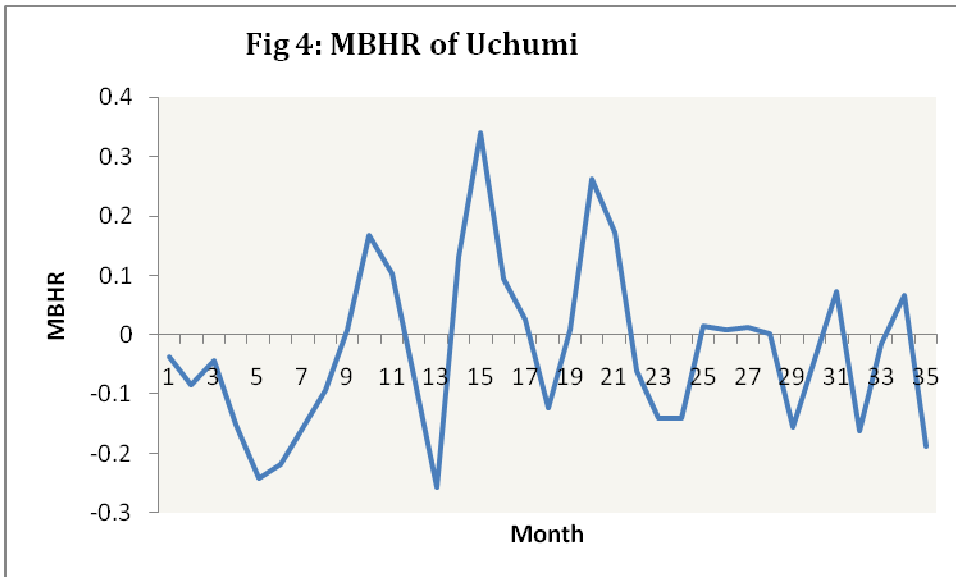
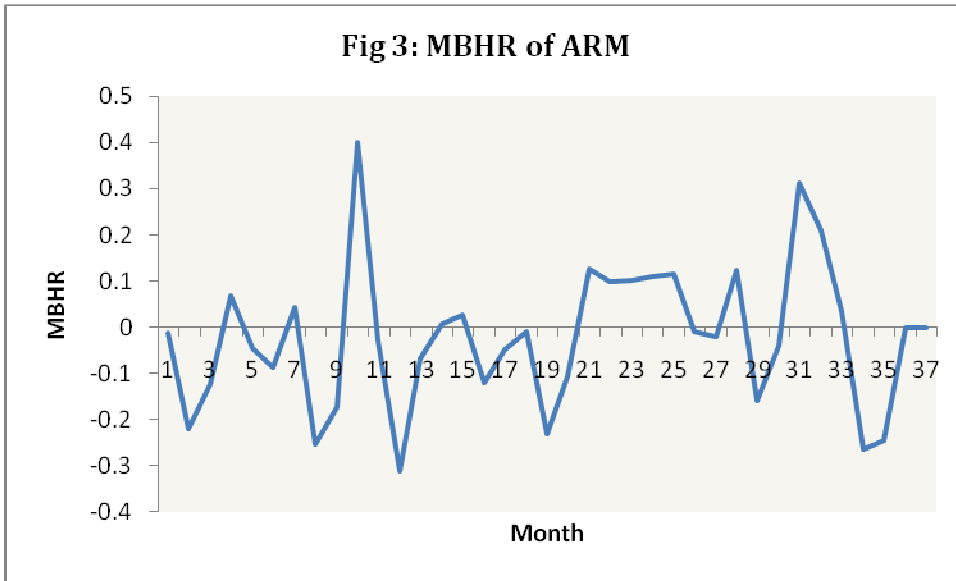
### **5.3 Recommended areas for further study**

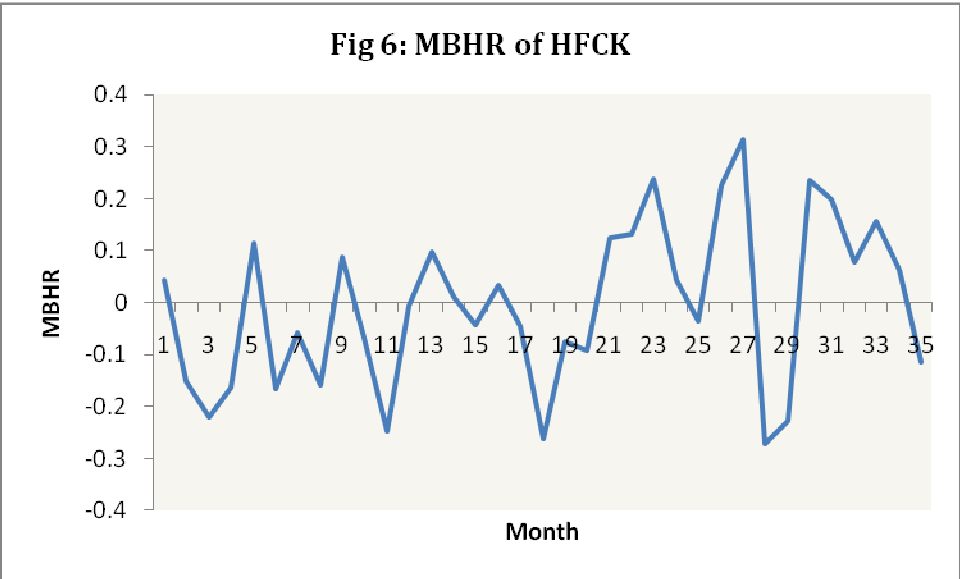
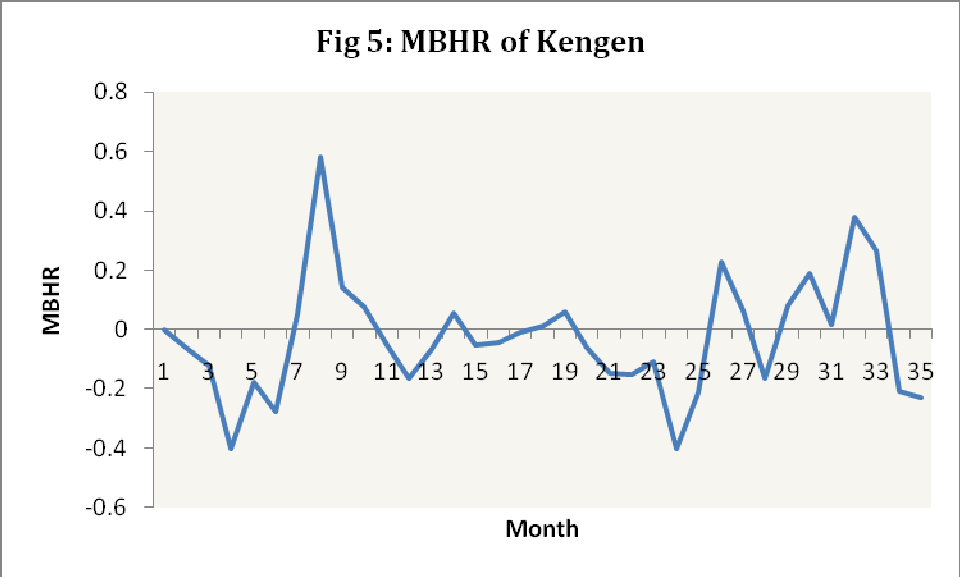
The researcher recommends that further study be carried out to empirically test or investigate other possible factors that may result into under pricing or overpricing of IPOs and PIPOs e.g using regression analysis to determine the effects of initial under pricing, number of days between price setting and first trade date, fraction of equity retained by government, employee and foreign participation etc on the long-run performance of IPOs and PIPOs.

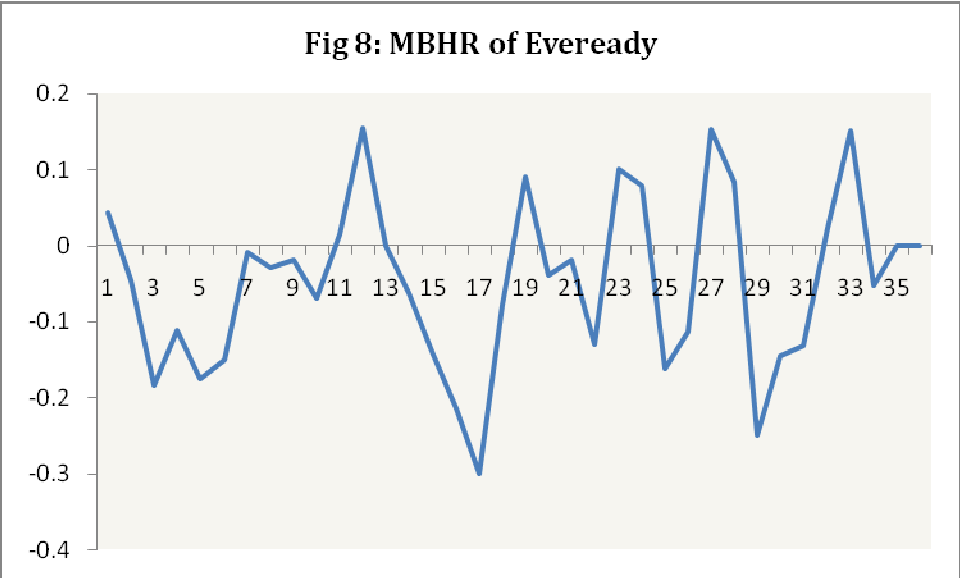
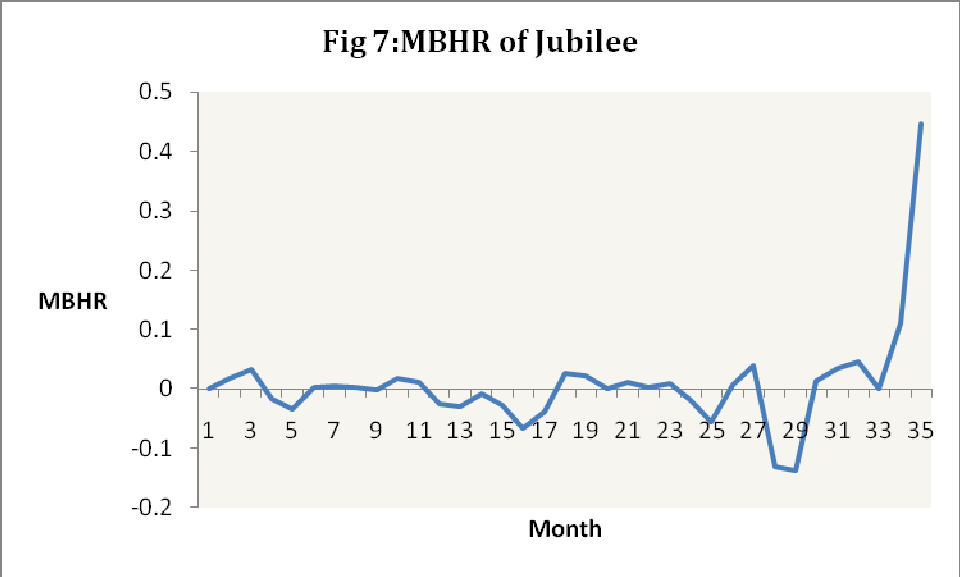
**Figures**

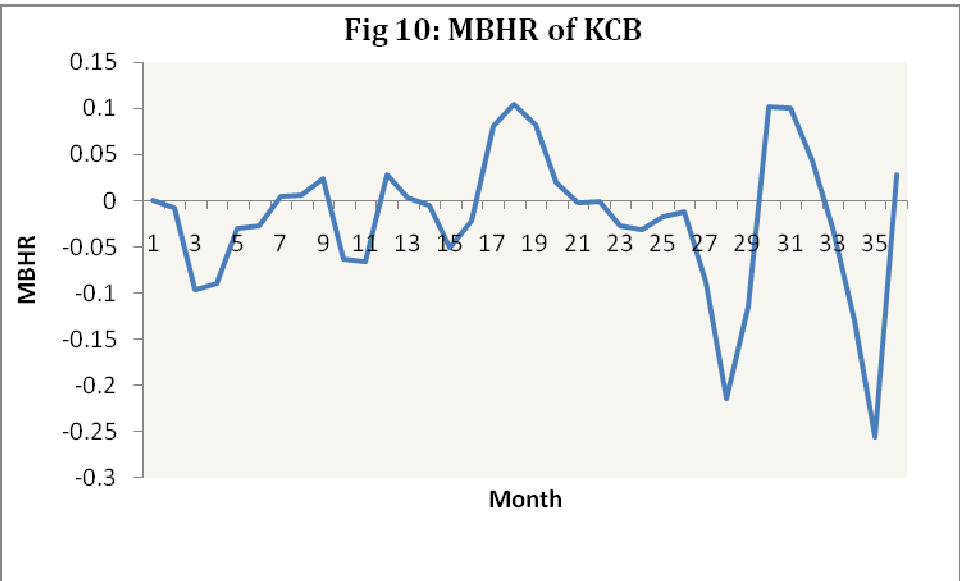
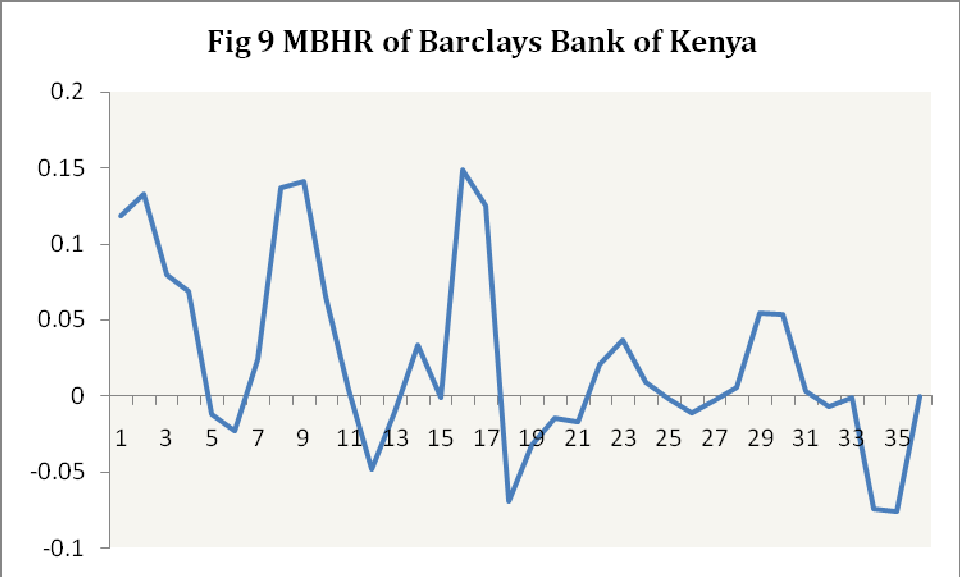




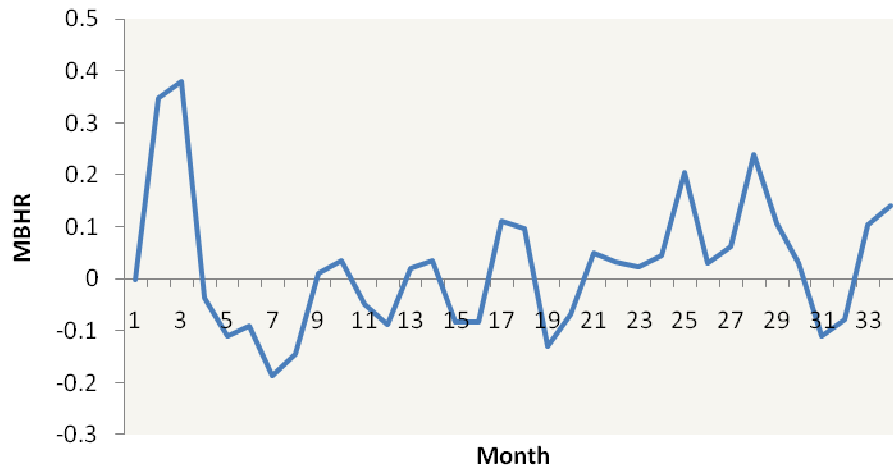




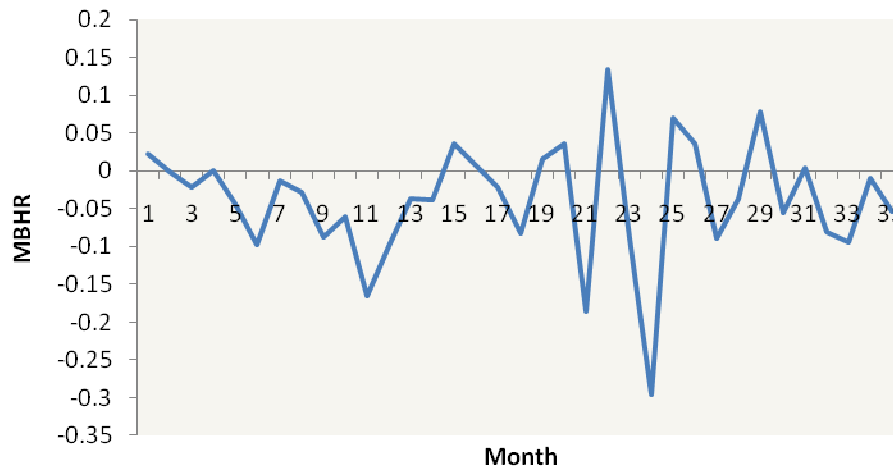


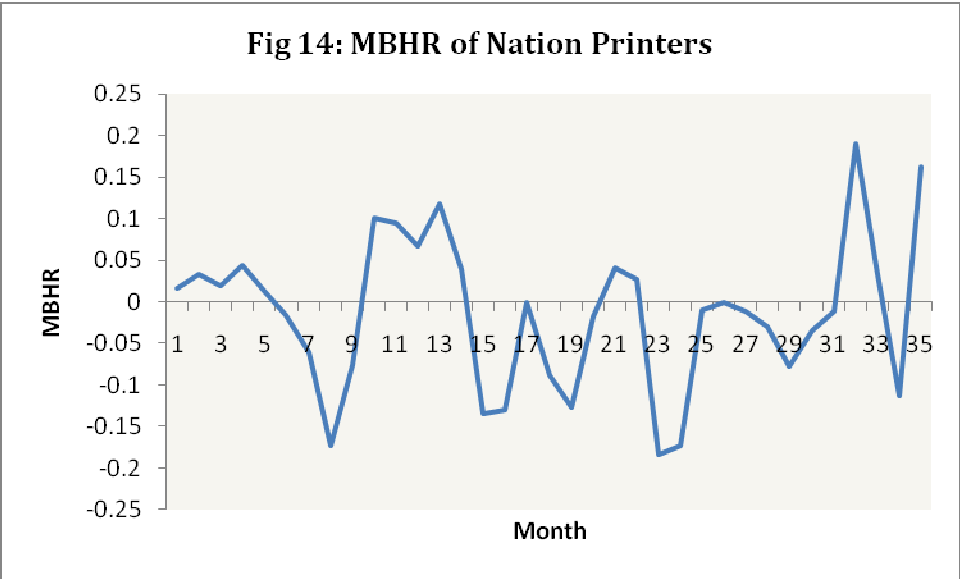
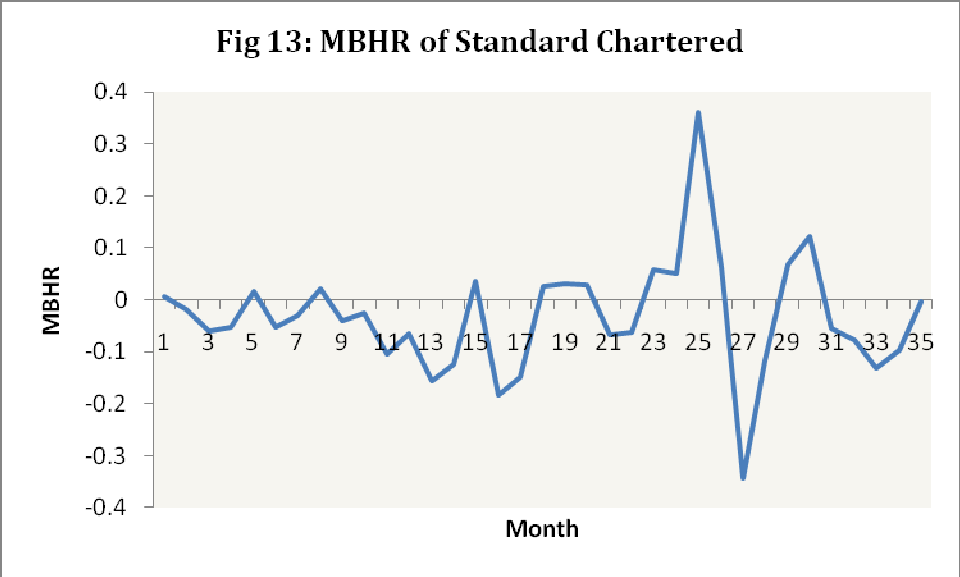


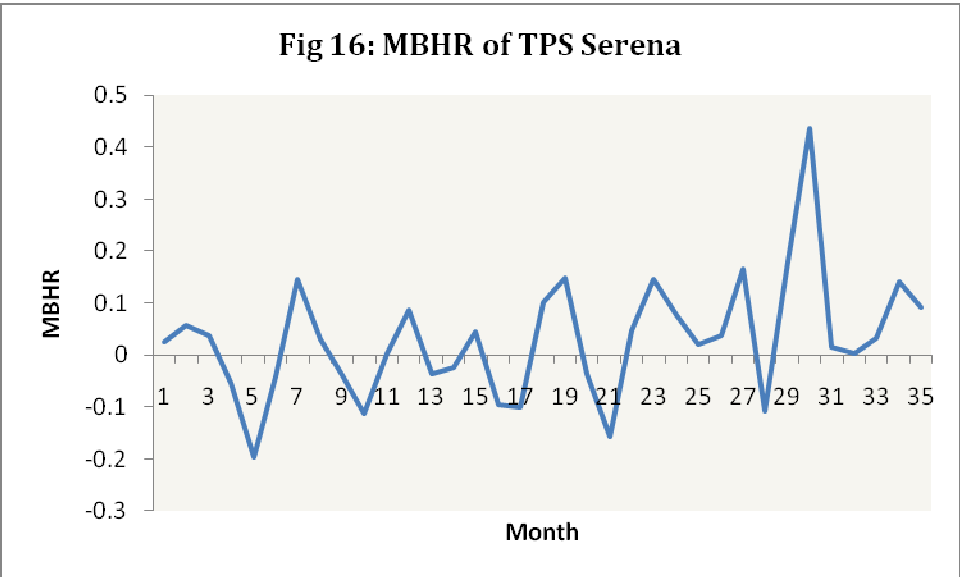
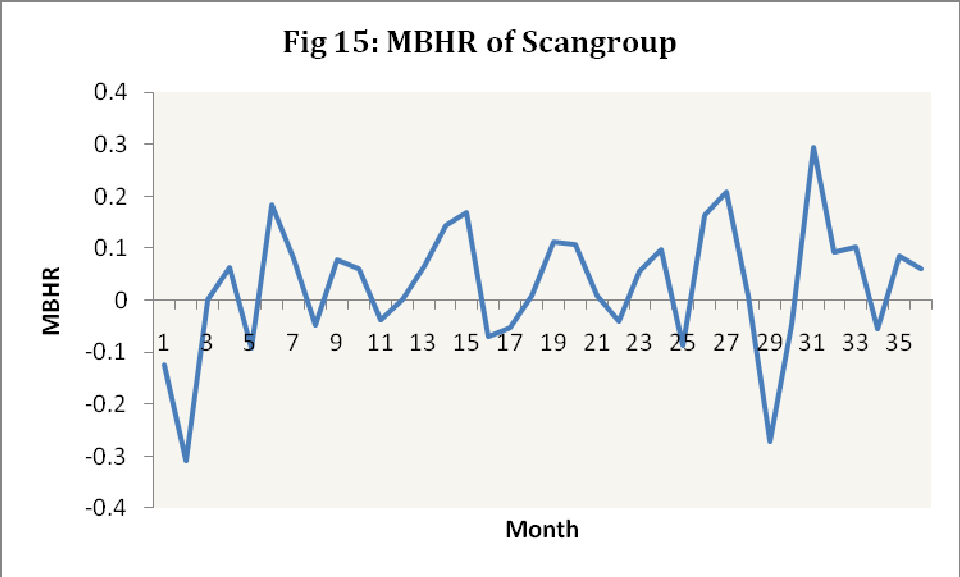
**Fig 11: BHAR of Kenya Airways**



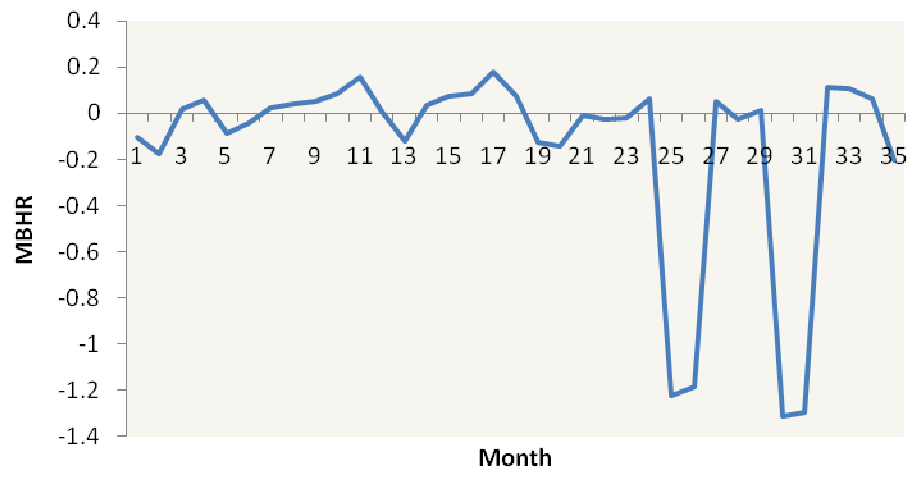
**Fig 12: MBHR of Rea Vipingo**







**Fig 17: MBHR of NIC**





## *Schedules*

SCHEDULE 1: SHORT RUN RETURNS OF PRIVATE COMPANIES									
IPO	Offer Price	1st Post listing price	NSE Index on offer day	NSE Index On 1st trading day	First day total return	first day return on market index	Market adjusted abnormal return		
Jubilee Insurance Company	14.4	15	385.51	385.46	0.017728767	0.0001356	1.786		
Barclays Bank (K)	16	23	470.09	450.09	0.157607853	-0.018881649	17.65		
Nation Printers Ltd	11.5	11.8	855.68	853.66	0.011184167	-0.001026449	1.221		
Standard Chartered Bank	14.5	27	871.12	822.61	0.269995762	-0.024884	29.49		
Crown Berger	16	16.5	1,240.35	1,152.99	0.013363962	-0.03171871	4.508		
Firstone East Africa National Industrial Bank	33.5	34	3,825.58	3,499.00	0.00643411	-0.038753346	4.519		
Rea Vipingo	10.5	12	3,180.99	3,075.67	0.032184683	-0.01746388	4.965		
TPS Serena	13	16.89	3,288.84	3,288.84	0.113686297	-0.014622567	7.261		
Athi River Mining	12.25	9.05	3,377.87	3,286.69	-0.131487509	-0.011884188	-11.96		
Eveready	9.5	11	5624.84	5589.64	0.06366908	-0.002726335	6.64		
Scan Group	10.45	15	4489.6	4476.07	0.395857058	-0.00131078	39.72		
Access Kenya	10	13.45	5043.35	5001.77	0.128722284	-0.003595391	13.23		
Cooperative Bank	9.5	11	3406.34	3381.69	0.06366908	-0.003154201	6.682		
<b>Mean</b>	<b>16.65</b>	<b>20.192143</b>	<b>2862.315</b>	<b>2794.163571</b>	<b>0.085757681</b>	<b>-0.012134707</b>	<b>9.791176</b>		
<b>Standard Deviation</b>	<b>11.85168</b>	<b>12.674779</b>	<b>1767.473152</b>	<b>1747.34055</b>	<b>0.127529247</b>	<b>0.01275585</b>	<b>12.63459</b>		
<b>Median</b>	<b>12.625</b>	<b>15.75</b>	<b>3333.355</b>	<b>3287.765</b>	<b>0.060830513</b>	<b>-0.00773979</b>	<b>6.660935</b>		
<b>Max</b>							<b>39.72</b>		
<b>Min</b>							<b>-11.96</b>		
<b>Observation</b>							<b>14</b>		

SCHEDULE 2: SHORT RUN RETURNS OF STATE-OWNED COMPANIES

IPO	Offer Price	1st post Listing Price	NSE Index on offer Day	NSE Index On 1st Trading	First day total return	First day return on market index	Market adjusted abnormal return
Kenya commercial Bank	20	36	829.08	847.46	0.255272505	0.00952277	24.57497
Uchumi Supermarket Ltd	14.5	17.75	1,265.95	1,175.77	0.087830355	-0.03	11.99245
Housing Finance of Kenya	7	10.5	1,231.38	1,213.56	0.176091259	-0.006330842	18.24221
KenGen	11.9	40	4451.41	4447.99	0.52651303	-0.000333795	52.68468
Kenya Re	9.5	16	5274.53	5234.69	0.226396377	-0.003292799	22.96892
Safaricom	5	7.5	5185.58	5152.03	0.176091259	-0.002819	17.89103
Kenya Airways	11.25	12.55	3,075.24	2,907.82	0.047491203	-0.024311496	7.18027
<b>Mean</b>	<b>11.307143</b>	<b>20.04286</b>	<b>3044.739</b>	<b>2637.88167</b>	<b>0.213669427</b>	<b>-0.008522763</b>	<b>22.21922</b>
<b>Stddev</b>	<b>4.9617225</b>	<b>12.77401</b>	<b>1953.472</b>	<b>1868.94863</b>	<b>0.156012191</b>	<b>0.014504517</b>	<b>14.71713</b>
<b>Max</b>							<b>52.68468</b>
<b>Min</b>							<b>7.18027</b>

<b>SCHEDULE 3: LONGRUN MBHR OF PRIVATE COMPANIES</b>	
	<b>MBHR</b>
Jubilee Insurance company	-0.01734
Barclays bank	-0.07578
Nation Printers	0.163699
Standard Chartered	-0.00291
Crown Berger	-0.16433
Firestone East Africa	-0.16373
National Industrial Bank	-0.20137
Rea Vipingo	-0.05389
TPS Serena	0.090313
Athi River Mining	-0.24469
Eveready	-0.05233
Scangroup	0.083828
<b>MEAN</b>	<b>-0.05321</b>
<b>STDEV</b>	<b>0.125746</b>
<b>Max</b>	<b>0.163699</b>
<b>Min</b>	<b>-0.24469</b>
<b>Observation</b>	<b>12</b>

<b>SCHEDULE 4: LONGRUN MBHR OF STATE-OWNED COMPANIES</b>	
	<b>MBHR</b>
Kenya Commercial Bank	0.02747
Uchumi	-0.18758
Housing Finance	-0.11526
Kenya Airways	0.140529
Kengen	-0.22721
<b>MEAN</b>	<b>-0.0724102</b>
<b>STANDARD DEVIATION</b>	<b>0.153608531</b>
<b>Max</b>	<b>0.140529</b>
<b>Min</b>	<b>-0.22721</b>
<b>Observation</b>	<b>5</b>

Schedule 5									
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Jubilee Insurance Company		End of Month		NSE Index		Ln(P <sub>i,t</sub> /P <sub>i,t-1</sub> )		Im,t-1		Im,t/Im,t-1		Ln(Im,t/Im,t-1)		MBHRI	
Per	Price	P <sub>i,t</sub> /P <sub>i,t-1</sub>	P <sub>i,t-1</sub>	End of Month	NSE Index	Ln(P <sub>i,t</sub> /P <sub>i,t-1</sub> )	Im,t-1	Im,t/Im,t-1	Ln(Im,t/Im,t-1)	MBHRI					
2	14.50	1.00000	14.50	385.83	385.83	0.00000	385.83	1.000622036	0.000621842	-0.000621842	-0.000621842	-0.000621842	-0.000621842	-0.000621842	-0.000621842
3	14.50	1.00000	14.50	386.07	386.07	0.01709	386.07	0.99987049	-0.000129519	0.017219519	0.017219519	0.017219519	0.017219519	0.016597676	0.016597676
4	14.75	1.01724	14.50	386.02	386.02	0.01681	386.02	1.001113932	0.001113312	0.015696688	0.015696688	0.015696688	0.015696688	0.032916207	0.032916207
5	15.00	1.01695	14.75	386.45	386.45	-0.03390	386.45	1.000155259	0.000155247	-0.034055247	-0.034055247	-0.034055247	-0.034055247	-0.018358559	-0.018358559
6	14.50	0.96667	15.00	386.51	386.51		386.51	0.99979302	-0.000207002	0.000207002	0.000207002	0.000207002	0.000207002	-0.033848246	-0.033848246
7	14.50	1.00000	14.50	386.43	386.43		386.43	0.999301296	-0.000698948	0.000698948	0.000698948	0.000698948	0.000698948	0.00090595	0.00090595
8	14.50	1.00000	14.50	386.16	386.16	0.00687	386.16	1.003081624	0.003076886	0.003795994	0.003795994	0.003795994	0.003795994	0.004494941	0.004494941
9	14.60	1.00690	14.50	387.35	387.35	0.00683	387.35	1.009784433	0.009736875	-0.002906875	-0.002906875	-0.002906875	-0.002906875	0.000889118	0.000889118
10	14.70	1.00685	14.60	391.14	391.14	0.02020	391.14	1.01966048	0.019469709	0.000730291	0.000730291	0.000730291	0.000730291	-0.002176584	-0.002176584
11	15.00	1.02041	14.70	398.83	398.83	0.01653	398.83	1	0	0.01653	0.01653	0.01653	0.01653	0.017260291	0.017260291
12	15.25	1.01667	15.00	401.17	401.17		401.17	1.005867161	0.005850017	-0.005850017	-0.005850017	-0.005850017	-0.005850017	0.010679983	0.010679983
13	15.25	1.00000	15.25	402.64	402.64	-0.01653	402.64	1.003664282	0.003657585	-0.020187585	-0.020187585	-0.020187585	-0.020187585	-0.026037602	-0.026037602
14	15.00	0.98361	15.25	407.19	407.19		407.19	1.011300417	0.011237045	-0.011237045	-0.011237045	-0.011237045	-0.011237045	-0.031424629	-0.031424629
15	15.00	1.00000	15.00	407.19	407.19	0.01653	407.19	1.015471893	0.015353423	0.001176577	0.001176577	0.001176577	0.001176577	-0.010060468	-0.010060468
16	15.25	1.01567	15.00	413.49	413.49	-0.01653	413.49	1.01291446	0.012831779	-0.029361779	-0.029361779	-0.029361779	-0.029361779	-0.028185203	-0.028185203
17	15.00	0.98361	15.25	418.83	418.83	-0.01653	418.83	1.003605281	0.003598798	-0.037498798	-0.037498798	-0.037498798	-0.037498798	-0.066860577	-0.066860577
18	14.50	0.96667	15.00	420.34	420.34	-0.03390	420.34	1.00180806	0.001806428	-0.001806428	-0.001806428	-0.001806428	-0.001806428	-0.039305225	-0.039305225
19	14.50	1.00000	14.50	421.1	421.1		421.1	1.023604844	0.023330558	0.027100296	0.027100296	0.027100296	0.027100296	0.025293868	0.025293868
20	15.25	1.05172	14.50	431.04	431.04	0.05043	431.04	1.021529324	0.021300842	-0.005043708	-0.005043708	-0.005043708	-0.005043708	0.022056587	0.022056587
21	15.50	1.01639	15.25	440.32	440.32	0.01626	440.32	1.017691679	0.017537003	0.004791843	0.004791843	0.004791843	0.004791843	-0.000251866	-0.000251866
22	15.85	1.02258	15.50	448.11	448.11	0.02233	448.11	1.004418558	0.004408825	0.00500671	0.00500671	0.00500671	0.00500671	0.009798552	0.009798552
23	16.00	1.00946	15.85	450.09	450.09	0.00942	450.09	1.021462374	0.021235301	-0.002658915	-0.002658915	-0.002658915	-0.002658915	0.002347794	0.002347794
24	16.30	1.01875	16.00	459.75	459.75	0.01858	459.75	1.01487765	0.014895247	0.009899104	0.009899104	0.009899104	0.009899104	0.007240189	0.007240189
25	16.75	1.02761	16.30	467.79	467.79	0.02724	467.79	1.015006734	0.014895247	-0.029937821	-0.029937821	-0.029937821	-0.029937821	-0.020038717	-0.020038717
26	16.50	0.98507	16.75	474.81	474.81	-0.01504	474.81	1.015006734	0.01124631	-0.026512243	-0.026512243	-0.026512243	-0.026512243	-0.056450064	-0.056450064
27	16.25	0.98485	16.50	480.18	480.18	-0.01527	480.18	1.011309787	0.011533055	0.033583704	0.033583704	0.033583704	0.033583704	0.007071461	0.007071461
28	17.00	1.04615	16.25	485.75	485.75	0.04512	485.75	1.011599817	0.011533055	0.005144658	0.005144658	0.005144658	0.005144658	0.038728362	0.038728362
29	17.50	1.02941	17.00	497.47	497.47	0.02899	497.47	1.024127638	0.023841165	0.005144658	0.005144658	0.005144658	0.005144658	0.038728362	0.038728362
30	15.50	0.88571	17.50	505.26	505.26	-0.12137	505.26	1.015669236	0.015637895	-0.136903591	-0.136903591	-0.136903591	-0.136903591	-0.131758933	-0.131758933

31	15.50	15.50	1.00000		505.96	505.26	1.001385425	0.001384467	-0.001384467	-0.138288057
32	15.85	15.50	1.02258	0.02233	510	505.96	1.007984821	0.007953111	0.014375735	0.012991268
33	16.50	15.85	1.04101	0.04019	520.73	510	1.021039216	0.020820948	0.019370448	0.033746183
34	17.25	16.50	1.04545	0.04445	530.47	520.73	1.018704511	0.018531733	0.025915682	0.04528613
35	17.25	17.25	1.00000		544.58	530.47	1.026599054	0.026251449	-0.026251449	-0.000335767
36	20.50	17.25	1.18841	0.17262	564.67	544.58	1.036890815	0.036226634	0.136389645	0.110138196
<b>Ave</b>	<b>16.04</b>				<b>446.88</b>					<b>-0.006368</b>
<b>Stdev</b>	<b>2.69</b>				<b>59.77</b>					<b>0.045091</b>

Schedule 6														
Barclays Bank of Kenya														
End of														
month														
price														
P <sub>i,t</sub>	pi,t-1	pi,t/pi,t-1		ln(pi,t/pi,t-1)	Im,t	NSE Index	Im,t-1	(Im,t/ Im,t-1	ln(Im,t/ Im,t-1					MBHRI
2	23				459.75									
3	26.35	23	1.145652174	0.135974059	467.79		459.75	1.017487765	0.017336614	0.118637445	0.118637445	0.118637445	0.118637445	0.118637445
4	26.9	26.35	1.020872865	0.029658012	474.81		467.79	1.015006734	0.014895247	0.014762765	0.014762765	0.014762765	0.014762765	0.13340021
5	29.05	26.9	1.079925651	0.076892197	480.18		474.81	1.011309787	0.01124631	0.065645887	0.065645887	0.065645887	0.065645887	0.080408653
6	29.5	29.05	1.015490534	0.01537178	485.75		480.18	1.011599817	0.011533055	0.003838725	0.003838725	0.003838725	0.003838725	0.069484613
7	29.75	29.5	1.008474576	0.008438869	497.47		485.75	1.024127638	0.023841165	-0.0154023	-0.0154023	-0.0154023	-0.0154023	-0.011563571
8	30	29.75	1.008403361	0.00836825	505.3		497.47	1.015739643	0.015617059	-0.00724881	-0.00724881	-0.00724881	-0.00724881	-0.022651105
9	31	30	1.033333333	0.032789823	505.96		505.3	1.001306155	0.001305302	0.031484521	0.031484521	0.031484521	0.031484521	0.024235711
10	34.75	31	1.120967742	0.114192368	510		505.96	1.007984821	0.007953111	0.106239257	0.106239257	0.106239257	0.106239257	0.137723778
11	36.75	34.75	1.057553957	0.055958564	520.73		510	1.021039216	0.020820948	0.035137616	0.035137616	0.035137616	0.035137616	0.141376874
12	35	36.75	0.952380952	0.048790164	530.47		520.73	1.018704511	0.018531733	0.030258431	0.030258431	0.030258431	0.030258431	0.065396048
13	35	35	1	0	544.58		530.47	1.026599054	0.026251449	-0.02625145	-0.02625145	-0.02625145	-0.02625145	0.004006982
14	34.5	35	0.085714286	0.014288737	564.67		544.58	1.036890815	0.036226634	-0.0219379	-0.0219379	-0.0219379	-0.0219379	-0.048189347
15	37.5	34.5	0.086956522	0.08388169	606.64		564.67	1.074326598	0.071694045	0.012187645	0.012187645	0.012187645	0.012187645	-0.009750252



4	33	33	1	0	853.57	852.19	1.00161936	0.001618047	0.001618047	-	-0.089744821
5	32.25	33	0.977272727	-0.022989519	858.64	853.57	1.00593976	0.005922188	0.028911707	-	-0.030529754
6	32.5	32.25	1.007751938	0.007722046	864.22	858.64	1.00649865	0.006477624	0.001244422	0.001244422	-0.027667284
7	32.75	32.5	1.007692308	0.007662873	868.25	864.22	1.00466316	0.004652326	0.003010547	0.003010547	0.00425497
8	32.75	32.75	1	0	866.15	868.25	0.99758134	-0.002421588	0.002421588	0.002421588	0.005432135
9	33.5	32.75	1.022900763	0.022642476	867.59	866.15	1.00168253	0.001661149	0.020981327	0.020981327	0.023402915
10	31	33.5	0.925373113	-0.077558257	872.99	867.59	1.00622414	0.006204848	0.083763106	-	-0.062781778
11	31.5	31	1.016129032	0.016000341	871.19	872.99	0.99793812	-0.002064008	0.018064349	0.018064349	-0.065698757
12	31.75	31.5	1.007936508	0.00790518	868.99	871.19	0.99747472	-0.002528475	0.010433655	0.010433655	0.028498004
13	31.75	31.75	1	0	875.31	868.99	1.00727281	0.007246492	0.007246492	0.007246492	0.003187163
14	31.75	31.75	1	0	873.67	875.31	0.99812638	-0.001875379	0.001875379	0.001875379	-0.005371112
15	30	31.75	0.94488189	-0.056695343	870.38	873.67	0.99623428	-0.003772832	0.052922511	-	-0.051047132
16	29	30	0.966666667	-0.033901551	814.95	870.38	0.93631517	-0.065803136	0.031901585	0.031901585	-0.021020926
17	30.5	29	1.051724138	0.050430854	815.85	814.95	1.00110436	0.001103753	0.049327101	0.049327101	0.081228686
18	32	30.5	1.049180328	0.048009219	810.26	815.85	0.99314825	-0.006875331	0.05488455	0.05488455	0.104211651
19	34	32	1.0625	0.060624622	838.07	810.26	1.03432232	0.033746445	0.026878176	0.026878176	0.081762726
20	35	34	1.029411765	0.028987537	868.22	838.07	1.03597552	0.03534351	0.006355972	-	0.020522204
21	40.25	35	1.15	0.139761942	993.96	868.22	1.14482504	0.135251826	0.004510117	0.004510117	-0.001845856
22	35	40.25	0.869565217	-0.139761943	868.67	993.96	0.87394865	-0.134733658	0.005028285	-	-0.000518168
23	35	35	1	0	887.9	868.67	1.02213729	0.021895818	0.021895818	-	-0.026924102
24	35	35	1	0	896.13	887.9	1.00926906	0.009226368	0.009226368	-	-0.031122185
25	35	35	1	0	903.27	896.13	1.00796759	0.00793602	-0.00793602	-0.00793602	-0.017162388
26	34	35	0.971428571	-0.028987537	881.31	903.27	0.97568833	-0.024612075	0.004375462	-	-0.012311482
27	32	34	0.941176471	-0.060624621	901.44	881.31	1.022841	0.022584048	0.083208669	-	-0.087584131
28	29	32	0.90625	-0.098440073	930.6	901.44	1.03234824	0.031836055	-	-	-0.213484797



29	29	19	1	0	915.34	930.6	0.98360198	-0.016533958	0.130276128	-0.113742169
30	31.5	29	1.086206897	0.082691716	913.81	915.34	0.99832849	-0.001672909	0.084364625	0.100898583
31	33	31.5	1.047619048	0.046520016	941.81	913.81	1.03064094	0.030180883	0.016339133	0.100703757
32	33.25	33	1.007575576	0.007547025	923.76	941.81	0.98083478	-0.019351258	0.026898283	0.043237416
33	33	33.25	0.992481203	-0.007547206	970.08	923.76	1.05014289	0.048926245	-0.05647345	-0.029575167
34	30	33	0.909090999	-0.095310091	949.26	970.08	0.97853785	-0.021695809	0.073614282	-0.130087732
35	25	30	0.833333333	-0.182321557	948.72	949.26	0.99943114	-0.000569026	0.181752531	-0.255366813
<b>Ave</b>	<b>32.4</b>				<b>886.038</b>					<b>0.02747</b>
<b>Stdev</b>	<b>2.61585</b>				<b>42.83351497</b>					<b>0.079409833</b>

Schedule 8													
Nation Printers Ltd													
Per t	End of Month	Price	P <sub>i,t-1</sub>	P <sub>i</sub> /P <sub>i,t-1</sub>	ln(P <sub>i</sub> /P <sub>i,t-1</sub> )	NSE Index	Im,t-1	Im,t/Im,t-1	Ln(Im,t/Im,t-1)				
2	11					858.64							
3	11.25	11	1.02272	0.022468453	864.22	858.64	1.0064986	0.006477624	0.015990829	0.015990829			
4	11.5	11.25	1.02272	0.021978907	868.25	864.22	1.0046632	0.004652326	0.017326561	0.033331741			
5	11.5	11.5	1.04348	0.042559615	866.15	868.25	0.9975813	-0.002421588	0.002421588	0.019748169			
6	12	11.5	1.04348	0.042559615	867.59	866.15	1.0016625	0.001661149	0.040898465	0.043320053			
7	11.75	12	0.97916	-0.021053409	872.99	867.59	1.0062241	0.006204848	-0.027258257	0.013640208			
8	11.85	11.75	1.00851	0.008474627	871.19	872.99	0.9979381	-0.002528475	0.010538635	-0.016719622			
9	11	11.85	0.9287	-0.073969068	868.99	871.19	0.9974747	-0.007246492	-0.071440593	-0.060901958			
10	10	11	0.9090	-0.09531018	875.31	868.99	1.0072728	0.007246492	-0.102556672	-0.173997264			
11	10.25	10	1.025	0.024692613	873.67	875.31	0.9981264	-0.001875379	0.026567992	-0.075988688			
12	11	10.25	1.07317	0.070617184	870.38	873.67	0.9962343	-0.003772832	0.074390016	0.100958008			
13	10.5	11	0.95645	-0.044522583	814.95	870.38	0.9363152	-0.065803136	0.021280553	0.095670569			
14	11	10.5	1.04762	0.046520016	815.85	814.95	1.0011044	0.001103753	0.045416263	0.0666966816			

15	11.75	11	1.06819	0.065963865	810.26	815.85	0.9931483	-0.006875331	0.072839196	0.118255459
16	11.75	11.75	1	0	838.07	810.26	1.0343223	0.033746445	-0.033746445	0.039092751
17	11	11.75	0.93617	-0.065957968	868.22	838.07	1.0359755	0.03534351	-0.101301477	-0.135047922
18	11	11	1	0	893.96	868.22	1.0296469	0.029215893	-0.029215893	-0.13051737
19	11	11	1	0	868.47	893.96	0.9714864	-0.028927989	0.028927989	-0.000287904
20	10	11	0.9090	-0.09531018	887.9	868.47	1.0223727	0.022126081	-0.117436261	-0.088508272
21	10	11	1	0	896.13	887.9	1.0092691	0.009226368	-0.009226368	-0.126662629
22	10.25	10	1	0	903.27	88.13	10.249291	2.327208515	-2.327208515	-2.336434883
23	10.25	10.25	1.025	0.024692613	881.31	903.27	0.9756883	-0.024612075	0.049304688	-2.277903827
24	9	10.25	1	0	901.44	881.31	1.022841	0.022584048	-0.022584048	0.02672064
25	9	9	0.87805	-0.130053129	930.6	901.44	1.0323482	0.031836055	-0.161889184	-0.184473231
26	8.75	9	0.97222	-0.028170877	915.34	930.6	0.983602	-0.016533958	-0.011636919	-0.173526102
27	8.75	8.75	1	0	913.81	915.34	0.9983285	-0.001672909	0.001672909	-0.00996401
28	9	8.75	1.02857	0.028170877	941.81	913.81	1.0306409	0.030180883	-0.002010006	-0.000337097
29	8.75	9	0.97222	-0.028170877	923.81	941.81	0.9808879	-0.019297133	-0.008873744	-0.01088375
30	9	8.75	1.02857	0.028170877	970.08	923.81	1.0500861	0.04887212	-0.020701242	-0.029574986
31	8.25	9	0.91666	-0.087011377	940.96	970.08	0.9699819	-0.030477912	-0.056533465	-0.077234707
32	8.5	8.25	1.0303	0.029852963	948.12	940.96	1.0076093	0.007580446	0.022272517	-0.034260948
33	8	8.5	1.25	-0.060624622	923.54	948.12	0.974075	-0.026266964	-0.034357657	-0.01208514
34	10	8.1	0.85	0.223143551	921.72	923.54	0.9980293	-0.001972622	0.225116174	0.190758516
35	8.5	8.5	1.08825	-0.162518929	949.26	921.72	1.0298789	0.029441244	-0.191960173	0.033156
36	9.25	8.5	1.08823	0.084573603	954.77	949.26	1.0058045	0.00578774	0.078785863	-0.11317431
<b>Ave</b>	<b>10.15</b>				<b>892.37</b>					<b>-0.146</b>
<b>Stdev</b>	<b>1.2</b>				<b>41.25</b>					<b>0.547</b>

Schedule 9										
Rea Vipingo										
End of										
Month										
Price	pi,t-1	pi,t/p,t-1	ln(pi,t/p,t-1)	ln(pi,t/lm,t-1)	ln(lm,t/lm,t-1)	MBHRI	Ln(lm,t/lm,t-1)			
2	11									
3	11.3	11	1.02727	0.026907453	3,019.20	3,019.20	0.003907301	0.023000152	0.023000152	0.003907301
4	11.45	11.3	1.01327	0.013187004	3,144.33	3,031	0.036701634	-0.02351463	-0.000514479	0.036701634

5	11.5	11.45	1.00436	0.004357175	3,150.08	3,144.33	0.001827018	0.002530156	-0.020984474	0.001827018
6	11.2	11.5	0.97391	-0.026433258	3,073.88	3,150.08	-0.024487242	-0.001946015	0.000584141	-0.024487242
7	10.8	11.2	0.96428	-0.036367644	3,089.83	3,073.88	0.005175466	-0.04154311	-0.043489126	0.005175466
8	10.1	10.8	0.9351852	-0.06701071	3,055.97	3,089.83	-0.011019019	-0.055991692	-0.097534802	-0.011019019
9	10.5	10.1	1.03960	0.038839833	3,042.06	3,055.97	-0.004562137	0.04340197	-0.012589722	-0.004562137
10	10	10.5	0.95238	-0.048790165	3,114.11	3,042.06	0.02340848	-0.072196644	-0.028796674	0.02340848
11	11	10	1.1	0.09531018	3,476.67	3,114.11	0.110131542	-0.014821362	-0.087020006	0.110131542
12	10.5	11	10.95454	-0.046519916	3,473.99	3,476.67	-0.00077115	-0.045748766	-0.060570128	-0.00077115
13	9	10.5	0.85714	-0.15415068	3,354.72	3,473.99	-0.03493548	-0.1192152	-0.164963966	-0.03493548
14	9	9	1	0	3,288.84	3,354.72	-0.01983339	0.01983339	-0.09938181	-0.01983339
15	9	9	1	0	3,480.55	3,288.84	0.056655408	-0.056655408	-0.036822018	0.056655408
16	9.3	9	1.03333	0.032789791	3,530.43	3,480.55	0.014229349	0.018560441	-0.038094967	0.014229349
17	9.3	9.3	1	0	3,466.92	3,530.43	-0.018153085	0.018153085	0.036713526	-0.018153085
18	9.2	9.3	1.098924	-0.010810916	3,466.22	3,466.92	-0.000201929	-0.010608987	0.007544098	-0.000201929
19	9.05	9.2	0.98369	-0.016438723	3,447.41	3,466.22	-0.005441439	-0.010997285	-0.021606272	-0.005441439
20	8.1	9.05	0.89502	-0.110900696	3,314	3,447.41	-0.039467305	-0.071433391	-0.082430676	-0.039467305
21	8.75	8.1	1.00286	0.002865032	3,046.60	3,314	-0.084129704	0.086994736	0.015561345	-0.084129704
22	8.5	8.75	0.97142	-0.028987537	3,115.14	3,046.60	0.02224788	-0.051233548	0.035759319	0.02224788
23	8.05	8.5	0.94705	-0.054393998	3,377.34	3,115.14	0.080814322	-0.13520832	-0.186443738	0.080814322
24	8	8.05	0.99378	-0.00623055	2,562.23	3,377.34	-0.276210444	0.269979895	0.134771575	-0.276210444
25	7	8	0.875	-0.133531393	3213.3	2,562.23	0.226420473	-0.359951866	-0.089971971	0.226420473
26	7	7	1	0	3,015.01	3213.3	-0.0636953	0.0636953	-0.296256566	-0.0636953
27	7.05	7	1.0071	0.007117468	3,016.44	3,015.01	0.000474181	0.006643286	0.070338586	0.000474181
28	7	7.05	0.9929	-0.007117468	2,907.55	3,016.44	-0.036766526	0.029649058	0.036292344	-0.036766526
29	6.2	7.09	0.88571	-0.12136091	2,900	2,907.55	-0.002600065	-0.118760845	-0.08911787	-0.002600065
30	3.5	6.2	1.048387	0.047252885	2,800	2,907.55	-0.03509132	0.082344205	-0.03641664	-0.03509132
31	6.5	6.5	1	0	2,810.32	2,800	0.003678939	-0.003678939	0.078665266	0.003678939
32	6	6.5	0.92307	-0.080042708	2,733.68	2,810.32	-0.027649669	-0.052393039	-0.056071977	-0.027649669
33	6	6	1	0	2,583.73	2,733.68	-0.056414596	0.056414596	0.004021557	-0.056414596
34	6	6	1.05	0	2,962.06	2,583.73	0.136650881	-0.136650881	-0.080236285	0.136650881
35	6.3	6	10.95238	0.048790164	2,983.48	2,962.06	0.007205432	0.041584732	-0.095066149	0.007205432
36	6	6.3	0.95	-0.048790165	2,988.88	2,983.48	0.001808331	-0.050598495	-0.009013763	0.001808331
<b>Ave</b>	<b>8.47</b>				<b>3107.9</b>					<b>-0.0384</b>
<b>Stdev</b>	<b>2.054</b>				<b>257.65</b>					<b>0.07955</b>

Schedule 10													
Standard Chartered Bank													
Per	End of												
t	Month	price	P <sub>i,t-1</sub>	P <sub>i,t</sub> /P <sub>i,t-1</sub>	Ln(P <sub>i,t</sub> /P <sub>i,t-1</sub> )	NSE Index	Im <sub>t,t-1</sub>	Im <sub>t</sub> /Im <sub>t-1</sub>	Ln(Im <sub>t</sub> /Im <sub>t-1</sub> )				MBHRI
2	27			0		815.85							
3	27		27	1		810.26	815.85	0.99314825	-0.006875331	0.006875331	0.006875331	0.006875331	0.006875331
4	27.25		27	1.009259259	0.009216655	838.07	810.26	1.034322316	0.033746445	-0.02452979	-0.02452979	-0.01765446	-0.01765446
5	27.25		27.25	1	0	868.22	838.07	1.035975515	0.03534351	-0.03534351	-0.03534351	-0.0598733	-0.0598733
6	27.6		27.25	1.012844037	0.012762252	893.96	868.22	1.029646864	0.029215893	-0.01645364	-0.01645364	-0.051797151	-0.051797151
7	27.75		27.6	1.005434783	0.005420067	868.67	893.96	0.971710144	-0.028697725	0.034117793	0.034117793	0.017664152	0.017664152
8	26		27.75	0.936936937	-0.065139302	887.9	868.67	1.02213729	0.021895818	-0.08703512	-0.08703512	-0.052917327	-0.052917327
9	27.75		26	1.067307692	0.065139302	896.13	887.9	1.009269062	0.009226368	0.055912934	0.055912934	-0.031122185	-0.031122185
10	27		27.75	0.972972973	-0.027398974	903.27	896.13	1.007967594	0.00793602	-0.03533499	-0.03533499	0.02057794	0.02057794
11	26.25		27	0.972222222	-0.028170877	881.31	903.27	0.975688332	-0.024612075	-0.0035588	-0.0035588	-0.038893796	-0.038893796
12	26.25		26.25	1	0	901.44	881.31	1.022840998	0.022584048	-0.02258405	-0.02258405	-0.02614285	-0.02614285
13	25		26.25	0.952380952	-0.048790164	930.6	901.44	1.032348243	0.031836055	-0.08062622	-0.08062622	-0.103210267	-0.103210267
14	25		25	1	0	915.34	930.6	0.983601977	-0.016533958	0.016533958	0.016533958	-0.06409226	-0.06409226
15	21		25	0.84	-0.174353387	913.81	915.34	0.99832849	-0.001672909	-0.17268048	-0.17268048	-0.15614652	-0.15614652
16	22.75		21	1.083333333	0.080042708	941.81	913.81	1.030640943	0.030180883	0.049861824	0.049861824	-0.122818654	-0.122818654
17	22		22.75	0.967032967	-0.033522692	923.76	941.81	0.980834776	-0.019351258	-0.01417143	-0.01417143	0.035669039	0.035669039
18	19.5		22	0.886363636	-0.120627988	970.08	923.76	1.050142894	0.048926245	-0.16955423	-0.16955423	-0.183725666	-0.183725666
19	19.5		19.5	1	0	949.26	970.08	0.978537853	-0.021695809	0.021695809	0.021695809	-0.147858424	-0.147858424
20	19.6		19.5	1.005128205	0.005115101	948.72	949.26	0.999431136	-0.000569026	0.005684127	0.005684127	0.027379935	0.027379935
21	19.5		19.5	1	0	923.54	948.72	0.973458976	-0.026899595	0.026899595	0.026899595	0.032583722	0.032583722
22	19.5		19.5	1	0	921.72	923.54	0.998029322	-0.001972622	0.001972622	0.001972622	0.028872218	0.028872218
23	18.75		19.5	0.961538462	-0.039220713	949.26	921.72	1.029878922	0.029441244	-0.06866196	-0.06866196	-0.066689335	-0.066689335
24	19		18.75	1.013333333	0.013245227	954.77	949.26	1.005804521	0.00578774	0.007457487	0.007457487	-0.06120447	-0.06120447
25	20		19	1.052631579	0.051293294	954.43	954.77	0.999643893	-0.00035617	0.051649465	0.051649465	0.059106951	0.059106951
26	21		21	1	0	955.29	954.43	1.000901061	0.000900656	-0.00090066	-0.00090066	0.050748809	0.050748809
27	31.5		21	1.5	0.405465108	996.56	955.29	1.043201541	0.042294389	0.363170719	0.363170719	0.362270063	0.362270063
28	24.5		31.5	0.777777778	-0.251314428	1,046.86	996.56	1.050473629	0.049241138	-0.30055557	-0.30055557	0.062615153	0.062615153
29	23.5		24.5	0.959183673	-0.041672696	1,048.07	1,046.86	1.001155837	0.00115517	-0.04282787	-0.04282787	-0.343383433	-0.343383433
30	22		23.5	0.936170213	-0.065957968	1,055.52	1,048.07	1.007108304	0.007083159	-0.07304113	-0.07304113	-0.115868993	-0.115868993
31	26		22	1.181818182	0.167054085	1,082.22	1,055.52	1.025295589	0.02498095	0.142073134	0.142073134	0.069032008	0.069032008

32	27	26	1.038461538	0.037740328	1,144.58	1,082.22	1.057622295	0.056023271	-0.01828294	0.123790192
33	27.5	27	1.018518519	0.018349139	1,208.52	1,144.58	1.055863286	0.054358713	-0.03600957	-0.054292517
34	27	27.5	0.981818182	-0.018349139	1,235.58	1,208.52	1.022391024	0.022144025	-0.04049316	-0.076502738
35	24.5	27	0.907407407	-0.097163748	1,228.43	1,235.58	0.994213244	-0.005803564	-0.09136018	-0.131853348
36	24.5	24.5	1	0	1,234.12	1,228.43	1.004631929	0.004621234	-0.00462123	-0.095981418
<b>Ave</b>	<b>24.22778</b>				<b>979.30777</b>					<b>-0.031649425</b>
<b>Stddev</b>	<b>3.34857</b>				<b>124.88085</b>					<b>0.112234926</b>

Schedule 11										
Scangroup										
Per t	End of month price	Pit-1	Pit/Pit-1	Ln(Pit/Pit-1)	End of month NSE Index	Im,t-1	Im,t/Im,t-1	Ln(Im,t/Im,t-1)		
2	28.25				5245.83					
3	24.25	28.25	0.858407	-0.15267684	5106.65	5245.83	0.97346845	-0.0268889863	-0.125786977	-0.125786977
4	21.00	24.25	0.865979	-0.14389418	5314.36	5106.65	1.04067441	0.039868979	-0.183763158	-0.309550135
5	24.75	21.00	1.178571	0.164303051	5212.29	5314.36	0.98079355	-0.019393292	0.183696343	-6.6815E-05
6	25.25	24.75	1.020202	0.020000667	6010.17	5212.29	1.15307667	0.142433736	-0.122433069	0.061263274
7	23.50	25.25	0.930693	-0.07182573	5433.28	6010.17	0.90401436	-0.100910031	0.029084297	-0.093348772
8	24.75	23.50	1.053191	0.051825068	4906.49	5433.28	0.90304383	-0.101984185	0.153809252	0.182893549
9	23.50	24.75	0.949495	-0.05182507	5019.33	4906.49	1.02299811	0.02273764	-0.074562708	0.079246544
10	25.00	23.50	1.06383	0.061875404	5199.44	5019.33	1.03588328	0.035254469	0.026620935	-0.047941773
11	25.75	25.00	1.03	0.029558802	5093.51	5199.44	0.97962665	-0.020583747	0.050142549	0.076763484
12	26.75	25.75	1.038835	0.038099846	5242.37	5093.51	1.02922543	0.028806506	0.00929334	0.05943589
13	26.00	26.75	0.971963	-0.02843794	5341.16	5242.37	1.01884453	0.018669172	-0.047107107	-0.037813767
14	26.25	26.00	1.009615	0.009569451	5144.76	5341.16	0.96322896	-0.037464137	0.047033588	-7.35191E-05
15	25.50	26.25	0.971429	-0.02898754	4906.49	5144.76	0.95368686	-0.047419902	0.018432366	0.065465953

16	28.50	25.50	1.117647	0.11125635	4838.43	4906.49	0.98612858	-0.013968531	0.125194166	0.143626631
17	29.75	28.50	1.04386	0.042925045	4840.44	4838.43	1.00041542	0.000415338	0.042509707	0.167703873
18	27.25	29.75	0.915966	-0.08777561	4967.88	4840.44	1.02632819	0.025987564	-0.113763175	-0.071253468
19	28.75	27.25	1.055046	0.053584246	4929.78	4967.88	0.99233073	-0.007698827	0.061283074	-0.052480101
20	27.50	28.75	0.956522	-0.04445176	4975.63	4929.78	1.00930062	0.009257633	-0.053709396	0.007573678
21	33.50	27.50	1.218182	0.197359434	5141.62	4975.63	1.0333606	0.032816209	0.164543225	0.110833829
22	31.50	33.50	0.940299	-0.06155789	5130.32	5141.62	0.99780225	-0.00220017	-0.059357723	0.105185502
23	32.75	31.50	1.039683	0.038915416	4990.89	5130.32	0.97282236	-0.027553785	0.066469201	0.007111478
24	29.25	32.75	0.89313	-0.11302339	4963.46	4990.89	0.99450399	-0.005511172	-0.107512216	-0.041043015
25	32.25	29.25	1.102564	0.09763847	4648.78	4963.46	0.93660068	-0.065498259	0.163136728	0.055624512
26	28.75	32.25	0.891473	-0.11488028	4434.68	4648.78	0.95394491	-0.04714936	-0.067730916	0.095405812
27	25.50	28.75	0.886957	-0.11995932	4011.19	4434.68	0.90450495	-0.100367504	-0.019591811	-0.087322727
28	26.00	25.50	1.019608	0.019418086	3406.34	4011.19	0.84920934	-0.163449554	0.18286764	0.16327583
29	26.00	26.00	1	0	3323.42	3406.34	0.97565716	-0.024644028	0.024644028	0.207511668
30	25.00	26.00	0.961538	-0.03922071	3247.26	3323.42	0.97708385	-0.023182809	-0.016037904	0.008606124
31	18.05	25.00	0.722	-0.32573018	3030.49	3247.26	0.93324526	-0.069087241	-0.256642941	-0.272680845
32	19.85	18.05	1.099723	0.095058384	2699.92	3030.49	0.89091863	-0.11550218	0.210560564	-0.046082378
33	22.25	19.85	1.120907	0.114137982	2785.89	2699.92	1.03184168	0.031345249	0.082792734	0.293353297
34	23.00	22.25	1.033708	0.033152207	2852.57	2785.89	1.0239349	0.023652951	0.009499256	0.09229199
35	26.00	23.00	1.130435	0.122602322	2938.61	2852.57	1.03016227	0.029716338	0.092885984	0.10238524
36	25.75	26.00	0.990385	-0.00966191	3381.20	2938.61	1.15061202	0.140293996	-0.149955907	-0.057069923
<b>Ave</b>	<b>26.29</b>				<b>4457.67</b>					<b>0.03</b>
<b>Stdev</b>	<b>3.3712</b>				<b>963.88076</b>					<b>0.121995584</b>

Schedule 12										
National Industrial Bank										
End of					End of					

Per t	month		pi,t-1	pi,tpi-t-i	ln(pi,tpi-t-i)	month		lm,t-1	lm,t/lm,t-1	Ln(lm,t/lm,t-1)	MBHRi
	price	month				NSE Index	month				
2	52					3,585.58					
3	45.5	52	0.875	-0.133531393		3,483.54	0.971541564	-0.028871228	-0.104660165	-0.104660165	
4	55.5	45.5	1	0.198670695		4,559.40	1.308841007	0.269142018	-0.070471323	-0.175131487	
5	50.55	55.5	0.9440968	-0.057526533		3939.68	0.864078607	-0.146091534	0.088565001	0.018093678	
6	48.5	50.5	0.960396	-0.040409538		3,897.42	0.98927324	-0.010784706	-0.029624832	0.058940169	
7	42.75	48.5	0.8814433	-0.126194603		3,639.86	0.933915257	-0.068369576	-0.057825026	-0.08749858	
8	42	42.75	0.9824561	-0.017699577		3,519.44	0.96691631	-0.033643333	0.015943756	-0.04188127	
9	41	42	0.9761908	-0.024097261		3,405.49	0.96762269	-0.032913051	0.00881579	0.024759546	
10	43	41	1	0.047628049		3,464.23	1.017248619	0.01710155	0.030526499	0.039342289	
11	42.25	43	0.9825581	-0.017595761		3,326.11	0.960129668	-0.040686933	0.023091171	0.05361767	
12	42	42.25	0.9940828	-0.005934736		3,114.6	0.936409199	-0.06570272	0.059767984	0.082859155	
13	29.25	42	1.00595	0.005934736		2,845.43	0.913577988	-0.090386535	0.09632127	0.156089254	
14	45	42.25	1.0650888	0.063058136		3,307.68	1.162453478	0.150532839	-0.087474703	0.008846567	
15	46	45	1.02222	0.021978907		3,495.88	1.056897886	0.055338095	-0.033359188	-0.120833892	
16	49	46	1.06521	0.063178901		3,468.78	0.992248018	-0.007782185	0.070961086	0.037601898	
17	48.25	49	0.98469	-0.01542447		3,409.40	0.982881589	-0.017266624	0.001842155	0.072803241	
18	50.5	48.25	1.04663	0.045578547		3,275.23	0.960647035	-0.040148227	0.085726774	0.087568929	
19	51.5	50.5	1.01980	0.019608471		3,041.79	0.928725616	-0.073941938	0.093550409	0.179277183	
20	50	51.5	0.97087	-0.029558803		3,019.20	0.992573452	-0.007454262	-0.02210454	0.071445869	
21	40.25	50	0.905	-0.099820335		3,031.02	1.003914944	0.003907301	-0.103727636	-0.125832177	
22	40.25	40.25	1.03105	0		3,144.33	1.037383455	0.036701634	-0.036701634	-0.140429271	
23	41.5	40.25	0.92169	0.030583122		3,150.08	1.001828688	0.001827018	0.028756104	-0.007945531	
24	38.25	41.5	1.04575	-0.081547775		3,073.88	0.975810138	-0.024487242	-0.057060533	-0.02830443	
25	40	38.25	1.0125	0.044735894		3,089.83	1.005188882	0.005175466	0.039560428	-0.017500105	
26	40.5	40	0.28691	0.01242252		3,055.97	0.989041468	-0.011019019	0.023441539	0.063001967	
27	41.5	40.5	1.08438	-1.248574224		3,042.06	0.995448254	-0.004562137	-1.244012087	-1.220570548	
28	45	41.5	1.11111	0.081007003		3,114.11	1.023684608	0.02340848	0.057598523	-1.186413564	
29	50	45	0.98	0.105360506		3,476.67	1.116424918	0.110131542	-0.004771036	0.052827487	
30	49	50	0.99490	-0.020202707		3,473.99	0.999229147	-0.00077115	-0.019431557	-0.024202594	
31	48.75	49	0.25641	-0.005115101		3,354.72	0.965667719	-0.03493548	0.029820379	0.010388822	
32	50	48.75	1.1	-1.360976539		3,288.84	0.980361997	-0.019833339	-1.341143149	-1.31132277	
33	55	50	1.09091	0.09531018		3,460.55	1.052209898	0.050892617	0.044417563	-1.296725586	
34	60	55	1.0251	0.087011385		3,530.43	1.020193322	0.019992141	0.067019245	0.11436808	

35	61.5	60	1	0.024692613	3,466.92	3,530.43	0.98201069	-0.018153085	0.042845697	0.109864942
36	61.5	51.5	0.81301	0	3,403.22	3,466.92	0.981626343	-0.018544549	0.018544549	0.061390247
<b>Ave</b>	<b>46.87</b>				<b>3372.3</b>					<b>-0.136669</b>
<b>Stdev</b>	<b>6.83</b>				<b>317.42</b>					<b>0.4170329</b>

Schedule 13											
TPS Serena											
per	Month	Price	pi,t-1	pi,t/pi,t-i	ln(pi,t/pi,t-i)	End of month	NSE index	Im,t-1	Im,t/Im,t-1	Ln(Im,t/Im,t-1)	MBHRi
2	16.5					3460.55					
3	17.25	16.5	16.5	1	0.044452623	3460.55	3460.55	1.02019332	0.019992141	0.024460482	0.024460482
4	17.5	17.25	17.25	1.014492754	0.014388737	3,466.92	3,530.43	0.98201069	-0.018153085	0.032541822	0.057002305
5	17.25	17.5	17.5	0.985714286	-0.014388737	3,403.22	3,466.92	0.981626343	-0.018544549	0.004155812	0.036697635
6	16.5	17.25	17.25	0.956521739	-0.044451763	3,447.41	3,403.22	1.01298476	0.012901182	-0.057352945	-0.053197133
7	13.8	16.5	16.5	0.83633636	-0.178724402	3,314.85	3,447.41	0.96154794	-0.039210851	-0.139513552	-0.196866497
8	14	13.9	13.9	1.014492754	0.014388738	3,046.60	3,314.85	0.91907628	-0.084386159	0.098774897	-0.040738655
9	15	14	14	1.071428571	0.068992871	3,115.14	3,046.60	1.02249721	0.02224788	0.046744991	0.145519888
10	16	15	15	1.066666667	0.064538521	3,377.34	3,115.14	1.08416957	0.080814322	-0.016275801	0.03046919
11	16.5	10	10	1.03125	0.030771659	3,562.23	3,377.34	1.05474427	0.053298336	-0.022526677	-0.038802478
12	13.6	16.5	16.5	0.824242424	-0.193290588	3,213.30	3,562.23	0.90204731	-0.103088307	-0.090202282	-0.112728959
13	14	13.6	13.6	1.029411765	0.028987537	3,015.01	3,213.30	0.93829085	-0.0636953	0.092682837	0.002480955
14	13.9	14	14	0.992857143	-0.007168489	3,016.44	3,015.01	1.00047429	0.000474181	-0.007642671	0.085040166
15	13	13.9	13.9	0.935251799	-0.066939482	2,907.55	3,016.44	0.96390116	-0.036766526	-0.030172956	-0.037815627
16	13.05	13	13	1.003846154	0.003838776	2,900	2,907.55	0.99740331	-0.002600065	0.006438842	-0.023734115
17	13.1	13.05	13.05	1.003831418	0.003824097	2,800	2,900	0.96560345	-0.035002038	0.038826135	0.045264977
18	11.5	13.1	13.1	0.87786526	-0.13026216	2,810.32	2,800	1.00359611	0.003589657	-0.133851817	-0.095025682
19	11.55	11.5	11.5	1.004347826	0.004338402	2,733.68	2,810.32	0.97272908	-0.027649669	0.031988071	-0.101863747
20	11.7014.50	11.51	11.51	1	0.012903405	2,583.73	2,733.68	0.9451472	-0.056414596	0.069318	0.101306071
21	13	11.7	11.7	1	0.215039796	2,962.06	2,583.73	1.14642784	0.136650881	0.078388915	0.147706915
22	12.5	14.5	14.5	0.896551724	-0.109199292	2,983.48	2,962.06	1.00723145	0.007205432	-0.116404724	-0.03801581
23	13	13	13	0.961538462	-0.039220713	2,988.88	2,983.48	1.00180997	0.001808331	-0.041029044	-0.157433768
24	13.5	12.5	12.5	1.04	0.039220713	2,849.79	2,988.88	0.95346417	-0.047653428	0.086874141	0.045845098
25	13.6	13	13	1.030769231	0.030305355	2,767.69	2,849.79	0.97119086	-0.02923227	0.05953762	0.146411761





10	8.05	8.00	1.00625	0.006230573	5341.16	5242.37	1.01884453	0.018669172	-0.0124386	-0.028666633
11	7.70	8.05	0.956522	-0.04445181	5144.76	5341.16	0.96322896	-0.037464137	-0.0069877	-0.01942627
12	6.90	7.70	0.896104	-0.10969888	4906.49	5144.76	0.95368686	-0.047419902	-0.062279	-0.06926665
13	7.35	6.90	1.065217	0.063178875	4838.43	4906.49	0.98612858	-0.013968531	0.07714741	0.01486843
14	7.95	7.35	1.081633	0.078471604	4840.44	4838.43	1.00041542	0.000415338	0.07805627	0.15520367
15	7.55	7.95	0.949686	-0.05162432	4967.88	4840.44	1.02632819	0.025987564	-0.0776119	0.00044439
16	7.60	7.55	1.006622	0.006600646	4929.78	4967.88	0.99233073	-0.007698827	0.01429947	-0.06331241
17	6.55	7.60	0.861842	-0.14868316	4975.63	4929.78	1.00930062	0.009257633	-0.1579408	-0.14364132
18	6.40	6.55	0.977099	-0.02316707	5141.62	4975.63	1.0333606	0.032816209	-0.0559833	-0.21392407
19	5.00	6.40	0.78125	-0.24686009	5130.32	5141.62	0.99780225	-0.00220017	-0.2446599	-0.30064321
20	5.75	5.00	1.15	0.139761942	4990.89	5130.32	0.97282236	-0.027553785	0.16731573	-0.0773442
21	5.30	5.75	0.921739	-0.081493	4963.46	4990.89	0.99450399	-0.00551172	-0.0759818	0.0913339
22	5.15	5.30	0.971698	-0.02871012	4648.78	4963.46	0.93660068	-0.065498259	0.03678814	-0.03919369
23	4.65	5.15	0.902913	-0.10212949	4434.68	4648.78	0.95394491	-0.04714936	-0.0549801	-0.018192
24	3.90	4.65	0.83871	-0.17589066	4011.19	4434.68	0.90450495	-0.100367504	-0.0755232	-0.13050329
25	3.95	3.90	1.012821	0.012739013	3406.34	4011.19	0.84920934	-0.163449554	0.17618857	0.10066541
26	3.50	3.95	0.886076	-0.12095262	3323.42	3406.34	0.97565716	-0.024644028	-0.0963086	0.07987997
27	3.20	3.50	0.914286	-0.08961214	3247.26	3323.42	0.97708385	-0.023182809	-0.0664293	-0.16273793
28	2.85	3.20	0.890625	-0.11583186	3030.49	3247.26	0.93324526	-0.069087241	-0.0467446	-0.11317396
29	3.10	2.85	1.087719	0.08408312	2699.92	3030.49	0.89091863	-0.11550218	0.1995853	0.15284068
30	2.85	3.10	0.919355	-0.08408312	2785.89	2699.92	1.03184168	0.031345249	-0.1154284	0.08415693
31	2.55	2.85	0.894737	-0.11122562	2852.57	2785.89	1.0239349	0.023652951	-0.1348786	-0.25030694
32	2.60	2.55	1.019608	0.019418068	2938.61	2852.57	1.03016227	0.029716338	-0.0102983	-0.14517684
33	2.65	2.60	1.019231	0.019048268	3381.20	2938.61	1.15061202	0.140293996	-0.1212457	-0.131544
34	2.80	2.65	1.056604	0.055059724	3092.07	3381.20	0.91448894	-0.089389907	0.14444963	0.0232039
35	2.85	2.80	1.017857	0.017699594	3126.61	3092.07	1.01117051	0.011108581	0.00659101	0.15104064
36	2.65	2.85	0.929825	-0.07275935	3083.63	3126.61	0.98625348	-0.013841876	-0.0589175	-0.05232647
<b>Average</b>	<b>5.96</b>				<b>4352.87</b>					<b>-0.05</b>
<b>Std Dev</b>	<b>2.82838</b>				<b>987.773203</b>					<b>0.11712843</b>

Schedule 15										
Crown Berger										
End of					End of					

Per	Month	price	pi,t-1	pi,t/pi,t-1	ln(pi,t/Pi,t-1)	Month	NSE index	lm,t-1	lm,t/lm,t-1	Ln(lm,t/lm,t-1)		MBHRI
2	16.5					1,176.74						
3	16.5	16.5	1	0	0	1,220.77	1,176.74	1176.74	1.037416932	0.036733904	-0.036733904	-0.036733904
4	15	16.5	0.909090901	-0.095310189	-0.095310189	1,249.00	1,249.00	1,220.77	1.023124749	0.022861424	-0.118171613	-0.154905517
5	14.5	15	0.966666667	-0.033901551	-0.033901551	1,337.87	1,337.87	1,249.00	1.071152922	0.068735566	-0.102637117	-0.22080873
6	14.75	14.5	1.017241379	0.017094433	0.017094433	1,397.77	1,397.77	1,337.87	1.044772661	0.043799312	-0.026704879	-0.129341997
7	14.25	14.75	0.966101695	-0.034486176	-0.034486176	1,508.02	1,508.02	1,397.77	1.078875638	0.075919423	-0.110405599	-0.137110478
8	14.5	14.25	1.01754386	0.017391743	0.017391743	1,649.93	1,649.93	1,508.02	1.094103526	0.089935331	-0.072543588	-0.182949186
9	14.5	14.5	1	0	0	1,718.79	1,718.79	1,649.93	1.041735104	0.040887692	-0.040887692	-0.11343128
10	14.75	14.59	1.017241379	0.017094433	0.017094433	1,810.69	1,810.69	1,718.79	1.053467847	0.052087433	-0.034993	-0.075880692
11	14.5	14.75	0.983050847	-0.017094434	-0.017094434	1,844.35	1,844.35	1,810.69	1.018589598	0.018418924	-0.035513358	-0.070506358
12	14.5	14.5	1	0	0	2,096.14	2,096.14	1,844.35	1.136519641	0.127970646	-0.127970646	-0.163484004
13	14.5	14.5	1	0	0	2,245.95	2,245.95	2,096.14	1.071469463	0.069031036	-0.069031036	-0.197001682
14	23.5	14.5	1.620689655	0.482851772	0.482851772	3,818.74	3,818.74	2,245.95	1.700278279	0.530791931	-0.047940159	-0.116971196
15	24.75	23.5	1.063191489	0.051825068	0.051825068	5003.91	5003.91	3,818.74	1.310356296	0.270299082	-0.218474014	-0.266414173
16	25	24.75	1.01010101	0.010050336	0.010050336	4,371.37	4,371.37	5003.91	0.873590852	0.135143146	0.145193481	-0.073280533
17	20	25	0.8	-0.223143551	-0.223143551	3,558.51	3,558.51	4,371.37	0.814049142	0.205734543	-0.017409008	0.127784473
18	20	20	1	0	0	3,620.24	3,620.24	3,558.51	1.017347148	0.017198404	-0.017198404	-0.034607412
19	20.5	20	1.025	0.024692613	0.024692613	4,137.22	4,137.22	3,620.24	1.142802687	0.133483743	-0.10879113	-0.125989534
20	21.25	20	1.036385366	0.03573905	0.03573905	4,070.42	4,070.42	4,137.22	0.983853892	0.016277876	0.052016926	-0.056774204
21	22	21.25	1.035294118	0.034685558	0.034685558	3,951.77	3,951.77	4,070.42	0.970850674	0.029582608	0.064268167	0.116285093
22	20.75	22	0.94318118	-0.058496883	-0.058496883	3,715.98	3,715.98	3,951.77	0.940333066	0.061521141	0.003024258	0.067292424
23	18.5	20.75	0.891566265	-0.114775515	-0.114775515	3,585.56	3,585.56	3,715.98	0.964902933	0.035727771	-0.079047744	-0.076023486
24	18	18.5	0.972972973	-0.027398974	-0.027398974	3,483.54	3,483.54	3,585.56	0.971546983	-0.02886565	0.001466676	-0.077581068
25	27.25	18	1.513888889	0.414681763	0.414681763	4,559.40	4,559.40	3,483.54	1.308841007	0.269142018	0.145539745	0.147006421
26	22	27.25	0.80733945	-0.214011067	-0.214011067	3,939.68	3,939.68	4,559.40	0.864078607	0.146091534	-0.067919533	0.077620212
27	21	22	0.954545445	-0.046520026	-0.046520026	3,897.42	3,897.42	3,939.68	0.98927324	-	-0.03573532	-0.103654853



13	6.35	7	0.9071429	-0.097455336	2800	2900	0.965517241	-0.03509132	-0.06236402	-0.311078379
14	6.35	6.35	1	0	2810.32	2800	1.003665714	0.003678939	-0.00367894	-0.066042955
15	6.25	6.35	0.984252	-0.015873349	2733.68	2810.32	0.972729084	-0.027649669	0.01177632	0.008097381
16	6	6.25	0.96	-0.040821995	2583.73	2733.68	0.945147201	-0.056414596	0.015592601	0.027368921
17	6	6	1	0	2962.06	2583.73	1.146427839	0.136650881	-0.13665088	-0.12105828
18	6.6	6	1.1	0.09531018	2962.06	2962.06	1.007224702	0.007198729	0.088111451	-0.04853943
19	6	6.6	0.9090909	-0.09531018	2988.88	2988.88	1.001816683	0.001815034	-0.09712521	-0.009013763
20	5	6	0.8333333	-0.182321557	2848.79	2988.88	0.9531296	-0.048004393	-0.13431716	-0.231442379
21	5	5	1	0	2767.89	2848.79	0.971601978	-0.028809046	0.028809046	-0.105508119
22	5.5	5	1.1	0.09531018	2760.05	2767.89	0.997167517	-0.002836502	0.098146681	0.126955727
23	5.5	5.5	1	0	2756.43	2760.05	0.99868843	-0.001312431	0.001312431	0.099459113
24	6.05	5.5	1.1	0.09531018	2744.55	2756.43	0.995690077	-0.004319237	0.099629417	0.100941848
25	5.55	6.05	0.9173554	-0.086260344	2493.5	2744.55	0.90852781	-0.095929781	0.009669437	0.109298854
26	6	5.55	1.0810811	0.077961541	2428.09	2493.5	0.973767796	-0.026562406	0.104543947	0.114213384
27	5.1	6	0.85	-0.162518929	2309.33	2428.09	0.951089128	-0.050147501	-0.11237143	-0.007827481
28	5.55	5.1	1.0882353	0.084557388	2294.12	2309.33	0.993413674	-0.006608111	0.091165499	-0.021205929
29	5.75	5.55	1.036036	0.035401927	2303.18	2294.12	1.003949227	0.003941449	0.031460478	0.122625978
30	4.75	5.75	0.826087	-0.191055237	2301.07	2303.18	0.999038875	-0.000916545	-0.19013869	-0.158678214
31	5.5	4.75	1.1578947	0.146603474	2294.96	2301.07	0.997344714	-0.002658818	0.149262292	-0.0408764
32	6.3	5.5	1.1454545	0.135801541	2233.18	2294.96	0.973080141	-0.027288836	0.163090377	0.312352669
33	6.4	6.3	1.015873	0.015748357	2162.2	2233.18	0.968215728	-0.032300357	0.048048714	0.21113909
34	6	6.4	0.9375	-0.064538521	2052.9	2162.2	0.949449635	-0.051872794	-0.01266573	0.035382987
35	4.55	6	0.7583333	-0.276632236	2003.1	2052.9	0.975741634	-0.024557447	-0.25207479	-0.264740516
36	4.5	4.55	0.989011	-0.011049836	1966.52	2003.1	0.981738306	-0.018430497	0.007380661	-0.244694128
<b>Mean</b>	<b>6.668571429</b>				<b>2728.51057</b>					<b>-0.022485909</b>
<b>Stdev.</b>	<b>1.733624464</b>				<b>424.188639</b>					<b>0.160576417</b>

Schedule 17										
Firestone										
End of										
month										

Per	price	pi,t-1	pi,t/pi,t-i	ln(pi,t/pi,t-i)	NSE Index	lm,t-1	lm,t/lm,t-1	Ln(lm,t/lm,t-1)	MBHRI
2	40.25				3,483.54				
3	37	40.25	0.91925466	-0.084192092	4,559.40	3,483.54	1.308841	0.269142018	-0.353334109
4	33	37	0.89189189	-0.114410351	3,939.68	4,559.40	0.8640786	-0.146091534	0.031681183
5	28.5	33	0.86363636	-0.146603474	3,897.42	3,939.68	0.9892732	-0.010784706	-0.135818768
6	28.25	28.5	0.99122807	-0.00881063	3,639.86	3,897.42	0.9339153	-0.068369576	0.059558947
7	25	28.25	0.88495575	-0.122217633	3,519.44	3,639.86	0.9669163	-0.033643333	-0.0885743
8	26	25	1.04	0.039220713	3,405.49	3,519.44	0.9676227	-0.032913051	0.072133764
9	22.25	26	0.85576923	-0.155754529	3,464.23	3,405.49	1.0172486	0.01710155	-0.17285608
10	24	22.25	1.07866517	0.075724322	3,326.11	3,464.23	0.9601297	-0.040686933	-0.116411254
11	24.25	24	1.01041667	0.01036279	3,114.60	3,326.11	0.9364092	-0.06570272	0.07606551
12	14	24.25	0.98969072	-0.010362787	2,845.43	3,114.60	0.913578	-0.090386535	0.080023748
13	23.75	24	0.98958333	-0.0104713	3,307.68	2,845.43	1.1624535	0.150532839	-0.161004139
14	25.25	23.75	1.0631579	0.061243625	3,495.82	3,307.68	1.0568797	0.055320932	0.005922694
15	24.75	25.25	0.98019802	-0.020000667	3,468.88	3,495.82	0.9922937	-0.007736194	-0.012264473
16	24	24.75	0.96969697	-0.030771658	3,409.40	3,468.88	0.9828533	-0.017295453	-0.013476206
17	24.25	24	1.01041007	0.010356258	3,275.23	3,409.40	0.960647	-0.040148227	0.050504485
18	22	24.25	0.9072165	-0.097374164	3,041.79	3,275.23	0.9260756	-0.073941938	-0.023432226
19	23	22	1.04545454	0.044451762	3,019.20	3,041.79	0.9925735	-0.007454262	0.051906024
20	23.25	23	1.01086957	0.010810916	3,031.02	3,019.20	1.0039149	0.003907301	0.006903615
21	25	23.25	1.02526882	0.024954839	3,144.33	3,031.02	1.0373835	0.036701634	-0.011746796
22	26.75	25	1.07	0.067658648	3,150.03	3,144.33	1.0018128	0.001811446	0.065847503
23	23.75	26.75	0.88785047	-0.118951943	3,073.88	3,150.03	0.9758256	-0.024471369	-0.094480574
24	28	25.75	1.17894737	0.164621979	3,089.83	3,073.88	1.0051889	0.005175466	0.159446513
25	25	29	0.89285714	-0.113328685	3,055.97	3,089.83	0.9890415	-0.011019019	-0.102309666
26	26	25	1.04	0.039220713	3,042.06	3,055.97	0.9954483	-0.004562137	0.04378285
27	26.5	26	1.01923073	0.019048155	3,141.11	3,042.06	1.0325602	0.032041323	-0.012993168
28	30	26.5	1.10220755	0.09731503	3,476.67	3,141.11	1.1068285	0.101498698	-0.004183669
29	26	30	0.86666667	-0.14310084	3,473.99	3,476.67	0.9992291	-0.00077115	-0.14232969
30	26	26	1	0	3,354.72	3,473.99	0.9656677	-0.03493548	0.03493548
31	27	26	1.03846154	0.037740328	3,288.84	3,354.72	0.980362	-0.01983339	0.05757318
32	28	27	1.03703704	0.036367644	3,460.55	3,288.84	1.0522099	0.050892617	-0.014524973
33	26	28	1	0	3,530.43	3,460.55	1.0201933	0.019992141	-0.019992141
34	38	28	0.94642857	-0.055059778	3,466.92	3,530.43	0.9820107	-0.018153085	-0.036906693
35	26.5	26.5	0.98113298	-0.019047278	3,403.22	3,466.92	0.9816263	-0.018544549	-0.000502729

36	26	26	0.99038462	-0.009661911	3,447.41	3,403.22	1.0129848	0.012901182	-0.022563094	-0.023065822
37	21.75	25.75	0.83495146	-0.180381692	3,314.85	3,447.41	0.9615479	-0.039210851	-0.141170842	-0.163733935
<b>Ave</b>	<b>26.36</b>				<b>3365.5</b>					<b>-0.033</b>
<b>Stdev</b>	<b>4.7</b>				<b>314.8</b>					<b>0.11</b>

Schedule 18										
Housing Finance of Kenya										
Per	End of	Month	Month	End of	Month	Month	Month	Month	Month	Month
t	Price	pi,t-1	pi,t/pit-1	ln(pi,t/pit-1)	ln(pit/pit-1)	NSE index	ln,t-1	ln,t/ln,t-1	ln(ln,t/ln,t-1)	MBHRI
						1,167.29				
2	12.25					1,117.74	1,167.29	0.957551251	-0.043376033	0.043376033
3	11	12.25	0.897959184	-0.107630664	0	1,220.77	1,117.74	1.092177072	0.088173018	-0.19580368
4	11	11	1	0	0	1,252.39	1,220.77	1.025901685	0.025571919	-0.2213756
5	10.25	11	0.931818182	-0.070617567	0	1,342.20	1,252.39	1.071710889	0.069256333	-0.1398739
6	13.75	10.25	1.341463415	0.293761119	0	1,397.77	1,342.20	1.041402176	0.040568051	0.253193068
7	9.75	13.75	0.709090909	-0.343771539	0	1,508.02	1,397.77	1.078875638	0.075919423	-0.41969096
8	9	9.75	0.923076923	-0.080042708	0	1,649.93	1,508.02	1.094103526	0.089935331	-0.16997804
9	9.5	9	1.055555556	0.054067222	0	1,724.24	1,649.93	1.045038274	0.044053511	0.010013711
10	9	9.5	0.947368421	-0.054067221	0	1,510.69	1,724.24	0.876148332	-0.132219874	0.078152652
11	9.5	9	1.055555556	0.054067222	0	1,844.35	1,510.69	1.220865962	0.199560412	-0.14549319
12	9.7	9.5	1.025315789	0.025000652	0	2,096.14	1,844.35	1.136519641	0.127970646	-0.10296999
13	12	9.75	1.230769231	0.207639365	0	2,345.37	2,096.14	1.118901409	0.112347319	0.095292046
14	47	12	3.916566667	1.365215421	0	3,818.74	2,345.37	1.628200875	0.487475648	0.877739773
15	26.25	47	0.555851038	-0.587254938	0	5,050.55	3,818.74	1.322569748	0.279576623	-0.86683156
16	34.75	26.25	1.323809524	0.280513583	0	4,377.97	5,050.55	0.866830345	-0.142912002	0.423425585
17	25.75	34.75	0.741007194	-0.299744945	0	3,558.51	4,377.97	0.812821924	-0.207243229	-0.09250172
18	18.3	25.75	0.710679612	-0.341533567	0	3,620.24	3,558.51	1.017347148	0.017198404	-0.35873197
19	23	18.3	1.256830601	0.228593156	0	4,137.22	3,620.24	1.142802687	0.133483743	0.095109413
20	19.1	23	0.83043583	-0.18580462	0	4,070.42	4,137.22	0.983853892	-0.016277876	-0.16952674
21	20	19	1.04712019	0.04604372	0	3,951.77	4,070.42	0.970850674	-0.029582608	0.075626328
22	19.75	20	0.9875	-0.012578782	0	3,715.39	3,951.77	0.940183766	-0.061679927	0.049101145
23	19.55	19.75	0.989873418	-0.01010178205	0	3,385.56	3,715.39	0.911226009	-0.092964324	0.082786119





9	8.5	8.7	0.97011494	-0.03034072	3,476.67	3114.11	1.116424918	0.110131542	0.140472262	-	-0.186608992
10	8.45	5.5	0.994117657	-0.005899712	3,473.99	3,476.67	0.999229147	-0.00077115	0.005128562	-	-0.145600824
11	8.35	8.45	0.98116568	-0.019013945	3,354.72	3,473.99	0.965667719	-0.03493548	0.015921535	0.01983339	0.010792973
12	8.35	8.35	0.982036	0	3,288.84	3,354.72	0.980361997	-0.01983339	0.01983339	0.01983339	0.035754925
13	8.2	8.35	0.982035928	-0.018127385	3,460.55	3,288.84	1.052209898	0.050892617	0.069020002	-	-0.049186611
14	6.2	8.2	1	0	3,530.43	3,460.55	1.020193322	0.019992141	0.019992141	-	-0.089012142
15	8.3	8.2	102195	0.021713761	3,466.92	3,530.43	0.98201069	-0.018153085	0.039866846	0.039866846	0.019874705
16	8.1	8.3	0.975903614	-0.024391454	3,403.22	3,466.92	0.981626343	-0.018544549	0.005846904	-	0.034019941
17	7.6	8.1	0.938271605	-0.063715814	3,447.41	3,403.22	1.012984761	0.012901182	0.076616997	-	-0.082463901
18	7.25	7.6	0.953947368	-0.047146779	3,314.85	3,447.41	0.961547945	-0.039210851	0.007935928	-	-0.084552925
19	7.5	7.25	1.03448	0.033901552	3,046.60	3,314.85	0.919076278	-0.084386159	0.118287711	0.118287711	0.110351783
20	7.5	7.5	1	0	3,115.14	3,046.60	1.02249721	0.02224788	-0.02224788	0.096039831	0.096039831
21	7.3	7.5	0.97333333	-0.027028676	3,377.34	3,115.14	1.084169572	0.080814322	0.107842998	-	-0.130090879
22	8	7.3	1.9589	0.091567199	3,562.23	3,377.34	1.054744266	0.053298336	0.038268863	0.038268863	-0.069574135
23	7.3	8	0.9125	-0.091567194	3,213.30	3,562.23	0.902047313	-0.103088307	0.011521113	0.011521113	0.049789976
24	7	7.3	0.95890411	-0.041964199	3,015.01	3,213.30	0.938290854	-0.06369653	0.021731101	0.021731101	0.033252214
25	7	7	1.21428	0	3,016.44	3,015.01	1.000474294	0.000474181	0.000474181	-	0.02125692
26	7.05	7.05	1	0.007117468	2,907.55	3,016.44	0.963901155	-0.036766526	0.043883994	0.043883994	0.043409812
27	8.25	7.05	1.170212756	0.157185575	2,900.00	2,907.55	0.997403312	-0.002600065	0.15978564	0.15978564	0.203669634
28	7	8.25	0.848484848	-0.164303052	2,800.25	2,900.00	0.965603448	-0.035002038	0.129301014	-	0.030484626
29	7.15	7	1.21428	0.194156011	2,810.32	2,800.25	1.003596107	0.003589657	0.190566354	0.190566354	0.06126534
30	7.3	7.15	1.02097	0.02076199	2,733.68	2,810.32	0.972729084	-0.027649669	0.04841166	0.04841166	0.238978013
31	7.3	7.3	1	0	2,583.73	2,733.68	0.945147201	-0.056414596	0.056414596	0.056414596	0.104826255
32	8.15	7.3	1	0.110143579	2,962.06	2,583.73	1.146427839	0.136650881	0.026507302	-	0.029907294
33	7.55	8.15	10.92638	-0.076470375	2,983.48	2,962.06	1.007231454	0.007205432	-	-	-0.110183109



17	46.5	55.5	0.837837838	0.176930708	3,558.51	4,377.97	0.812821924	-0.207243229	0.030312521	0.340827124
18	50.5	46.5	1.086021	0.082521023	3,620.24	3,558.51	1.017347148	0.017198404	0.065322619	0.095663514
19	55.5	50.5	1.099	0.094408866	4,137.22	3,620.24	1.142802687	0.133483743	-0.039074877	0.026247742
20	63.5	55.5	0.903396	0.101593845	4,070.42	4,137.22	0.983853892	-0.016277876	-0.085315968	-0.124390845
21	57	53.5	1.06542	0.063336914	3,951.77	4,070.42	0.970850674	-0.029582608	0.092952223	0.007636254
22	63.5	57	1.114035	0.107988638	3,715.39	3,951.77	0.940183766	-0.061679927	0.169668566	0.262620788
23	65.5	63.5	0.9685	0.032002731	3,585.56	3,715.39	0.965056158	-0.035568984	0.003566253	0.173234819
24	50	61.5	0.910569	0.093685484	3,483.54	3,585.56	0.971546983	-0.02886565	-0.064819834	-0.06125358
25	68	56	1.2142857	0.194156014	4,559.40	3,483.54	1.308841007	0.269142018	-0.074986004	-0.139805637
26	55	68	0.80882	-0.21217452	3,939.68	4,559.40	0.864078607	-0.146091534	-0.066082986	-0.14106899
27	59	55	1.0727	0.070204259	3,897.42	3,939.68	0.98927324	-0.010784706	0.080988965	0.014905979
28	54	59	0.915254	0.088553398	3,839.42	3,897.42	0.98511836	-0.014993482	-0.073559915	0.007429049
29	54	54	1.0786644	0	3,519.44	3,839.42	0.916659287	-0.087019427	0.087019427	0.013459512
30	48	54	0.8888898	0.117782011	3,405.49	3,519.44	0.96762269	-0.032913051	-0.08486896	0.002150468
31	45	48	0.9479	0.053488685	3,464.28	3,405.49	1.017263301	0.017115984	-0.070604668	-0.155473628
32	45	45.5	0.989010	0.011049836	3,326.11	3,464.28	0.960115811	-0.040701366	0.02965153	-0.040953139
33	44	45	0.977777	0.022472856	3,114.60	3,326.11	0.936409199	-0.06570272	0.043229864	0.072881394
34	44.25	44	1.00568	0.005665738	3,845.43	3,114.60	1.234646504	0.210784697	-0.205118959	-0.161889095
35	46	44.25	0.93478	0.038786074	3,307.08	3,845.43	0.860002652	-0.150819805	0.189605879	-0.01551308
36	43	46	0.930232	-0.06744128	3,495.92	3,307.08	1.057101733	0.055530949	-0.12297223	0.066633649
<b>Ave</b>	<b>41.35417</b>				<b>3044.15</b>					<b>-0.18758</b>
<b>Stdev</b>	<b>16.31896</b>				<b>1080.671767</b>					<b>0.139293031</b>

Schedule 21										
Kengen										

Per T	End of		Pit-1	Pit-Pit-1	ln(Pit-Pit-1)	End of month	NSE Index	Im,t-1	Im,t/Im,t-1	Ln(Im,t/Im,t-1)		
	month	price										
2	34.75					5375.68						MBHRI
3	32.00	34.75	0.920863		-0.08244367	5245.83	0.97584492	0.97584492	-0.024451602	-0.05799207	-0.05799207	-0.05799207
4	29.25	32.00	0.914063		-0.08985633	5106.65	0.97346845	0.97346845	-0.026889863	-0.06296647	-0.06296647	-0.120958533
5	21.75	29.25	0.74359		-0.29626582	5314.36	1.04067441	1.04067441	0.039868979	-0.33613479	-0.33613479	-0.399101261
6	25.00	21.75	1.149425		0.13926207	5212.29	0.98079355	0.98079355	-0.019393292	0.158655359	0.158655359	-0.177479435
7	18.65	25.00	0.746		-0.2930297	6010.17	1.15307667	1.15307667	0.142433736	-0.43546344	-0.43546344	-0.276808076
8	27.50	18.65	1.474531		0.38833988	5433.28	0.90401436	0.90401436	-0.100910031	0.48924991	0.48924991	0.053786475
9	27.25	27.50	0.990909		-0.00913248	4906.49	0.90304383	0.90304383	-0.101984185	0.092851701	0.092851701	0.582101611
10	29.25	27.25	1.073394		0.07082605	5019.33	1.02299811	1.02299811	0.02273764	0.48088412	0.48088412	0.140940113
11	31.25	29.25	1.068376		0.0661398	5199.44	1.03588328	1.03588328	0.035254469	0.030885334	0.030885334	0.078973746
12	28.25	31.25	0.904		-0.10092592	5093.51	0.97962665	0.97962665	-0.020583747	-0.08034217	-0.08034217	-0.049456638
13	26.75	28.25	0.946903		-0.05455898	5242.37	1.02922543	1.02922543	0.028806506	-0.08336549	-0.08336549	-0.163707662
14	27.75	26.75	1.037383		0.03670137	5341.16	1.01884453	1.01884453	0.018669172	0.18032195	0.18032195	-0.065333295
15	27.75	27.75	1		0	5144.76	0.96322896	0.96322896	-0.037464137	0.037464137	0.037464137	0.055496332
16	24.25	27.75	0.873874		-0.13481922	4906.49	0.95368686	0.95368686	-0.047419902	-0.08739932	-0.08739932	-0.049935184
17	25.00	24.25	1.030928		0.03045921	4838.43	0.98612858	0.98612858	-0.013968531	0.044427738	0.044427738	-0.042971582
18	23.75	25.00	0.95		-0.05129329	4840.44	1.00041542	1.00041542	0.000415338	-0.05170863	-0.05170863	-0.007280894
19	26.00	23.75	1.094737		0.09051401	4967.88	1.02632819	1.02632819	0.025987564	0.064526443	0.064526443	0.012817811
20	25.75	26.00	0.990385		-0.00966191	4929.78	0.99233073	0.99233073	-0.007698827	-0.00196308	-0.00196308	0.06256336
21	24.50	25.75	0.951456		-0.04976151	4975.63	1.00930062	1.00930062	0.009257633	-0.05901914	-0.05901914	-0.060982226
22	23.25	24.50	0.94898		-0.05236799	4975.63	1.0333606	1.0333606	0.032816209	-0.08518419	-0.08518419	-0.144203338
23	21.75	23.25	0.935484		-0.06669137	5130.32	0.99780225	0.99780225	-0.00220017	-0.0644912	-0.0644912	-0.1496754
24	20.25	21.75	0.931034		-0.07145896	4990.89	0.97282236	0.97282236	-0.027553785	-0.04390518	-0.04390518	-0.108396384
25	14.10	20.25	0.696296		-0.36197997	4963.46	0.99450399	0.99450399	-0.005511172	-0.3564688	-0.3564688	-0.400373976
26	15.25	14.10	1.08156		0.07840468	4648.78	0.93660068	0.93660068	-0.065498259	0.143902937	0.143902937	-0.21256586
27	15.85	15.25	1.039344		0.03859002	4434.68	0.95394491	0.95394491	-0.04714936	0.085739381	0.085739381	0.229642318
28	14.05	15.85	0.886435		-0.12054712	4011.19	0.90450495	0.90450495	-0.100367504	-0.02017961	-0.02017961	0.06555977
29	10.35	14.05	0.736655		-0.30563585	3406.34	0.84920934	0.84920934	-0.163449554	-0.1421863	-0.1421863	-0.162365909
30	12.65	10.35	1.222222		0.20067063	3323.42	0.97565716	0.97565716	-0.024644028	0.225314656	0.225314656	0.083128358
31	11.95	12.65	0.944664		-0.05692592	3247.26	0.97708385	0.97708385	-0.023182809	-0.03374311	-0.03374311	0.191571543
32	11.75	11.95	0.983264		-0.01687802	3030.49	0.93324526	0.93324526	-0.069087241	0.052209219	0.052209219	0.018466106
33	14.55	11.75	1.238298		0.21373777	2699.92	0.89091863	0.89091863	-0.11550218	0.329239946	0.329239946	0.381449165

34	14.10	14.55	0.969072	-0.03141618	2785.89	2699.92	1.03184168	0.031345249	-0.06276143	0.266478515
35	12.50	14.10	0.886525	-0.12044618	2852.57	2785.89	1.0239349	0.023652951	-0.14409913	-0.206860562
36	11.85	12.50	0.948	-0.05340074	2938.61	2852.57	1.03016227	0.029716338	-0.08311708	-0.227216214
<b>Ave</b>	<b>21.73</b>				<b>4591.70</b>					<b>-0.23</b>
<b>Stdev</b>	<b>6.995987</b>				<b>921.3965405</b>					<b>0.204416506</b>

### **References**

Aggarwal, R and Rivoli, P (1990), “Fads in the Initial Public Offerings Market”, *Journal of Financial Management*. 19, pp. 45-57

Allen, F and Faulhaber, G (1987), “Signalling by Underpricing in the IPO Market”, *Journal of Financial Economics*, 23, pp. 303-323

Aussenegg, W (2000), *Privatization versus Private Sector Initial Public Offering in Poland*. *Multinational Finance Journal* 4: 69-71

Ayber, C.B (2002), “The Long-Term Performance of Privatization-Related ADR Issues”, *Emerging Markets Review*, 3, pp. 135-164

Beatty, R and Ritter, J (1986), “Investment Banking, Reputation and the Underpricing of Initial Public Offerings”, *Journal of Financial Economics*, 15, pp. 213-232

Baron, D (1982), “A Model of the demand for investment banking advising and distribution services for new issues”, *Journal of Finance*, Vol. XXLVII, 955-976

Biasis, B and Perroti, E (2002), “Machiavellian Privatization”, *The American Economic Review*, Vol.92, 1, pp.240-258.

Boardman, A and Laurin, C (2000), "Factors Affecting the Stock Price Performance of Share Issued Privatizations", *Applied Economics*, Vol. 32, pp. 1451-1464

Choi, S and Nam, S (1998), "The Short Run Performance of IPOs of Privately and Publicly Owned Firms: International Evidence", *Multinational Finance Journal*, Vol. 2,3, pp. 225-244.

Dawson, S (1987), "Secondary Stock Market Performance of Initial Public Offerings, Hong Kong, Singapore and Malaysia: 1978-1984", *Journal of Business, Finance and Accounting*, 14, 65-76

Dewenter, K and Malatesta, P (1997), "Public Offerings of State-Owned and Privately-Owned Enterprises: An International Comparison", *The Journal of Finance*, Vol. 52, 4, pp. 1659-1679.

Finn, F and Higham R (1988), "The Performance of Unseasoned New Equity Issues-cum-Stock Exchange Listings in Australia", *Journal of Banking and Finance*, 12, 333-351

Grinblatt, M and Hwang, C (1989), "Signaling and the Pricing of New Issues", *Journal of Finance*, 2, 393-420

Huang,Q and Levich, R (2003), “Underpricing of New Equity Offerings by Privatized Firms: An International Test”, *International Journal of Theoretical and Applied Finance*, Vol. 6, 1, pp. 1-30

Husson, B and Jacquillant, B (1989), “French New Issues, Underpricing and Alternative Method of Distribution”, 2, 349-368

Ibbotson, R and Jaffe, J (1975), “Hot Issue Market”, *Journal of Finance*, 4, 102-104

Kim, J et. al (1995), “The Aftermarket Performance of Initial Public Offerings in Korea”, *Pacific-Basin Finance Journal*, 3 429-448.

Ibbotson, R; Sindler, J and Ritter, J (1994), “The Market’s Problem with the Pricing of Initial Public Offerings”, *Journal of Applied Corporate Finance*, Vol 7pp. 66-74

Jelic, R., and Briston, R (2000) *Privatization initial Public offerings: The polish experience*. Working Paper. Birmingham: University of Birmingham

Jones, S. L, Nash, C.R and Netter, J.M (1999). “Share issue privatizations as financial means to political and economic ends”. *Journal of Financial Economics* 53:217-53

Jumba, (2002).*Initial Public Performance in Kenya*, Unpublished MBA project, University of Nairobi



Kooli, M and Suret, J (2001), “ The Aftermarket Performance of Initial Public Offerings in Canada”, *CIRANO working papers 52*, CIRANO

Kunz, R and Aggarwal, R (1994), “Why initial public offerings are underpriced: Evidence from Switzerland”, *Journal of Banking and Finance*, 18, 705-723

Levis, M (1993). “The long-run performance of initial public offerings: the UK experience 1980-1988”, *Financial Management Journal*, 22, 28-41

Leyland and Pyle D (1977), “Information Asymmetries, Financial Structure and Financial Intermediation”, *Journal of Finance*, 52, 371-387

Menyah, K and Paudyal, K (1996). “Share issue privatizations: the UK experience”. In Mario Levis (Ed.) *Empirical Issues in Raising Equity Capital: Advance in Finance, Investment and Banking*. Elsevier: Amsterdam

Miller, E (1977). “Risk, Uncertainty and Divergence of Opinion”, *Journal of Finance*, 32, 1151-1168

Perroti, E and Van Oijen, (2001), “Privatization, Political Risk and Stock Market Development in Emerging Markets” *Journal of International Money and Finance*, 20, pp. 43-69

Ritter, J, (1991), “The Long-Run Performance of Initial Public Offerings”, *Journal of Finance*, 46, pp. 3-27

Rizwan, M and Khan S (2007), “ Long-run performance of Privatization versus Private sector Industrial IPOs in Pakistan”, *Journal of Financial Economics*, 15,pp 93-95

Rock, K, (1986). Why New Issues are Underpriced”, *Journal of Financial Economics*, 46, 3-27