

**FIRM SPECIFIC DETERMINANTS OF UNDER
PRICING IPOs IN KENYA: A SURVEY OF IPOs
AT THE NAIROBI STOCK EXCHANGE**

BY

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DECLARATION

This project proposal is my original work and has not been submitted for a degree in any other University

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DEDICATION

Dedicated to my dear parents who sacrificed to make my education reach this far.

ACKNOWLEDGMENT

If it takes a village to raise a child, then it takes more than two cities to write an MBA proposal. I hope here that I acknowledge everyone who has contributed in so many ways to make this project a success. A special thanks to my instructor Mirie Mwangi for his valuable support. My family and siblings for their support and lastly to my parents who instilled in me an awareness that money was indeed worth being concerned about.

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ABBREVIATIONS

IPO – Initial Public Offer

NSE – Nairobi Stock Exchange

ABSTRACT

This paper carries out a survey of eight companies to evaluate how the firm specific determinants selected in the study influence IPO under pricing at the Nairobi Stock exchange. The period of the study was January 2006 to December 2008 which is the period the NSE witnessed a high number of IPO activity. The methodology used is the factor analysis to determine the independent variables to be tested using multiple linear regression analysis at 95% confidence level.

Prior studies done in Europe show that age and size are significantly and negatively related to under pricing. On the contrary a positive relationship has been found between under pricing and net earnings in the year before listing. The leverage at IPO is also positively related to underpricing.

The results of the study observed that the entire firm specific examined except ownership had an influence in explaining under pricing up to 84.3%. As such these factors affect IPO underpricing. Market return, age, size and leverage had a negative relationship to under pricing. Size and type had a positive relationship to under pricing. As such the results contradict with the results from Europe in some of the factors. When the analysis of variance was performed the only significant variable factor as measured by the t- value was leverage.

In a best efforts basis the banker does not guarantee the issue but in an underwritten issue guarantee is assured. If the market declines during the offering period and the issue is underwritten, the investment bank incurs a loss of the agreed price less the price the shares are actually sold. (Sharpe & Gordon, 1999)

There exist two broad approaches in the valuation literature. The first is the direct valuation approach, in which the firm value is estimated directly from its fundamentals and the second is the relative valuation approach, in which firm value is estimated indirectly by reference to the prices of comparable firms. In both cases the valuation of firms going public poses difficulties related to the IPO timing decisions. This is because firms may time their IPO in order to take advantage of windows of opportunities. These could be periods of market buoyancy during which companies have an incentive to issue new shares on the basis of an overvaluation of other companies in their industry (Loughran and Ritter, 1995). In this case investors will be subject to the risk of overvaluation of the firm priced using relative valuation techniques. Firms may also decide to go public when they are able to display positive growth opportunities and thus induce optimistic valuations. During these times investors have difficulties distinguishing between transitory and permanent earnings (Stein, 1989). Teoh et al, 1998 also observed that managers may also window dress their accounting numbers to make the firms look better before going public. This poses the risk of overvaluation for firms priced using the direct valuation methodologies.

Recent research studies have looked at under pricing resulting from information asymmetry between the parties involved in the IPO. Issues that are characterized by greater uncertainty are more underpriced to compensate for the higher cost of learning about these firms' true values, (Rock, 1986, Baron 1982). Other studies have observed that underpricing is also related to the information underwriters obtain from informed investors during the registration period. Underwriters compensate investors for the information they provide by only partially incorporating it the offer price, thus allowing the informed investors to earn especially high return on the first day the IPO firm trade, (Benveniste and Spindt, 1989).

This study looks at how firm specific factors affect underpricing because the explanations of information asymmetry hypothesis are not sufficient enough to explain the price change when these factors are taken into account (Welch & Ritter, 2002).

Market Return

Firms would delay their equity offerings if they know that they are currently undervalued. When there is a bull market IPO are valued on the prospects of growth that at least partially over estimated. A higher underpricing is expected because high quality firms would like to under price to avoid other low quality firms from imitating them, (Welch 1993).

Age and Size

Older and larger firms are expected to have lower underpricing because future cash flow growth rates are easier to predict for mature companies for which more information is available. A negative relationship between under pricing and both Age and Size is expected as observed by Giordano et al, 2008 using a study of companies going public in Europe.

Net Earnings

Firms with higher net earnings are expected to have higher underpricing because it's difficult for investors to distinguish between transitory and permanent earnings. Managers may window dress their accounting numbers to make the firm look better before going public (Teoh et al, 1998).

Ownership

Because managers know about the firm than outside investors, higher equity retention by managers could be interpreted by the market as a signal of their commitment to the firm and therefore lower under pricing is expected in cases where managers retain a higher equity ownership. Prior studies have observed a negative relationship between underpricing and equity retention at the IPO (Leland and Pyle, 1977).

Government or Private Firms

Underpricing will be greater in instances where the government is attempting to signal its intention not to interfere in the firm when compared to IPO of private firms (Perotti, 1995). Jones et al 1999 observed that the political aim of the government in creating wider ownership in the UK require a higher degree of under pricing for political reasons.

Leverage

Because indebted firms are more often priced at the IPO upon fulfillment expectations in cash flow growth rates higher underpricing is expected in more leveraged firms. Prior studies have observed a positive relationship between underpricing and leverage (Giordano et al, 2008).

This study looks at how these firm specific factors determine IPO underpricing at the Nairobi Stock Exchange.

1.2 Statement of the problem

Lack of information about the issuer obliges the investor to trust the information contained in the IPO prospectus. According to (Lowry and Schwert, 2002), the explanations of information asymmetry hypothesis are not sufficient enough to explain the price change when other firm specific factors are taken into account. Most of prior empirical research studies have concentrated on information asymmetry theories with little conclusive evidence from other factors affecting IPO under pricing. Whereas evidence from information asymmetry tends to be convincing this evidence tends to contradict when other firm specific factors are included (Welch & Ritter, 2002).

Higher earnings by firms are important because they enable them to display positive growth opportunities and thus induce optimistic valuations. (Stein J, 1989). This yields to investors the risk of overvaluation of firms priced using direct valuation methodologies. Because growth targets tend to be overestimated in such times investment firms tend to under price to protect their reputation in as much as firms are keen to get a high price for their shares. Based on research studies in continental

Europe where disclosure of valuations method is available in the prospectuses (Giordano, Stefano and Silvo, 2008) observe that IPOs valuation leave a great difficulty to investments banks that are in this way subject to reputation incentives..

High market returns forces firms to time their IPOs during these periods in order to take advantage of windows of opportunities. These could be periods of market buoyancy during which companies have an incentive to issue new shares on the basis of an overvaluation of other companies in their industry (Loughran and Ritter, 1995). In this case investors will be subject to the risk of overvaluation of the firm priced using relative valuation techniques.

Higher ownership retention by managers reduces incentives to undertake non value maximizing projects, (Jensen and Meckling, 1976). Thus firms may under price their issues so that managers do not look like they are selling at a higher price to recover their wealth, as such equity retention by managers at time of listing is interpreted by the market as a signal of their firm commitment. Their theoretical work suggests that the relationship between firm value and retained earnings may not be significantly positively related across the full range of possible values of management ownership. Managerial entrenchment contradicts this theory and observes that positive and negative effects arise from management ownership in companies, (Fama and Jensen, 1983).

Large and older firms are more likely to go public because high IPO activity is supported by investment and growth, (Pagano, Panetta and Zingales, 1998). Entrepreneurs realize that acquirers can pressure targets on pricing concessions more than they can pressure outside investors. Thus a firm may desire to under price when its size is high to create a wider ownership base or minimize the chances of being acquired by another firm at concessionary terms. There is no evidence that size affects the degree of under pricing except in cases where it's necessary to avert such a situation.

On the type of the firm whether private or public firms, Perotti, 1995 observed that under pricing will be higher where the government is attempting to signal its intention not to interfere with the firm following the issue. Dewenter and Malatesta, 1997

comparing the under pricing of privately and publicly owned firms for seven countries including UK but did not find greater degree of under pricing in state owned firms than privately owned firms thus contradicting that IPO of public firms are underpriced.

There are a few studies that have been done on IPOs in Kenya. For instance (Ngahu, 2006) did a study on book value of a share issue price and first day trading prices of IPO. Jumba, 2002 studied IPO performance in Kenya while Maina, 2006 did an analysis of IPO performance in Kenya. Moko, 1995 did a study on the relationship between offer price and the subscription rate of IPO at the NSE. It is clear that no study has been done on the firm determinants of IPO pricing in Kenya. This study aims to fill the research gap by testing the firm specific determinants of IPOs under pricing through a survey of companies that have listed in the NSE during the period 2006 to 2008.

1.3 Objectives of the study

This study was carried out to specifically carry out a survey on how the firm specific factors affects under pricing of IPOs in Kenya.

1.4 Importance of the study

The results of this study are bound to be insightful to different users and in particular the following groups;

Academicians

The study will offer an explanation of under pricing IPOs in Kenya and the relative strength of these factors.

Individual and Corporate Investors

It will provide details of factors that investors both individuals and corporate need to take into account when deciding to invest in future IPOs in Kenya.

Government and Regulators

The government will be interested in understanding the right price to issue shares to avoid under pricing as they are constantly in the stock market to raise capital for infrastructural development. The regulator has an interest to ensure that firms are

optimally priced to improve the confidence of investors in IPOs and deepen the capital market in Kenya.

Firms

Firms have an interest to raise funds in the market and as such they would be interested in understanding the factors that they need to take into account in pricing their firms. Particularly firms would be interested to ensure that initial public offers do not diminish their opportunities to raise capital in future.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This study brings together diverse streams of literature in accounting and finance. There is the signaling asymmetry hypothesis by (Welch, 1989) that examines how quality firms attempt to signal their quality by under pricing issues to deter low quality firms from imitating. Another appealing explanation of the signaling hypothesis is that issuers voluntarily desire to leave money on the table to leave a good taste in investor's mouth (Jagadeesh, Weinstein and Welch, 1993). Habib and Ljungqvist, 2001 argue that under pricing is a substitute for costly marketing expenditure. Tinic, 1988 argue that issuers under price to reduce costly marketing expenditure. Benveniste and Spindt, 1989 argue that investment banks use their discretion to extract information from investors which reduces overall under pricing and thus increases the sales proceeds. There have been a lot of academic concerns on share allocations due to the large amounts of money left on the table in recent issues. Welch and Ritter 2002, also examine the power of tests to explain the pricing relative to some true fundamental value. They observe that because firms are based on their growth options as opposed to their historical financials the accounting data information are very unreliable for this exercise. Leland and Pyle, 1977 argue that entrepreneurs know more about the value of the firm than potential investors. As a result retention by managers is interpreted by the market as a firm commitment from them. Accordingly they argue that the current value of the firm is positively related to the equity retention at the IPO. Perotti, 1995 argues that government firms tend to be underpriced as a way of the government to signal its intention not to interfere in the firm following the issue particularly in high regulated industries which are vulnerable to changes in government policy. Lucas and Mc Donald, 1990 developed an asymmetric information model where firms postpone their equity issue if they know that they are currently undervalued. Choe, Masulis and Nanda, 1993, find that firms avoid issuing in periods where other good firms are issuing. Zingales 1995 observed that it is much easier for a potential acquirer to spot a potential target when it's

private. Thus entrepreneurs have an incentive to go public to maximize acquisition value of their companies.

2.2 Market return

Under the relative valuation approach, the firm's value is estimated indirectly by reference to the prices of comparable firms. The firms may time their IPO in order to take advantage of windows of opportunities. These could be periods of market buoyancy during which companies have an incentive to issue new shares on the basis of an overvaluation of other companies in their industry (Loughran and Ritter, 1995). In this case investors will be subject to the risk of overvaluation of the firm priced using relative valuation techniques.

Recent research papers have investigated the use of multiple of comparable firms to value IPOs (Berkman et al., 2000; Purnanandam and Swaminathan, 2004; Jagannathan and Gao, 2005). These studies have concluded that IPOs of firms are overvalued compared to their comparables. Lucas and Mc Donald, 1990 develop an asymmetric information model where firms postpone their equity issue if they know they are currently undervalued. If bear market places too low a value on the firm, given the knowledge of entrepreneurs, then they will delay their IPOs until a bull market offers more favorable pricing. In (Choe, Masulis and Nanda, 1993) firms avoid issuing shares in periods where few other good quality firms are issuing. According to (Pagano, Panetta and Zingales, 1998), larger companies and companies in industries with high market to book ratios are more likely to go public and that companies going public seem to have reduced their cost of credit. Lerner, 1994 observed that industry market to book value ratios have a substantial effect on the decision to go public rather than to acquire additional venture capital financing.

Ritter and Welch (1998) contradict with this theory and observes that entrepreneur's sense of enterprise value derives more from their perspective, their day to day involvement with the underlying business fundamentals, and less so from the stock market. Sudden changes in the value of publicly held firms are not as quickly absorbed into the private sense of value held by entrepreneurs. As such entrepreneurs adjust their valuation with a lag. As a result entrepreneurs will only be inclined to sell their shares after valuations in the public market have increased.

2.3 Age and Size

The first formal theory of going public decision appeared in (Zingales, 1995). He observed that it is much easier for a potential acquirer to spot a potential takeover target when it's public. Moreover, entrepreneurs realize that acquirers can pressure targets on pricing concessions more than they can pressure outside investors. By going public, entrepreneurs thus help facilitate the acquisition of their company for a higher value than what they would get from an outright sale. There are fixed costs associated with going public, however, and proprietary information cannot be costlessly revealed. Small investors cannot take a tour of the firm and its secret inventions. Thus early in its life cycle a firm will be private, but if it grows sufficiently large, it becomes optimal to go public. Public trading however can in itself add value to the firm as it may inspire more faith in the firm from other investors, customers, creditors and suppliers. Being the first to go public sometimes confers a first mover advantage. Black and Gordon (1998) contradict this theory by pointing out that IPO are not so much exits for the entrepreneur as they are for the venture capitalists. As such going public does not result in a higher price than an outright sale as would be expected.

2.4 Earnings

Under the direct valuation approach, in which the firm value is estimated directly from its fundamentals the valuation of firms going public poses difficulties related to the IPO timing decisions. Firms may also decide to go public when they are able to display positive growth opportunities and thus induce optimistic valuations. During these times investors have difficulties distinguishing between transitory and permanent earnings (Stein, 1989). Teoh et al, 1998 also observed that managers may also window dress their accounting numbers to make the firms look better before going public. This poses the risk of overvaluation for firms priced using the direct valuation methodologies. Accounting data are in most cases too unreliable a measure of valuation to facilitate powerful tests, especially because many firms going public are being valued on the basis of their growth options, not historical financials. As a result the power of tests to explain pricing relative to some 'true fundamental value' is to make much headway in testing whether IPO pricing or after market valuation better

reflects the IPO fundamental valuation unless the sample is large (Welch & Ritter 2002). But because many firms going public are valued on a basis of their growth options as opposed to historical financials the accounting data information are very unreliable for this exercise.

2.5 Ownership

According to (Leland and Pyle, 1977) in the signaling hypothesis, the entrepreneur knows more about the expected future cash flows of the firm than do potential investors. Accordingly, equity retention at the time of listing by existing shareholders is interpreted by the market as a signal of their firm commitment. Therefore the current value of the firm is positively related to the equity retention at the IPO.

Also according to the agency theory (Alignment of interest hypothesis) higher ownership retention by managers reduces their incentives to undertake non-value maximizing projects (Jensen & Meckling, 1976). Due to a reduction of agency costs, this hypothesis predicts that the firm value increases as management ownership increases. However according to (Fama and Jensen, 1983) and contrary to the alignment of interest and to the signaling hypothesis, managerial entrenchment can cause problems to companies. In a high information asymmetry environment managers may indulge preferences for non value maximizing behavior. According to (Bebchuk, 1999) managers who own substantial interest of the company could pursue private benefits thereby creating difficulties for outside shareholders to monitor and control management actions.

According to (Stulz, 1988) an increase of voting rights in control of managers act as an economic takeover defense by reducing the probability of a successful takeover bid. In this model, the concentration of voting rights in the hands of incumbent management has an ambiguous influence on the value of the firm. On the positive side, takeover premiums when such attempts are made, increases the fraction of voting rights that are controlled by managers.

Grossman and Hart, 1988 and Harris and Raviv, 1988 show that separating ownership and control lowers the value for shareholders and may not be socially optimal. Shleifer and Vishny, 1997 illustrate that when ownership goes beyond a certain point and large owners gain almost full control, private control benefits for large

shareholders are not shared by minority shareholders. Claessens et al, 2002 report that the difference between control (voting) rights and cash flow rights of the largest shareholders is associated with a value discount, and that this discount increases with the size of the difference between voting and cash flow rights.

2.6 Government or private firms

According to (Perotti, 1995), information asymmetry between the government and the investment banks could cause the issuer to influence the value of the privatized company post issue. According to Perotti for an issuer to show its commitment as a market oriented government they have two options;

- To maintain some level of ownership of the privatized firm to show the market that it is willing to share in some financial costs involved.
- If the government sells a higher percentage of the firm it will have to under price the issue in order to show the market and investors that it will not interfere in the firm in future and to convince investors to take ownership of the firm.

Perotti, 1995 argues that under pricing will tend to be greater in circumstances where the government is attempting to signal its intention not to interfere in the firm following the issue as such privatized firms in highly regulated industries and thus potentially more vulnerable to changes in government policy should be under priced to a greater degree than issues in other sectors due to monopoly profits. Jones et al, 1999, argue that the political aims of a government in creating wider share ownership require a high degree of under pricing. Biais and Perotti, 1995 argue that under pricing is necessary to ensure that political support for the government is maintained. By comparing the short term performance of privately and state owned firms in seven countries including the UK Dewenter and Malatesta, 1997 find that there does not appear to be general trend for a greater degree of under pricing in state owned firms than in privately owned firms.

2.7 Leverage

The leverage at IPO is positively related to under pricing, (Giordano et al 2008). More indebted firms are often priced at the IPO upon fulfillment expectations in cash flow growth rates. There is always a negative reaction of the market to the disclosure of cash flows lower than expected. Investors will be constantly evaluating how accurate

were the forecasts and they will revise their expectations accordingly. Because of the risk in overstating forecast growth rates under pricing tends to be higher with higher levels of leverage as a way of minimizing the forecast errors that ensue, (Giordano et al, 2008). There is a general fear that management could get ousted by debt holders if they overstate cash flows than forecasted through takeovers or debt conversions to equity by debt holders who interpret this as a bad signal on the firms' prospects. Institutions are also naturally block holders, potentially capable of displacing poor performing management. Many companies start implementing takeover defenses as soon as the IPO is over. Booth and Chua, 1996 point out that under pricing creates excess demand and thus allow issuers and underwriters to decide to whom to allocate shares. Zechner and Stoughton, 1998 argue that under pricing is necessary to create a block of stock for debt holders who then monitor the firm's management, creating a positive externality for atomistic investors. In a sample of British firms, (Brennan and Franks, 1997) find that when shares are held more widely rather than placed within powerful large shareholders the entrepreneur is less easy to oust from the company. Directors are more likely to hold onto the shares presumably trying to control the company. If the investors are more displeased there is increased liquidity associated with more aftermarket trading.

2.8 Other factors

Other theories explaining under pricing of IPO include the information asymmetry theories and the share allocation theories.

2.8.1 Asymmetric and symmetric Information

One way to classify the theories of under pricing is on the basis of whether asymmetric or symmetric information is assumed. The asymmetric information theory assumes that issuers are more informed than investors (perhaps about internal projects) and into other theories where investors are more informed than the issuer (perhaps about demand). If the issuer is more informed than investors, rational investors fear a lemons problem. Only issuers with worse than average quality are willing to sell their shares at the average price. To distinguish themselves from the pool of low quality issuers, high quality issuers may attempt to signal their quality. In these models, better quality issuers deliberately sell their shares at a lower price than the market believes they are worth which deters low quality firms from imitating.

With some patience these firms could recoup their upfront sacrifice post – IPO, either in future issuing activity (Welch 1989), favorable market responses to future dividend announcements, (Allen & Faulhaber, 1989), or analyst coverage (Chammanur, 1993). In common with signaling models, high quality firms can demonstrate their quality by throwing away money. One way to do this is to leave money on the IPO. However, on theoretical grounds, its unclear why under pricing is a more efficient signal than say committing to spend money on charitable donations or advertising. The evidence in favor of these theories is mixed although issuers approach the market with an intention to conduct future equity issues as there would be reason to believe that any price appreciation would induce entrepreneurs to return to the market for more funding (Welch, 1989). Jegadeesh, Weinstein and Welch, 1993 find that returns after the first day are just as effective in inducing future issuing activity as the first day returns. Another appealing explanation of the signaling theory is that issuers voluntarily desire to leave money on the table to create ‘a good taste in investors’ mouth’. As such it is relatively compatible with higher levels of IPO under pricing.

If on the other hand the investors are more informed than the issuer, for example about general market demand for shares, the issuers face a placement problem. The issuer does not know the price the market is willing to bear. In other words, an issuer faces an unknown demand for its stock. One could assume that investors are equally informed and thus purchase shares only if the price is below their common assessment. Successful IPO are thus necessarily under priced. There are however some IPOs that cannot be predicted because all investors are assumed to know that they are under priced. A realistic assumption is that investors are differently informed. Pricing too high might induce investors and issuers to fear a winner’s curse (Rock, 1986) or a negative cascade (Welch, 1992). In a winners curse investors fear that they will only receive full allocation if they happen to be among the optimistic investors. When everyone desires the offering there will be a rationing of the allocation. In this case, investors could receive a full allocation for overpriced offering but only a partial allocation for under priced IPOs. Thus his return, conditional on receiving shares would be below the unconditional return. To break even investors prefer under priced issues (Koh & Walter, 1989). In an information cascade, investors attempt to judge the interest of other investors. They only request the shares when they believe the offer is hot. Pricing just a little higher leaves the issuer with too high a probability of

complete failure in which investors abstain because other investors also abstain. This could explain the reason why recent IPOs have been highly under priced as most of the participants tend to follow the perception of some leading investors (Amihud et al, 2001).

Benveniste and Spindt, 1989 argue that the common practice of book building allows underwriters to obtain information from informed investors. With book building a preliminary offer price is set and then underwriters and issuers go on a 'road show' to market the company to prospective investors like it happened with the Safaricom IPO, when management together with the book runner went to UK and other countries to market the offer. This road show helps the investment bank to gauge the demand as they obtain indication of interest from prospective investors. But if investors know that showing willingness will result in a higher offer price, these investors must be offered something in return. In this case the underwriters will be obliged to offer some combination of more allocation and under pricing when they indicate a willingness to purchase shares at a higher price.

Baron, 1982 offers a different agency based explanation to under pricing. His theory is that the issuer is less informed but relative to the investment banks and not the investors. To induce the underwriter to put in some requisite efforts to market the shares, it is optimal for the issuer to permit some under pricing, because the issuer cannot monitor the investment bank without some costs. Habib and Ljungqvist, 2001 argue that under pricing is a substitute for costly marketing expenditures. As such money left on the table tend to reduce marketing costs.

Theories of under pricing based on asymmetric information share the prediction that under pricing is positively related to the degree of asymmetric information. When the asymmetric information uncertainty approached zero under pricing disappears completely. There are also theories of under pricing that do not rely on asymmetric information that is resolved on the first day of trading. Tinic, 1988 and Hughes and Thakor, 1992 argue that issuers under price to reduce their legal liability. An offer trading at Kes 30 that was priced at Kes 20 is less likely to be sued than if it had been priced at Kes 30. In spite of this (Drake and Vetsuypens, 1993) find that sued IPOs had higher, not lower under pricing and i.e. under pricing did not protect them from

being sued. However (Lowry and Shu, 2002) point out that this may be because IPOs more likely to be sued later also under priced more. Thus leaving money on the table appears to be a cost ineffective way of avoiding subsequent lawsuits. One popular related explanation for high IPO under pricing during the internet bubble is that underwriters could not justify a higher offer price on internet IPOs, perhaps out of legal liability concerns, given the already lofty valuations of these companies. One way of interpreting this is that underwriters were 'leaning against the wind' by not taking advantage of temporary over optimism on the part of investors. Ritter and Welch, 2002 find this not convincing enough because investment banks were making other efforts to encourage overvaluations during the internet bubble, such as subsequently issuing 'buy' recommendations when market prices had risen far above the offer price. Boehmer and Fishe, 2001 advance another explanation in that trading volume becomes higher with greater under pricing in the after market as such the investment banks gains additional investment revenue.

2.8.2 Allocation of shares

There has been a lot of academic attention on share allocation due to concern about unfairness on share allocations during IPOs and given the large amounts of money left on the table in recent issues. An area of interest has been the allocation to institutional investors versus individuals. According to Benveniste and Spindt 1989, investment banks use their discretion to extract information from investors which reduces overall under pricing and increases the issue proceeds. As Sherman et al, 2002 have noted, the average level of under pricing required to induce information revelation is reduced if investment banks have the ability to allocate shares in future IPOs to investors. They observe that there is an equilibrium degree of under pricing which compensates for acquiring costly information. Many theories are at least partly based on the notion that if IPO are under priced on average, investors have an incentive to acquire information about the firm to try and discern which will be under priced the most.

Loughran and Ritter, 2002 explore the conflict of interest between underwriters and issuers. If underwriters are given discretion in share allocations, the discretion will not be used in the best interest of the issuing firm. Underwriters may leave money on the table than is necessary and then allocate shares to buy –side clients. According to (Siconolfi 1997), under priced share allocations have been used by underwriters to enrich buy side clients in return for quid pro quos to curry favor with the executives

of other prospective IPOs issuers in a practice called 'spinning' or even to influence politicians.

The mystery is why issuing firms appear generally content on leaving so much money on the table and more so when the value has increased. Loughran and Ritter, 1995 use prospects theory to argue that entrepreneurs are more tolerant of excessive under pricing if they simultaneously learn of a post market valuation that is higher than expected. Thus they tend to bargain less on the offer price if there has been a greater increase in their wealth. Many empirical papers examining IPO allocations focus on the distinction between institutional and individual investors. Institutional investors are considered to be more important clients because of the volumes they purchase and the level of knowledge about the offer. Using US data, (Aggrawal, Prabhala, Puri, 2002) find institutional investors are favored. Cornelli and Godreich, 2001 using UK data agrees and find that more information-rich requests are favorably rewarded. Lee et al 1999, find the opposite using data from Singapore.

For IPOs with weak demand, investments banks discourage flipping through moral suasion (i.e. the threat of withholding future allocations on hot issues) and the imposition of penalty bids. A penalty bid occurs when the lead underwriter takes back the selling concession (commission) from a broker who has allocated shares that flipped. The existence of a penalty gives a broker an incentive to discourage an investor from selling shares. Penalty bids are rarely imposed in cases where there is strong share demand in order to keep the market from pushing the price to unsustainable levels.

2.9 Empirical studies

Prior studies have shown that age and size are significantly and negatively related to under pricing. Future cash flows may indeed be easier to predict for more mature companies and for which much information is available. Expectations of future cash flows of younger and smaller companies tend to be overvalued compared to ex post realizations. On the contrary a positive relationship has been found between under pricing and net earnings in the year before listing. The Leverage at IPO is also positively related to under pricing. Therefore more indebted firms are more under

priced at the IPO upon fulfillment expectations in cash flow growth rates. Firms with high positive difference between market to book value at IPO are priced on the prospects of growth that are at least partially overestimated. Market to book value can be taken to be the perception of the firm in the market or the value of positive information.

In their study in the US, Ritter and Welch 2002, argue that theories based on asymmetry information are unlikely to explain average first day returns of 65 per cent. They observe that future explanations will need to concentrate on agency conflict, share allocations and behavioral explanations. They also observe that it will still be puzzle to explain the dramatic variations in under pricing that has been observed in past decades. The results of their study are sensitive to methodology used and the exact time period chosen.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research design

Numerical data was collected and analyzed using multiple regression analysis as well as factor analysis in order to answer the research questions. The type of data collected was secondary in nature.

3.2 Population and sample

The study comprised studying IPOs of 8 companies in the period January 2006 to December 2008 at the Nairobi Stock Exchange. The specific companies are Safaricom, Kengen, Eveready, Scan group, Kenya Reinsurance, Equity bank, Access Kenya and Cooperative bank. The choice of these companies is all companies that issued an IPO through the Nairobi stock exchange during this period, thus the sample size is the same as the population size. It's also the period that Kenya witnessed a high number of IPO activity.

3.3 Data collection

Daily stock share prices, volumes and NSE indices were collected from the NSE. Financial information was obtained from the companies' prospectus documents already released by these companies at time of the IPO.

3.4 Data presentation techniques

The data was analyzed using SPSS tool to test how these factors influence IPO under pricing. The results of the analysis have been presented and analyzed.

3.5 Data analysis and model specification

The answer to the research questions factor analysis was performed to determine which variables influenced IPO underpricing and thus could be used in the regression model. The study aim was to test the influence of the independent variables on the dependent variable. The model can thus be illustrated as a multiple regression equation with under pricing as the dependent variable and the firms' specific determinants of IPO under pricing as independent variables.

- Under pricing as the percentage change in between the offer price and closing price on the first day of trading.
- Market Index as proxy for public information
- Age as the logarithm of one plus the age of the firm at the IPO
- Ownership as the % of ownership retained by managers and Entrepreneurs after IPO.
- Size as the logarithm of sales.
- Net Earnings - Net earnings before the IPO.
- Leverage at IPO.
- Type based on whether it was a private or public company, equal to 1 if firm is a public company and 0 otherwise.

Under pricing is thus expressed using the following equation and regression was tested at 95% confidence level.

$$\text{Under pricing} = \hat{\alpha} + \beta_1 (\text{Market return}) + \beta_2 (\text{AGE}) + \beta_3 (\text{Ownership}) + \beta_4 (\text{Size}) + \beta_5 (\text{Net Earnings}) + \beta_6 (\text{Leverage}) + \beta_7 (\text{TYPE}) + \mathcal{E}_i$$

CHAPTER FOUR

DATA ANALYSIS AND INTERPRETATION

4.1 Introduction

This chapter presents the results of the analysis and the interpretation of the research findings. Data for eight companies that had undertaken IPOs for the period 2006-2008 were used in the study. Two types of analysis were undertaken and are presented below: factor analysis and regression analysis.

4.2 Factor Analysis

A factor analysis was first performed to determine which variables influenced IPO underpricing thus could be used in the regression model to compute the regression analysis. Table 1 indicates results of the communalities. Generally, communalities indicate the amount of variance in each variable that is counted for. Initial communalities are estimates of the variance in each variable accounted for by all components or factors.

Extraction communalities are estimates of the variance in each variable accounted for by the factors (or components) in the factor solution. Small values indicate variables that do not fit well with the factor solution, and should possibly be dropped from the analysis.

From the results in Table 1, all but one of the values is large hence only 6 variables were used in the final model during the analysis. The value dropped was ownership as it had a value of 0.605 while the rest had values above 0.7.

Table 1: Communalities

	Initial	Extraction
Market return	1.000	.930
Age	1.000	.949
Ownership	1.000	.605

	Initial	Extraction
Size	1.000	.917
Earnings	1.000	.996
Leverage	1.000	.941
Type	1.000	.829

Extraction Method: Principal Component Analysis.

The results in Table 2 show the eigen values for each of the components. The eigen values usually show the amount of variance accounted for by each of the factors in the model. As shown in the Table, there are three factors that mostly account for the total variance in the model as they explain up to 88.1% of the total variance in the model.

Table 2: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.358	47.974	47.974	3.358	47.974	47.974	2.383	34.047	34.047
2	1.660	23.718	71.693	1.660	23.718	71.693	2.084	29.778	63.825
3	1.149	16.410	88.103	1.149	16.410	88.103	1.699	24.278	88.103
4	.609	8.702	96.805						
5	.127	1.817	98.621						
6	.096	1.372	99.993						
7	.000	.007	100.000						

The variables in the model were also extracted in order to determine the principal components (factors) that commonly influenced IPO pricing in Kenya. The interpretation of how the factors were grouped into each of the component in the rotated component matrix below was based on the high correlations of each of the variables with the components extracted. From the rotated component matrix shown in Table 3, there are generally three factors that have an influence on IPO underpricing in Kenya. These can be grouped as firm characteristics (component 1) which include firm size, ownership and type; market factors (component 2) as shown by market return and leverage; and age of the firm and earnings (component 3).

Table 3: Rotated Component Matrix

	Component		
	1	2	3
Size	.884		
Ownership	.767		
Type	.763		
Leverage		-.956	
Market return		.917	
Age			-.935
Earnings			.763

Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.

4.3 Regression

A regression analysis was further carried out in order to establish the determinants of IPO underpricing for the firms that had IPOs in the period 2006 and 2008. As shown in Table 4, the variables that were used in the model were firm type, age, leverage, market return, net earnings, size of the firm and form ownership. All the variables requested were entered and none was removed by the SPSS software as shown in the table.

Table 4: Variables Entered

Variables Entered	Variables Removed	Method
Type, Age, Leverage, Size, Market return, Earnings(a)		Enter

All requested variables entered.

Dependent Variable: Underpricing

The results in Table 5 show the results of the regression on what influence the independent variables had on the dependent variable. As shown, the factors used in the model (type, age, leverage, market return, size and earnings) had a very strong positive influence on IPO underpricing. As can be observed, the Pearson product moment of correlation, $R = 0.913$. From the R square of 0.843, the results indicate that the factors influence IPO underpricing in Kenya up to 84.3% of the time. These results support the fact that the factors are the determinants of IPO underpricing in Kenya.

Table 5: Model Summary

R	R Square	Adjusted R Square	Std. Error of the Estimate
.913(a)	.834	-.164	77.19278

Predictors: (Constant), Type, Age, Leverage, Market return, Size, Earnings

The analysis of variance was also performed in order to test the significance of the variables in the model. As shown in Table 6, since the regression was tested at 95% confidence levels, the p-value of 0.684 indicates that the study failed to establish a significant relationship between the variables in the model and the dependent variable as the p-value is greater than 0.05. The results also show that the regression accounts for the majority of the variance in IPO underpricing.

Table 6: Analysis of variance (ANOVA)

	Sum of Squares	df	Mean Square	F	p-value
Regression	29873.150	6	4978.858	.836	.684
Residual	5958.725	1	5958.725		

	Sum of Squares	df	Mean Square	F	p-value
Total	35831.875	7			

Predictors: (Constant), Type, Age, Leverage, Market return, Size, Earnings

Dependent Variable: Underpricing

The results presented in Table 7 indicate the extent to which each of the variables in the model significantly affected IPO underpricing. As shown, the most significant variable in the model as measured by the t-values was leverage (t-value is 1.121 and p-value is 0.464). But as can be observed from the p-values, no variable had a significant influence on IPO underpricing. The table also indicates the coefficients of each of the variables in the model.

Table 7: Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
(Constant)	-81.645	1066.210		-.077	.951
Market return	-.078	.102	-.731	-.770	.582
Age	-338.372	461.518	-1.401	-.733	.597
Size	324.112	396.104	2.603	.818	.563
Earnings	-.057	.066	-3.271	-.867	.545
Leverage	-22.064	19.684	-1.005	-1.121	.464
Type	21.747	138.503	.157	.157	.901

Dependent Variable: Underpricing

CHAPTER FIVE

CONCLUSIONS & RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of research findings, conclusions made from the study and the recommendations of the study based on the findings and the objectives. The chapter also presents areas that need further attention from researchers.

5.2 Summary of findings

The results of the factor analysis indicate that all but one of the values for the components of the model were large enough to be used in the regression. Ownership was therefore dropped in the final analysis. The Eigenvalues for each of the components revealed that there were three factors that mostly account for the total variance in the model as they explain up to 88.1% of the total variance in the model.

The variables in the model were also extracted in order to determine the principal factors that commonly influenced IPO pricing in Kenya. The results from the rotated component matrix indicated that there were generally three factors that had an influence on IPO underpricing in Kenya.

A regression analysis was further carried out in order to establish the determinants of IPO underpricing for the firms that had IPOs in the period 2006 and 2008. The variables that were used in the model were firm type, age, leverage, market return, size of the firm and earnings.

It was noted that the factors used in the model (type, age, leverage, market return, size and ownership) had a very strong positive influence on IPO underpricing. The Pearson product moment of correlation, R , was 0.913 while R square was 0.834. These results imply that these factors are the determinants of IPO underpricing in Kenya.

The analysis of variance showed that the regression accounted for the majority of the

variance in IPO underpricing but this was not significant as the p-value was 0.684, greater than 0.05 at 95% confidence level.

5.3 Conclusions of the study

This study sought to test the explanatory power of various firm specific factors variables affecting IPO under pricing in Kenya through a survey of companies listed in the NSE. As the study found out, the variables strongly positively influenced IPO underpricing as there was a very high positive correlation. But the study failed to find a significant influence of the factors on IPO underpricing in Kenya. The study therefore concludes that it in as much as IPO pricing in Kenya can be explained by the factors in the model used in the study, such a relationship is not significant and there may be other significant factors that play a role in determining IPO under pricing other than the ones used in the model.

5.4 Recommendations

The study recommends that since various factors play a role in determining IPO pricing, it is important that investors be very keen in ascertaining all the possible variables that may play a significant role in the pricing of IPOs to establish whether the IPO is underpriced or overpriced. This will be helpful in ascertaining which IPOs will be profitable especially for those investors interested in short term goals (speculators) rather than the long term investors.

5.5 Areas for further research

More studies need to be done in this area especially to establish what other factors may be significant determinants of IPO underpricing in Kenya. Given that this study failed to establish a significant relationship between the variables in the model and the underpricing of IPOs it will be of great important to introduce other variables in the model or expand the period of study to cover other areas such as agency conflict, share allocations and behavioral explanations.

5.6 Limitation of the Study

The study carried a survey of companies that had IPOs in the period January 2006-December 2008 comprising of eight companies. Although during this period the NSE witnessed the highest number of IPO activity, the size may not have been sufficient enough and could thus have affected the results of the study. It will be of great important to introduce other variables in the model or expand the period of study to cover a significantly longer period rather than the period covered in this study. Extension of the period will increase the sample studied too.

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APPENDICES

Appendix 1: Raw data for regression

Company name	Underpricing	Mkt Index	Log age	Ownership	Log Sales	Earnings	Leverage	Type
Safaricom	47	5445.67	0.845098	0.75	4.676209	12010	0.318247	1
KenGen	236	4447.99	1.724276	0.7	4.042221	1753	0.52079	1
ScanGroup	72	4486.07	1.39794	0.285	3.369958	144	3.236515	0
Access Kenya	35	5043.35	1.113943	0.6	2.761928	94	0.016762	0
Kenya Re	68	5274.53	1.579784	0.6	3.549579	390	1.08011	1
Equity Bank	71	4424.17	1.361728	0.2	3.255933	163.469	6.187323	0
Eveready	16	5093.51	1.60206	0.7	3.351216	187	1.953069	0
Co-operative Bank	10	3367.24	1.612784	0.803	3.741925	1549.606	9.11631	0

Appendix 2: Complete data

	Company name							
	Safaricom	Ken Gen	Scan Group	Access Kenya	Kenya Re	Equity Bank	Eveready	Co-operative Bank
Offer price	5	11.9	10.45	10	9.5	70	9.5	9.5
List price	7.35	40	17.95	13.45	16	120	11	10.45
MktRet	5445.67	4447.99	4486.07	5043.35	5274.53	4,384.35	5093.51	3367.24
Incorp. year	2002	1954	1982	1995	1970	1984	1967	1968
Underpricing	47	236	72	35	68	71	16	10
IPO Year	2008	2006	2006	2007	2007	2006	2006	2008
Trading Day	9th June 2008	17th May 2006	31st August 2006	4th June 2007	27th August 2007	17th August 2006	18th December 2006	22nd December 2008
Age	6	52	24	12	37	22	39	40
Log age	0.84509804	1.72427587	1.397940009	1.113943352	1.579783597	1.361727836	1.602059991	1.612784
Ownership	0.75	0.70	45.1	0.6	0.60	0.09	0.7	0.803
Sales	47447	11021	2344	578	3034	1802.74	2245	5519.826
Log Sales	4.676208758	4.042221002	3.369957607	2.761927838	3.549579485	3.255933095	3.351216345	3.741925
Earnings	12010	1753	148	47	390	344.598	187	1549.606
debt	10435	17410	177	0	0	0	541	58893.92
equity	32789	33430	241	130.112	6154	1593.993	277	6460.281
Leverage	0.318246973	0.52078971	0.73	0	0	0	1.953068592	9.11631
Type	1	1	0	0	1	0	0	0