

THE DYNAMICS OF INITIAL PRICE OFFERINGS IN DEREGULATED EMERGING AFRICAN CAPITAL MARKETSⁱ

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ABSTRACT

This study explores the impact of the rapid regulatory changes being experienced in emerging African capital markets on initial public offerings (IPO). Employing equally-weighted average, equity IPO are underpriced by 4.9 percent; and regression analysis shows that IPO volumes, offer size, the age of the firm before IPO, issuers' prospects and underwriters' reputation are not robust IPO returns' determinants, unlike market conditions and syndicate underwriting. The study confirms decreasing IPO underpricing and identifies changing dynamics of initial returns' determinants in response to regulatory refinements in Nigeria, an emerging African capital market. The implications of the findings are discussed.

Key words: Initial public offerings, underpricing, emerging African capital markets, Nigeria

JEL Codes: G12, L33

1. INTRODUCTION

As a unique sector of the primary market, initial public offerings (IPO) are situated in terms of risk and potential returns which make them much more volatile than the market for publicly traded firms (Young and Zaima, 1986). By their nature, IPO prices are rarely stable; and are almost always mispriced (Burrows and Jones, 2004). Initial returns on IPO are always positive, the world over (Loughran, Rydqvist and Ritter's, 1994). However, there is evidence of a wide variations based on individual issues, industries, countries and time (Ritter, 1998).

In a sample of 973 IPO spanning between 1988 and 1998 in Europe, Schuster (2003) found that the favourable performance of IPO was accounted for by emerging markets that made up 28 percent of the sample. Globally, emerging markets have

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accounted for a large amount in the boom arising from the surging world stock markets over the past decades (Amo and Ajasi, 2007). Indeed, emerging countries are the areas for growth in the world economy, and are the areas for great development and learning (Tanzer, 2008). However, development of African capital markets has been rather sluggish. Prior to 1989, there were five stock markets in sub-Saharan Africa and three in North Africa. As at 2007, there were nineteen exchanges in the continent. Relative to emerging economies in other regions of the world, this is a far cry for the 55 African countries (including the recently independent Southern Sudan). Consequently, published research on IPO in Africa is still relatively low in spite of the fact that Africa is so critically important within the emerging markets community and indeed the world community (Tanzer, 2008). Africa, as a region, represents largely untapped investments opportunities with potentials for vibrant IPO markets. The dearth of IPO study in this region, in terms of depth and width, may be responsible for the slow growth and development of the IPO markets as evidenced in the comparatively scanty studies and usually small samples that characterize IPO studies in Africa. Consequently, research gaps exist in the literature of IPO returns in African emerging capital markets. This is in spite of the various noted contributions of capital markets in the region such as domestic private investment growth (Ezeoha, Ogamba and Onyiuke, 2009) and a long-run economic growth (Riman, Ezzo and Eyo, 2008) in Nigeria, improved firm-level governance across North African listed firms (Hearn, 2011), and positive economic growth in Africa generally (Amo and Adjasi, 2007).

Updating Africa's current research and development on IPO is imperative, especially now that globalization has made cross-border listing the vogue. It has become an international concern to help this jurisdiction to identify these gaps and come up with specific steps to address the issues involved (Tanzer, 2008). Ikoku (1998 p. 33) points out one of the steps that may be taken to further IPO research in Africa:

... [I]nvestigation of new issues pricing in Nigeria can only be considered as a first step towards our understanding of the operations of equity markets in Africa. Further studies, with more data from Nigeria and other African countries, would be needed to improve our understanding of these important economic institutions.

The forgoing underlies the need to explore the research gaps arising from the dearth of documented studies in empirical findings and theoretical arguments on IPO in emerging African capital markets. Of particular interest is that no study has examined IPO underpricing in African capital markets in relation to an identified regulatory changing framework in the wake of rapid regulatory changes occasioned by the prevalent capital markets' reforms being fuelled across the globe by globalization. Even though most of the exchanges in Africa started with government funding and control, the drive towards reforms of stock markets in Africa is linked to the increasing integration to advance economies which have undergone tremendous changes especially in progressive deregulation of financial markets and internalization of these markets (Amo and Adjasi, 2007). Interestingly, most of the empirical patterns associated

with the phenomena surrounding IPO returns revolve around the theories of IPO underpricing in capital markets with various degrees of development and diverse regulatory institutional regimes (Tsangarakis, 2004). This study examines IPO returns in the deregulated Nigerian capital market ranging from 1995 to 2006 and compares the results to previous studies in regulated IPO regimes. Specifically, the objectives of the study are to (i) determine IPO returns in the deregulated Nigerian IPO market, (ii) identify the dynamics of IPO returns in the deregulated Nigerian IPO market, and (iii) examine the regulatory effects on IPO returns and dynamics in changing institutional settings in the Nigerian capital market.

II. HISTORICAL CHANGES IN THE REGULATORY FRAMEWORK OF THE NIGERIAN CAPITAL MARKET

Regulations are rules, principles and procedures that guide the conduct of all activities and participants in the capital market. Statutory regulation involves the guidelines governing the operations of the market by a government agency established by law (Uche, 2000). The evolution of the present regulatory framework in the Nigerian capital market is contextualized in its history.

The origins of the Nigerian capital market date back to colonial times when the British Government ruling Nigeria at the time sought funds for running the local administration. This eventually resulted to the establishment of a financial system by setting up the basic infrastructure for the take off, pending the development of an organized private sector (Osaze, 2000). Historically, the market started in 1946 with the promulgation of the Local Loan Ordinance (Abdulai, 2001). In 1957, the Government and Other Securities (Local Trustees Powers) Ordinance was enacted. The Lagos Stock Exchange, which was formed in 1959 as a private company quoted by guarantee and having a share capital, was incorporated on September 17, 1960 to take responsibility over the operations of the nascent capital market. The Lagos Stock Exchange culminated into Lagos Stock Exchange Act of 1961 that empowered the exchange to formally commence business (Nwankwo, 1980). On June 5, 1961 the Exchange opened its door for business with the listing of five government loan stocks and three equities (Akamiokhor, 1986). The Capital Issue Committee, established earlier to regulate the activities of the exchange, metamorphosized into the Capital Issue Commission Act of 1973. In 1977, the Lagos Stock Exchange merely transformed into the Nigerian Stock Exchange (NSE).

The NSE made the capital market more accessible to indigenous companies when it introduced the Second-tier Securities Market as the second board with less stringent listing requirements in 1985. The Securities Exchange Commission Act 1979 repealed the Securities Exchange Commission Act of 1973. This legislation provided extensive powers to the Commission to regulate both the primary and secondary segments of the capital market. This was the beginning of the "real" regulation of the Nigerian capital market (Adesiyan, 2002). With the growth of the capital market, the Securities and Exchange Commission Act of 1988, which had more capabilities to strengthen the Commission to perform its functions better, replaced that of 1979. To

further strengthen the capital market in line with global development, the Commission resolved that securities in the market should be determined by the interplay of market forces in 1993. However, this process of deregulation took full effect in 1995 when the Investment and Securities Act of 1995, as amended in 1999 was implemented. This enlarged the powers and functions of the Commission towards the attainment of a more efficient and virile capital market pivotal to meeting the country's economic and developmental aspirations.

The Central Securities Clearing System (CSCS) came on board in the capital market in April, 1997. As a result, the Automated Trading System (ATS) was introduced in 1999 to enhance the opportunity for price determination and effecting payment promptly, hence the efficiency of the market settlement. This reduced the transaction completion time from two weeks to the trading day plus three days (T+3). That is the day of trading plus three days. T+0 whereby all transactions including payments are completed on the trading day was the target of the exchange (The Nigerian Stock Exchange, 2006). The CSCS facilities included IPO software, which concludes IPO deals with relative ease, as one of its subsystems (Udoh, 2006). With T+0, the primary owners of IPO can sell their shares the next day of completion of the IPO transaction. This is a big boost for the IPO market. The capital market has therefore made developmental landmarks since its inception and has witnessed some impressive performance that today ranks it among the topmost in Africa. Thus, the history of IPO in Nigeria is inextricably intertwined with that of the Nigerian capital market.

With these developments, the Nigerian capital market has come of age. It is one of the two African capital markets (the other is South Africa) that have joined the International Organization of Securities Commission (IOSCO) as an appendix "A" signatory. This means that the Securities Exchange Commission's (SEC) legislations, regulations and processes have been reviewed to ensure adequacy of its enforcement powers to, and the absence of any legal impediment to complying with, the terms of IOSCO. This underscores the fact that the capital market's regulatory body is compliant with international best practices and standards. This has made the capital market a truly international and emerging market that can be relied upon by foreign investors as had been suggested by Biekpe (2000) that African exchanges need to integrate with the rest of the world in order to maximize the prosperity of their member states. The efficiency of a capital market depends on the size, operation effectiveness, the extent to which the economy is monetized, the number of potential investors and the degree of sophistication of the investing public (Ezike, 1986). Going by these prescriptions, the Nigerian capital market ranks favourably with the best in emerging economies in Africa. It has, for instance, ranked above the Zimbabwean Stock Exchange, which is the oldest in Africa having been established in 1896 (Securities Exchange Commission, 1987).

The market for IPO has grown considerably over time with equity instruments being the most favoured, though debts instruments are less favoured means of raising funds in the Nigerian capital market (Kadiri, 2000). The IPO sub-market is an indispensable component, as well as the catalyst, of any capital market. However, there

is no empirical evidence as yet to attest for the impact of the changes on the IPO segment of the Nigerian capital market. A priori, it is expected that the efficiency of IPO sector of the market will develop correspondingly with the entire market. This is the subject-matter of this study.

III. THEORIES OF INITIAL UNDERPRICING OF IPO

Shares of companies going public for the first time are often mispriced on their first day trading (Burrowes and Jones, 2004). Mispricing is caused by either setting the offering price too low or the investors systematically overvaluing the IPO on the first trading day (Sahi and Lee, 2001). A review of existing researches on IPOs by Daily et al. (2003) suggested little consensus regarding those factors associated with underpricing, though their meta-analysis of published studies revealed a number of significant relationships. Schertler (2002) analyzed the determinants of a sample of firms that went public on the Neuer Markt between 1997 and 2000, and a sample of firms that went public on the Nouveau Marche between 1996 and 2000 where the result showed that the determinants for underpricing the two samples were substantially different. Despite the fact that no complete explanation is available on this underpricing phenomenon, several theories have been advanced to shed light on the possible underlining factors. Though not mutually exclusive, these theories focus on the behaviour of different IPO participants such as investors, issuers and issuing houses. Unfortunately, the significance of these theories in emerging African capital markets has received very little attention in IPO literature. Some of these theories are discussed hereunder, and tested subsequently with data from an emerging African capital market, in this study.

A. Firm Age

Studies have shown that firm age progressively impairs firms' performance. Loderer and Waelchli's (2010) recent investigation show that young firms perform the best, but then performance wanes with age, with very little hope that the performance would rebound at a very old age. They concluded that:

The aging phenomenon could be the expression of organizational rigidities and inertia that make it difficult for the firm to recognize, accept, and implement innovation signals from the market. ... Taken together, these findings suggest that firms face a serious aging problem (p.35).

Though not specific on IPO, these findings may well be helpful in explaining the behaviour of IPO returns in respect of firm age.

Several studies, including Aggarwal and Klapper (2003) demonstrated the robustness of the age of the firm to its initial pricing behaviour. Clark (2002) documented IPO-aftermarket underperformance which, in the aggregate, shows a statistically significant correlation between firm age-at-IPO and post-IPO excess returns. Though, when the finding was disaggregated into technology and non-technology panels, the relationship was different between age and returns of the two categories. While very young firms outperformed older firms among technology enterprises, non-

technology firms, on the other hand, exhibited a positive monotone correlation between firm age and excess holding period returns.

Fink et al. (2005) have demonstrated that the IPO vintage and rise in idiosyncratic risk over the years can be explained by the increasing propensity of firms to issue public equity at an earlier stage in their life cycle. This result gave an insight into the possible explanations as to why the age of the typical firm issuing public equity has fallen from almost 40 years in the 1960s to less than 5 years by the late 1990s. This trend suggests that capital markets have shown an increased willingness to purchase equity claims on firms at earlier stages of their life cycle over the last half-century.

B. IPO Size

The size of the firm is another important determinant of firms' going public. Companies that have grown large are more likely to go public than relatively small ones. This may not be necessarily related with the age of the firm as some firms grow large at rather faster rate than others. The usual explanation for the importance of size is that fixed flotation costs can be recovered only by firms above a certain threshold or, equivalently, that the liquidity benefits of listing only accrue above a critical level of trading volume and capitalization (Pagano, Panetta and Zingales, 1998).

A complementary interpretation is that size acts as a proxy for reputation. Many market microstructure models show that the liquidity of a company's shares is an increasing function of their trading volume, so that this liquidity benefit may be effectively reaped only by sufficiently large companies (Madhavan, 2000; and Ramirez et al., 2011). This creates another reason to expect a positive relationship between size and the likelihood of an IPO. Thus, Chemmanur and Fulghieri (1995) held that small independent companies find it hard to become known to the investing public, and consequently incur a large adverse selection cost in selling equity in the capital markets. In the same vein, Chung, Li and Yu (2005) predicted that initial return is positively related to both the size and risk of growth opportunities.

C. IPO Demand

A priori expectation assumes that the level of demand of the issue is likely to affect its initial trading and returns at the Exchange. Derrien (2005) confirmed that large individual investors' demand leads to high IPO prices and large initial returns. This may be explained by the dynamic information acquisition theory, also known as bookbuilding theory or information gathering theory. During bookbuilding, the lead investment banker canvasses for potential investors and determines the demand curve for the offer. Underpricing is necessary to solicit information from investors about potential interest. Since investors are naturally inclined to bid lower during the marketing phase, there is a trade off between leaving little money on the table and selling out all the available issues. This leads to "partial adjustment" where the lead issuing house gathers that the issue is valued at a price other than that contained in the initial prospectus. IPO, which the offer price is revised upwards, will be more underpriced than those for which the offer price is revised downwards (Ritter, 1998).

Empirical evidence from Loughran and Ritter (2002) suggested that IPO that were underpriced most were those where the offer prices were revised upwards from what had been anticipated at the time of filing the initial price range. Corwin and Schultz (2005) found strong evidence that offer prices are more likely to be revised in response to demand. The concentration of hot IPO market in certain classes of industries is in line with capital demand hypothesis (Buttimer, Hyland and Sanders, 2005).

D. Market Conditions

Pastor and Veronesi (2005) tested and concluded that market conditions are the most important factors in the decision to go public. This is in congruence with Derrien's (2005) findings that IPO cluster at equity market peaks and that in cold markets, firms substitute introductions for IPO. He established that individual investors' demand is positively related to market conditions. This confirmed Ritter's (1991) claim that firms take advantage of windows of opportunity which, according to Welch (2000), are determined by factors such as the general stock market condition (like the NSE All-Share Index and market capitalization index in Nigeria), the industry market condition (best measured by a relevant, self-constructed index), the frequency and size of all IPO in the financial cycle, and the frequency and size of industry IPO in the financial cycle.

There are two discernible IPO market conditions: "hot" and "cold" market conditions. The most frequently used definitions of "hot" and "cold" IPO market conditions are based on volume (Loughran and Ritter, 1995; and Helwege and Liang, 2001). However, Ibbotson and Jaffe (1975) and Ritter (1984) employed the definition of "hot" and "cold" based on the level of underpricing. Therefore, cycles exist in both volume and the average initial returns of IPO. The periods of high average returns and rising volume are known as "hot issue" markets (Ritter, 1998). In Schuster's (2003) view, a market is considered to be in a hot condition in any year the average return is greater than the median returns for that year. It is regarded as cold if the returns are less than the median for that year.

With data from new listings on the New York Stock Exchange (NYSE) during 1926 to 1962, Loughran and Marietta-Westberg (2005) established the cumulative evidence which strongly suggested that managers possess timing ability in choosing when to list their clients' new stock. This is in congruence with Loughran, Ritter and Rydqvist's (1994) evidence that companies successfully time their public offerings for periods when valuations are high. This is also in harmony with Ritter's (1991) observation that there is a substantial variation in the year-to-year and across industries' performance, with companies that went public in high-volume period receiving low returns in the long-run. There are several advantages to trading new listings if the timing is correct. For example, by using IPO cycle analysis, project price swings can be anticipated, far ahead by employing time cycle analysis or astroanalysis (Nipperess, 2006).

E. The Signaling Prospects

Issuer prospect is the firm's intention to influence the offer of subsequent issues. This is also known as signaling in IPO literature. Loughran and Ritter (2002) posited that underwriters leave money on the table by underpricing for the purpose of signaling their status in order to attract more investors to their subsequent offers. Ljungqvist and Wilhelm (2005) confirmed this postulation in subsequent studies. Welch (1989) presented a signaling model in which high-quality firms underprice an IPO in order to obtain a higher price at seasoned offerings. Underpricing is therefore a means which high quality-firms use to distinguish themselves from low quality firms as they leave a good taste in investors' mouths (Ibbotson and Jaffe, 1975). It also assumes that in subsequent seasoned offerings, investors would readily go for the offers. In a study of a cross-section of European IPO market, Schuster (2003) underlined the role of underpricing as a signal of firm quality in his findings which revealed that the quality of the underpricing signal is best in cold markets that are characterized by less noise.

Cook and Officer (1996) provided empirical evidence that reissuers tend to have superior performance relative to nonreissuers and that firms that reissue within one year of the initial offerings tend to have greater levels of underpricing relative to nonreissuers. However, Michaely and Shaw (1994) did not find empirical support for the signaling models that try to explain why firms underprice. Instead, they found that firms that underprice more go back to the reissue market less frequently, and for lesser amounts, than firms that underprice less.

F. Underwriters' Reputation

There are very distinct advantages with doing an IPO through a reputable broker/dealer. An IPO done through a reputable brokerage firm usually allows for larger offerings and more assurance that an underwriting can get completed. Bartov, Mohanran and Seethamrajuh (2002) proved that issuing firms signal their prestige by going for reputable underwriters that package a more reliable prospectus. Klein (1996) had earlier shown that a reputable issuing house results in a higher valuation of IPO and greater investor confidence. While the sale of the securities through a broker will cost a percentage of the offerings, it is usually well worth the additional costs to insure the completion of the offering and the aftermarket. In a cross-section of European IPO returns, Schuster (2003) summarized the characteristics of hot issues with certain industry classes, dominated by specific underwriters and companies for which issuing equity is always the least favoured choice of financing.

Consistent with Kadiri's (2000) finding that the success or failure of any issue depends on the degree of professionalism exhibited by the various parties involved in the issue, Ekineh (2000) observed that overpricing or underpricing might depend largely on professional competence of the underwriter. In consonance with Carter and Manaster's (1990) findings, Michaely and Shaw (1994) have shown that IPO underwritten by reputable investment banks experience significantly less underpricing and perform significantly better in the long-run. Ritter (2003) hypothesized that if underwriters were not able to reward their clients satisfactorily, issuers might choose to

hire underwriters with a reputation for leaving less money on the table. Furthermore, Loughran and Ritter (2004) have documented that allocations of hot IPO to the personal brokerage accounts of issuing firm executives created an incentive to seek rather than avoid underwriters with a reputation for severe underpricing.

Hoberg (2005) provided empirical evidence that high underpricing underwriters have more market share, and are more profitable. This is consistent with Shiller's (1990) "impresario" hypothesis of underpricing whereby underwriters choose a lower offering price because they know that the cumulative profit of underpricing by less transparent means will be higher than maximizing revenue for the single event. The desire to receive indirect compensation from buy-side clients was prevalent during the boom in internet's IPO in the late 1990s (Schuster, 2003).

However, Muscarella and Vetsuypens (1989) rejected the "impresario" hypothesis because, according to their findings, when investment bankers go public, they underprice themselves as much as other IPO of similar size. Also, Loughran and Ritter's (2002) findings were not consistent with the inferences that there is a difference in subsequent returns between prestige underwriters and non-prestige. Later findings have shown in Indian IPO market that employing offshore lead managers do not translate in to higher issue proceeds, and that the costs of the services of offshore lead managers are not significantly different from those of Indian lead managers (Kumar, 2010). Earlier, Aggarwal and Klapper (2003) had found that underwriter reputation is less important when a firm is backed by venture capital.

G. Syndicate Underwriting

IPO syndicate underwriting has become critical to pricing, information production and underwriter competition (Corwin and Schultz, 2005). A major factor in using a brokerage firm with a substantial client base for the underwriting is that the firm may get other brokerage firms involved in the underwriting (a syndicate) and they all continue to take a position in the stock long after the offering is completed, thus maintaining a market for the stock. In Nigeria, it has become fashionable for most firms going public to engage a syndicate of underwriters to underwrite the offer. This is done probably to ensure a wider market reach for the offers and to influence the investors' buying habits. Usually, offer prices are revised in response to information when a syndicate has more underwriters and especially more co-managers. More co-managers also result in more analyst coverage and additional market makers following the IPO (Corwin and Schultz, 2005). However, liquidity and syndication costs constrain the use of stabilization which, in equilibrium, generates some underpricing as well. Relationships between underwriters are critical in determining the composition of syndicates, perhaps because they mitigate free-riding and moral hazard problems. It is more likely to result in revised analyst coverage and additional market makers' followers. Chowdhrya and Nandaa (1996) argue that in the after-market trading of an IPO, the underwriting syndicate stands ready to buy back shares at the offer price. This compensates uninformed investors ex post for the adverse selection cost they face in bidding for IPO and dominates ex ante compensation by underpricing.

Ellis, Michael and O'Hara (2000) examined aftermarket trading of underwriters and unaffiliated market makers in the three-month period after an IPO and concluded that the lead underwriter is always the dominant market maker; takes substantial inventory positions in the aftermarket trading, and that co-managers play a negligible role in aftermarket trading. This may be explained by the fact that a broker's social resources and dependence on the market, along with exogenous deal conditions, influence the broker's motivations and willingness to make tradeoffs between long-term and short-term considerations when constructing deal networks (Pollock, Porac and Wade, 2004). The lead underwriter engages in stabilization activity for less successful IPO, and uses the overallotment option to reduce his inventory risk. Compensation to the underwriter arises primarily from fees, but aftermarket trading does generate positive profits, which are positively related to the degree of underpricing.

Ejara (2007) found no significant relation between syndicate size and initial day return of IPO; but found transparency environment, dilution effect of the issue, growth stage of the issuer, lead underwriter reputation, offering size and ownership concentration to have significant effects on syndicate size.

IV. RESEARCH METHODOLOGY

A. Data, Collection and Sample Size

This study is an empirical attempt to determine the level of returns, and the dynamics, of IPO in the new deregulated Nigerian capital market, and to ascertain the effect of deregulations on these variables through comparison with previous findings in different regulatory regimes. Data from firms that made public offerings on common stock IPO between 1995 and 2006 were collected from the Nigerian Securities Exchange Commission (SEC). 1995 was chosen as the baseline because it marked the beginning of deregulated IPO market in the Nigerian capital market. Before then, IPO prices were determined by the Securities Exchange Commission. The data was restricted to initial IPO issued by subscription or private placements to the public, and subsequently traded on the floors of the Nigerian Securities Exchange (NSE). The data included the type of issue, number of shares offered, value of shares offered, offer prices, the dates the firms went public and the underwriters of the issues. The dataset excluded seasoned IPO, rights and bonus issues, spin-offs, units' issues, as well as IPO of industrial debentures and government bonds. The dataset also excluded the public offerings of firms which were merely introduced to the NSE after consolidation through mergers or acquisitions because the offerings of such firms were not strictly new as all, or some members of the group, would have traded their stock on the NSE earlier. For data that filtered into the dataset, there was no discrimination between firms with low (penny stock) or high offer prices.

After the filtration, the sample data for the study was eventually reduced to 51 listed firms on the NSE for the study period. Small IPO sample size has remained a problem in Africa due to the relative volume of transactions within the region. For example, Ikoku' (1998) comprised of 66 issues made up of 29 PIPO and 37 IPO; Omran's

(2005) study of privatized public issues in Egypt between 1994 and 1998 used a sample of 53; and Zouari, Boudriga and Taktak (2009) had a sample of 34 Tunisian IPO from the period of 1992 to 2008. Hearn and Filatotchev (2010 p. 1) examined the performance of IPO using "unique and comprehensive hand-collected dataset" of 198 locally listed IPO from across Africa. Adjasi, Osei and Fiawoyife's (2011) recent sample of 80 on Nigeria's IPO for the period of 1990 to 2006 included period of regulation (1990-1994). It is also important to know that the size this study is determined by the periods of government deregulation and deregulation.

B. Measures of IPOs' Returns

Initial returns on IPO are typically calculated from the percentage change in the offer price to the first closing price in the aftermarket, and taking an equally-weighted average across the sample to arrive at the mean (Ritter, 1998). This implicitly assumes that the size of the issue is unrelated to the demand for allocations, and that the volume of sales of the initial offers on the first-trading day is not taken into consideration. Leite (2003) criticized this approach for its implications for comparison across offering methods, time periods, security type and country. It also implies that inferences based on equally-weighted returns may be misleading. As a result, several studies have chosen to adjust the results obtained in their IPO returns analyses using suitable benchmarks to provide results that are also sensitive to movements, which may occur in the market or any of the macroeconomic variables. Ikoku (1998) argued that the unadjusted market returns is "raw" and contended that adjusted returns are more meaningful when compared to the performance of other issues in the market.

Variety of models have been used to measure price performance of stock, and given valid assumptions and perfectly measured inputs, not all of the models produce the same value. Yetman (2001) noted that IPO firm characteristics and limited information availability affect the ability of a particular model to provide a relevant value in an IPO setting. This is because most of the studies employing adjustment techniques focus on examining the level and reasons of underpricing. Secondly, the choice of a benchmark is often subjective and differing results may be obtained depending on which benchmark is used. Moreover, Burrowes and Jones (2004) established that in reality, results obtained from short-term analysis are less problematic as market volatility is filtered by the relatively short period involved. Even though long-term abnormal returns may not be robust to alternative methodologies, Loughran and Ritter (2002) argued that because various methodologies use different weighting schemes, the magnitude of abnormal returns should differ, though in a predictable manner.

The limitations of equally-weighted averages model highlighted above notwithstanding, it is employed by most of the known IPO price analyses. For example, almost all the average returns in the 39 countries reported by Loughran, Ritter and Rydqvist (1994) and Ritter (2003) employed this model. Using the same model is much more literally conducive for creative comparisons and contrasts. Moreover, using weighted average would have implied that the exact numbers of issues traded in the

secondary market are known. However, the requisite data was not available at the time of this research. This study therefore adopted the model of equally-weighted averages to measure the IPO average returns. The equally-weighted average model is specified as:

$$AR_{IPO} = \frac{\sum_{i=1}^n x_i}{n} \quad \text{----- (1)}$$

Where AR_{IPO} is the equally-weighted average return and $x_1 \dots x_n$ are the computed IPO returns, and n is the number of observations.

C. Research Models

Initial returns are calculated as the price change measured from the initial offering price to the market price on the first trading day (Ritter, 1998). Therefore, the first trading day return for an individual stock is measured as:

$$IPOR_{DAY1} = ((P_1 - P_0) * 100) / P_0 \quad \text{----- (2)}$$

where $IPOR_{DAY1}$ is the first trading day stock returns; P_0 is offer price; and P_1 is the closing market price on the first day of trading of the stock.

Regression models employ the measures of ordinary least square (OLS). Several studies have adopted the regression models to ascertain the relationships of identified variables in IPO performance analyses. It is a common econometric method that is widely used to derive estimates of the parameters of economic relationships from statistical observations with fairly satisfactory results (Koutsoyiannis, 2005). The multilinear regressions models were also used to test for autocorrelations and the goodness of fit. The a priori expectations of the model is presented as:

$$AR_{IPO} = \beta_0 + \beta_1 \text{LogFirmAge} + \beta_2 \text{IPOSize} + \beta_3 \text{IPO Demand} + \beta_4 \text{IPO Market Condition} + \beta_5 \text{ISSUER Prospect} + \beta_6 \text{Underwriter Reputation} + \beta_7 \text{Syndicate Underwriting} + \varepsilon \quad \text{-- (3)}$$

D. Research Variables

Firm age: The firm age is measured as the number of years a firm stayed in operation before going public. The firm age as measured in number of years is a relationship that is a constant elasticity type. The appropriate transformation for the estimation of the constant elasticity form with the logarithms of the variables makes the application of ordinary least square to the linear transformation reasonable (Koutsoyiannis, 2005 p.137). Our proposed proxy for firm age is denoted by the log of years of its existence since incorporation.

IPO size: The IPO size is represented by the volume of the offer. This is the number of shares offered to the public, or placed privately, for subscription. Volume has been considered as essential stock price determinant. According to Osaze (2000 p.111), it

takes volume to move prices and ensure activity in the market since volume has been determined to be a measure of the intensity of investors' emotions and price reactions.

IPO demand: Demand is proxied by the subscription level, and is measured as the percentage of the subscription of the issue to the total number of the issues to the offer.

Market Conditions: This study employs the IPO price-based definition mainly due to the distortion the volume-based definition may cause in the Nigerian situation. This is because the highest number of companies that went public during the research period was made up of banks. The volumes of most of the banks' offerings were influenced by regulation, other than market forces. The average median price employed for the determination of the hot and cold market conditions is that of the whole sample due to the fact that some years contained too little sample sizes. Dummy variables are used as market condition proxy. Any offer whose average was more than the sample median was assigned the value of 1 while the value of 0 was assigned if otherwise.

Issuer prospect: Dummy variables for the issuer prospect proxy. Where a firm made subsequent public offerings within our research period, it was assigned the value of 1. This applied whether issue is a supplementary subscription or rights issues, within our research period. The value of 0 is assigned if otherwise.

Underwriter reputation: This is measured by the market share of the underwriter. This is represented by the ratio (measured in percentage) of the underwriter to the total number of their competitors appearing on the sample IPO in the study. Where a syndicate of underwriters is involved in an issue, the sum of their ratios is taken as the proxy of underwriter's reputation for the offer.

Syndicate underwriting: This study also tests for the robustness of syndicate underwriting. The proxy for this variable is 1 where an IPO offer is underwritten by a syndicate and 0 where the offer is underwriting by a single issuing house.

The trading information of the selected IPO from both the main board and the SSM was obtained from the NSE. Specifically, the data was obtained from the electronic dataset of the Research Department of the NSE. This source was found to be the most reliable considering the nature of the data. These included the firm name, date of admission for trading of new shares, and the daily post-IPO closing stock prices from which the first-day closing prices were obtained. The data selected were those appearing on the electronic dataset from 1995 to 2006 for the first time. The first day a stock appeared on the electronic dataset was regarded as its first trading date. Supplementary data, including the the dates of incorporation of the companies were also obtained from the 2006 Factbook of the NSE. Details of the data sample are summarized in Table 1.

Table 1
The Number, Volume and Value of IPOs by Years in Nigeria (1995-2006)

Year(s)	Number of Issues	Volume of Issues (million)	Value of Issues (₦million)
1995	5	317.69	313.64
1996	2	50.00	75.00
1997	-	-	-
1998	7	2,460.78	2,455.11
1999	7	2,160.68	3,106.35
2000	-	-	-
2001	-	-	-
2002	2	459.64	1,008.20
2003	4	5,340.00	10,700.00
2004	8	35,142.60	68,744.82
2005	9	23,902.34	54,682.46
2006	7	17,881.00	83,760.50
1995 - 2006	51	87,714.73	224,846.08

Source: Nigerian Securities Exchange Commission

V. RESULTS

A. Initial Average Returns of Equity IPOs

The IPO literature has a general consensus that equity IPO are underpriced, though in varying degrees in relation to capital markets and time. Thus, this study postulates that equity IPO are underpriced in Nigerian capital market. To test this assertion, the hypothesis is restated as follows: The first trading-day average return (percentage) on initial public offerings of equities in Nigeria is greater than zero ($ARIPO_{DAY1} > 0$). The statistics on Table 2 show that the average initial return is 4.9 percent. The student's t-statistic of 2.14 is significant at 5 percent critical level. Therefore, equity IPO are significantly underpriced in the Nigerian capital market. The volume-weighted average model (see result in Table 2) also indicates a positive initial return of 0.96 percent. This serves as a validity test on the equally-weighted model. This result is consistent with the confirmation of Ritter's (1998) findings that new issue underpricing phenomenon exists in every nation with a stock market, although the amount of the underpricing varies from country to country. Strikingly, this result is substantially less than the 15.6 percent and 21 percent average result reported by Ikoku (1998) in respect of IPO and privatized initial public offerings (PIPO) respectively from the Nigerian equity market from 1989 to 1993. It also differs significantly from Adjasi, Osei and Fiawoyife (2011), a study cutting across the two regulatory regimes, which reported 43.1 percent average initial return.

Table 2

Descriptive Statistics of IPOs Average Returns	
Sample Size	51.00
Average Returns	4.88
Median	3.23
Maximum	55.80
Minimum	-44.41
Quartile 1	0.00
Quartile 2	3.23
Quartile 3	5.55
Quartile 4	55.80
Standard Deviation	16.28
$t_{0.05}$	*(2.14)
Kurtosis	3.74
Skewness	0.58
Weighted Average	0.96

It can be deduced from these comparisons that IPO average returns in a regulated capital market are considerably higher than those of the deregulated capital market. The discernible difference may be accounted for by differences in regulatory frameworks. This is consistent with the finding of Hearn and Filatotchev (2010), which drew data from IPO across African capital markets, that an environment characterised by weak institutions acts to increase underpricing. The finding also supports Cheung, Ouyang and Tan (2009) who concluded that the Chinese IPO market experienced significant decrease in underpricing when it transformed from a tightly-controlled system to a more market-oriented system.

B. IPO Price Determinants

The regression analysis recorded the results shown in Table 3. The analysis indicates that IPO volume, demand, age, issuer prospects, and underwriters' reputation are not significant at 5 percent critical level while market conditions and syndicate underwriting are statistically significant at 5 percent critical level. Statistics of the determinants of initial returns (not shown here) from case-by-case regression model corroborate that obtained from the multiple regression analysis. Underwriters' reputation did not meet even the a priori expectation of having a positive relationship with initial returns. The negative relationship could mean that investors see it as issues with very high risk which reputable underwriters are not willing to bear alone. The departure of this result from that obtained in advance economies may be seen as a manifestation of country-specific dynamics of IPO price dynamics in different institutional and environmental contexts. It may also be an indication of the stage of IPO market growth in Nigeria. This argument is logically strengthened by the

difference between this finding and that of Ikoku's (1998) in respect of the underpricing determinants in view of the differences in regulatory regimes characterized by the periods of the findings.

Table 3
Results of Regression on IPO Price Determinants

Variables/Statistic	Coefficient/(t-Statistic)	p-value
Intercept	-6.911 (-1.141)	0.266
Volume	0.007 (0.475)	0.639
Demand	0.002 (0.060)	0.952
Age	0.058 (0.287)	0.777
Syndicate Underwriting	-16.044 *(-2.586)	0.017
Market Condition	19.636 **(3.721)	0.001
Issuer Prospect	8.604 (1.701)	0.103
Underwriters' Reputation	-0.022 (-0.034)	0.973
R	0.729	
R ²	0.532	
F-Statistic	3.569	
Durbin-Watson	2.065	

The figures in parentheses are t-statistics while * and ** indicate significance at 5 percent and 1 percent critical levels respectively.

The R² indicates that the explanatory variables accounted for about 53 percent of the factors that influence IPO price. This concurred with Knof and Teall's (1999) studies in suggesting that other factors such as information asymmetries must explain at least part of the IPO underpricing phenomena. Schwert's (2002) work concluded that the factor that seems to explain unusual volatility best is technology, not firm size or the immaturity of the firm. The result could also signify that a lot of IPO price changes may not be rooted in fundamentals and that trading decisions are not necessarily based on research support. The F-statistic of the regression is significant at 1 percent critical level, indicating that the regression is valid at that level of significance. Durbin Watson statistic of 2 is statistical evidence that there is no significant serial autocorrelation in the function.

VI. SUMMARY AND CONCLUSIONS

The research results have revealed several findings in respect of IPO returns and dynamics in a deregulated African capital market. Equity IPO are marginally underpriced by 4.9 percent in the deregulated Nigeria capital market. This is considerably less than the 15.6 percent and 21 percent found by Ikoku (1998). Market conditions and syndicate underwriting are robust to IPO price determination in Nigeria while IPO volume, offer size, the age of the firm before IPO, issuers' prospects and underwriters' reputation indicate no significant influence on IPO initial returns. These variables account for only 53 percent of the influences on IPO price.

The 15.6 percent and 21 percent average result reported by Ikoku (1998) in respect of IPO and PIPO respectively from the Nigerian equity market from 1989 to 1993 are remarkably different from this finding. Interestingly, the research period covered by Ikoku (1998) was characterized by government regulation of the Nigerian capital market while these findings are situated within the period of deregulation of the same market. This finding also differs significantly from the 43.1 percent of Adjasi, Osei and Fiawoyife (2011), a study which cuts across the two regulatory regimes. It is also noteworthy that this finding of robustness of market conditions and syndicate underwriting is a substantial departure from Ikoku's (1998) findings of weak support for the explanations of underpricing of new issues based on market timing and the prestige of advertising agents.

These significant differences confirm that differences in regulatory framework define the degree of IPO's' initial underpricing (Tsangarakis, 2004). The finding also supports the conclusion by Cheung, Ouyang and Tan (2009) that the Chinese IPO market experienced significant decrease in underpricing when it transformed from a tightly-controlled system to a more market-oriented system. Situating this finding with that of 164.5 percent in China when the IPO market was highly regulated and listed firms have high concentration of state shares (Hu, and Goergen, 2001), it could be inferred that IPO returns are more underpriced in a regulated capital market. It is instructive to policy makers that increasing deregulation towards best practices in Africa's emerging IPO markets will potentially bring about a decrease in abnormal IPO returns.

It is significant that the non robustness of IPO volume, offer size, the age of the firm before IPO, issuers' prospects and underwriters' reputation on IPO initial returns; and that only 53 percent of the variables account for the influences on IPO price is an indication that the impact of deregulation is only gradually impacting on the dynamics of IPO's returns in the Nigerian emerging IPO market; and that several other country-specific dynamics impinge on IPO returns in Nigeria. There is need for a sustainable regulatory change of emerging African IPO markets in consonance to globally accepted practices to make the IPO dynamics more predictable, and hence more attractive to global firms and investors.

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