

Short-Run Underpricing of Initial Public Offerings (IPOs): A Conceptual Review

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Abstract: The academic literature on Initial Public Offerings (IPO) performance has grown quite rapidly over the last decade, due to its puzzling phenomena of underpricing. The current study aims at conducting a non-systematic review of literature on the theories and empirical evidences of Initial Public Offering (IPO) underpricing in order to understand its meaning and dimensions. In this regard, a thorough review of existing literature has done and it is found that the IPO short-run underpricing is associated almost with every financial market of the world. However, the magnitude of underpricing varies from one country to another, depends on the institutional structure, binding regulations, contractual mechanisms and the characteristics of the firms going public. Various theories and propositions have been developed by the researchers to explain the phenomena of underpricing which needs to be tested empirically at country-specific environment such as quality of legal framework, macro-economic factors and socio-political system.

Key words: Initial public offerings, underpricing, asymmetric information, ex-ante uncertainty, underwriter reputation, winner's curse hypothesis

INTRODUCTION

An Initial Public Offerings (IPO) or going public, occurs when a privately held company decided to issue securities to general public for the first time. Usually, businesses start-out operation by raising funds from private investors with no liquid market. If a business flourish and need further funds at some point it finds desirable to go public by issuing securities to general public. The success and failure of a firm are highly associated with the IPOs aftermarket price performance. Reilly and Hatfield (1969) and Logue (1973) were the earlier researchers stated that on average IPOs generate high abnormal initial return in the short run. The observed abnormal performance of IPOs raises several questions on market efficiency. It is well documented that in the short run IPOs are appeared to be underpriced. Underpricing occurs when share is offered below fundamental value, in such case the offering will be underpriced and subsequently the price will go up in the short run. The first major study on underpricing documented by Ibbotson (1975) and found 11.4% underpricing in the US market. Similarly, Ritter (1984) empirically studied over 5000 IPOs from 1960-1982 in the US market and reported that IPOs are underpriced up to 18.8% in the short run. Moreover, Loughran *et al.* (1994) demonstrate significant underpricing for 28 countries and states that short-run underpricing has been experienced in almost every country.

The academic literature on IPOs short run performance grown quite rapidly over the last decade, due to its puzzling phenomena of underpricing. Shares that are offered below market price, the issuing firm essentially "leave money on the table" for the investors. According to Ritter and Welch (2002) due to underpricing firms left millions of dollars on the table every year in the US market and the same is happening in every capital market across the world. To address the question why firm underpriced its own share and left money on the table, researchers developed different theories and hypotheses. The well-known explanation of IPO underpricing is based on asymmetric information theories such as winner's curse hypothesis, ex-ante uncertainty hypothesis, underwriter reputation hypothesis, signalling hypothesis and dynamic information acquisition hypothesis.

This study provides a brief literature review that focuses on short run underpricing of initial public offerings and its related theories. This study is not comprehensive at all but based on the seminal studies contributed in the field of IPO literature.

RATIONALE OF GOING PUBLIC DECISION

Initial Public Offerings (IPO) is in fact an important decision for a business entity to raise funds by selling shares to general public. By doing this the firm may face several challenges such as dilution of power, dilution of earnings, information disclosure to general public and risk

of hostile takeover, etc. Alternatively, a firm may also raise funds from venture capitalist, business angels and from bank loans which possesses its own advantages and disadvantages. According Madura, if a business flourish and need further funds, at some point it finds desirable to go public by issuing securities to general public. Researchers developed several models and put several theories to justify the going public decision of a firm. Zingales (1995) amongst the earlier researchers developed a first formal model of going public decision. In his model of corporate control, he stated that the decision of going public is the result of value-maximization from the sale of the firm. The existing owners want to get maximum proceeds by direct selling of firm to potential buyers or by issuing shares to general public. However, in the same time existing owners also want to keep control rights with it-self. In the IPO literature, 'existing owners' refers to the initial owners who own the firm before going public. From the direct selling, the potential buyers may demand lower price and high proportion of control. Therefore, to get maximum proceeds and also to keep control rights, exiting owners will prefer to go public instead of direct selling of the firm. In contrast, Black and Gilson (1998) argued that existing-market owners decided to go public in order to get back power from venture capitalist in venture capital backed firms. Hence, going public decision is not only for value-maximization but primarily for exit of venture capitalists. According to Pagano and Panetta (1998), the probability of going public is increasing function of the market-to-book ratio of industry and size of the company. They compare the pre and post market characteristics of initial public offerings with those of privately held companies and found that firm's decision to go public are based on industry growth rate and industry's investment trend instead of firm own growth and investment. However, Brau *et al.* (2003), argued that the probability of firm decision to go public is associated to the industry concentration as well as market timing, firm size, insider ownership ratio and hot market period. Chemmanur and Fulghieri (1999) develop a model of IPO going decision by addressing the question that at what time (stage) a firm should decide to go public rather financing its projects thorough private equity. They argued that there is a trade-off relation exists between existing owners and venture capitalists. Existing owners having the advantage of holding private information while venture capitalist holding undiversified portfolios and therefore are unwilling to pay high price. Therefore, the going-public decision is determined by the firm's trade-off between minimizing the duplication in information production by outsiders and avoiding the risk-premium demanded by venture capitalists.

Wong observed that a first-mover in an industry can create a center of attention for product market competition. However, public trading itself put additional value to the firm, in a way that it attract other firms, customers, creditors, suppliers and investors. Therefore, to go public in an industry as a first-mover can confer the advantage of being pioneer. Similarly, Schultz and Zaman (2001) observed that many technological firm specifically internet firms that went public in the late 1990s in the US market follow hostile acquisition strategy an attempt to grab market share as a first mover. Moreover, Brau *et al.* (2003) found that specific industry, market timing, size of the firm, fixed financial cost and proportion of ownership retained in the firm are all positively associated with the probability that a firm will go public. Chemmanur and He (2011) laid emphasis on the importance of IPO decision and product market considerations. They develop a model in which firm having sufficient internal funds to finance potential projects but their decision of going public is based on the strategies of competitor firm. Though, going public not only set aside a firm to raise funds cheaply but also to capture market for its product. Similarly, Jong *et al.* (2012) investigate UK firms and find that decision of going public is more likely driven by the motive of improving market share.

THEORIES OF IPO UNDERPRICING

To explain the underpricing phenomena researchers stated different theories and hypotheses. The most prominent explanation with empirical support is that IPO underpricing happens because of informational asymmetry. According to Akerlof (1970), asymmetric information happens in a situation where one party having superior information about the fair value of asset than other party. The asymmetric information theories of IPO underpricing assuming the information disparity among IPO firm, underwriter firm and investors. Consistent with asymmetric information theory, Baron (1982) demonstrated agency problem between issuer firm and underwriter. According to Baron (1982), underwriter having better information of market condition than issuer, therefore, underwriter induced underpricing in order to achieve optimal selling target. However, Welch (1989) conjecture that issuing firm has better information about true value of the firm and accept underpricing as a signal of good quality. In contrast, Rock (1986) assumed informational asymmetry between group of informed investors and uninformed investors. Theories of underpricing based on asymmetric information are winner's curse hypothesis, ex-ante uncertainty

hypothesis, underwriter reputation hypothesis, signalling hypothesis and dynamic information acquisition hypothesis.

The winner's curse hypothesis: In the line with asymmetry information theory of underpricing, Rock (1986) presented best-known model of winner's curse hypotheses. According to winner's curse, hypothesis some investors in the market having superior information about fair value of the share than offering firm, underwriter and common investors. He further divided investors into two categories; informed investors and uninformed investors. Informed investor only bid for those IPOs which are expectedly to be underpriced. While uninformed investors bid indiscriminately for every IPO whether, it is underpriced or overpriced. As a result, when an IPO is underpriced both types of investors participate in the bidding and uninformed investors get a fraction of subscription. On the other hand when an IPO is overpriced only uninformed investors opt for bidding and win the entire subscription. This happens a 'winner's curse' situation for uninformed investors. Therefore, Rock (1986) conceded that IPO underpricing is the direct result of the winner's curse problem facing by uninformed investors when submitting purchase orders for new issues. He further argued that IPOs must be issued at discount price than fair value to keep-in both types of investors in the market because none of the investors group has enough money to absorb the entire bidding.

The implications of winner's curse hypothesis have been tested comprehensively in different markets in terms of controlled shares allocation. Ruud (1993), Certo (2003), Ljungqvist and Wilhelm (2002) and Lin *et al.* (2010) confirmed winner's curse hypothesis of Rock (1986) in different institutional setup within which IPOs are allocated and priced. The winner's curse problem can be minimized by following controlled allocation procedure. But, it is difficult to know who is informed and who is uninformed. Benveniste and Spindt (1989) and Mauer and Senbet (1992) demonstrated that institutional investors are more informed as compared to retail investors and large portion of shares are allocated to institutional investors.

Ex-ante uncertainty hypothesis: Beatty and Ritter (1986) extended the winner's curse model of Rock (1986) and stated that initial return is subject to pre-market uncertainties about the valuation of IPOs in the secondary market. The greater the ex-ante uncertainty, the greater will be the underpricing. As the more investors in the market become informed, there will be more uncertainty about the valuation which will lead to higher underpricing. Beatty and Ritter (1986) used two proxies,

inverse of gross proceeds and number of uses of proceeds to measure the pre-market uncertainty and their result suggests positive relationship between initial return and pre-market uncertainty.

A large strand of literature tested ex-ante uncertainty hypothesis by using different variables such as firm specific characteristics, issuing specific characteristics and prospectus information disclosure for ex-ante uncertainty. For firm characteristics, James and Wier (1990), Wasserfallen and Wittleder (1994), Hamao *et al.* (2000) and Habib and Ljungqvist (2001) used firm age and size as proxies for ex-ante uncertainty and demonstrated positive relationship between the firm characteristics and underpricing. The same result was found by Firm and Higham (1988), Corwin and Harris (2001) and Beatty and Welch (1996) by using gross proceeds and offer price as proxies for issuing specific characteristics. Similarly, Beatty and Ritter (1986) used number of risk factors and uses of gross proceeds disclosed in the prospectus as proxies for ex-ante uncertainty. The hypothesis of ex-ante uncertainty has established remarkable empirical support as majority of the asymmetric-information theories of IPO underpricing found positive relationship between ex-ante uncertainty and underpricing.

The underwriter reputation hypothesis: The winner's curse hypothesis of Rock (1986) and the ex-ante uncertainty hypothesis by Beatty and Ritter (1986) have established great challenge that how to reduce the information disparity in order to reduce underpricing. As majority of the IPOs firm are new to the market and having limited history. Booth and Smith (1986), Carter and Manaster (1990), Michaely and Shaw (1994) and Titman and Trueman (1986) demonstrated that the best way to minimize the information asymmetry is that firm should hire reputable underwriter with large market share will be having greater access to information and will keep updated the investors with valid information. This hypothesis is termed as underwriter reputation hypothesis. The empirical result of underwriter reputation is mixed. Carter and Manaster (1990), Megginson and Weiss (1991) and Beatty and Welch (1996) found positive relationship between reputable underwriter and underpricing. However, Habib and Ljungqvist (2001), Hoberg (2007) and Liu and Ritter (2011)) found negative relationship between reputable underwriter and underpricing.

The signalling hypothesis: Allen and Faulhaber (1989) and Welch (1989) assumed that the issuer firm has superior information about the true value and underpriced

the issue to pass signal of its good quality to investors. In order to reduce ex-ante uncertainty managers provide information of firm's good quality to attract more investors. A good quality firm differentiates itself from low quality firm by underpricing the initial public offering and leaves 'good taste in investors mouth' in order to achieve higher price in the subsequent seasoned equity offering. According to Welch (1996), the signalling mechanism must hold two conditions. The first is that the proposed signalling must be apparent prior to going market and secondly it must be costly that the low quality firms cannot imitate it easily.

The empirical result of signalling hypothesis is mixed, Jegadeesh *et al.* (1993) empirically test the signalling hypothesis and argued that there is a positive relationship between underpricing and the probability of seasoned equity offering but the relationship is statistically weak. However, the study by Michaely and Shaw (1994) found no relationship between the underpricing and the probability of seasoned equity offering. A large strand of literature demonstrated that firm can use several other effective signals of its quality to reduce information asymmetry in order to reduce underpricing. Carter and Manaster (1990), Carter *et al.* (1998) and Lange *et al.* (2001) uses underwriter reputation as a signal of firm quality and found negative relationship between underwriter reputation and underpricing. Similarly, Titman and Trueman (1986), Feltham *et al.* (1991) and Michaely and Shaw (1995) demonstrated that by hiring reputable auditor firm can pass signal of its good quality to investors. In another study Vander Goot argued that proportion of high pre-IPO equity retained by owners indicated that the firm is of good quality and found negative relationship between underpricing and per-IPO ownership retention.

The information acquisition theory: Another informational asymmetry based theory of underpricing is known as dynamic informational acquisition presented by Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990). This theory focus on the book-building method used by underwriter to builds a book of prospective investors, the demand for shares and the prices they are willing to pay. In order to motivate investors to reveal adequate information about the price and demand for shares, underwriters allocate fewer shares to potential investors who bid low price against the price set by underwriter and issuer. The underwriter discount the price to induce aggressive bidding and to make sure that the bids are not yet lesser since, the more bids at hand are the more information is disclosed about the correct price for the stock. This underpricing is acceptable

for issuer because it enables underwriter to better estimate a higher acceptable offer price that could be included in the final prospectus. The information acquisition theory is consistent with the hypothesis by Baron (1982) that underwriter holds superior information as compared to issuing firm but not more than investors. Cornelli and Goldreich (2001) empirically study a sample of 39 international equity issues to investigate how the underwriters acquire information about the demanded share, before setting a price. They state that underwriters prefer limited bids price in order to determine the variation in demand with different prices.

EVIDENCE OF CROSS-COUNTRIES VARIATION IN IPOs UNDERPRICING

Extensive literature documented that IPO underpricing is common phenomena and associated with every capital market. Most of the work on IPOs aftermarket price performance behaviour has been thoroughly investigated in the developed countries, mainly in US and European markets (Khan *et al.*, 2014). With regard to US market Ibbotson (1975), Ibbotson and Jaffe (1975), Beatty and Ritter (1986), Tinic (1988), Peavy (1990) and Ibbotson *et al.* (1994) stated that on average US IPOs are underpriced up to 10-15%. Similarly, the studies by Levis (1993) documented average underpricing of 15-20% in different European countries. According to Ritter (2003), the variations in the underpricing between European IPOs and US IPOs are due to the differences in institutional setup in which IPOs are priced and allocated. The underpricing appears to become more severe when it comes to developing countries and emerging capital markets. Dawson (1987) investigated IPOs short run performance in the three Asian markets of Malaysia Hong Kong and Singapore during 1978-1983 and found severe underpricing of 166.5% in Malaysia, 39.4% in Hong Kong and 13.8 % in Singapore. In another study, Aggarwal *et al.* (1993) examine the performance of three Latin American countries and found 78.5, 16.3 and 2.8% of underpricing for Brazil, Chile and Mexico, respectively. Loughran *et al.* (1994) argued that the phenomena of short run underpricing are associated with every capital market across the globe, however, the magnitude of underpricing varies from one market to another market. For example, average underpricing range from 4.2% in Russia to 137.4% in China, 149% in Jordan and 264.5% in Saudi Arabia. These large variations in IPOs performance particularly in emerging economies are due to the differences in binding regulations, contractual mechanisms and the characteristics of the firms going

public (Loughran *et al.*, 1994). Engelen and van Essen (2010) examined the impact of country based factors on the underpricing of IPOs for 21 countries and reported that about 10% of variation in the level of underpricing between countries are due to country-specific characteristics. Further, individual country factors such as quality of regulatory system and socio-political environment of a country add explanatory power to explain the aftermarket performance of IPOs. La Porta *et al.* (2002) demonstrated that a country-specific regulatory system explains differences in the development of financial markets and subsequently the decision of business entities and as well as of investors. So, an effective regulatory system protect the rights of investors and also enables the firms to raise external capital in a better way. Further, specific country factors such as institutional quality, macroeconomic factors, quality of legal framework and socio-political environment of a country add explanatory power to explain the aftermarket performance of IPOs. Country-specific characteristics such as: macroeconomic factors and political instability to a certain extent, affect the market-level and firm-level business performance, the optimal operation within each firm and therefore, the firm's decision to go public.

CONCLUSION

The short run underpricing of initial public offering has remained puzzling for researchers from the last three decades. It is revealed from the study of prior literature that the phenomena of IPO underpricing in the short run exist in almost every financial market across the globe. However, the magnitude of underpricing varies from one country to another, depends on the institutional structure, binding regulations, contractual mechanisms and the characteristics of the firms going public. Moreover, cross-countries evidence suggests that IPOs in the emerging economies are more underpriced as compared to developed countries. Various theories and propositions have been developed by the researchers to explain the phenomena of underpricing which needs to be tested empirically at individual country-specific environment. It is therefore concluded that the researchers should try to comprehend the dimensions of IPOs underpricing in individual country by focusing on country-specific characteristics such as the quality of legal framework, macroeconomic factors and socio-political system.

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