Book Building Process: A Mechanism for Efficient Pricing in India

Bedanta Bora, Anindita Adhikary, and Ajeya Jha

***Abstract*—The most significant reform in the Indian capital market is the introduction of issuing shares through the Book Building process that seeks efficient pricing. The paper attempts to examine the importance of Book-Building method in issuing shares in secondary market, estimate and compare immediate and long term performance of the issues made through Book-Building and Fixed Price method, examine the size of the companies that opted for Book-Building method, and examine whether Book-Building method is less under-pricing than Fixed Price method. The data and methodology adopted here take the project through secondary review. To meet up objectives of the study, four hypotheses are framed and tested for which T-test, Karl's Coefficient of Correlation, Mean and Median are being adopted. Results indicate that Book-Building mechanism is preferred to Fixed Price method for price discovery. However, Fixed Price method is relatively more promising in long term as compared to the issues made through Book-Building process. The study also concludes that most of the bigger issue sizes companies had opted for book building mechanism and that it has encountered less under-pricing when compared with Fixed Price offer.**

***Index Terms*—Securities and exchange board of india (SEBI); initial public offering; book-building; fixed price; efficient pricing.**

I. Introduction

Corporate Houses finance their projects through various methods. One of them is to mobilize the same by issuing securities in capital market. A sea change has taken place in Indian financial market which aimed at bringing in the best practices and making it comparable to global markets. Securities and Exchange Board of India (SEBI) as an apex regulatory body brought few reforms in "Pricing of Issue".

Flotation of new shares in India so far had passed through three phases beginning with a regulated system to the current administration of liberal system. Prior to the liberalized era (1992), raising of capital by companies were possible only with the approval of Controller of Capital Issue (CCI). The CCI guidelines were abolished in May 1992 and SEBI was formed under the SEBI Act, 1992. Under the Fixed Price administration, companies in consultation with lead manger had the freedom to issue shares at a price by disclosing relevant information. The major disadvantage of this method is that it was quite difficult for a lead manager to estimate the market clearing price. Moreover, if the issue was under-priced it led to oversubscription resulting in huge refunding costs. While in case of over-pricing, the issue may not be fully subscribed thus leading to hindering of the lead manager's future business.

The introduction of Book-Building as a tool to estimate the issue price (determined by the forces of demand and supply) was recommended by Malegam Committee in 1995. However, it was in 1998 that SEBI formulated the rules for issuing shares through Book-Building process. SEBI defines "Book-Building as a process undertaken by which demand for the securities proposed to be issued by a body corporate is elicited and built up and the price for such securities is assessed for the determination of the quantum of securities to be issued by means of a notice, circular, advertisement, document or information memoranda or offer document". Book building is an established and recognized process of raising capital by issuing of securities in several markets like Argentina, Brazil, China, Finland, France, Germany, New Zealand, Japan, and the U.S. Book-Building mechanism in India is akin to that followed in other markets.

The process commences with the issuing company appointing a merchant banker, known as Book Running Lead Manager (BRLM). BRLM in turn enters into an agreement with a set of underwriters called syndicate members who obtain bids from prospective investors. The pricing process initiates with the BRLM preparing a Red Herring Prospectus. It contains inter alia an indicative price range arrived at based on the valuation efforts of the BRLM and the minimum acceptable price known as floor price for the issuer. Once the floor price is fixed, the upper price of the issue is automatically capped at 120% of the floor price as per regulation. However, the floor price could be revised by 20% upwards or downwards and consequently the ceiling price will also get adjusted. The issue has to be kept open for a further period of three days subsequent to the revision subject to the condition that the total bidding time will not exceed thirteen days. Therefore it appears a little restrictive but book building gives ample opportunities for price discovery.

In India both retail investors (defined as one who is investing not more than INR 1,00,000 in a particular public issue) and institutional investors can participate in a bidding process. The retail investors do have a choice of the nature of bids that can either be market bids or limit bids while institutional investors have to necessarily place limit orders. Once the bidding period is over the books are closed and the BRLM will decide the offer price (in consultation with the issuing company). The offer price remains same for both the

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retail and non-retail investors. As per SEBI regulation currently in force, out of the total shares to be issued 35% will go for the retail investors; 15% for the non-institutional investors and 50% for the institutional investors. All the retail investors and non-institutional investors will be allocated on a prorate basis from their respective quotas while institutional allocations will be done at discretion of the BRLM. However from November 2005, SEBI has made it mandatory to allocate all types of investors on a prorate basis.

The Book-Building process is of recent origin in Indian capital market and the practice is still evolving. The first company to use Book-Building method was ICICI for its INR 1000 crores bond issue in April 1996 followed by INR 4,323 crores Larsen & Toubro issue and INR 5,878 crores TISCO bond issue. The recent issue of Hughes Software Limited made history in India. It was the first Indian Initial Public Offering (IPO) in IT industry to espouse the Book- Building process in September 1999 and the issue was highly over subscribed. Since its inception till date, a number of companies have adopted Book-Building as an effective tool for price discovery. However, even today the Fixed Price route of issuing shares is still available to the issuers.

II. Literature Review

Referring to the literature related to issue, only few empirical studies have been conducted so far in India. IPO performances during the Fixed Price regime discussed by few eminent researchers are indicated as under. Shah [1] conducted a study on the short run performance of 2056 new listings over a period from January 1991 to May 1995 and concluded a rare 105.6% excess return over the offer price. However, Madhusoodhanan and Thiripalraju [2] observed an inclusive analysis of 1922 IPOs offered on BSE during the period from 1992 to 1995 and argued that under pricing in Indian capital market was higher than the international experiences in short run as well as in the long run. The study yields a higher return of 294.8% from the issue compared to the negative return recorded from the international markets. Kakati [3] studied the performance of 500 IPOs traded during January 1993 to March 1996 and revealed that there was under pricing of 36.6% in short run and an overpricing of 40.8% in long-run. Krishnamurti and Kumar [4] from a study of IPOs that listed during July 1992 - December 1994 depicted that there existed a mean excess return of 72.34% and further pointed out that the key factor for under pricing was due to time gap between the offer approval and the issue opening. Majumdar [5] also argued under pricing after listing of six months to the tune of 22.6% in Indian capital market.

IPO performances after introduction of Book-Building mechanism also have akin outcomes. Sherman [6] portrayed that Book Building had become a preferred method of pricing IPOs in over forty countries. It has been the offering mechanism of choice in the U.S., so there is relatively little economic variation in IPO offering mechanisms. Kutsuna and Smith [7] offered interesting longitudinal evidence from Japan where Book Building was introduced in 1997 and drove out auctions as the preferred method of going public. They found a redistributive effect and concluded that auctions are cheaper for small firms but Book Building is cheaper for large firms. Ljungqvist, Jenkinson, and Wilhelm [8] offered cross-sectional evidence across markets and reported that under-pricing is lower for Book Building IPOs when the issues are marketed in the U.S. and when issuers use U.S. lead managers. Pandey [9] compared Fixed Price mechanism and Book-Building mechanism in terms of initial return and long run performance and found that Book Building process of IPO was associated with lower initial return. The study of 92 IPOs performance during 1999-2003 by comparing Fixed Price issues with Book-Building issues done by Ranjan and Madhusoodanan [10] revealed that Fixed Price issues were under priced to a larger extent than the Book-Building issues. Bose [11] documented a comparative study of Indian security market with global markets and advocated that Book-building was better than Fixed Price method but still required a lot of support in the form of regulatory framework. Further, Sherman [12] observed that in almost all the markets where Book Building had been introduced, pre-existing methods have almost abolished. Bubna and Prabhala [13] advocated that Book-Building issues experience lesser under pricing than Fixed Price offers after a comprehensive analysis of IPO performance during 2000-2006. Aggarwal [14] documented a study from 15 sectors including 147 companies, which raised their public issues during 2001-2006 and concluded that small size issues i.e. only up to 250 crores followed Fixed Price mechanism whereas, all large size issues preferred Book Building as price discovery tool. She further revealed that issues raised through Book Building attracted high opening price as compared to the issues raised through Fixed Price method.

From the above observations, it may be inferred that currently Book Building has been viewed as a popular mechanism of pricing IPOs. Thus, in this study, the researcher tries to examine whether Book Building mechanism as compared to Fixed Price mechanism has been successful for efficient pricing in India.

III. Objectives of the Study

The study aims in -

1) Examining the importance of Book-Building method in issuing shares in secondary market.

2) Estimating and comparing immediate and long term performance of the issues made through Book-Building and Fixed Price method.

3) Examining the size of the companies that opted for Book-Building method.

4) Examining whether Book-Building method is less under-pricing than Fixed Price method.

IV. Hypotheses

To meet up objectives of the study mentioned above, hypotheses are framed and tested. The first hypothesis is that Fixed Price method is preferred to Book-Building method for efficient pricing in India. To test this hypothesis, T-test is adopted. The second hypothesis framed is that issues raised through Book-Building have better immediate and long term performance when compared to Fixed Price mechanism.

Karl's Coefficient of Correlation is applied in testing this hypothesis. The third hypothesis is that there are no significant differences between issue sizes of Fixed Price and Book Building method. This hypothesis is tested by calculating mean and median. The fourth hypothesis is that Fixed Price offer has encountered less under-pricing that Book Building method. This hypothesis is tested by calculating mean and median as well.

V. METHODOLOGY

For undergoing the project, data is composed of secondary sources like Bombay Stock Exchange (BSE) web, Economic Times, different journals and periodicals. The study covers a time frame between April 2001 and June 2011 and sampling unit is an Initial Public Offering (IPO) which is listed on using either Fixed Price offer or Book-Building mechanism during the period. From the list, 303 companies spread over 54 industries were left with for the study over ten year period after omitting all the follow on public offers, withdrawn issues and cancelled ones. Evaluation of the study has been done by analyzing the compared means through one-sample T-test, at 95% confidence interval, Karl's Coefficient of Correlation and by analyzing Mean and Median of issue size and for listing returns as well. The returns of the stock measure whether an investor gained or lost by buying the shares during the IPO at the offer price and selling at the opening price on the listing day. The return is calculated as

$$R_{it} = \frac{P_{it} - O_i}{O_i} x\ 100$$

where P_{it} is the opening (listing) price of stock 'i' at time 't' and O_i is the offer price of the stock. If R_{it} is positive it can be concluded that the issue is under-priced; if R_{it} is negative it can be concluded that the issue is over-priced and if R_{it} is zero it means that the issue is correctly priced.

VI. FINDING AND ANALYSIS

Finding and analysis of the study is being put forward by testing four hypotheses framed in tune with the objectives of the study. The same are portrayed below-

A. Hypothesis 1

The study is focused upon preferences of the companies regarding the method for efficient pricing. On this basis, the researcher hypothesizes that-

Ho: Fixed Price mechanism is preferred for efficient pricing over Book-Building method in India

Ha: Book-Building mechanism is preferred for efficient pricing over Fixed Price method in India

By using T-test, we have analyzed the value of 't' and have proved the significance level to accept or reject the null or alternate hypotheses. The decision rule for testing the hypothesis is $t \geq 1.972$ or $t \leq -1.972$. If the value of 't' lies within this range, we reject the null hypothesis and accept the alternate one and vice versa.

TABLE I reveals that the mean values of Book-Building and Fixed Price method are 7.28 and 1.30 respectively. This shows a major difference between both the methods where Book-Building is being preferred over Fixed Price method. Further, as per table II, the value of t is 6.990 for Book-Building method and 4.864 for Fixed Price method, which is higher than 1.972. Thus, by following the decision rule, the null hypothesis is rejected and the alternate hypothesis is accepted. This is confirmed by the significance level which is 0.000 well below 0.05. In other words it can be said that Book-Building mechanism is preferred for efficient pricing over Fixed Price method in India.

TABLE I: ONE SAMPLE STATISTICS

Process	N	Mean	Std. Deviation	Std Error Mean
Book Building	54	7.28	7.651	1.041
Fixed Price	54	1.30	1.958	0.266

TABLE II: ONE SAMPLE TEST

	Test Value = 0					
					95% Confidence Interval of the Difference	
Process	t	df	Sig. (2-tailed)	Mean Difference	Lowe r	Upper
Book Building	6.990	53	0.000	7.278	5.19	9.37
Fixed Price	4.864	53	0.000	1.296	0.76	1.83

B. Hypothesis 2

To study the impact of efficient pricing tools on immediate and long term performance of the issue in secondary market, the researcher hypothesizes that:

Ho: Immediate and long term performance is better when issues are raised through Book-Building method.

Ha : Immediate and long term performance is better when issues are raised through Fixed Price method.

To study whether efficient pricing tools have any impact on immediate performance of the issue in secondary market, the issue price and the price at which issue is listed in BSE is considered. Again to study whether tools have any impact on long term performance of the issue in secondary market, the issue price and the current price in BSE is considered. The company's current stock price is taken as average of 52 week high and low price at which it was traded in BSE for the year 2010-2011. In table III, the results of Karl's Coefficient of Correlation of the issue price and list price for immediate performance and the issue price and current price for long term performance are presented. Probable Error method is used to test the significance of the degree of correlation. It may be noted that in case of Book-Building issues, there exists a negative correlation between issue price and the list price in secondary market. The degree of correlation is -0.02381 which is far less than its probable error of 0.0522. Thus, it can be inferred that there is no significant correlation between issue price and list price in the stock market. In case of long term performance, there exists a positive correlation with a degree of 0.006184. This is not significant too as it is not 6 times greater than its probable error of 0.0522. In case of Fixed Price issues, there exists a positive correlation between issue price and list price in the secondary market. The degree of correlation is 0.172675. This is also not significant as it is not 6 times greater than its probable error of 0.0563. In the long term performance, there exists the positive correlation with a degree of 0.54965 and it is significant as it is 6 times higher than its probable error of 0.0542. As such, the study advocates that the issues raised through Fixed Price method is relatively more promising in long term as compared to the issues raised through Book-Building mechanism. So the null hypothesis 2 is rejected and alternative hypothesis 2 is accepted as it has revealed that issues raised through Fixed Price method has performed better in long run.

TABLE III: CORRELATION ANALYSIS: KARL'S COEFFICIENT OF CORRELATION

Process	Issue Price and List Price			Issue Price and Current Price		
	r	Probable Error	Remarks	r	Probable Error	Remarks
Book Building	-0.02381	0.0522	Not Significant	0.006184	0.0522	Not Significant
Fixed Price	0.172675	0.0563	Not Significant	0.54965	0.0542	Significant

C. Hypothesis 3

To study the issue sizes of Fixed Price and Book Building method, the researcher hypothesizes that

Ho: There are no significant differences between issue sizes of Fixed Price and Book Building method.

Ha : There are significant differences between issue sizes of Fixed Price and Book Building method.

TABLE IV: ISSUE SIZE (IN INR CRORES)

	Fixed Price	Book Building
Mean	37.20130811	498.3877056
Median	23.76	117.5
Standard deviation	49.3394808	1326.406437
Max	240	10260
Min	6	14
Count	72	231

TABLE IV depicts that there are significant differences between issue sizes of Fixed Price offer and Book Building. The mean issue size for fixed price offer is INR 37.20 crores whereas for book building is INR 498.3 crores. The median issue size for fixed price offer is INR 23.76 crores while that of book building issues is INR 117.5 crores. A close look at the issue size reflects that most of the smaller issue sizes companies opted for fixed price mechanism and companies with bigger issue sizes had opted for book building mechanism. So the null hypothesis 3 is rejected and alternative hypothesis 3 is accepted as it has revealed that there are significant differences between issue sizes of Fixed Price offer and Book Building.

D. Hypothesis 4

The study focuses on the under-pricing of both the mechanism. So it hypothesis that

Ho: Fixed Price offer has encountered less under-pricing that Book Building method.

Ha: Fixed Price offer has encountered more under-pricing that Book Building method.

While observing the listing day prices of Fixed Price offer, it is found that out of the 72 offering 56 issues opened at a premium to the offer price, 3 issues opened at the offer price and 13 issues listed at a discount. However in case of Book Building, it is found that out of 231 offerings 164 issues opened at a premium, 12 issues at the offer price and 55 issues at a discount. Table V portrays the listing returns and excess returns of Fixed Price and Book-Building offerings. Positive returns of the stock reflect that the issue is under-priced. The mean listing return for Fixed Price is 21.42 % and for Book Building is 18.22 % whereas the excess return for Fixed Price is 16.71 % and for Book Building is 16.75%. Thus it can be inferred that Book Building has encountered less under-pricing when compared with Fixed Price offer. However, once the stock returns were adjusted (excess returns) for the market movements no differences were noticed between the under-pricing levels in either of the mechanisms. Thus the null hypothesis 4 is rejected and alternative hypothesis is accepted as it has exposed that Book Building has encountered less under-pricing that Fixed Price offer.

TABLE V: RETURNS (IN %)

	Fixed Price		Book Building	
	Listing Returns	Excess Returns	Listing Returns	Excess Returns
Mean	21.42	16.71	18.22	16.75
Median	22.86	15.23	16.74	10.03
Standard deviation	24.15	21.54	20.05	19.66
Max	72.81	68.67	92.61	88.42
Min	-61.32	-74.42	-36.60	30.14

VII. CONCLUSION

This study examines the performance of issues raised through Book Building process and Fixed Price method in India over a period from April 2001 to June 2011. The spirit behind introduction of Book Building mechanism in India is to discover a right price for the public issue, which in turn would eliminate unreasonable issue pricing by promoters. The paper develops empirical evidence which reveals that Book-Building mechanism is preferred to Fixed Price method for efficient pricing. However, Fixed Price method is relatively more promising in long term as compared to the issues made through Book-Building process. The study also concludes that most of the smaller issue sizes companies opted for fixed price mechanism and companies with bigger issue sizes had opted for book building mechanism and that Book Building has encountered less under-pricing when compared with Fixed Price offer

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