

IPO Pricing Methods of International Investment Bank and Its Apocalypse to China

Xie Shengfeng

Department of finance, College of Business, Hubei University, Wuhan, 430062, P.R.China

(E-mail: xieshengfeng@126.com)

Abstract How to determine the offer price accurately in initial public offering (IPO) is very important for international investment banks. There are three methods for IPO pricing: open offer, auction and book-building, while are different in information extraction, stock allocation, under-pricing and etc., and all have dominances and flaws. Among them book-building has been more and more popular for its prominent mechanisms, but it is also criticized owing to its deficiencies such as the aggravation of “the winner's cure” owing to the differential allocation, institutional collusion, investment bank's lack of competition and IPO information noise as well as comparative high costs comparing to other methods. In 2005, China abandoned fixed offer and selected book-building, but owing to the restriction of the allocation, the bidding behavior and the collusion of the institutional investors, the mechanisms of book-building in China is not effective. According to the low efficiency of valuation of the stock and the collusion of institutional investors in China's book-building practice, the regulation institutions must strengthen the information extraction mechanism, standardize the process of the quotation, foster experienced investors so as to promote the efficiency of the book-building in China.

Keywords IPO; Investment bank; Open offer; Auction; Book-building

1 Introduction

For international investment banks, the ability of pricing is the most important. There are three commonly used methods to determine the offer price in an initial public offering (IPO): Book-building, open offer (or fixed price), and auctions. Book-building and open offer have been predominant for a long time, while auctions, recently held over internet, is surprisingly rare. But for a multitude of aspects it is still an open question which mechanism best serves the purpose of the seller. Many authors highly appreciate book-building method owing to its information extraction^[1], many literatures also pointed out that book-building requires on average a lower discount^{[2][3]}. While recent papers have also recommended auctions used in some IPO markets abroad, like the French ‘mise en vente’ and variants of the Dutch auction, see (Biais and Faugeron-Crouzet 1998), for example, who showed that among the various IPO selling methods used, the French “mise en vente” can implement the optimal direct selling mechanism^[4]. (Rochet 1996) also suggested that auction may be optimal since it can do better in controlling under-pricing and its variation^[5]. In China, since the year 2005, book-building is adopted and the conventional method, i.e., P/E (ratio of price to earning per stock) method is abandoned. So how to evaluate these three pricing methods of international investment banks remains to be answered.

In this paper, we contribute to the literature by comparing the three pricing methods used by international investment banks. The following part includes three sections: First, we describe and compare the three pricing methods: Book-building, the open offer or fixed price, and the auctions; Second, we lay emphasis on book-building method and give demonstration on China's practice; Third, we make conclusions.

2 IPO Pricing Methods and the Comparison of Them

We will at first describe the three IPO pricing methods. In an open offer or fixed price offering, shares are priced beforehand and then put up for subscription. But in book-building method, there are a variety of practices that seek to assess market conditions before pricing, such as road show. Investment bank as underwriter of the offer will select investors to extract information about the need of shares and the price investors will bid before setting the offer price. In auction, investors submit bids, and then the investment bank prices and allocates according to explicit rules. Table 1 describes these three methods used by international investment banks.

From table 1 we know that fixed-price methods were predominant in past (before the 1990s), but this situation changed now. Over the last decade book-building has been introduced around the world, about 80% of non-U.S. offerings were brought to market using book-building methods or some hybrid. There have been various catalysts for this change, including the worldwide privatization movement, and

the increased integration of global equity markets. On the other hand, the third method auction is surprisingly rare in countries and regions.

Table 1 The Three Pricing Methods Used by International Investment Banks

Country/region	Book-building(Bb)			Open offer(Oo)		Auction
	Used at least some times	Dominant or gaining popularity	Hybrid Bb/Oo used	Used in past	Used today	Used today
Austria	yes	yes	yes	yes		
France	yes	yes	yes	yes		occasionally
Germany	yes	yes	yes	yes		
Italy	yes	yes	yes	yes		
Norway	yes	yes	yes	yes		occasionally
Hungary	yes	yes	yes	yes	yes	
United Kindom	yes	yes	yes	yes	yes	
Canada	yes	yes	yes			
Mexico	yes			yes		
Peru	yes	yes	yes	yes	yes	occasionally
United States	yes	yes	yes			occasionally
Australia	yes	yes	yes	yes		
China	yes	yes	yes	yes		
Japan	yes	yes	yes			
Hong Kong	yes	yes	yes	yes	yes	
Taiwan	Yes	yes	yes			
Israel				yes	yes	yes
Thailand				yes	yes	

(1)Book-building, auction and open offer or fixed price

Book-building method has the obvious attraction of conditioning the final issue price on market demand conditions. In book-building offerings, the investment bank collects investors’ indications of interest, and then exercise discretion in the pricing and allocation of the securities. Commonly it includes three stages as figure 1:

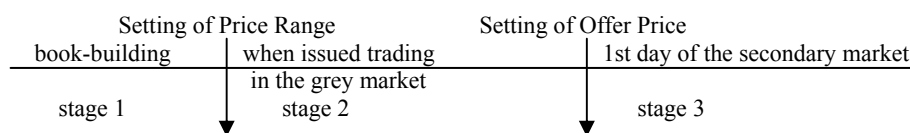


Figure 1 The Three Stages of Book-Building

As figure 1 discloses, in stage 1 of book-building, investment bank can gather information to use in setting the price range prior to the opening of when-issued trading in the grey market. In stage 2, grey market trading starts after price range is posted, then the investment bank sets the offer price according to investors’ bids. The closing price of the first day of secondary market trading is realized. Above all, book-building allows to credibly explore information from large investors and thereby reduces the uncertainty about the issue.

Another commonly used method is open offer or fixed price. Fixed price offerings are priced without first soliciting investor demand, with price discovery taking place mainly in the aftermarket. So it is relatively simple and often used in countries with strict restriction on security market, or the supply and the need of the stock is unbalanced. However in many countries, fixed offer is being substituted or have been substituted for the first method, book-building.

The third method is auction. When an auction is used for an IPO it is most often uniform price sealed bid. The rules of the auction are as follows: Bidders have to submit their demand schedules. Thereafter, aggregate revealed demand is calculated. The auctioneer chooses the highest price such that aggregate revealed demand equals supply, if no market clearing price exists the seller keeps the shares and the bidders pay nothing. This auction format meets various requirements like charging all customers an equal price and, in addition, is strategically simple when there are many bidders.

(2) Comparison of the three methods

There are three main different mechanisms among the three methods: information extraction mechanism, share allocation mechanism, and mechanism of determination of offer price, which are described as table 2.

Table 2 The Comparison between the Three Pricing Methods

Items	Three pricing methods		
	Open offer or Fixed price	Auction	Book-building
Information extraction from investors	has not	has	has
Investment bank has its discretionary of allocation	has not	has not	has
Under-pricing and its variance	Higher	the lowest	relatively low
Determination of offer price	Determined before subscription	Determined in subscription by uniform price sealed bidding	Determined after quotation, before subscription

As table 2 discloses, first, information extraction mechanism is the most important discrepancy. In commonly, book-building and fixed price differ mainly in whether or not a “price-discovery” effort is undertaken prior to setting the offer price. Fixed price offerings are priced without first soliciting information from investors, in contrast, book-building involves road shows and one-to-one meetings with potential investors that allow the investment bank to ‘discover’ investor valuations prior to setting the offer price. Both methods require that money be left on the table for investors in the form of under-pricing. When compared to an auction, book-building leads to more efficient information acquisition, since it gives the seller total discretion in the allocation of the stock, this involves the second mechanism, i.e., the allocation of the stock. The key of this mechanism is to see whether investment bank has its discretionary of allocation of stock. Book-building method has the mechanism of discrimination of allocation which can seduce information exposure. In this method, investment bank may also use its discretionary of allocation to shun flippers and favor long-term investors. But in auction and fixed price, allocation will obey to the bidding rules. Third, under-pricing in book-building is lower than the other two, probably the discretionary of allocation has its performance of substitution of under-pricing, while in auction, under-pricing is the lowest, since this method usually leads the investors to “the winner’s curse”. The last different mechanism lies in the determination of offer price, the offer price of the open offer is determined before subscription, while in auction, the offer price is determined in subscription by uniform price sealed bidding, and in book-building, the offer price is determined after quotation, before subscription.

Although the book-building method has obvious features in the above mechanisms, the deficiency of its mechanisms also exists, such as the aggravation of “the winner’s cure” owing to the differential allocation, institutional collusion, investment bank’s lack of competition and IPO information noise as well as comparative high costs comparing to other pricing methods.

3 From Fixed Price to Book-Building: China’S Practice, Problems and Countermeasures

Since 1990, investment banks (or security companies) in China had explored several methods to determine the offer price in initial public offerings. From 1990 to 1999, fixed pricing was the single method used in the security market, while in 2000, auction and book-building methods were also introduced, but fixed pricing method was predominant. This change saw many flaws in IPO pricing. The predominant method, i.e., fixed price or P/E (the ratio of price to earning per stock) can’t reflect the real value of the listed company, because investment bank and the company could determine how the P/E was in subjectivity and they could even fictitiously make the earning per stock big enough. Those companies who want to go public wished to get enough money from the IPO (they took it for granted that finance by equity meant getting money from investors freely rather than lending), so they could choose P/E and earning per stock in their favor to get higher offer price, since the offer price equaled P/E multiplying earning per stock, it was not difficult to be approved by government. The true value of the stock had to be revealed by later trading in security market. Before 2005, according to the author’s calculation, from 1992 to 2004, there was 174.96% under-pricing on average, greatly higher than markets in developed countries such as America, where the under-pricing commonly is about 30%. Why this

phenomenon existed nearly 15 years? Firstly, the supply of stock was always below the demand, the first trading price, i.e. the open price was usually greatly higher than the offer price; Secondly, there was conventional notion that “new stock will not fail”, most investors believed that there was nincompoop who could buy the stock in a higher price in the game. Thirdly, China’s security market was not so normative that there existed speculation and manipulation. But in 2004 great changes took place in China’s security market, with the normalization of the market and the maturity of the investors, more importantly with the internationalize of the security market, and the deep contradiction exposing (the main problem is how to solve the segregation of the stock), the myth “new stock will not fail” bankrupted, the first trading prices in secondary market of many stocks going public will no longer higher than the offer price, many subscribers were deeply got into the red. This meant the fixed pricing method got into hot water and it led to a halt of China’s IPO. Under this background, in the beginning of the year 2005, book-building was again introduced formally to solve the above problems, and by this means 15 companies went public. Comparing to the fixed offer, book-building decreased under-pricing greatly to 54% on average, and the variation of P/E increased comparing to previous offerings, most stocks were oversubscribed, in this means China’s IPO pricing made progress.

But has book-building method increased China’s equity efficiency greatly? Demonstrations on China’s IPO book-building method disclose that owing to the limit of the allocation, the mechanism of differential allocation is not effective. In China’s book-building, there are two process of quotation: the first quotation determines the offer price range, and the second quotation determines the offer price. In practice, during the first quotation it is relatively effective in information extraction, but not during the second quotation owing to the bidding behavior and the collusion of the institutional investors. First, 20% of the stocks are sold privately to institutional investors, so whether the offer price is the best valuation of the stock lies on institutional investors, it is not difficult for the investment bank to choose familiar investors to participate in the offer, but it gives chance for informed investors to collude; Second, institutional investors usually raise price in the second quotation, and take the advantage of quantity of funds to gain more subscription, which commonly leads to an offer price at the upper bound of the price range, it is also proved in practice: all the offer prices are in the upper bound of the price ranges; Last, investment banks and informed investors probably have the motive to tell lie before the first quotation, if they can earn more money by trading in secondary market, they probably reveal wrong information. Besides, in the written recommendation for bidding reference, investment banks also may give misleading price, for instance of HUADIANGUOJI, the investment bank, Chinese international financial company, recommended to investors a price range of 2.70 to 3.40 yuan RMB in its research report, but in the first quotation, the price range was 2.3 to 2.52 yuan RMB. All the above may weaken the information extraction mechanism of book-building.

According to the low efficiency of valuation of the stock and the collusion of institutional investors in China’s book-building practice, we must lay emphasis on two aspects. First, we must standardize the process of the Book-building, strengthen the information extraction mechanism. Strategy under which participants participating in the first quotation may not participate in the second quotation should be rectified, two quotations should also be merged into one, the tenders also are buyers, and subscribing funds should be got to subscriber’s account. We can adjust the allocation strategy, by increasing the quantity to institutional investor from 20% to 30%, 50% or more, so as to realize the function of price discovery, improve the mechanism of rectification of the offer price and allocation rules. A third party also may be introduced to write the research report for preventing the misleading price of investment bank who acts as underwriter of the offer. Second, we should foster experienced investors for preventing the collusion. The bids of institutional investors should be made public and transparent, avoiding of intentionally raising the offer price, by legislation and enhancement of supervision. Rules of allocation, price adjustment should be improved, the bidder’s honesty files should be established, and those lack of honesty, quote desultorily, raise or drive down the price intentionally should be punished.

4 Conclusion

In the three methods of IPO pricing, i.e., fixed price offer, auction and book-building, fixed price offer is commonly used by international investment banks, but book-building is now becoming more and more popular worldwide. These three methods have differences in three mechanisms: information extraction mechanism, stock allocation mechanism and mechanism of determination of the offer price. We believe that among the three methods, book-building has its vital force but both dominances and flaws exist. The accuracy of pricing in initial public offering under book-building method by

international investment banks is determined by mechanisms of information extraction, differential allocation and under-pricing. However, the deficiency of these mechanisms also exists, such as the aggravation of “the winner's curse” owing to the differential allocation, institutional collusion, investment bank's lack of competition and IPO information noise as well as comparative high costs comparing to other methods. Demonstrations on China's IPO book-building method disclose that owing to the limit of the allocation, the mechanism of differential allocation is not effective, during the first quotation it is relatively effective in information extraction, but not during the second quotation owing to the bidding behavior and the collusion of the institutional investors. According to the low efficiency of valuation of the stock and the collusion of institutional investors in China's book-building practice, we must strengthen the information extraction mechanism, standardize the process of the book-building, foster experienced investors so as to promote the efficiency of the book-building in China.

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