

Internet Appendix for

“Initial Public Offerings Chinese Style”

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Internet Appendix A: More Information on China IPO Regulations

A.1. More details on the history of the IPO method

In the last three decades, China has used two IPO selling methods—fixed-price offerings (FPO) and auctions, and a hybrid of the two (an auction tranche for institutional investors plus an FPO tranche for retail investors). Even though the media and the official documents often refer to the auction method as bookbuilding (or price inquiry), it is a misnomer because underwriters have no allocation discretion.¹ Under both selling methods, Chinese regulators often impose offer price limits, either explicit or implicit, and thus the price discovery benefit of an auction has been limited.

China is not the only country that uses bookbuilding in name, but deviates in practice. In India, since 2005 underwriters also do not have allocation discretion, and thus in practice auctions (without price constraints) are used (Jagannathan, Jirnyi, and Sherman, 2015). In Japan, the offer price is never set above the maximum of the file price range, and 90% of IPOs are priced at the maximum, so effectively a fixed price system is used (Kaneko, 2019).

In a fixed-price offering, the offer price is announced before investors submit orders. The underwriters and the issuing company decide on the offer price and make sure it complies with

¹ The only exception is that during the short period of January–February 2014, underwriters were given limited allocation discretion.

regulations, either explicit or implicit. Shares can be allocated either on a pro rata basis or by lottery (mostly by lottery in China) if there is excess demand. In this case, the underwriter theoretically has pricing power, but no allocation discretion. In practice, CSRC limits on the offer price, when imposed, have eliminated the underwriter's pricing power most of the time.

In an IPO auction, the offer price is set after observing the bids. Before an auction, a reservation price is set or a price range is suggested. Investors submit orders as combinations of price and quantity. The rule of the auction can be flexibly designed. In a uniform price auction, all winning investors pay the same offer price, which can be set either at or below the market clearing price (the highest price that sells all the shares). A uniform price auction in which the offer price is set below the market clearing price is also known as a dirty Dutch auction—that is the method China has used. Under this method, allocation among bids above the offer price is determined either on a pro rata basis or by lottery. In a discriminatory price auction, an investor receives her demanded shares if she bids at or above the clearing price, but every investor pays what she bids. In general, underwriters have little power when auctions are used. With the auction method China uses, the underwriter has some flexibility with the offer price, but no discretion with the share allocation.

In contrast, underwriters have the most power—both pricing and allocating power—in the bookbuilding method that is widely used in the U.S., Europe, and elsewhere. Under this method, underwriters solicit indications of interest (i.e., nonbinding orders) from investors. They determine the final offer price (in negotiation with the issuer) after observing the order information, and they decide to whom to allocate the shares and how much. Jagannathan, Jirnyi and Sherman (2015) document that there is a global convergence toward the bookbuilding method: when there is no regulatory restriction, the bookbuilding method is often chosen. A

debate exists, however, about what causes this convergence, whether it is because of its efficiency or due to underwriters' self interest.²

We divide the history since the formation of the CSRC (October 1992) into several subperiods (see Table 1). As in many markets, the FPO method was first used (during the first period of October 1992 – June 1999), probably due to its simplicity. In all but the first period, either FPO or auctions (or a hybrid of the two) are used. As is true in other markets, an FPO is usually open to all investors and therefore is dominated by retail investors. An IPO auction, on the other hand, is mainly open to institutional investors, because it requires a certain level of investor sophistication to submit orders with price. When a hybrid of the two is used, there are two tranches: an offline auction tranche catering to institutional investors and an online FPO tranche catering to retail investors. Towards the end of our sample period, wealthy individual investors were permitted to participate in the offline tranche. An offer price is determined after the auction, and investors from both tranches pay the same offer price.

The form of the selling method thus appears pretty similar across different periods. The main difference lies with whether there are regulatory restrictions on the pricing of the IPO shares. On this important dimension, we clearly see the back-and-forth of the regulatory attitude toward the IPO market: there were multiple attempts to relax restrictions on IPO pricing, but every attempt was reversed shortly thereafter (the longest “free” period was July 2009 – November 2012). Whether the relaxation in 2019 will be permanent remains to be seen.

During the first period (October 1992 – June 1999), regulators adopted the FPO method. The offer price was controlled so that the P/E ratio was capped around 15–20. The details of the

² Liu and Ritter (2011) provide an explanation for why underwriters want to excessively underprice when there is bookbuilding, and why reputation effects do not eliminate excessive underpricing. Chang, Chiang, Qian and Ritter (2017) and Chiang, Lowry and Qian (2019) provide evidence that cast doubt on the benefits of bookbuilding.

FPO method varied over time. For example, the definition of P/E varied in terms of what earnings per share (EPS) to use (the benchmark period for earnings, the scope of earnings, and the shares to include, can all be different in different times). In addition, the subscription eligibility/rights can depend on different things. In earlier years, investors need to purchase or obtain by lottery subscription warrants to be able to participate in an IPO. In later years of the first period, the number of shares an investor can demand depends on factors such as the amount of bank deposits one has or the value of her security holdings. Ma and Faff (2007) discuss in more detail the various types of FPOs during this period. In 1994, the Company Law was issued. This law clarifies information disclosure standards for listing firms.

In July 1999 (the beginning of the second period), the first Securities Law became effective, in which it is clearly stated that the IPO offer price is negotiated between the issuing company and the underwriters. It is generally believed that the law lifted regulatory restrictions on IPO pricing. Our data, however, show that most IPOs between July 1999 and April 2000 still have P/E ratios no higher than 20, indicating that the CSRC was not approving IPOs with a higher offer price P/E ratio. And many firms stated in their prospectuses that the offer price was determined by multiplying a P/E ratio close to 20 with their earnings but offered little explanation on how the P/E ratio was determined. Starting from mid 2000, the ratio seemed to break free from that cap.

The Securities Law also stipulates that firms should offer no less than 25% of shares in the IPO (relative to post-issue shares outstanding) unless they will have at least 400 million shares after issuance, in which case they should offer no less than 10% shares. This regulation results in most companies issuing exactly 25% shares in their IPOs.

In November 2001 (the beginning of the third period), an upper limit was explicitly reinstated on the offer price, with a new concern about an overheated IPO market. The auction method was used until June 2002. Due to the strict P/E cap, however, bid prices are not very informative. Most investors simply bid at a price that sets the P/E at or higher than 20 in order to be eligible for allocation, rather than bid at their true valuations. For that reason, the auction method was replaced by FPO in the second part of the period.

In February 2005 (the beginning of the fourth period), the CSRC issued “Notice on Several Issues on the Trial Implementation of the Price Inquiry System for Initial Public Offering of Stocks”.³ This document clarified and unified many issues about the IPO method to use, and thus laid out the playbook for IPOs in the next 10-15 years. It specified that all IPOs would use a combination of an offline auction tranche and an online FPO tranche. It also specified that six types of qualified institutions could participate in the auction tranche: mutual funds, securities firms, insurance companies, trust companies, financial companies, and Qualified Foreign Institutional Investors (QFIIs). Another group of investors were added starting from October 2010: investors recommended by the underwriter.⁴

The 2005 Notice is the first time a major official document used the term “price inquiry” (before the auction method was often referred as the method for “institutional allocations”) which led to the common misconception that this is similar to the U.S. bookbuilding method. But

³ There were several months of IPO suspension between the third and the fourth periods. The Chinese market has suspended IPO activities nine times (see Cong and Howell, 2021 for a list of these moratoriums). Most of the time it is due to poor market conditions, and sometimes it is related to market reforms or regulation changes. In this case, the CSRC suspended all IPOs in preparing for the new IPO method.

⁴ To qualify, the six types of investors must meet certain criteria set by the CSRC, including varying criteria on size, investment type, and activeness for different types of investors. From October 2010, underwriters can recommend and include some otherwise unqualified institutional investors such as corporations. From May 2012, underwriters can also recommend and include some individual investors.

it is not the bookbuilding method because underwriters have no allocation discretion. The price restriction was removed in this period.

This fourth period lasted for less than six months, and the authorities suspended IPOs to focus on the split-share structure reform. The majority of publicly listed firms at that time were SOEs and had a split share structure, consisting of nontradable shares held by the state and tradable shares held by institutional and retail investors. In the period of 2005-2007, the reform converted all nontradable shares to tradable shares. The conversion required the two types of shareholders to negotiate and implement a compensation plan whereby holders of nontradable shares pay the other group for obtaining the trading rights (see Li, Wang, Cheung, and Jiang, 2011, and Liao, Liu and Wang, 2014).

When reopening the IPO market in June 2006 (the beginning of the fifth period), the regulators were concerned that a high IPO offer price would lead to poor aftermarket returns, which would frustrate investors and eclipse “the fruits of the reform”. With this mindset, a window guidance cap was imposed again on the IPO P/E ratio, of approximately 30.

In June 2009 (the beginning of the sixth period), the CSRC issued a document titled “Guidance on the Further Reform and Refinement of the Initial Public Offering Method”, which emphasized the relaxation of regulatory restrictions and moved to allow the market to determine the IPO price. This started the longest “free market” period for China’s IPOs (July 2009 – November 2012). Most recent studies of the Chinese IPO market choose to focus on this period for two reasons. First, the offer price in this period can be viewed as freely determined by underwriters and the issuer after observing the investor bids. Second, detailed bid and allocation data of the offline auction tranche (catering to institutional investors) became available in this period. Since November 2010, IPO firms have been required to publicly disclose such

information. We have also obtained similar information for the early part of this period from the stock exchanges.

Regulators suspended IPOs again in late 2012 due to poor stock market performance. In January 2014 (the beginning of the seventh period), IPO activities were resumed and another round of policy reforms were installed intending to give more freedom to the market. The most important change was that underwriters were allowed certain allocation discretion for the auction tranche. As a new rule, the highest bids were to be excluded from allocation to mitigate the free-rider problem, and only a small number (typically 10-20) of valid bidders (those with bids at or above the offer price but are not excluded for being too high) will be eligible for allocations. How many bids to exclude and whom to exclude among those with the same bidding price are at the discretion of the underwriter. Such discretion immediately led to some egregious incidents and therefore market outcries of unfair dealings. In the IPO of Zhongxing Travels, for example, 96% of bids were excluded from valid bids. That is, only the very lowest bidders are eligible for allocation. In another case (Tianci Materials), 524 institutional investors participated in the IPO auction, 155 bid at the offer price (RMB 13.66), but only 20 were chosen as valid bidders.

Another new policy also raised investor concerns and suspicion. For the first time, secondary shares (i.e., shares held by existing shareholders) could be sold in an IPO. In fact, secondary shares had to be used to prevent the firm from raising more new capital than the projected proceeds stated in the prospectus, which happens when the offer price turns out to be higher than expected. Concerns arose that this gave firms and underwriters incentives to set the offer price too high so that existing shareholders could cash out right away (otherwise they were subject to the lock-up period). In response to these complaints, regulators abruptly ended the reform.

In the eighth, and last period, in our study (from June 2014 to present), regulators took control again: they imposed a rigid P/E cap of 23 on all IPOs, although there is no written regulation. This uniform price control prevents efficient pricing and once again has led to skyrocketing initial returns. The auction method became not very useful due to the price control, so small issuers (those with less than 20 million shares offered) are allowed to use the pure FPO method.

In 2019, the STAR market was started in Shanghai, as discussed in the main body of our paper. This market is not subject to P/E caps. In early 2023, the *Financial Times* reported that the CSRC planned to prohibit IPOs in certain sectors, motivated by a desire of the government to direct funds into strategic industries, such as semiconductors.⁵

A.2 Other IPO regulations

A.2.1. Stock exchanges

The two stock exchanges—the Shanghai Stock Exchange (SSE) and the Shenzhen Stock Exchange (SZSE)—were established in 1990 and 1991, respectively. They were initially controlled by local governments (including their personnel and financial decisions), but in 1997 control was shifted to the CSRC. In 2000, the CSRC decided that SSE should mainly host large blue-chip stocks and SZSE should cater to small and medium size firms. In the next few years, there were few IPOs on SZSE since most IPOs were large SOEs. To find its own clientele, SZSE added two new sections of listing in addition to the Main Board: the Small and Medium Enterprise (SME) Board in 2004 and ChiNext Board (also known as Growth Enterprise Market, or GEM) in 2009, with the last board featuring high-growth high-tech but likely smaller and younger companies. These two new boards hosted most of the IPOs during 2009-2012 and gave

⁵ <https://www.ft.com/content/1fdb223f-49aa-4ccf-9b82-5573554515d9> for the *Financial Times* article.

more opportunities for small and medium size SOEs as well as private firms to be listed. Worried about SSE not getting enough business, the CSRC made an announcement in March 2014 that there would be no size distinction between the two stock exchanges any more: companies can choose to be listed on either exchange.

A.2.2 Lock-up period

For IPO investors, the CSRC “Notice on Several Issues on the Trial Implementation of the Price Inquiry System for Initial Public Offering of Stocks” in February 2005 stipulates that offline auction tranche (institutional) investors are subject to a three-month lock-up period. This rule was effective until May 2012 when it was removed. Investors who obtain shares from the online FPO tranche are not subject to any lock-up period. In the U.S., there are no mandated lockup periods, and the lockups that are commonly agreed to by the pre-issue shareholders do not apply to shares purchased by investors in the IPO.

The lock-up period rules for pre-IPO investors are complicated. Various regulatory bodies have their own rules (or window guidance) and different types of shareholders are subject to different restrictions. First, the Company Law issued in 1993 requires that all pre-IPO shares be subject to a minimum one-year lock-up period. In addition, the Company Law, CSRC, and stock exchanges have stricter rules for certain types of pre-IPO investors, including the controlling shareholder, investors who became shareholders shortly before the IPO, executives and board of directors and supervisors (and the rules of the CSRC and stock exchanges vary over time). For example, the controlling shareholders and the immediate pre-IPO investors are typically subject to a three-year lock-up period. Executives, directors and supervisors are also subject to additional rules. The Company Law stipulates that they cannot sell more than 25% of their holdings each year at their posts and that they cannot sell shares in the six months after they

leave their positions. The other regulatory bodies can impose even stricter rules depending on the stock exchange and the time period. These restrictions are in general much more severe than if the company were to go public in Hong Kong, Singapore, or the U.S., the three most common venues for overseas listings by Chinese companies.

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Internet Appendix B: Additional Tables

Table B1. Summary Statistics of the Sample

Table B1 reports the summary statistics of variables for IPOs during 10/1992 (when CSRC was formed) –12/2018. Information on INSTITUTIONAL_SUBSCRIPTION is available from 2005, HIGH_UW_REPU is from 2009, and data on PRICE_REVISION is for IPOs during 2009-2012 (the information on suggested price range is not publicly available before and after this period). The high mean and standard deviation for assets is attributable to the IPOs of the “big four” commercial banks. Variables are defined in the appendix.

variable	N	mean	p25	p50	p75	sd
ASSETS (RMB MM)	3,403	17,596.690	391.134	651.433	1,269.749	300,722.300
PROCEEDS (RMB MM)	3,512	1064.381	286.710	475.986	820.019	4010.190
FIRM_AGE	3,510	7.996	2.581	6.960	12.389	6.343
ROA (%)	3,394	11.753	7.080	10.421	14.895	6.850
SOE_DUMMY	3,559	0.387	0	0	1	0.487
SSE_DUMMY	3,559	0.397	0	0	1	0.489
TECH_DUMMY	3,559	0.243	0	0	0	0.429
PE	3,415	28.345	17.970	22.980	30.990	19.634
PE _{MARKET} _PE _{IPO}	3,415	1.541	0.662	0.964	2.242	1.306
MKTRET_PR3MON (%)	3,559	5.418	-6.461	2.121	11.364	20.460
INITIAL_RETURN (%)	3,559	168.043	43.495	110.868	208.954	208.912
BHAR3M (%)	3,268	-4.318	-20.190	-7.723	6.370	26.145
BHAR6M (%)	3,268	-3.472	-22.447	-7.810	10.576	34.114
BHAR1Y (%)	3,268	-6.535	-28.470	-11.467	9.646	46.179
BHAR2Y (%)	3,268	-7.936	-37.705	-17.487	9.431	61.341
BHAR3Y (%)	3,212	-7.124	-54.841	-23.628	12.370	123.508
RESTRICTED	3,559	0.665	0	1	1	0.472
SUBSCRIPTION	3,260	1,217.109	122.482	281.467	1,877.017	1,784.451
INSTITUTIONAL_SUBSCRIPTION	2,093	3,166.018	35.260	165.100	3,752.577	6,066.846
PRICE_REVISION (%)	850	-2.344	-15.176	-2.423	10.594	19.998
HIGH_UW_REPUTE_DUMMY	1,935	0.504	0.000	1.000	1.000	0.500

Table B2: How Binding Are Pricing Restrictions?

Table B2 reports the percentage of IPOs with binding PE ratios (defined as those within 0.5 below the cap, e.g., between 22.5 and 23 if the cap is 23) and the percentage of IPOs with PE ratios exceeding the cap. For the first period, the PE_CAP varied around 15-20. We calculate the binding rate as the fraction of IPOs with PE values within 0.5 below either 15 or 20 (although there were caps other than 15 and 20) and calculate the exceeding rate as the fraction of IPOs with PE ratios above 20.

Period with PE restrictions	N	PE_CAP	%binding	%exceed
1 (10/1992-6/1999)	778	15-20	22.2%	1.7%
3 (11/2001-9/2004)	245	20	50.6%	0.8%
5 (6/2006 - 9/2008)	269	30	34.6%	9.3%
8 (6/2014-12/2018)	1061	23	79.0%	0.8%

Table B3: Pro Rata vs. Lottery Allocation Methods (2009-2012)

Table B3 compares IPO characteristics for offerings using pro-rata and lottery allocations methods respectively, during 2009-2012. AVGBID_MIDPRICE is the quantity-weighted average bid price in the auction tranche relative to the midpoint of the suggested price range. BID_DISPERSION is the standard deviation of the bids relative to the midpoint of the suggested price range. FLIPPING_RATIO in the first week after lockup is the aggregate number of shares sold by institutional investors who receive IPO allocation relative to their allocations in that period. All other variables are defined in the appendix in the paper. ***, **, and * denote the difference is significant at the 1%, 5%, and 10% level, respectively.

Variables	Lottery=0			Lottery=1			Diff	
	N	mean	median	N	mean	median	Mean diff	Median diff
INSTI_SUBSCRIPTION	440	148.244	127.903	410	51.164	42.000	97.081***	28.155***
AVGBID_MIDPRICE	440	1.024	1.039	410	0.834	0.827	0.191***	0.213***
BID_DISPERSION	440	0.161	0.159	410	0.123	0.119	0.038***	0.040***
FLIPPING_RATIO in the first week after lockup	373	0.656	0.653	410	0.406	0.425	0.250***	0.228***
PE _{IPO}	471	53.966	52.170	410	45.398	40.235	8.569***	11.935***
PE _{MARKET} _PE _{IPO}	471	0.524	0.471	410	0.416	0.390	0.108***	0.081***
INITIAL_RETURN (%)	471	45.856	35.893	410	24.649	16.673	21.208***	19.220***
MKTRET_PR3MON (%)	471	-0.163	-2.115	410	-2.624	-3.866	2.462***	1.751**
SUBSCRIPTION	471	179.144	148.000	410	125.552	104.000	53.592***	44.000***