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EXCESSIVE IPO PRICING, THE GOVERNMENT ISSUER

AND THE FLOATATION TIME GAME

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ABSTRACT

Documenting an average first-day IPO return of 285%, this paper questions the rationale of such excessive underpricing in the primary market. I find that it comes not only from the regulatory ceiling of IPO pricing by the multiplier method, but also from a mandatory delay of flotation on the stock exchange for public trading. The motivation of this forced underpricing is the political interests of the reformist government in developing a capitalist stock market and transforming the society. However, the government-owned enterprises are also concerned about the revenues from public offerings and share issue privatizations are priced at the same level as the IPOs of privately owned enterprises. I further show that some bureaucrats play a "flotation time game" by exploiting the timing of flotation to pocket personal gains by documenting the determinants of initial returns and time gap.

Key words: Initial public offering, IPO underpricing, IPO underperformance, Privatization, Government Shareholding.

JEL Classification: G23, G28.

Non-Technical Summary

The magnitude of IPO underpricing in China's emerging stock market is much higher than in other countries. The average first-day return of the initial offering shares is 285%, while the median is 133%. There are 64% of IPOs are share issue privatizations in which state-owned enterprises (SOEs) sell a proportion of their shares to the public. The government issuer can induce excessive underpricing. This paper shows excessive underpricing serves the interests of the government and the bureaucrats, thereby adding a political dimension to the financial phenomenon.

First, the government may be financially motivated. Dewenter and Malatesta (1997) suggest that there is no difference between the SOE issuers and the private-enterprise issuers in this respect. In China, I find that the differences of IPO pricing and initial returns, between SOEs and private owned enterprises, are insignificant.

Second, the government is possibly politically motivated and so uses excessive underpricing of state assets as a means to gain political support. The rapid development of the Chinese stock market partly comes from excessive underpricing during IPOs. Meanwhile, the ideological hostility towards privatizations has been mitigated by a decade of excessive underpricing. I find that one day's delay of the flotation increases the initial returns by 0.4%. This "time gap" between the offering date and the flotation date accounts for more than half of the variations in initial returns. I also find that the IPO-flotation time gap is a tool for the government to adjust the market's cycles. In an overheated market, a firm with a shorter time gap, and therefore a lower initial return, is given the priority for flotation. The time gap between IPO and flotation and the ceiling of IPO pricing lead to excessive underpricing and serves the political interests.

A third consideration is that the government consists of bureaucrats who have private agendas. The regulation of listing quotas sets the rents and helps some bureaucrats to extract personal gains from the issuing firms. The private benefits for the social elites in the primary market reinforce the sustainability of excessive underpricing. I do not find that the pricing of firms varies with personal interests, perhaps because it is too risky for rent seekers. However, the time gap is subject to the size of insider shares and lobbying costs. In many cases, some bureaucrats are bribed with insider shares, which they can sell for significant financial gains after holding onto them for a period after the flotation. I find evidence that the volume of insider shares correlates with the waiting time before flotation. I further find that one unit of lobbying cost reduces the waiting time by eight days. These two findings suggest that some bureaucrats may play a delicate "time game" to pocket personal gains. Private benefits are a byproduct of the maximization of the government's interests.

My findings provide support for all these three hypotheses—financial, political and private. With more than one goal to pursue, the government has many faces. The intelligent Chinese government takes care of privatization revenues and forces one-cut underpricing for all the IPO firms in order to achieve its political end: the transformation from a labor-led society to an investor-centered society without further financial cost to the government-owned enterprises. The evidence from China supports the conclusion of Jones *et al.* (1999) that the government issuer uses underpricing to achieve political and economic ends. A new argument is offered here that the social elites also capture some personal gains in this process.

1. Introduction

China's new stock market has grown rapidly. Starting from scratch in 1991, this market has become the second largest stock market in Asia within about a decade. More than 58 million families in this communist country invest in this stock market. More than one thousand firms are publicly traded on China's stock exchanges. This emerging stock market, however, poses some puzzles to established finance theory.

One puzzle is the excessive underpricing in the Chinese primary market. The average first-day return of the initial offering shares is 285%, while the median is 133%. The magnitude of Chinese underpricing is higher than in other countries around the world (Appendix 1), which vary between 5.4% in Denmark and 104.1% in Malaysia. Although the finance literature concludes that initial offer prices are usually lower than early after-market performance (Ibbotson 1975), the magnitude of Chinese underpricing may not be convincingly explained by established theories of underpricing.

What drives such excessive underpricing in China? I find that 64% of IPOs are share issue privatizations in which state-owned enterprises (SOEs) sell a proportion of their shares to the public. As the regulator, the government issuer is able to induce excessive underpricing, if it serves the interests of the government. To answer this question of what drives excessive underpricing, it is necessary to examine governmental behaviors in the initial public offering (IPO) market.

First, the government may be financially motivated. Perotti (1995) argues that the government underprices the SOEs in initial offerings to maximize its total privatization revenues from the IPO and from seasoned offerings. Drawing on the theory of Rock (1986), Dewenter and Malatesta (1997) suggest that there is no difference between the SOE issuers and the private-

enterprise issuers in this respect. In China, I find that the differences of IPO pricing and initial returns, between SOEs and private owned enterprises, are insignificant.

Second, the government is possibly politically motivated and so uses excessive underpricing of state assets as a means to gain political support. Schmidt (2000) and Biais and Perotti (2002) argue that a reformist government distributes state wealth in exchange for support for privatization efforts. Although China has a different political system, there are similar obstacles facing reformists who want to sell some state assets and to develop a stock market along capitalist lines. The rapid development of the Chinese stock market partly comes from excessive underpricing during IPOs. Meanwhile, the ideological hostility towards privatizations has been mitigated by a decade of excessive underpricing. I find that one day's delay of the flotation increases the initial returns by 0.4%. This "time gap" between the offering date and the flotation date accounts for more than half of the variations in initial returns. I also find that the IPO-flotation time gap is a tool for the government to adjust the market's cycles. In an overheated market, a firm with a shorter time gap, and therefore a lower initial return, is given the priority for flotation. The time gap between IPO and flotation and the ceiling of IPO pricing lead to excessive underpricing and serves the political interests.

A third consideration is that the government consists of bureaucrats who have private agendas (Buchanan and Tullock 1962). I argue that the regulation of listing quotas sets the rents and helps some bureaucrats to extract personal gains from the issuing firms. The private benefits for the social elites in the primary market reinforce the sustainability of excessive underpricing. However, I do not find that the pricing of firms varies with personal interests, perhaps because it is too risky for rent seekers. However, the time gap is subject to the size of insider shares and lobbying costs. In many cases, some bureaucrats are bribed with insider shares, which they can sell for significant financial gains after holding onto them for a period after the flotation. I find evidence that the volume of insider shares correlates with the waiting time before flotation. I further find that one unit of lobbying cost reduces the waiting time by eight days. These two

findings suggest that some bureaucrats may play a delicate "time game" to pocket personal gains. Private benefits are a byproduct of the maximization of the government's interests.

My findings provide support for all these three hypotheses—financial, political and private. With more than one goal to pursue, the government has many faces. The intelligent Chinese government takes care of privatization revenues and forces one-cut underpricing for all the IPO firms in order to achieve its political end: the transformation from a labor-led society to an investor-centered society without further financial cost to the government-owned enterprises. The evidence from China supports the conclusion of Jones *et al.* (1999) that the government issuer uses underpricing to achieve political and economic ends. A new argument is offered here that the social elites also capture some personal gains in this process.

There are some papers documenting the stylized fact of excessive underpricing in China.[1] Besides using a more robust methodology and a larger data set, I contribute to the attempt to solve this puzzle by casting new light on understanding the role of the Chinese government. I show how underpricing serves the interests of the government and the bureaucrats, thereby adding a political dimension to the financial phenomenon.

This article is organized as follows: Section 2 describes China's reform of its enterprises reform and its initial public offering markets. In Section 3, I review the IPO and share issue privatization (SIP) literatures and present my financial, political and private hypotheses of governmental behaviors. Section 4 describes the data set and documents the determinants of initial returns and the IPO-flotation time gap. Section 5 concludes this chapter.

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[1] E.g., Mok and Hui (1998), Su and Fleisher (1999), Datar and Mao (2000), and Liu and Li (2001). Table 5 in Section 3.1 gives a comprehensive survey of the literature of Chinese IPO underpricing.

2. Chinese Primary Market and Share Issue Privatizations

This section illustrates the features of China's stock markets and provides the institutional backgrounds of share issue privatizations.

2.1 China's Emerging Stock Market

This stock market is mainly composed of two stock exchanges, the Shanghai Securities Exchange (SSE) and the Shenzhen Stock Exchange (SZSE), founded in December 1990 and April 1991 respectively. Directly under the administration of the Chinese central government— the State Council, China Securities Regulatory Commission (CSRC) functions as an authorized department governing the securities and futures markets in China. This stock market is a complex web of the government's political and financial interests and of private interests.

The government sets two main objectives to develop this stock market: 1) to tap domestic savings; and 2) to reform unprofitable, inefficient state-owned enterprises.[2] However, the stock market is a symbol of capitalism. With the voting rights based on their investment, shareholders decide corporate strategic matters. The rule of one-share-one-vote is the law in a PLC. Capital now employs labor in PLCs and in the firms modeled after PLCs in China, but this capital-labor relationship is taken as exploitation in the Marxist theories. The conservative wing of the government opposed the development of a stock market, which was initially founded as an experiment. The political leaders made the pledge to close it down, if this experiment turned out to be against the interests of the people. However, under the leadership of the reformists and the

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[2] The stock market mainly serves to raise capital for enterprises and to reform the SOEs, according to the speeches of Liu Hongru, the then CSRC chairman in January 1994 and Li Peng, the then Prime Minister in September 1997. In contrast, the British government under the Thatcher administration sets the privatization goals as 1) raise new revenue for the state; 2) promote economic efficiency; 3) reduce government interference in the economy; 4) promote wider share-ownership; 5) provide the opportunity to introduce competition; and 6) develop the nation's capital market.

management of the CSRC, the stock market has become an indispensable part of Chinese economic life in only eleven years.

Table 1: China's Stock Market Development from 1992 to 2000

This table presents the market capitalization as a percentage of Chinese GDP, numbers of shareholders of the listed companies, number of listed companies, stock market indexes, turnover rates and price-earnings ratios. The period covers from 1992 to 2000. The Chinese stock market is separated into the Shanghai Securities Exchange and the Shenzhen Stock Exchange. The market capitalization and number of investors are the aggregated number from both exchanges. The data sources are from Shanghai Securities Exchange, Shenzhen Stock Exchange and China Securities Regulation Commission.

	1992	1993	1994	1995	1996	1997	1998	1999	2000
First-day Return									
Mean	14.503	1.564	0.480	0.462	1.008	1.399	1.220	1.140	1.848
Median	4.312	1.433	0.448	0.141	0.944	1.292	1.086	1.055	1.847
Newly Listed Companies	39	130	108	32	207	215	106	98	139
Total Companies	53	183	291	323	530	745	851	949	1088
Trading Values (US $Billion)	8.21	44.2	97.9	48.6	257.1	370.1	283.7	319	579
Composite Index									
Shanghai	780	834	648	555	917	1194	1147	1367	2073
Shenzhen	241	238	141	113	327	381	344	402	636
P/E Ratio									
Shanghai	-	42.5	23.5	15.7	31.3	39.9	34.4	38.1	59.1
Shenzhen	-	42.7	10.3	9.5	35.4	41.2	32.3	37.6	58.8
Market Cap over GDP (%)	3.9	10.2	7.9	5.9	14.5	23.4	24.5	32.7	52.8
Investor Account (millions)	2.2	7.8	10.6	12.4	23.1	33.3	39.1	44.8	58.1

In Table 1, I report the rapid development of the Chinese stock market. Between 1992 and 2000, the market capitalization increased at the average rate of 57.5% per year. At the end of 2000, the total market capitalization was over half of China's GDP. The number of listed companies grew 62.0% annually, from 53 PLCs in 1992 to 1088 PLCs in 2000. Increasing by 26 times from 1992, there were 58-million investment accounts by 2000. If one family has one investment account, then 16.7% of households invested in stocks. Given that most of investors live in the city, a rough estimate is that nearly a half of urban families participated in the stock market in 2000. Still under the leadership of Communist Party, Chinese society has been significantly transformed into a society of investors. This expanding stock market will also provide the base for large-scale privatization. Excessive IPO underpricing contributes to this remarkable transition.

On the other hand, the Chinese stock market is still in the early stage of development.[3] This is reflected in its unfair trading, political intervention and market segmentation.[4] Firstly, there are noticeable cases of bribery in the primary market and insider trading in the secondary market. As an emerging market with the features of a transition economy, the legal enforcement in China is relatively weak.[5] Rent-seeking activities and corruptions are rampant. The new rich emerge with the development of the stock market. Secondly, in order to control investment risks, the government frequently intervenes in the market. For instance, a policy commentary on the high P/E ratios of the stock market at the end of 1996 brought down the stock index 32% in two

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[3] Wu Jinglian, a preeminent Chinese economist, compared the Chinese stock market to a casino when he discussed some illegal activities of some traders. However, the investors continue investing in this stock market and most economists argue that the problems within the Chinese stock market are on the track to be corrected, although they are relatively more severe than these in developed economies.

[4] Policy talks in China's stock market sometimes attempt to influence and result in changing the market indexes. It comes from the intention to protect the investors and state assets, but sometimes results in manipulating the market.

[5] Small shareholders' interests are sometimes not protected as well as developed stock markets, but the legal infrastructure and the professional operation of this market are gradually improving.

weeks.[6] The government also uses other methods in order to adjust this market to reach its policy targets, including listing quotas and the flotation delays documented in this paper. Thirdly, the market is segmented. Table 2 in the following page presents the official classification of shares. About 60.8% shares are restricted in tradability. Only 4.9% shares are denominated in foreign currency, whereas the Chinese currency is not freely exchangeable. On the other hand, foreign investors are not allowed to invest in the tradable-A shares, but only in the thin B-share market. It separates domestic investors from international investors and excessive IPO underpricing happens only in the domestic stock market.

More importantly, the government is not only the regulator, but is also a big investor on the stock market. Based on the method of La Porta *et al*. (1999), Tian (2000) shows the ultimate shareholding structures of these PLCs. Pyramids, cross-shareholdings and reciprocal shareholdings are not widely used in China. The government directly owns 28% of all the shares of China's public listed companies and ultimately controls 44% of China's public listed companies. The government has a financial interest in the stock market.

The heavy weight of government shareholding comes from the history of China's PLCs. Share issue privatizations are a significant feature of China's emerging markets. Tracing the antecedents of 771 listed companies and find that there are 63.8% of SIPs among total IPOs. The other issuers are joint-stock companies, township-village firms and entrepreneur-led firms.

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[6] On 11 December 1996, when the stock index was 1258, CSRC announced twelve measures to strictly regulate the stock market and People Daily published a commentary article. The stock market immediately crashed. On 25 December 1996, the index was 855.

Table 2: Share Classes on China's Stock Market

This table presents the official classification of common stock in Chinese public listed companies. CSRC represents China Securities Regulatory Commission. The numbers in the cells are calculated as the ratio of the corresponding class of shares over total shares. The first number is the cell is the mean, second in brackets is the standard deviation, third the minimum and fourth the maximum.

CLASSES	DESCRIPTION	1994	1995	1996	1997	1998
State shares	Shares obtained by an institution, as a representative of the central government, on behalf of the State in exchange for the capital contribution made by the State. The institution can be the central government itself, local governments or wholly government-owned economic institutions. State shares are not available for trading at the two stock exchanges, but are transferable to other domestic institutions, under the approval of CSRC.	0.334 *(0.271)* 0.000 0.886	0.381 *(0.244)* 0.000 0.886	0.354 *(0.254)* 0.000 0.886	0.316 *(0.264)* 0.000 0.886	0.275 *(0.268)* 0.000 0.886
Legal-person shares	The legal person shares are shares owned by domestic institutions. A legal person in China is defined as a non-individual legal entity or institution. The Commercial Banking Law of China, which came into effect in 1994, prohibits commercial banks from underwriting, holding and trading shares. Legal person shares are not tradable at the two stock exchanges, but can be transferred into other domestic institutions upon approval from the CSRC.	0.288 *(0.251)* 0.000 0.883	0.240 *(0.240)* 0.000 0.928	0.274 *(0.251)* 0.000 0.883	0.306 *(0.265)* 0.000 0.913	0.333 *(0.269)* 0.000 0.937
Tradable-A shares	The tradable A-shares are held and traded mostly by domestic individuals and some by domestic institutions. There is no restriction on the number of shares traded, but it is required that tradable A-shares should account for no less than 25% of total outstanding shares when a company makes its IPO. These are the only shares allowed to be publicly traded on Shanghai or Shenzhen Stock Exchanges.	0.303 *(0.171)* 0.000 1.000	0.327 *(0.179)* 0.000 1.000	0.310 *(0.261)* 0.000 1.000	0.304 *(0.135)* 0.015 1.000	0.313 *(0.133)* 0.000 1.000
Employee shares	Employee shares are offered to workers and managers of a PLC, usually at a substantial discount. Employee shares are registered under the title of the labor union covering that company, which also represents shareholding employees trying to exercise their rights. After a holding period of 6 to 12 months, the company may file with the CSRC to allow its employees to sell the shares in the open market, but the directors, supervisors and the general managers may not transfer such shares during their term of office.	0.014 *(0.036)* 0.000 0.207	0.010 *(0.041)* 0.000 0.334	0.024 *(0.064)* 0.000 0.485	0.031 *(0.069)* 0.000 0.485	0.031 *(0.069)* 0.000 0.485
Shares denominated in foreign currency	This group of shares includes B-shares on domestic stock exchanges, H-shares on the Hong Kong Stock Exchange and N-shares on the New York Stock Exchange. B-shares are available exclusively to foreign investors and some authorized domestic securities firms. The B-shares market is separated from the A-share market, with SSE B-shares are denominated in US dollars and SZSE B-shares in Hong Kong dollars. H-shares and N-shares carry the same rights and obligations as the A-shares and B-shares, but they can not be traded on domestic stock exchanges.	0.062 *(0.130)* 0.000 0.617	0.057 *(0.120)* 0.000 0.477	0.047 *(0.112)* 0.000 0.477	0.039 *(0.105)* 0.000 0.482	0.049 *(0.121)* 0.000 0.664

2.2 Underwriting and Share Allocations

Company Law (1994, 1999) stipulates the following conditions for a company to apply for listing on the stock market: 1) it has share capital of at least RMB ¥50 million (US$ 6 million); 2) it is newly-formed under the 1994 Company Law or has a three-year track record; 3) it has more than 1000 shareholders who each hold shares with a nominal value of over RMB ¥1000; 4) it has offered at least 25 percent of its shares to the public or at least 15 percent if the share capital of the company is more than RMB ¥400 million (US$46 million); 5) it has not committed any serious violations of government regulations in the last three years. These PLCs are therefore large-sized profitable modern firms. In fact, the rest of China's enterprises take the PLCs as role models.

During the initial public offerings of these star companies, the investment bankers mostly work as brokers and led the selling of shares to the public. The issuers have to take responsibility for unsold shares, although the shares are usually oversubscribed. Underwriters, in this paper, broadly mean the managers of the sales of offered shares.

The underwriting market in China is relatively competitive and there are 129 firms providing underwriting services. Table 3 shows that the top ten underwriters have 64.8% of the IPO market. Most of them are associated with the government. They are well connected to the regulation authority. For instance, the top three national brokers, *Huaxia*, *Guotai* and *Nanfang*, were founded by the central bank and the managers were former high-profile bureaucrats.

Table 3: Underwriters and Underwriting Methods in China

In Panel 1, I present the top ten investment banks that lead the sale of initial offered shares and their leading sale performance with data sourced from SSE and SZSE. Panel B presents the issuing methods from 1994 to 1998. The classification of share issue privatizations and other initial public offerings is based on the prospect brochures of the firms going public.

Panel A: Main Underwriters and Their Performance (1991-2001)

Ranks	Underwriters	Underwritten Firms	Underwritten Shares *(000)*	Market Share(%)	Main Sponsors
1	Guotai Juan Securities Co.	238	1560.2	15.80	Central Bank
2	Shenyin Wanguo Securities Co.	182	930.1	9.42	Shanghai Govt.
3	Nanfang Securities Co.	123	824.3	8.35	Central Bank
4	Huaxia Securities Co.	81	600.8	6.08	Central Bank
5	CITIC Securities Co.	62	499.5	5.06	State Council
6	Haitong Securities Co.	81	487.7	4.94	Shanghai Govt.
7	Guangfa Securities Co.	79	433.5	4.39	Guangdong Govt.
8	Everbright Securities Co.	54	394.4	3.99	State Council
9	Gousen Securities Co.	63	338.9	3.43	Shenzhen Gov.
10	United Securities Co.	25	329.9	3.34	37 National SOEs

Panel B: Issuing Methods (Sampled Firms 1994-1998)

Issuing Method	OIPOs	SOEs	Total	Notes	Allocation Methods of Public Share
Certificate Application	77	108	185	Investors have to purchase the application forms or certificates in order to apply to bid for new issued shares. The investors pay more than the price of new issues.	Lottery
Historical Issues	53	86	139	Shares were issued before a set of CSRC rules took place. Most cases for historical unregulated issues are by private placement with the investors.	Most by lottery
Online Offerings	94	161	255	Investors apply for new issues through the trading system of the SSE or SZSE. The prices of new issues are mostly pre-fixed. The computers allocate shares to applicants.	Lottery
Saving Deposit	54	65	119	Investors purchase shares directly through their saving accounts. A lottery is then held to select the winner of the new issues when the purchase orders exceed the supply of new issues.	Lottery

Although there are many competitors in the market, most underwriters make substantial profits. The average net profitability of investment bankers is 24.45%, whereas the PLCs' profitability was 9.03% in 2000. Underwriting of shares in China is called "the profession that makes big money even when they take naps all the day".[7]

The underwriting methods consist of online offering,[8] certificate application, and saving-deposit lottery, beside some issues that occurred before formulating the underwriting procedures. The A-tradable shares for the public to purchase are normally oversubscribed and all the three methods use some lottery systems to allocate them to the applicants. Panel B in Table 4 presents the distribution of the offering methods.

2.3 Pricing Methods and Excessive Underpricing

The issuers set the pricing of new issues, but the offer price has to be validated by CSRC. The CSRC stipulates the pricing method as the multiplier method. With references to the price-earning ratios of similar firms on the stock market, an issuer sets a ratio as the offering multiplier. This offer price is the product of this multiplier and the earnings per share predicted by chartered accountants. The CSRC sets the ceiling of the multiplier as 15 to 20 times earnings, in the guidelines issued from time to time.[9] The auctioning method is ruled out, since it puts the actual offer price out of the control of the CSRC.

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[7] Quoted from China Securities Daily (December 27, 2001).
[8] With utilizing the trading system of the SSE or the SZSE, the main underwriter works as the sole seller of the offered shares of one company and the investors apply to purchase at the offer price during the offer period. The main underwriter organizes the lottery of the application for initial offered shares and the winners of the lottery become the shareholders at the offer price. This method of online offering has been frequently used during the recent years.
[9] However, the average P/E ratio on the secondary market is usually over 30.

The CSRC further exercises a strict quota control to flotation.[10] It sets a certain amount of new shares to be floated on the stock exchanges and rations the quotas to each of the 29 central Government ministries that oversee various industries, and the 32 provinces, municipalities, and autonomous regions. It is, in essence, a licensing mechanism that promotes rent-seeking activities. The enterprises desiring for going public have to devote resources to compete for the quota. After being allowed to make initial offerings, the firms still need apply for a date to be floated onto the stock exchanges. There is normally a time gap between making the initial offering and beginning to trade on the stock market. It ranges from three days to 12 years.

Controlling the pricing, stipulating the listing quotas and assigning a waiting period for flotation, the CSRC virtually creates the excessive underpricing in a primary market that is a strong seller's market. This underpricing is genuine, since the long-term returns of these IPO firms are positive.

I calculate the long-term returns of the firms going public in Table 4. Comparing with the stock market index, the three-year returns of IPO firms are +31.1%. Confirmed by the studies of Liu and Li (2001) and Chi and Padgett (2002), the long-term overperformance is distinctly different from the well-documented facts of long-term underperformance of IPO firms in developed stock markets. The Chinese issuers should have been able to collect much higher revenues in IPOs, but they cannot do so and there is real excessive underpricing in the primary market.

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[10] The system of quota control and restricted applying has been replaced by the model of recommending by the local government or the ministries and examining and authorizing by the CSRC in 2001.

Table 4: Long-term Returns of Chinese IPO Firms

This table presents the cumulative market-adjusted returns for all the new issues (Total), share issue privatizations (SIPs) and other initial public offerings (OIPO). Following Ritter (1991), I calculate the long-term returns with the following equation $CAR_{1,s} = \sum_{t=1}^{s} (\frac{1}{n} \sum_{t=1}^{n} (r_{it} - r_{mt}))$, where $CAR_{1,s}$ is the cumulative return from flotation event month to event month s with adjustment on market indices; r_{it} is the monthly raw returns and I define 21-day as one trading month; r_{mt} is the monthly market returns, which is the Shenzhen stock exchange composite index for firms listed on SZSE and the Shanghai stock exchange composite index for firms listed on SSE. I also report the three-year returns by months and by types of issuers, although the long-term is not a focus of this chapter.

Variable		Mean				Median		
		Total	OIPO	SIP		Total	OIPO	SIP
CAR1, 1		-0.008	-0.003	-0.011		-0.026	-0.008	-0.029
CAR1, 2		-0.002	0.001	-0.004		-0.036	-0.009	-0.043
CAR1, 3		0.006	0.010	0.004		-0.044	-0.035	-0.050
CAR1, 4		0.015	0.020	0.011		-0.044	-0.028	-0.052
CAR1, 5		0.023	0.030	0.018		-0.042	-0.033	-0.053
CAR1, 6		0.034	0.044	0.026		-0.043	-0.007	-0.053
CAR1, 7		0.043	0.056	0.035		-0.028	0.014	-0.051
CAR1, 8		0.053	0.068	0.043		-0.013	0.038	-0.043
CAR1, 9		0.063	0.080	0.052		0.002	0.060	-0.037
CAR1, 10		0.072	0.091	0.059		0.009	0.089	-0.029
CAR1, 11		0.082	0.104	0.067		0.021	0.105	-0.025
							0.116	-0.021
							0.122	-0.024 0.2 -10.62 .62 re3138 7.42129102 0.72

3. Literature Review and Hypotheses

This section reviews the literature of initial public offerings and share issue privatizations. I propose three hypotheses to interpret excessive underpricing: financial, political, and private.

3.1 Initial Public Offerings and Underpricing

There are a number of theories attempting to provide the rationale of underpricing in a competitive market (Ritter and Welch 2002). I summarize these theories from the perspectives of the investors, the underwriter, and the issuer.

The investors in the primary market demand the underpricing. Investors do not have complete information about firms. If the shares are issued by the auction method, the new shareholders may pay a higher price than the intrinsic value of the firm to get the shares. When rationing happens under fixed-offer prices, uninformed investors face a winner's curse: if they get all of the shares that they demand, it is because the informed investors perceive the overpricing of the shares and avoid purchasing. Therefore, the rational uninformed investors only participate in the IPOs when the informed investors purchase the underpriced shares and the underpricing scales are sufficiently large towards this bias of adverse selection. To avoid the winner's curse, the investors demand the underpricing (Rock 1986, and Beatty and Ritter 1986).

The underwriters benefit from underpricing. Shiller (1990) argues that, with underpricing, the underwriters create excess demand and make the offering an "event" to induce buyers. Baron and Holmstrom (1980) and Baron (1982) argue that underpricing saves the marketing effort of underwriters and ingratiates underwriters with buy-side clients. Fulghieri and Spiegel (1993) argue that underwriters profit from collateral business when they allocate shares to their favored customers. Ellis *et al.* (2000) show that underwriters profit from underpricing when they act as post-IPO market makers. Taranto (2001) shows IPO underpricing maximizes underwriters' profits in the primary market.

The issuers have some incentives for limited underpricing. Allen and Faulhaber (1989), Welch (1989) and Grinblatt and Hwang (1989) model the impact of underpricing in initial public offerings on reputation. Leaving a good taste with the investors allows the issuer to obtain a good price for seasoned offerings. Furthermore, Booth and Chua (1995) argue that investors will be willing to price a stock using a lower discount rate if they expect a liquid market for their shares. The issuers also pursue the protection of their control rights by distributing the new issues among a dispersed community (Brennan and Franks 1997). In summary, these western literatures rationalize why there is 18.5% underpricing in USA's primary market or 17.5% in UK.

There are some papers documenting the excessive underpricing in China. Table 5 surveys the papers researching China's initial public offerings. Using different data sets from different data sources, these papers report that the mean initial returns range from 142% to 949%, the median range from 119% to 241%. All of them find the fact of excessive IPO underpricing in China and make the attempt to apply the standard theories of IPO underpricing, but the question why there is such an excessive underpricing remains unknown.[11] New research is needed.

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[11] Furthermore, comparing the means and medians in existing literature, the distribution of all the used samples in existing research is highly skewed. I use the Shapiro-Wilk W test to confirm the non-bell-shape distribution of initial returns in China, but the regression methods of the existing papers on China's IPO underpricing adopted the regressions—mainly OLS—with the assumption of normality.

Table 5: Literature Survey of China's Initial Public Offerings

This table surveys the existing literature about underpricing of initial public offerings in China. I only include the comprehensive papers directly dealing with underpricing issues. Anarony, Lee and Wong (2000) and Gu (2001) are therefore not included here.

Papers	Data Sample			Underpricing Degree		Regression Methodology	Findings (Statistically significant)	Interpretations
	Sample Size	Data Source	Covered Period	Mean	Median			
Datar and Mo (1998) *Working Paper, Seattle University*	226	Hand-Collected	1990-996	388%	209%	OLS	- Offering size - Offer price - Growth option	Political motive for the dispersed distribution of shares to create a viable capital market
Mok and Hui (1998) *Pacific-Basin Finance Journal*	101	N/A	1990-1993	462%	N/A	OLS	+ Time Gap - Non-tradable shares	High equity retention by the state, a long time-lag between offering and listing etc.
Su and Fleisher (1999) *Pacific-Basin Finance Journal*	308	N/A	1987-1995	949%	231%	2SLS, Logit and Tobit	+ Time Gap - Fund Raised	SEOs (signalling)
Chen and Gao (2000) *Financial Research Journal (Chinese)*	565	N/A	1992-1996	335%	149%	OLS	+ Time Gap + Offering Proceeds	Risk of corporate operation, leaving a good taste for investors
Lui and Li (2001) *Working Paper, Peking University (Chinese)*	781	Qianlong	1991-1999	142%	119%	OLS	+ Time Gap + Offering Proceeds - Issuing Price	No direct interpretation of regression results
Chi and Padgett (2002) *ISMA Working Paper, Univ. of Reading*	658	Guo Tai An	1996-2000	129% (adj.)	N/A	OLS	-High Tech -Issuing Size -Lottery Odds	Information asymmetry

3.2 Share Issue Privatizations

Excessive underpricing needs to be interpreted within the Chinese institutional context. The significant feature of China's IPO market is that 64% of the issuers were state-owned enterprises before going public. As for share issue privatizations, the government owner calls the shots on the pricing of these enterprises. Jones *et al.* (1999) show privatized firms are often dramatically underpriced. Share issue privatizations (SIPs) therefore lead to the excessive underpricing. The following three hypotheses are developed from theoretical literature on SIPs and rent seeking. Although these theoretical papers on the governmental behaviors have different focuses, they are not necessarily in conflict but may be consistent with each other.

3.3 Financial Hypothesis

The government issuer is also a regulator. It has the power to alter regulations or even to renationalize privatized enterprises. Assuming that the government pursues privatization revenues, Perotti (1995) argues that the investors still remain uncertain about the commitment of the government towards privatization. The government needs to convince the investors by keeping control of the amount of shares initially issued.[12] Underpricing initially leaves a good taste for the investors and the government can make gains from the secondary equity offerings. Perotti (1995), however, does not compare SIPs with initial offerings of other enterprises.[13]

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[12] Maximization of the proceeds from selling the state assets to the public is the assumption underlying Perotti's information asymmetry story of share issue privatizations (1995). The government can use its policy instruments to transfer value from shareholders to other groups ex post. The investors are without knowledge of the government's genuine policy thinking on privatization and are concerned about the future interference of the government. Therefore, although preferring a rapid massive privatization, a market-oriented government intentionally retains some shares to signal its commitment of privatization. Partial sale of a small amount of shares signals that the government is willing to bear some financial costs if it cannot keep from politically intervene in corporate operation.

[13] This paper does not provide a direct test of his propositions, as my data set is not cross-country and there is little information on SEOs.

Under the financial hypothesis and the asymmetric information framework, Dewenter and Malatesta (1997) conjecture that the magnitude of underpricing in SIPs should be less than in non-government enterprises' offerings. This is because the SOEs tend to be larger in size and better known than private enterprises or other non-state owned enterprises (NSEs). It also applies to the Chinese firms going public. The average total assets of SOEs are US$ 129 million, but for NSEs are US$ 86 million; the average age of SOEs are 26 years, but NSEs average 19 years. Under signaling theories, the smaller and younger firms yield greater initial returns and underprice more. If controlling for firm size and age, the negative relation between underpricing and the government issuer should be insignificant.

Therefore, the financial hypothesis predicts that there is either a negative relation in a univariate analysis or an insignificant relation in a multivariate analysis between initial returns and whether the issuers are former SOEs.

3.4 Political Hypothesis

The government is perhaps primarily politically oriented, and so it sacrifices its financial interests for its political interests. Schmidt (2000) and Biais and Perotti (2002) show that, to ensure political power, a market-oriented government should underprice shares in fixed-price offers and then ration the shares to median-class voters. This Machiavellian strategic underpricing builds up political support for the reformists.

The Chinese Communist Party is an organization and it naturally consists of a right-wing (reformists) and a left-wing (conservatives). Access to the scenes of power struggles among the political establishments is normally out of the reach of the mass media, but such power struggles exist.[14] Like other civilized countries, Chinese politicians also need the support of the grassroots.

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[14] There are occasionally some exceptions. For instance, the *New York Times* reported the criticism by the Marxist elite journal, *The Pursuit of Truth,* of President Jiang Zemin (August 16, 2001) and the *South China Morning Post* reported the exchange of fire on admission of capitalists to the Chinese Communist Party between the forces of reformists and the anti-reform leftist forces (August 23, 2001).

By the deregulation of individual life, the encouragement of private ownership and the decentralization of economic management since 1978, economic reform created interest groups and granted more autonomy to society. The voices of the common people increasingly add pressures to policy making.

The stock market was one of the most controversial issues in China. It faced strong opposition within the Communist Party and aroused serious doubts from labor. The stock market was finally set up as an experiment in 1991. The reform-minded leaders needed to gain political support to develop the stock market and to carry on gradual privatizations, which fundamentally challenge the ideological doctrines. Excessive underpricing can be a political maneuver in China to expand the political coalition of reformists.

If the government only has the political interest, it will push the SOEs to lead the excessive underpricing and I expect that SOEs be underpriced with a larger magnitude than IPOs of NSEs. If the financial interest coexists with the political interest, the government may be able to achieve its political goals without an additional financial cost to the government.

3.5 Private Hypothesis

The public choice literature suggests that the government is composed of self-interested bureaucrats and the regulators are not necessarily altruistic (e.g. Buchanan and Tullock 1962 and Stigler 1971). The regulators may set rents for personal gain (Peltzman, 1976).

The regulation of the listing quota is essentially a licensing system. Firms intending to raise capital from the stock market devote resources to compete for a listing quota and priority in the flotation queue. If some bureaucrats in charge of the primary market are rent-seekers, the listing decision and the flotation time become dependent on the resources devoted by the firms for lobbying. Lobbying requires connections and the underwriters are normally well-connected, as discussed in Section 3.2. The issuers may pay a higher fee for the investment bankers to lobby the bureaucrats.

As another method to capture the regulators, the issuers may grant some shares to the bureaucrats at the offer price. However, the tradable-A shares are allocated through the lottery methods. The firms can only maneuver the employee shares. Although the employee shares should be allocated to the employees of the firms, it is a widespread practice for the managers to allocate the shares to influential bureaucrats and business associates. These shares are better termed as insider shares. Pre-allocated to a specific group, the insider shares are personal gains for a specific group. If there are rent-seeking activities within the IPO process, this group should be able to exert the influence on IPO pricing. The vigor of this special-interest group is correlated to the volume of insider shares.

The private hypothesis predicates that lobbying costs and insider shares have an impact on the magnitude of underpricing. Personal gains may contribute to the sustainability of the excessiveness of underpricing, after the government achieves its political goal without further financial cost.

4. Data, Empirical Methods, and Tests

This section describes my data samples, and presents and interprets the empirical results. The calculations of the variables as well as econometric methods are presented in the related tables.

4.1 Data Sources

Based on initial offering prospectuses and audited annual reports from the PLCs, the data used in this paper combines the IPO, accounting and ownership data from the Taiwan Economic Journal (TEJ), the Genius database, the Hairong Database and the SDC database. My IPO sample consists of 1125 firms going public from 1991 to 2000. The share price data are from Thomas Financial International. By hand, I further collected data on the ownership types of main issuers,

based on the company offer reports from 1990 to 1996. The sources of this newly assembled dataset are given in Appendix 2.

4.2 Types of Issuers

The firms going public in China include State-Owned Enterprises (SOEs), Collective-Owned Enterprises (COEs), Joint-Stock Companies (JSCs), Township-Village Enterprises (TVEs) and Entrepreneur-Owned Enterprises (EOEs). SOEs are fully owned by the government and they are under the direct control of the government. The public offerings of the SOEs are also called share issue privatizations. COEs are the firms owned by a local community. Although it controls the community to a large extent, the government does not have the ownership of COEs and, comparing with SOEs, the influence of politicians on COEs is significantly less. JSCs are the firms having more than one owner. Both the SOEs and COEs can be one of the owners of a JSC. The politicians can also influence JSCs, but the magnitude of political intervention in JSCs is much less than in SOEs. As both the COEs and JSCs have more than one owner and are influenced by the government to some extent, I group them together and name them as institution-owned enterprises (IOEs). TVEs should be the enterprises owned by a village or a small town, but some private enterprises are disguised as TVEs. More important, the TVEs are often under the control of a "strong man" and it is operated as a family-owned enterprise. EOEs are typically private owned enterprises. I therefore group the TVEs and COEs together and call them private-owned enterprises (POEs).

Table 6 presents the distributions of key variables of different types of issuers. In my sample, 63.8% of listing firms were state-owned enterprises, 31.4% were owned by non-government institutions, and 4.8% by private owned firms.

Table 6: Distribution of IPOs on Listing Types

Grouping the issuing firms into the state-owned enterprises, institution-owned enterprises, and private-owned enterprises, this table presents the means and medians of the initial returns, offering multipliers, flotation time gap, administration cost per share and flotation cost per share. Initial returns are calculated as $IR_i = \dfrac{P_{i1} - P_{i0}}{P_{i0}}$, where: IR_i is the initial returns of the company I, P_{i0} is the offer price, and P_{i1} is the first-day closing price of share i. I use the symbols ♠ ♣ and ♥ to represent the above three types of issuers, respectively. If there is a symbol of another group behind the numbers, there is a significant difference between this group and the group represented by the symbol. With the Student T test for the mean difference when there is a bell-shaped distribution, the Johnson corrected t test when the data of the variable is highly skewed, and the Mann-Whitney U test for the median difference, I take 5% as the significance threshold.

Types of the Issuers		SOEs		IOEs		POEs		Total
Observations		331		163		25		519
Initial Returns	Mean	2.548		2.640		3.274		2.851
	Median	1.302		1.162		1.517		1.289
Offering Multipliers	Mean	11.6		10.9		9.6		11.4
	Median	14.1		13.7		14		14
Issuing Proceeds	Mean	5.69		5.22		6.56		5.56
	Median	5.60		5.08		5.33		5.53

4.3 Determinants of Initial Returns

I find that the average first-day returns of the SOE issuers are 255%, IOEs 264%, and POEs 327%, although the medians are much smaller. In fact, I have a highly skewed data set of initial returns. The significance of the mean difference should be examined with the Johnson corrected T test. This test shows the initial returns of SOEs and IOEs are significantly less than the size of POEs. The Mann-Whitney U test on the medians also shows that the POEs have a significantly higher first-day return. When the issuer is a private enterprise, it is more underpriced than when the issuer is the government or an institution. It is consistent with the empirical findings in firms from Canada, Japan and Malaysia (Dewenter and Malatesta 1997). Asymmetric information theories seem to be supported by Row 1 in table 6.

However, there is no significant difference among the offering multipliers due to the large variance. The SOE issuers are not priced significantly higher than the IOEs or POEs. The issuing proceeds are therefore also homogenously distributed among these three types of issuers. The government-owned enterprises pursue the issuing proceeds as much as the private owned enterprises. It implies that the significant differences of initial returns between SOEs and POEs may result from some missing variables.

With multivariate regressions, Table 7 further investigates whether the issuing prices differ because of the ownership of the issuers. Since my data set is highly skewed, the bootstrap regression methodology is used in Table 7.

Table 7: Determinants of Initial Returns

This table presents the regressions of different types of issuers on adjusted initial returns (IRA) and the offering multipliers. The movement of the market influences the pricing of the new issues. I should adjust for the changes of the market indices. Following the method for calculating the excess values (Berger and Ofek, 1994), I standardized the IR by subtracting their industrial medians under the 21-industry code of China's PLCs. The IR adjusted by the market index and industrial averages is termed IRA. I calculated the IRA as

$$IRA_i = (IR_i - \frac{I_{i1} - I_{i0}}{I_{i0}}) - \frac{\sum_{i=1}^{n} (IR_i - \frac{I_{i1} - I_{i0}}{I_{i0}}) * P(P = 1 \mid i \in Industry_j)}{i}$$, where: I_{i0} is the opening index of the market on the offer day and I_{i1} is the closing

index of the market. I use the SSE composite index as the benchmark for the shares listed on the SSE and use the SZSE composite index for the shares on the SZSE. The variable of IR or IRA is highly skewed, since Shapiro-Wilk W tests reject the normality distributions of IR at 1% level and the graph of the univariate kernel density shows that IR is positively skewed—has a long tail to the right. I first use the OLS parametric regressions with Student T statistics to estimate Equation 1, but specification tests reject residual normality for my cross-sectional regressions. It probably comes from the highly skewed distribution of the dependent variable. I therefore report the results with the bootstrap estimation of standard errors. The method of bootstrapping relaxes the normality-distribution assumption of linear regressions and improves the accuracy of estimation. Bootstrapping uses the observed distribution of the sample and produces a bootstrapped distribution. Then, based on the bootstrapped sample distribution instead of the assumed normal distribution, the variance of the means in the regressions is calculated. Dewenter and Malatesta (1997) adopt this method to examine the theoretical hypothesis of Perotti (1995) when they find non-normality in their data sets. Box-Cox transformation is a usual method to transform the non-normally distributed data into a normal distribution. It requires all the data to be positive, but there are 22 cases of IPOs that were overpriced. With these 22 negative points, I cannot use the logarithm transformation either. I also used non-parametric bootstrap least absolute value models to re-estimate my models. The advantage of the non-parametric models lies in the control of outliers, but the disadvantage is that information is reduced during the process of ranking of continuous variables. I therefore report my results with the parametric estimations under bootstrapped standard errors. Standard deviations are given below the coefficients. The asterisks following the coefficient show the range of P-values: *** as p-value ≤ 1 %, ** p-value ≤ 5%, * p-value ≤ 10%.

Adjusted Initial Returns	(1)	(2)	(3)	(4)	(5)	(6)	(7)
POE	1.061**	0.265	0.461	0.201	0.084	-0.191	-0.196
	0.470	0.322	0.452	0.230	0.207	0.185	1.159
IOE	-0.093	-0.108	-0.228	-0.137	-0.126	-0.118	-0.798*
	1.394	0.130	0.323	0.084	0.078	0.179	0.349
Size		-0.223***	-0.140***	-0.158***	-0.122***	-0.220***	-0.117**
		0.074	0.051	0.049	0.044	0.058	0.051
Age		0.004	-0.002	0.002	0.001	0.004	-0.007
		0.004	0.002	0.002	0.002	0.003	0.008
Gap			0.004***	0.003***	0.004***	0.005***	0.004***
			0.000	0.000	0.001	0.002	0.000
Lottery Rate				-1.551***	-0.976***	-1.185***	-1.518**
				0.524	0.362	0.404	0.669
Offer price					0.029**		
					0.013		
Underwriting Cost						-0.023	
						0.281	
Insider Shares							0.085
							0.443
Constant	1.777***	5.681***	3.747***	3.997***	2.948**	3.763***	2.563***
	0.343	1.494	1.036	1.001	0.942	1.310	0.345
R-squared	0.005	0.013	0.549	0.598	0.158	0.551	0.550
Observations	695	501	500	500	383	500	500

The dummy variable of POE is 1 when the issuer is private-owned; otherwise, it is 0. IOE is 1 when the issuer is owned by a non-government institution. Column 1 in Table 7 finds that POE has higher initial returns, consistent with the results in Table 6. However, when controlling for the size effect in Column 2, both POE and IOE are insignificant. There is no relation between the issuers' types and adjusted initial returns in the multivariate regressions. It suggests that the significant difference of initial returns between SOEs and POEs comes from the size effect rather than the underpricing. Taking the offering multipliers as the dependent variable, the results are similar. The signs of the size are consistent with the asymmetric information story, that larger-sized firms should be underpriced less and yield lower returns.

When I include other factors strongly influencing initial returns, the signs of the issuers' types become insignificant. Besides firm size, the other determinants of initial returns are the IPO-flotation time gap, lottery rate and offer price. Because of the stylized fact of excessive underpricing, the offer shares are normally oversubscribed and the issuers have to allocate the shares by lottery. The lottery rate is the percentage of the applicants who get the offer shares. When the lottery rate is low, the over-subscription rate is high. This variable approximates the demand for the shares of a firm going public. When the demand is high, the closing price of the first day on the secondary market rises high and the initial returns is high. The significantly negative sign of the lottery rate is consistent with this intuition. It also increases the R-squared of my econometric model by 5%. Specification 4 has the greatest interpretative power.

If I include the variable of offer prices in the model, the signs of other variables remain consistent, but the R-squared drops to 0.158. This may result from multi-collinearity. The initial returns are calculated as the first-day closing price over the offer price. If I include the offer price in the independent variable, it produces a spurious effect. Although a number of papers use this variable (e.g., Datar and Mao 1998, Liu and Li 2001), Column 5 presents an invalid regression.

A firm having a long history may establish its reputation and the information becomes less asymmetric. Comparing with established firms, the underpricing of young firms should be higher. On the other hand, firm ages are correlated to the types of IPOs. Under the legacy of a former planned economy, the old firms tend to be SOEs or have relatively higher state shareholding. Firm age should be controlled, but I do not find that the age effect is significant in my data.

The private hypothesis suggests that the underwriting cost per share should influence initial returns, but Column 6 reports an insignificant coefficient of underwriting costs. The effect of lobbying intensity does not seem to hold here. However, if I exclude the variable of time gap from Column 6, the coefficient of underwriting costs become significant. It suggests multi-collinearity between these two variables. Lobbying effect may impact initial returns through the effect of the time gap. I investigate this conjecture in detail in the following sections.

Mok and Hui (1998) argue that the size of non-tradable shares negatively effects initial returns, but I do not find this effect is significant. Besides the different samples and different econometric techniques, one interpretation is that there is multi-collinerity between the size of non-tradable shares and the issue size. The issue size is normally the numbers of tradable A-shares, which decides the relative percentage of non-tradable shares in more than 90% of listing firms that have no B-shares or foreign shares. I further examine whether the size of government shareholding stake is a determinant of initial returns. The variable of state shares is not significant and it is not presented in the table for reasons of space. The traders on the first day of listing do not seem to pay much attention to the size of state shares.

Table 6 and table 7 lead to the conclusion that there is no significant difference in pricing state-owned enterprises (SOEs), institution-owned enterprises (IOEs) and private-owned enterprises (POEs). The types of issuers' ownership are not a determinant of initial returns. Just as POEs go public to obtain the offering proceeds, I show that the SOE issuers also pursue their financial interest when it goes public. Comparing with the non-government issuers, the financial

hypothesis that the government issuers pursue its offering proceeds is supported.[15] It is consistent with the policy goal that the stock market should serve to provide new capital to the former state-owned enterprises.

The non-significant conclusion with regard to the political hypothesis does not necessarily imply the rejection of the political hypothesis, since the indifference of pricing between SOEs and commercial enterprises still results in excessive underpricing. Excessive underpricing comes from the mandatory ceiling whereby the maximum offering multiplier is 15 in a market where the price/earnings ratio is usually more than 30. With forced underpricing of all the firms by regulation, the Chinese government pursues its political interests; meanwhile the SOE issuers can get as much money as non-government issuers. It is authoritarian underpricing, which differs from Machiavellian underpricing; in the sense that a Machiavellian government probably uses share issue privatizations to lead to excessive underpricing and to its political pursues that requests SOEs are underpriced significantly more than non-government enterprises.

4.4 Waiting Time

I define the IPO-flotation time gap as the duration between the announcement day that sets the offer price and the flotation day that produces the closing price. Column 3 in Table 7 shows that the time gap is a main determinant of initial returns. The R-squared improves from 0.013 to 0.549 when I control for the gap effect. With one more day's delay getting floated on the stock exchanges, after making the initial offerings, the initial returns increase 0.4%. If I use a logarithmic transformation of the time gap, the same significant positive sign remains. In fact, most abnormal returns come from delayed public offerings. For instance, the *Chengdu Hoist Ltd*

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[15] This consequently supports the implicit assumption of Perotti (1995). However, this paper is not targeting at testing Perotti (1995), but at documenting the stylized Chinese facts and providing an interpretation. Dewenter and Malatesta (1997) and Jones *et al.* (1999) contribute to the test of Perotti's model (1995) with the cross-country data and the data from both initial public offerings and seasoned offerings.

issued shares to the public at RMB ¥1 in January 1990, but was floated on the Shenzhen Stock Exchange in March 1998. The closing price on the first day was RMB ¥39.57.

Chowdhry and Sherman (1996) may interpret my finding, differently. They argue that IPO returns are positively related to the time gap, because information asymmetry is reduced and the market may discover the value of the firms as time passes.

Since the excessive underpricing happens during the first-day trading in the secondary market, the gains are not taken by the issuers, but by the investors of the tradable shares. Large shareholders who are able to influence corporate strategies normally hold the non-tradable shares. There are very scarce cases in which a large shareholder trades his shares on the first day of flotation. The holders of insider shares are not allowed to trade their shares immediately after listing. They are not directly benefited from a higher closing price on the first day of public trading after a prolonged delay of flotation. On the contrary, when issuing firms are listed earlier, they gain from the advertisement effect of public trading and the opportunity to make seasoned equity offerings relatively sooner. The large shareholders and insider shareholders can also expect to harvest the money at a relatively earlier date. They prefer to reduce the time gap.

The flotation time, however, is not a choice for issuing firms, but a decision of the government regulator. The CSRC adopts a quota system to limit the number of firms floating on the stock market. It brings about a long queue for issued shares to be publicly traded on the stock market. This is a special trait of IPOs in China. I investigate whether the CSRC uses the gap as a means to achieve the underpricing as well as to achieve political goals.

I separate my sample into four groups of firms. Firms are floated onto the stock exchange and are publicly traded 1) in less than one trading month, 2) between one month and half a trading year, 3) between half a year and one year, and 4) more than a year. The measurement of months and years is based on the numbers of actual trading days.

Table 8: Time Gap between Offering Date and Flotation Date

This table classifies the firms by the IPO-flotation time gap into four groups: less than one trading month, between one trading month and half a trading year, between half a trading and one trading year, and more than one trading year. I use the symbols ♠♣ ♥ and ♦ to represent the above four groups of firms, respectively. If there is a symbol of another group behind the numbers, there is a significant difference between this group and the group represented by the symbol. There are no statistical comparison tests for Panel 2.

	Time Gap (Days)		♠<1 Month		♣1~6 Months		♥0.5~1 Year		♦>1 Year		Total
0	Total Observations		237		274		90		125		726
	Panel 1										
1	Initial Returns	Mean	1.395	♥♦	1.165	♥♦	1.652	♠♣♦	11.799	♠♣♥	2.847
		Median	1.278	♥♦	1.073	♥♦	1.378	♠♣♦	9.570	♠♣♥	1.289
2	Offering Multiple	Mean	15.26	♥	14.21		13.13	♠	14.44		14.65
		Median	15.00	♥	14.50		13.63	♠	14.44		14.50
	Panel 2										
3	POE	Observations	9		6		2		8		25
		Percentage	36.0%		24.0%		8.0%		32.0%		
4	SOE	Observations	155		181		59		70		465
		Percentage	33.3%		38.9%		12.7%		15.1%		
5	IOE	Observations	73		87		29		47		236
		Percentage	30.9%		36.9%		12.3%		19.9%		
	Panel 3										
6	Insider distributed	Mean	0.065	♣♥♦	0.042	♣♥♦	0.020	♣♥♦	0.014	♣♥♦	0.045
	Shareholding stake	Median	0.026	♣♥♦	0.023	♣♥♦	0.001	♣♥♦	0.000	♣♥♦	0.014
7	Flotation Cost	Mean	0.251	♣♥♦	0.186	♠♥♦	0.119	♠♣♦	0.006	♠♣♥	0.040
	Per Share	Median	0.250	♣♥♦	0.195	♠♥♦	0.101	♠♣♦	0.000	♠♣♥	0.038

Row 1 in Table 8 shows that a large part of the excess returns comes from the historical issues that floated on the stock exchanges after waiting for more than one year. Excluding these historical issues, the actual first-day returns have the mean of 130% as compared with 285%, and the median of 113% as compared with 129%. However, even the 130% is still excessive and it goes beyond the classical theories of IPO underpricing. Generally speaking, the initial returns increase with the time gap after half a year when new information from semi-annual reports arrives. There is no significant difference in the initial returns when the gap is less than half a year. The time delay is extensive and significant. It may work as a means for the regulator to achieve excessive underpricing.

Row 2 shows that only the offering multipliers of the firms with a gap of less than one month are significantly higher than those of the firms with a gap of between more than half a year and less than one year. Firms floated within one month normally choose the maximum multiplier as 15, which shows as the median of the first group. The mean of the first group shows that some firms had a multiplier higher than 15. The CSRC stipulates the ceiling as 15~20 times earnings per share, but it requests an additional application if the issuers want to price the shares above 15 times. This additional application process normally reduces the chance of public listing.[16]

I find that there is a larger variance for private-owned firms to get listed. Of these, 36% begin to be publicly traded on the stock exchange within one month, but 32% of them need to wait for more than one year. It is higher than SOEs and COEs in both the left tail and the right tail of the distribution. There is perhaps a game between the CSRC and the private owned firms. Some POEs may lobby excessively for a timely flotation and they succeed in gaining favor from the officials of the regulation authority. Some POEs, however, are not good at lobbying and the CSRC puts them to the end of the flotation waiting list. The distribution of the number of SOEs by time to flotation is concentrated in the range up to less than half a year and it is higher than the

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[16] For instance, *Yunan Nantian Electronics* was issued with the offering multiple of 20 in 2000.

percentage of non-governmental-institution-controlled enterprises in that range. This statistical investigation does not provide strong evidence of the favoritism by the CSRC, though.

Due to the forced excessive underpricing, insider shares are a good proxy for the private gains made. The company has to file with the CSRC to allow insider shares to be traded on the open market after a holding period of 6 to 12 months. This application normally happens after the flotation of the firms on the stock exchanges. Therefore, generally, the first-day trading prices do not directly influence the wealth of the holders of insider shares, but the waiting time to flotation matters. Panel 3 in Table 8 investigates the distribution of insider shares in the categories of the waiting time for the firms to be publicly traded. Row 6 standardizes the insider shares over the total shares. I find that the insider shares are, on the average, 6.5% of total shares when the firms get floated within one month, 4.2% within half a year and 2% within one year. There seems to be a declining pattern of time gap on the size of insider shares, in which there is a shorter time gap when there are a larger proportion of insider shares. Under the stylized fact of excessive underpricing, the shareholders of insider shares normally make the gains, although they have to wait longer to sell out the shares and pocket the money. The time gap cannot bring about such a sharply decreasing pattern for insider shares. The causality should be the reverse.

Row 7 further examines whether the underwriting costs have some pattern in relation to the time gap. The average underwriting cost per share for the firms to be floated in more than one year is RMB ¥0.06 per share and the median is RMB ¥0.00. Some firms do not use a broker to make the public offerings and they issue the shares themselves. The cost is recorded as part of the administration cost. It is consistent with an administration cost per share as high as 0.74 in this category. The general pattern is that, with increasing underwriting cost per share, the firms get listed earlier. It seems to be a buyout of the waiting time. The descriptive statistics in Panel 3 are consistent with the private hypothesis. I further investigate the influence of lobbying costs on the time gap with multivariate regressions in Section 4.6.

4.5 Insider shares

Table 9 presents the effects of issuers' types, insider ownership, lobbying costs and the market cycles on the flotation time gap.

When I regress upon the time gap only with the dummies of POE and IOE, I find that the coefficients are insignificant. In fact, Column 1 is not a valid econometric model, because the F-statistic is not significant.

Column 2 shows that the dummy variables POE and IOE have significantly positive coefficients when I control for the insider shares. If all the firms have the same proportion of insider shares, an SOE issuer has a shorter time gap between the offering date and the flotation date. There is a sequence of waiting time: POEs the longest, IOEs the second longest, and SOEs the shortest time. The proportion of insider shares in SOEs are significantly less than in POEs and IOEs, which interprets the finding of no difference without controlling for the insider-shares effect.

Table 9: Determinants of Flotation Time Gap

This table presents the robust regressions on time gap. Given that time gap is always positive, I transform the skewed sample of time gap to a bell-shaped distribution by logarithms. Standard deviations are given below the coefficients. The asterisks after the coefficients show the range of P-values: *** as p-value ≤ 1 %, ** p-value ≤ 5%, * p-value ≤ 10%.

Logarithm of Time Gap	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
POE	0.388	1.135**		0.941***		1.208***		1.289***
	0.450	0.532		0.268		0.294		0.278
IOE	-0.202	0.329**		0.179*		0.323***		0.248**
	0.129	0.160		0.098		0.121		0.117
Insider Shares		-5.611***	-5.558***			-1.831***		-1.691**
		0.899	0.787			0.693		0.714
Underwriting Cost Per Share				-7.806***	-6.877***	-8.284***		-8.181***
				0.381	0.352	0.571		0.721
Year 1995							1.298***	1.028***
							0.422	0.359
Year 1996							-0.736***	0.215
							0.157	0.198
Year 1997							-1.308***	-0.436**
							0.120	0.183
Year 1998							-0.489***	0.131
							0.150	0.263
Constant	4.322***	4.061***	4.300***	5.235***	5.148***	5.411***	4.715***	5.343***
	0.110	0.096	0.080	0.083	0.076	0.134	0.076	0.114
Observations	726	512	695	719	1143	509	695	509
F-test	1.96	14.35	49.82	140.02	381.81	62.98	34.93	55.24
R-squared	0.007	0.085	0.061	0.456	0.331	0.480	0.126	0.520

Column 3 presents the effect of insider ownership without the influence of issuers' types. The significantly negative coefficient of insider shares suggests that insider shares play a role in reducing the time gap between the offering date and the flotation date. With a larger proportion of insider shares, the managers and other employees are motivated and they actively push through the flotation process for private benefits. If getting listed earlier, the holders of insider shares make a quicker gain, including employees of the firm, privileged business associates and targeted influential bureaucrats. Therefore, this special-interest group can exert some influence on the waiting time for flotation.

The part of insider shares that are illegally allocated to some bureaucrats probably has more influence than other insider shares on deciding the waiting time. No data is available on the allocation of insider shares. However, some sense of the whole can be gained from individual cases. For instance, *Daqing Lianyi Petroleum* arranged 941,500 shares at the offer price to 17 top local officials and to 44 deputy local officials in the city of *Daqing*. The shares of *Daqing Lianyi* were underpriced by 151%. Mr Na Fengqi, the head of the tax bureau of *Daqing*, gained profits of RMB ¥740,000 after selling out the offering shares. The flotation waiting time *Daqing Lianyi* was less than 3 weeks, among the shortest 10% time gaps to float on the stock exchange.

For another example, the firm *Kangsai* Group issued shares to the public without employee shares in February 1990. The firm did not push through the flotation till the employee shares were issued in 1996. Wu Wenying, a former state advisory counselor and Xu Penghan, a former vice minister helped the firm *Kangsai Group* to get the quota from CSRC to go public in the same year, because the *Kangsai Group* specially arranged the sale of the employee shares to their relatives at the offer price, to which they were not entitled. The wife of Xu Penghan bought 40,000 shares at the offer price of RMB ¥1 and received 43,600 shares for free. She profited by RMB ¥796,000 when the *Kangsai Group* repurchased these shares at the price of RMB ¥10. The son of Wu Wenying bought 100,000 shares at the offer price and profited RMB ¥890,000 when the employee shares became tradable. The shares of *Kangsai* were underpriced by 905% during

the public offerings. This extreme case is taken as an outlier in my regressions, but it shows a widespread problem with insider shares.

The above two cases of IPO bribes become known only after the investigation of the prosecutors, which shows the tip of the iceberg. It supports the private hypothesis that the company managers, the investment bankers, and the regulators are profiting from buying the insider shares at the offer price and selling sometime after the flotation.

4.6 Lobbying effect

Allocating insider shares to influential bureaucrats is bribery. The firm managers, however, can legally pay a middleman to lobby and help handle the flotation process. The middleman is normally the broker and the fee paid to the broker is recorded as the underwriting cost.

The underwriting cost is the other dimension that blurs the effect of issuers' types. When I control for the underwriting cost per share in Column 4, the coefficients of POE and IOE become significant. The coefficient of POE is 0.94 and IOE 0.18, significant at the 5% level. It means that, if the underwriting costs were the same and the SOE issuers needed one week to be floated onto the stock exchange after making the initial offering, then private owned firms had to wait in the queue for 1.94 weeks and non-government-institution owned firms waited for 1.18 weeks.

The government-owned enterprises are not priced lower than other enterprises, but they are listed earlier than other enterprises, *ceteris paribus*. It possibly comes from the stronger connections of the SOE issuers to the government regulator, which brings about preferential treatment. The favoritism of the CSRC is consistent with Tian's argument (2000) about the benefit of a large-government-shareholder.

When the private owned enterprises pay a higher underwriting fee and request the well-connected underwriters to lobby the officials in charge of flotation, the favoritism of the CSRC vanishes. The median underwriting fee paid by the POEs is 0.23 per share; IOEs 0.15 and SOEs 0.14. This pecking order is significant in terms of the Student T statistics for the means and the ranksum statistics for the medians.

Column 3 looks at the isolated effect of underwriting costs. I find that by increasing one unit of payment to the broker, the waiting time is reduced by nearly 7 days. The underwriting cost accounts for 33% of the time gap. If excluding the historical cases, where the issuers themselves issued shares without going through a brokerage house before the establishment of listing rules, the sign of the underwriting cost remains significantly negative.

All else equal, the underwriting costs per share approximate the lobbying costs. Underwriting cost per share is therefore a kind of ransom for the long waiting queue. The regulation authority sets this time trap, but the ransom is paid to the well-connected investment bankers, since the bankers are positioned to lobby the CSRC to reduce the waiting time.[17] The issuers pay for the extra work of the underwriters. The expense of lobbying increases the underwriting cost.

Column 6 pools the effects of insider shares and lobbying costs together and my arguments hold. Table 8 and table 9 therefore show that both the benefits for some individuals and lobbying efforts help to get earlier listing. The private hypothesis is therefore supported.

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[17] If taking the reputation ranking of the brokers as an independent variable, I found that the issues with a better-connected banker got listed earlier.

4.7 Political factor

The above two sections show that private benefits are a determinant of the IPO-flotation time gap. I further examine whether the CSRC uses this time gap as a lever to develop the stock market, besides the regulatory ceiling of offering multiplier.

Table 1 shows the market cycle in China. In the Shanghai Stock Exchange, the P/E ratio was 23.5 in 1994, 15.7 in 1995, and over 30 from 1996 to 1998. The stock index has a similar pattern of ups and downs. In 1994 and 1995, the market was bearish. If the government regulator is devoted to financial market development, the stability of the stock market is a goal to pursue. If the hypothesis of political interest holds, I should see that regulators float firms with a long time gap during the bear market and the firms with a short time gap during the hot market.

Column 7 investigates whether there is a market-cycle effect. I find that the firms floated in 1995 have a significantly longer time gap. Because the time gap boosts the initial returns, it helps to advance the stock index and attract investors. In the hot markets of 1997 and 1998, the firms floated have a significantly shorter time gap. It helps to cool down the market. The choice by different time gaps to float a firm on the stock exchange is a policy tool. Consistent with the purpose that the CSRC sets the quota for flotation and creates a long waiting list, the tool of a waiting time under the listing quota also helps the government regulator to achieve its political goals.

4.8 Further investigation of initial returns

The above four sections discuss the factors influencing the time gap. Section 4 finds the variable of flotation time gap is a main determinant of initial returns. Table 10 in the following page provides the instrument variable regression results.

When the variable of time gap is taken as endogenous, the results of Table 7 remain consistent. I show that time gap is still the main determinant of initial returns, although it is

determined by insider shares, lobbying costs and market cycles. Table 10 strengthens my findings and arguments in previous sections.

Another key factor in Table 7 and Table 10 is the constant. The constant captures some general effect underlying all the regressions, which is the ceiling of offering multiplier. Consistent with common sense that the ceiling of offering multiplier generally boosts the initial returns, the constant is significantly positive.

Table 10: Initial Returns, Flotation Time Gap and Lobbying Costs

This table presents the instrumental-variable regressions with bootstrapped standard errors for the determinants of adjusted initial returns. The variable of *Time Gap* is instrumented after the logarithm transformation by the variables of POE, IOE, Insider Shares, Underwriting Cost per Share and Year Dummies, which is presented in Column 8 of table 9.

IRA	Coefficients	Bootstrap Std. Errors	z- statistics	P>|z|
Time Gap	0.004	0.000	11.18	0.000
POE	1.423	1.645	0.87	0.387
IOE	-0.567	0.513	-1.11	0.269
Size	-1.295	0.262	-4.94	0.000
Age	-0.007	0.008	-0.95	0.344
Lottery	-1.552	0.669	-2.32	0.020
Constant	2.813	0.365	6.61	0.000

Observations: 497

R-squared: 0.550

F-statistics: 35.7

Probability > F: 0.000

5. **Conclusion**

This paper documents excessive underpricing in China and rationalizes the stylized fact of excessive underpricing by a study of the governmental behavior in the IPO market. The first-day return of 1125 new issues from 1991 to 2001 is 285% on the average and 133% for the median. Although it was launched as an experiment only eleven years ago, the Chinese stock market has developed rapidly through excessive underpricing, and it has become an indispensable part of Chinese economic life. The community of shareholders is widespread and reaches down to the grassroots. It helps China to transform from a labor-led society to an investor-centered one. Even privatization gradually becomes viable and popular in this country still controlled by communists. Excessive underpricing there provides a means to the political ends of a reformist government. The listing quota and the delay of flotation are also used to stabilize the market—to boost a bear market and cool down an overheated market.

The Chinese government is intelligent and sophisticated, achieving its political goals without further loss of its financial interests. The pricing of state assets is the same as private owned assets in the initial public offerings. The regulation authority stipulates the fixed-pricing method and sets the ceiling on offering multiplier at around 15. In the secondary market with the usual P/E ratio being over 30, this ceiling brings about excessive underpricing for all shares, no matter whatever the ownership type of the issuers is. It achieves the economic end of protecting state assets in raising new capital for government-owned enterprises.

Although I provide evidence that the Chinese government is intelligent, I also find that there exist rent-seeking activities in the primary market at the same time. The proportion of insider shares and the intensity of lobbying significantly influence the length of the delay to flotation, although the private benefits show no direct impact on the pricing of issuing firms.

Social elites are sophisticated enough to avoid the spotlight of pricing, but they play a delicate "time game" to pocket their personal gains. It is not necessarily at the immediate cost of the government's financial or political interests.

Appendix 1: IPO Underpricing around the World

This table is sourced from: Loughran, Tim, Jay R. Ritter and Kristian Rydqvist, 1994. Initial Public Offerings: International Insights. *Pacific-Basin Finance Journal* 2: 165-199. updated 2001 on http://bear.cba.ufl.edu/ritter

Developed Economies		Asian Emerging Economies		Other Countries	
Australia	12.10	Hong Kong	15.90	Brazil	78.50
Austria	6.50	India	35.30	Chile	8.80
Belgium	14.60	Indonesia	15.10	Greece	51.70
Canada	6.30	Korea	74.30	Israel	12.10
Denmark	5.40	Malaysia	104.10	Mexico	33.00
Finland	10.10	New Zealand	23.00	Nigeria	19.10
France	9.50	Philippines	22.70	Poland	35.60
Germany	27.70	Singapore	31.40	Portugal	10.60
Italy	23.90	Taiwan	31.10	South Africa	32.70
Japan	26.40	Thailand	46.70	Spain	10.70
Netherlands	10.20			Turkey	13.60
Norway	12.50				
Sweden	34.10				
Switzerland	35.80				
United Kingdom	17.50				
United States	18.40	China: Mean	285.66;	Median	133.38

Appendix 2: Data Sources

	Data Sources	Reliability
Share price data	Datastream Inc.	Established international renowned data vendor
Accountancy data before IPO	Taiwan Economic Journal	The leading data specialist company in Taiwan and the major Chinese data vendor to Reuters, Datastream etc.
Accountancy data after IPO	Genius Inc.	More than 80% Chinese investment bankers and security analysts rely on the data provided by this company.
State ownership	Genius Inc.	
Board of directors	Taiwan Economic Journal	
Large shareholders	Beijing Hairong Inc.	The major financial data specialist company in Beijing.
Industrial classification	China Securities Daily	The leading newspaper on finance and securities in China
Issuers' Type	Hand collected from Annual Reports	http://www.cninfo.com.cn/.

Appendix 3: Non-Normality of the Data Sample

This table describes the statistical characteristics of initial returns. Price is the share closing price on the flotation day; IR is the raw first-day returns; IRM is the initial returns adjusted by the market; and IRA is the initial returns adjusted by both industries and the market indices. The Shapiro-Wilk W test rejects the normality distribution of initial returns.

	Price	IR	IRM	IRA	ML
Count	1,125	1,125	1,125	1,125	539
Mean	9.21	2.85	3.13	1.83	14.64
Standard Deviation	10.30	6.29	6.29	6.13	2.48
Kurtosis	85.60	22.19	22.18	22.70	0.96
Skewness	6.96	4.12	4.12	4.19	10.37
Shapiro-Wilk W test	15.992	14.686	14.685	14.793	8.734

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