

The Impact of the Full Circulation Reform on Chinese Security Prices and Valuation

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Abstract

Since the establishment of China stock markets in early 1990s, two thirds of China domestic shares were held by the central government or their representatives and only about one third were issued to the public investors. Government shares were not allowed to be traded publicly while the otherwise identical shares were freely-traded. This unique split share structure can lead to conflicts of interest between tradable and non-tradable shareholders and has been recognized as the source of many corporate governance problems in China. In early 2001, the Government unsuccessfully decided to sell its ownership of the listed enterprises as the market collapsed under severe price pressure. In 2005, China Government launched Full-Circulation Reform to convert the non-tradable government shares into traded shares. The event consisted of a series of sub-events, including announcement of macro policies and subsequent firm-specific decisions. China Full-Circulation Reform was set to protect the interests of minority shareholders by (1) allowing companies to devise their own proposals which took in opinions from both the holders of non-tradable and tradable domestic shares; (2) requiring the owners of non-tradable government shares paying Consideration to the owners of tradable domestic shares to compensate them for any anticipated loss; and (3) imposing some restrictions on the sale of government shares. In this thesis the event-study method is employed to investigate the effect of China Full-Circulation Reform on China stock markets. In particular, whether the scheme was fair to both tradable and non-tradable shareholders and what factors were important in the outcome. The results suggest that the procedure taken by the Government to protect the minority interests in the reform was successful with the tradable shareholders not losing in the reform. And the main objective of maintaining the market stability while floating the non-tradable government shares had been successfully achieved.

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Abbreviations

CBRC: China Banking Regulatory Commission

Code: Code of Corporate Governance for Listed Companies

CSDCC: China Securities Depository and Clearing Corporation Limited

CSRC: China Securities Regulatory Commission

D&C: China Securities Depository & Clearing Corporation Limited

GDP: Gross domestic product

Guidelines Pilot Reform (2005): Operational Guidelines for the Pilot Reform of Listed Companies

IMJC: Inter-ministry Joint Conference

Measures (2001): Provisional Measures for Raising Funds for NSSF from Divestiture of SOE Assets

Measures (2001): Provisional Measures on Management over the Reduction of State Shares to Raise the Social-security Fund

Measures (2005): Measures on administration of split share structure reform of listed companies

MoF: Ministry of Finance

MoHRSS: Ministry of Human Resources and Social Security

MoLSS: Ministry of Labour and Social Security

NCSSF: The National Council for Social Security Fund

Notice (2005): Notice on the Trial Implementation of Measures on Full Circulation Reform for Listed Companies and Related Questions

NSSF: National Social Security Fund

NTS: Non-tradable shares

Opinions (2004): Some Opinions of the State Council on Promoting the Reform, Opening and Steady Growth of Capital Markets

OTC: Over-the-counter

PBoC: People's bank of China

Provisions (2004): Strengthening the Protection of the Rights and Interests of Public Shareholders Several Provisions

QFII: Qualified Foreign Institutional Investors

RMB: Chinese Renminbi currency, also known as Yuan

SAFE: State Administration of Foreign Exchange

SASAC: the State-owned Assets Supervision and Administration Commission

SCRE: State Commission for Restructuring the Economy

SCSC: State Council Securities Commission

SDPC: State Development Planning Commission

SETC: State Economic and Trade Commission

SHSE: Shanghai stock exchange

SIP: Share Issue privatisation

SOE: State-owned enterprises

SZSE: Shenzhen stock exchange

TAS: Tradable A-shares

TBS: Tradable B-shares

THS: Tradable H-shares

TS: Tradable share

Chapter 1. Introduction

This thesis investigates empirically the impact of the Chinese stock market reform --- liberalizing non-tradable shares to be tradable --- on the market. The investigation is made on the basis of an institutional research and the event-based statistical method. The former research helps to characterize qualitatively the policy plan and institutional path to carry out the liberalization or “the Full Circulation Reform” --- over the period from 2002 to 2007. The event study in the latter part explores quantitatively how the market responded to the reform policy in terms of market behavior in pricing assets. The study claims that the Full Circulation Reform is successful for its planned achievement of the policy objective to protect small shareholders. This explains largely why the reform is well perceived by the market that values its policy and the measures taken to implement the reform policy. The contribution of the finding is original and significant to the existing literature from the perspective of both applied financial studies on the market impact of events and the understanding of the Chinese stock market and its development.

This study is divided into eight chapters.

Chapter One is the introduction to the whole research.

Chapter Two introduces the institutional development of China stock markets in the context of the overall Chinese reform since 1978 when the 3rd Plenum of the 11th Party Congress announced the official prelude to the China economic reform.

Since the founding of P.R. China in 1949, the first thirty years featured a full-planned economy system in which the Government controlled all major sectors of the economy and formulated all decisions about the use of

resources and the distribution of output. Planners decided what should be produced and direct lower-level enterprises to produce those goods in accordance with national and social objectives. SOE executives were appointed and dismissed by the Government and usually treated as Government officials.

After the 3rd Plenum in 1978, China began to move from a centrally planned economic system to a market-oriented system. China SOE reform is a centerpiece of the overall reform. Enterprises have been gradually given more and more autonomy to take control of themselves, dealing with relevant rights and responsibilities. From 1979 to 1993 the Government gave SOEs responsibility for dealing with their own gains in the market but SOEs were not fully responsible for the losses. The managers didn't worry about bankruptcy as they believed the Government was a convenient resort. The rights and responsibilities of SOE stakeholders and management were ill-defined.

The 14th Party Congress in 1992 decided to construct a socialist market economy and establish a modern corporate system. China SOEs were privatised through restructuring and selling. China stock markets were used to privatise selected strong medium and large-sized SOEs through share issuance. The emergence of China stock markets is actually the fourth stage of China SOE reform process.

China stock markets, consisted of Shenzhen Stock Exchange and Shanghai Stock Exchange (SHSE and SZSE), have been growing rapidly since the inception. The listed firms issued three types of shares: tradable A shares (TAS) available uniquely to domestic investors, tradable B shares (TBS) available uniquely to foreign investors and non-tradable A shares (NTAS) retained by the Government in terms of state shares and legal-person shares.

NTAS were allowed to transfer off-market. This classification of share types in effect has created three segmented markets where TAS, TBS and NTAS could be traded separately without mutual interference and thus valued at differential prices.

The People's Bank of China (PBoC) worked as the regulatory agency in 1980s to supervise the share-issuance but resulted in a chaotic security market. The lack of an efficient regulatory framework stimulated the Government to set up the China Securities Regulatory Commission (CSRC) as a regulatory authority, hoping to put the security markets under an efficient centralized supervision and setting up an efficient regulatory framework.

The listed SOEs sold averagely one third of the total shares outstanding, which is called partial privatisation.

The valuation and size differences between the TAS and NTAS indicate the private investors were very much sensitive to the increase in P/B ratio and worried about their interests as the minority shareholders. Therefore there was call from them to full privatise the listed firms. Furthermore, the dramatic expansion of private household savings also highlighted the demand of diversified investment opportunities which can be realised through full privatisation.

Chapter Three introduces the first attempt by the government in 2001 to sell NTA and the aftermath. Also studies and thoughts on this particular topic have been explored to draw useful lessons from this failure.

The first attempt by China Government to reduce state-shares was marked by Measures (2001)¹ which tended to use the revues to replenish NSSF.

¹ Provisional Measures for Raising Funds for NSSF from Divestiture of SOE Assets, issued by the CSRC in 2001.

Though carried out in a favorable macro-economic environment, this initial attempt was responded with a market plummet, which lasted for a quite long period, indicating the confidence of investors in the A-share market was damaged severely in the short-run and failed to recover even in the long-run. This plan therefore scraped in 2002.

The minority private investors, who only possessed relatively one third of the total shares outstanding in the listed firms, dominated the tradable A-share market. The 2001 announcement of floating state shares in majority to the tradable A-share market agitated the investors. Neither were they happy with the scheme of equal pricing as they believed the state shares were overvalued. Moreover, the uncertainties over when this would happen and how many would be sold also fretted the investors.

This unsuccessful attempt indicates that a premise to carry on the reform of reducing state ownership is to take into account the interests of the private investors namely the holders of TAS, to communicate with them effectively and to make compromise if necessary.

Chapter Four introduces the preparation work done and the scheme designed during the Full Circulation Reform in full details.

This time, the State Council drew a blueprint for reforming the country's capital markets, emphasizing the reforming firms should respect market rules and protect the interests of minority public shareholders. The reform was conducted gradually step by step.

The China Government launched the reform on April 29 2005 to sell non-tradable A shares, mainly owned by the Government, on the A-share markets. Under the trial guidelines issued on 8th May by the CSRC, two pilot groups consisting of 4 and 42 firms respectively were announced on

9th May and 20th June. Firms were invited to develop plans to allow non-tradable A-share holders to sell their shares, subject to negotiation with tradable A-share holders on an appropriate reform plan (mainly about a compensation level and trading restrictions). By 19th August, all of these companies had reached a consensus on proposal, and on 24th August, the Government issued formal guidelines to extend this reform scheme to the rest of the market. By the end of 2006, a total of 64 groups in addition to the pilot groups were announced, involving 1245 companies.

From a firm-specific view, a plan was firstly proposed by the holders of non-tradable A-share and then submitted to the Board of Directors. If accepted, the plan was announced and simultaneously a suspension from the stock market was applied to the firm. Following a negotiation between the holders of tradable A-shares and non-tradable shares, a plan agreement was filed and announced and trading was resumed. The plan was voted in the Shareholders' meeting. In general, another suspension was applied to the firm the same day when the meeting registered its shareholders. Once voted through, trading was resumed again when the approved plan was announced. Otherwise, trading was kept suspending.

The overall event is confounding and consisted of a series of sub-events, including macro policies and subsequent firm-specific decisions under the influence of the policies.

The 2005 reform program didn't impose a one-fit-all solution and instead allowed companies to come up with their own proposals which took in opinions from both the holders of non-tradable shares and tradable shares. There was a lock-up of non-tradable shares in the first 12 months after the reform plan was authorised, and after the lock-up period, a maximum sale as a percentage of total shares outstanding within a certain period was imposed.

Most importantly, the owners of non-tradable shares were required to pay Consideration to the owners of tradable-shares to compensate them for any estimated loss in the aftermath. The successful pilot program was then extended to the rest firms which subsequently reformed in orderly groups.

Chapter Five introduces the literature on event-study method, reviewing the development in the structure of an event study and important improvements in parameter estimation and statistics.

Assuming market efficiency, event-study method is used to measure the event effect on stock prices. Next the market efficiency literature is reviewed, with a focus on China stock market efficiency. There is evidence China stock markets are at least weak-form efficient.

China attempted to reduce state shares in June 2001 but failed due to the subsequent market crash. A few articles discussed this issue. Calomiris et al. (2010) suggested that the political benefits associated with the state ownership outweighed the benefits from private ownership. However the low R square cast doubt on their conclusions. Their conclusions implied that the holder of B shares on the China stock market should receive compensation as the holder of A shares during China's FCR, which was actually abandoned by China Government.

Finally there are few qualified studies on China's FCR, indicating this event hasn't been investigated properly and further research in depth is needed.

Chapter Six introduces the research design for an event study on China Full-Circulation Reform, including selecting critical event dates and sample, identifying hypotheses for each event selected, justifying the use of market model to estimate normal returns and the application of uniform estimation period to estimate model parameters, illustrating suitable statistic tests for

hypotheses testing, and defining regression hypotheses and relevant variables. In order to investigate the impact of China Full-Circulation Reform on China stock markets, event-study method is used to measure the event's economic impact constructed using security prices observed over a relatively short time period, assuming market efficiency in China. The research design follows a classic design of event-study analysis in Campell et al. (1997): (1) to define the event of interest and the event window, (2) to determine the selection criteria for the inclusion of a given firm in the study, (3) to model the normal returns so as to measure the abnormal returns, (4) to define an estimation period to estimate the parameters of the normal performance model, and (5) to design the testing framework for the abnormal returns. Binder (1998) pointed out the estimated abnormal returns for the sample firms were frequently used as the dependent variable in a regression with firm specific variables on the right hand side, indicating a sixth step: (6) to regress estimated abnormal returns against potential factors.

Chapter Seven presents the results from the event-study and regression analysis, which show that the Full Circulation Reform is very successful by triggering an overall move-up of 9% on the markets and this success is mainly due to the reform policy to protect minority TAS owners, the lessons learnt from the failed attempt in 2001.

Chapter Eight summarises and concludes the whole thesis. A complete picture is depicted. The contributions are highlighted. The contribution of the finding is original and significant to the existing literature from the perspective of both applied financial studies on the market impact of events and the understanding of the Chinese stock market and its development.

Chapter 2. China Stock Markets

The emergence of China's capital markets began with issuance of state treasury bonds in 1981 and state-enterprises corporate bonds to employees in 1984. Some state enterprises were also allowed to issue stocks to their employees. In the late 1980s, as part of state-owned enterprise (SOE) reform that took place during China's gradual transition to a market economy, local Governments in China started experimenting with selling shares of collectively owned enterprises directly to domestic individuals in order to raise equity capital. Curbed trading of enterprise shares soon began and was quickly followed by over-the-counter (OTC) trading in more organized but still informal exchanges. The capital markets were not well shaped until the formal establishment of the Shanghai Stock Exchange (SHSE) on December 19, 1990, and the Shenzhen Stock Exchange (SZSE) on July 3, 1991. Since then, these two Chinese stock markets have developed rapidly and become one of the most important emerging markets in the world.

2.1 China State-Owned Enterprises Reform and the Development of China Stock Markets

The development of China Stock Markets is inevitably interrelated with China's SOE reform, a center piece of the overall China economic reform. The China stock markets are managed by the state for the state-owned firms to raise public funds to support the growth of state companies (Green and Liu 2005). In effect, the China stock markets have been helping the privatisation of China SOEs and represented the current stage of China SOE reform process.

2.1.1 Economic reform in China

The overall China economic restructuring process started with the third Plenum of the 11th Central Committee of the Communist Party of China in December 1978, with an aim to move the country from the fully-planned economy to the market economy. There are two approaches adopted in transition economies to change from centrally planned economy to a free market. Countries in Eastern Europe adopted the Shock Therapy (or Big Bang) approach which modeled a transition advocating the immediate implementation of the necessary reforms to establish a free market economy. The shock therapy derived its name from Poland's stabilization and liberalization program initiated on January 1, 1990 and was also applied in Czechoslovakia (starting January 1991), Bulgaria (February 1991), Russia (February 1992), Albania (July 1992), Estonia (September 1992), and Latvia (June 1993). In contrast, since the very start of the China economic reform in 1978, China has taken a gradual cautious approach, which was praised by many researchers as one of the key reasons for China's success in setting up a market economy (Sinchen 1997). Kazakevitch et al. (2005) argued that China reform was gradual in macroeconomic sphere but sharp in the microeconomic sphere in terms of "the boldness of the reforms and the rapidity of the changes China has made in moving to a market economy, which has exceeded that attempted in most countries".

2.1.2 China SOE reform

For more than 30 years after 1949, China was a centrally planned economy in which virtually all enterprises were state owned or collectively owned. China SOE reform is one major component of the overall China economic restructuring process which is gradually moving from the planned system

towards the free-market system. As suggested in Liu and Gao (1999), the process consists of four stages:

Profit retention

The first stage ran from 1979 to 1983 with the major goal of administrative decentralisation and profit retention (*fangquan rangli*). Instead of centralizing all production and capital allocation decisions as under the old system, a pilot reform program on the expansion of enterprise autonomy was started in late 1978 and SOEs were allowed to retain 3% of their profits so that there were incentives to improve productivity and efficiency.

Fangquan rangli brought the undesirable consequence of motivating SOEs to bargain with or to hide profits from the Government, causing Government revenue to decline. The central Government's revenues decreased steadily relative to gross domestic product (GDP), falling from 31.2 percent in 1978 to 15.8 percent in 1989. Showing a deficit of 17.06 billion yuan in 1979, the Government did not achieve a small surplus until 1985.

Tax application and bank financing

The second stage of reform ran from 1983 to 1987. In order to solve the revenue reduction out of *Fangquan rangli*, the Government took two measures. First, SOEs were required to pay taxes instead of turning in profits (*ligaishui*) so no more bargaining on profit sharing is necessary. Second, the funding for SOE capital investments, instead of centrally planned and funded by Government fiscal grants, had to come through bank loans. In other words, bank loans (bank financing) replaced Government allocation (budgetary financing) to fund SOEs (*bogaidai*). This policy

relieved the Government's financial burden and made SOEs more cautious in their use of capital.

Unfortunately, this eventually led to the huge “triangular debt²” problem (chain debt) that has plagued SOE reform all along. This refers to the fact that a great number of SOEs are in debt to one another. The causes are complicated. The lack of discipline on management is one of the concerns. The average total debt ratio of SOEs was as high as 67.9% in 1994 (Wu, 1997). In the mid-1990s, state-owned banks, as a main funding of SOEs, had a rate of nonperforming loans as high as 40% (Wong and Wong 2001).

Yet, the policies of *ligaishui* and *bogaidai* did not help much. Effectively, SOEs used their money to pay the bank interest instead of Government taxes. In Chinese accounting, interests (or financial charges) are paid out of operating income. Furthermore, they now had an incentive to declare no profit or low profits. The Government ended up collecting much less revenue.

Contractual responsibility system

These factors led to the implementation of the Contractual Responsibility System (*chengbaozhi*). The Government gave SOEs a free hand to run their operations. Hiring and Firing authority were devolved down to enterprise managers and in return, SOEs had to promise a certain amount of tax to the Government. This marked the third stage of the reform process (1987–1992) that focused on the separation of Government ownership from control of SOE's operations. Because firms could retain funds earned above this tax quota, an incentive to engage in profit-making activities was created.

² Triangle debt is a big headache in transition economies.

However, the SOEs' obligation was on the profit side, not on the loss side. SOEs were not fully responsible for their losses and the managers didn't worry about the threat of bankruptcy.

Meanwhile Lin et al. (1998) pointed out China SOEs were mainly capital-intensive heavy industries whose products with strategic importance were purposely suppressed in price to facilitate national development plan, - in other words, the production were not sold at the market price, rather there were administrated prices -, and were meanwhile burdened with all social benefits of their employees. In addition, China SOEs were confronted with fierce competition from the non-Government firms, which were free of the problems that SOEs had and were beneficial from the preferential policies of the economic reform. According to Cao et al. (1999), in 1994, close to half of the SOEs were loss makers.

Privatisation

The party decided to go one step further in the 14th Party Congress in October 1992 which announced the target of constructing a socialist market economy and establishing a modern enterprise system. This announcement spearheaded the fourth stage of the SOE reform and led to the policy of Zhuada fangxiao (grasping the large and letting go the small). Zhuada fangxiao has successfully privatised the failing and smaller SOEs through restructuring, selling and mergers while selected some relatively strong medium and large-sized SOEs to be transformed into publicly listed firms on the stock market, namely share issue privatisation (SIP). During the period, private household savings surged in spite of the budget deficits relative to GDP while there was a lack of diversified investments other than the bank savings. China stock markets were supposed to facilitate the mobilisation of private savings to finance SOEs as an alternative investment

to savings and to improve the performance of SOEs through SIP (Wong 2006). China SOEs sold an average of one-third of the total shares outstanding on the stock markets.

Unlike open market economies where equity financing involves the exchange of control and cash flow rights over assets for a certain amount of capital that is determined by market valuation, China's stock market has at least three institutional peculiarities that provided additional rents to be captured through equity financing and thus create special incentive to issue shares and raise funds from the market. First, China's stock market operated in a financially repressed regime in which enterprises faced artificially low capital costs. As argued by Gordon and Li (2003), raising funds from China's stock market has been equivalent to the central government implicitly allocating taxes. As a result, local governments and enterprises have a strong incentive for equity financing in order to capture the economic rents created by such financial repression. Second, state ownership itself is associated with a greater tendency toward equity financing. Unlike private owners, state owners are not real owners but are rather bureaucrats who are unable to capture directly and entirely the cash flows that can be derived from state assets (Shleifer and Vishny 1997). The absence of or at least the incomplete cash flow rights for state owners implies that their valuation of a given asset tends to be lower than that of private owners who enjoy both control and cash flow rights (Li and Wong 2004). The lower valuation assigned by state owners in turn implies that they are more willing, when compared with private owners, to sell a given asset for a given price. Therefore, the incomplete property rights of state ownership create a special incentive for equity financing. Thirdly in China, many controlling shareholders treated listed enterprises as cash cows from which they can benefit at the expense of minority shareholders. Documented abuses by

controlling shareholders include obtaining soft loans from listed firms; using listed firms as guarantors to borrow money from banks; and buying and selling goods, services, and assets at unfair prices (Tenev and Zhang 2002; World Bank 1997). Green and Liu (2005) further argues that legal protection for shareholders in China improved little in the 1990s because the regulators were under political interference for the local governments that wanted to maintain a low level of legal protection for the average shareholders to allow listed SOEs to reap the benefits of expropriations created by a weak legal framework. China's stock market then became a venue where local governments and enterprises sought to issue shares to raise equity funds.

Year	Privatisation size %	Year	Privatisation size %
1993	24.4	1999	31.0
1994	26.3	2000	33.5
1995	27.0	2001	33.2
1996	29.1	2002	34.7
1997	29.7	2003	35.3
1998	29.5	2004	36.1
Data source: National Bureau of Statistics of China			

Table 2.1 The average partial privatisation size across China SOEs on the stock markets each year from 1993 to 2004

In the above table, the proportion of shares sold by China SOEs to the public was increasing from 24.4% in 1993 to 36.1% in 2004. It took China SOEs 11 years to sell a further 11.7% of the state shares.

In effect, the Government retained the control over these firms by holding the other two-thirds of shares. Not a single China SOE was completely privatised. According to China Securities Journal and National Bureau of Statistics of China, there were 1381 firms listed on two China exchanges by the end of Apr. 2005, out of which 92% (1345) were former SOEs directly controlled or partially owned by the State-owned Assets Supervision and Administration Commission (SASAC).

2.1.3 The development of China Stock Markets

This section mainly reviews the history and the present of China stock markets, introduces the unique share and ownership structure of China stock markets and the resulting impacts on pricing of different shares, and finally looks at the administrative intervention in China stock markets.

The shareholding reforms in 1980s

China's shareholding reforms began in the early 1980s. During 1980 – 1986, twenty shareholding companies were established. All these companies were created on ad hoc basis without any kind of authorization or policy

framework being provided by central Government. The processes were spontaneous. Since 1986, the Government began more systematic shareholding experiments across China, which was strongly backed by Premier Zhao Ziyang, one of the chief exponents of these reforms. As a result, during 1986-1988, the issuance of securities across the country grew out of the quota set by the Government. Unofficial securities issuance, often informally authorised by local Government but not by the central Government, expanded massively, despite the central Government attempts in 1987-1988 to restrain the scale of restructuring, such as banning SOEs from public issuance unless authorised by the central Government. During 1989, share issuance shrank as the central Government became more severe on curbing investment and the local Government thus reoriented to the new situation.

The central Government authorised Shanghai OTC in December 1986, which listed eight companies by the end of 1989. OTC then quickly spread to other major cities. By the end of 1987, there were reports of securities trading taking place unofficially in over 44 cities across China. However the OTCs could not cope with rapidly growing demand, prices were unstable between counters and fees were high. Moreover the OTCs facilitated insider trading³. In March 1987, the state officially authorised the Shanghai and Shenzhen Governments to experiment with stock markets and banned them elsewhere. The need of a larger, better governed and more economically significant trading sites was evident by early 1990.

³ For details, please refer to chapter 4 in “To Get Rich is Glorious! China’s stock markets in the ‘80s and ‘90s” by Carl E. Walter and Fraser J.T.Howie. 2001

China stock markets

The Shanghai Securities Exchange was formally established in 1990, and initially eight stocks were listed. The Shenzhen Stock Exchange was also established in 1991. At the beginning, five companies were listed on the Exchange. Few companies actually issued shares in 1991. Share prices moved little and the public remained largely suspicious of the new commodity known as share. After Deng Xiaoping called for rapid economic growth, increased investment and experiments with shares in January 1992, people swarmed to buy shares. A share fever broke out. Deng's call also triggered another round of mass issuance of shares. In response, the China Securities Regulatory Commission (CSRC) was established in 1992. THE CSRC is in charge of conducting daily supervision and regulation of the securities markets and future markets in accordance with the law⁴. Since then China stock markets have rapidly developed and experienced tremendous growth with total market capitalization increasing from RMB 5 billion at the end of 1993 to RMB 2452.3 billion at the end of 2008 (China Statistic Yearbook 2009). At the end of 2008, China's stock market had 1,625 listed enterprises.

⁴ For details, please refer to chapter 5 in "To Get Rich is Glorious! China's stock markets in the '80s and '90s" by Carl E. Walter and Fraser J.T. Howie. 2001

Year	Issued Share (100 million shares)	Raised Capital (100 million yuan)	Number of firms listed
1991	5	5	10
1992	20.75	94.09	14
1993	95.79	375.47	53
1994	91.26	326.78	183
1995	31.6	150.32	291
1996	86.11	425.08	323
1997	267.63	1293.82	530
1998	105.56	841.52	745
1999	122.93	944.56	851
2000	512.04	2103.24	949
2001	141.48	1252.34	1088
2002	291.74	961.75	1160
2003	281.43	1357.75	1224
2004	227.92	1510.94	1287
2005	567.05	1882.51	1377
2006	1287.77	5594.29	1381
2007	637.2409	8680.17	1434
2008	180.29	3852.21	1550
Total	4953.59	31651.84	1625

Table 2.2 Summary statistics of issued shares and capital raised from China stock markets 1991-2008

The above table summarises the growth of the Chinese stock market since its inception. China has expanded enormously in the past two decades. Shares issued increased from 0.5 billion in 1991 to over 10 billion in late 1990s, arrived in 2000 at 51.2 billion and made a record in 2006 at 128.8 billion. Correspondingly, the capital raised from selling shares enhanced to dozens of billions yuan in late 1990s and jumped to hundreds of billions yuan in 2000s from RMB 0.5 billion in 1991. The proceeds exceeded RMB 500 hundred billion in 2006, made a record in 2007 at RMB 868 billion and slightly dropped to RMB 385 billion in 2008. The year of 2006 marked the rapidest expansion of the markets over the past two decades according to the statistics. Many papers documented that the size of Shanghai stock market is

bigger than that of Shenzhen stock market in term of total number of listed companies and total market capitalization.

Instead of selling out all shares of a SOE in one go, China Government cautiously retained substantial ownership in listed SOEs, which is named as partial privatisation. As a result, listed SOEs only sold one-third of the enterprises' equity capital to private shareholders during initial public offerings (IPOs). The other two thirds of the equity capital raised were held either by state asset management agencies or by SOEs themselves. Partial privatisation of China SOEs distinguishes China stock markets from other mature western markets. Sun et al. (2003) claimed the partial privatisation of SOEs in China was in light of an ideology of socialist market economy which still conformed to the communist public ownership principle. In other words, the China Government wanted to maintain its control or influence over the SOEs via ownership maintained in listed SOEs. However Governments across the world usually didn't sell an entire SOE, or even a controlling stake at the first time (JMNN 1999). Even UK issues, an example of extreme market-oriented privatisation in JMNN (1999), saw partial privatisation of six SOEs.

Perotti (1995) had a model showing that Governments tend to privatize a smaller proportion of such firms at the beginning. Being the largest stakeholder of the partially privatised SOE, the Government sent a credible signal to the market that it is not expropriating shareholders' wealth. Mok and Hui (1998) argued that high equity retention by the state lowers the ex-ante uncertainty of domestic investors because investors interpreted that as a sign of the Government's confidence in the company, and a business guarantee. Indeed, there is a policy role for state ownership in China's SIP firms in the form of Government backing or subsidization.

Jefferson (1998) argued from the perspective of viewing SOEs as public goods and that a quick and complete privatisation was not desirable. In the absence of a well-functioning property-rights market, privatisation can result in the transfer of public assets to private agents who do not use them more efficiently than under state ownership. On the other hand, partial state ownership helps to monitor managers in China's SIP firms. Indeed, in China the managerial labor market is not well established, the product market does not function well, and the takeover market for firms does not exist at all. There is no significant independent shareholder in China who can provide effective monitoring of management. As a result, managers tend to be opportunistic and seek personal benefit rather than company success.

Partial privatisation of China SOEs distinguishes China stock markets from other mature western markets where private-held companies dominate.

Share and ownership structure

In May 1992, the State Council issued a Regulation (*Opinions on Standards for the Companies Limited by Shares*) that privatisation categorized the shares of a shareholding enterprise into four types:

(1) A-shares, which are yuan-denominated and are available for trading by domestic private shareholders on the stock exchanges. When going public, companies are required to issue no less than 25% of their total outstanding shares as tradable A shares.

(2) B-shares are available for trading by foreign investors in foreign currencies on the domestic stock exchanges. B shares listed on the Shanghai Stock Exchange are denominated in US dollars and B shares listed on the Shenzhen Stock Exchange are denominated in HK dollars. H shares are allowed to trade on Hong Kong Stock Exchanges only and denominated in

HK dollars.

Owners of B and H shares are entitled to the same rights and dividends, and responsible for the same obligations as holders of A shares. The dividends of B shares are paid in US dollars if traded in SHSE and in HK dollars if traded in SZSE. The dividends of H shares traded in HKSE are paid in HK dollars.

Companies issuing B-shares are required to prepare two sets of financial statements: one set based on Chinese accounting regulations for A-shareholders and the other set following International Accounting Standards (IASs) for B-shareholders. Individual investors are allowed to hold up to 25% of a firm's B-shares, but total foreign ownership cannot exceed 49% of a firm's total shares.

A, B and H-shares are freely tradable. All are tradable shares (TS) and can be respectively described as tradable A, B and H-shares (TAS, TBS and THS respectively).

Year	National	Shanghai Stock Exchange	Shenzhen Stock Exchange	A Share Only	A & H Share	A & B Share	B Share Only
1990	10	8	2	10			
1991	14	8	6	14			
1992	53	29	24	35		18	
1993	183	106	77	140	3	34	6
1994	291	171	120	227	6	54	4
1995	323	188	135	242	11	58	12
1996	530	293	237	431	14	69	16
1997	745	383	362	627	17	76	25
1998	851	438	413	727	18	80	26
1999	949	484	465	822	19	82	26
2000	1088	572	516	955	19	86	28
2001	1160	646	514	1025	23	88	24
2002	1224	715	509	1085	28	87	24
2003	1287	780	507	1146	30	87	24
2004	1377	837	540	1236	31	86	24
2005	1381	834	547	1240	32	86	23
2006	1434	842	592	1287	38	86	23
2007	1550	860	690	1396	45	86	23
2008	1625	864	761	1459	57	86	23

Source: China Statistic Yearbook 2009

Table 2.3 Summary of shares listed in China stock markets

This table above summaries the number of listed companies from 1990 to 2008. By the end of 2008, out of a total of 1625 listed firms, 1459 firms have issued A-shares only, 57 have issued both A and H shares, 86 have issued both A and B shares and 23 issue B shares only.

(3) Non-tradable A shares (NTAS), which are state and legal person⁵ shares owned either directly or indirectly by the state and which cannot be traded

⁵ Under the General Principles of Civil Law of the People's Republic of China, legal person refers to "organs which possess the capacity for civil rights and the capacity for civil activity, and in accordance with the law, independently enjoy civil rights and undertake civil obligations". According to the Company Law of the People's Republic of China, a company is an enterprise legal person, which has independent legal person property and enjoys the property right of the legal person.

freely on the stock exchanges but can be transferred only with administrative approval. State shares are held by central or local Government or solely state-owned enterprises while legal person (institutional) shares are held by joint stock companies and non-bank financial institutions most of which are partially owned by the Governments. NTAS entitles the holders to exactly the same rights assigned to the holders of TS but cannot be publicly traded. As indicated, two thirds of the A-shares outstanding were NTAS owned mainly by the Chinese Government and its affiliates and legal persons. The NTAS were transacted on contract base and subject to the approval of regulatory authorities. The regulation didn't specify the exact lock-up years for NTAS except a blur statement that these NTAS would be released at right time in the future.

This regulation effectively institutionalized a unique feature of China's stock market—the creation of three distinct and segmented markets for the stocks of a listed enterprise, namely, the one-way transfer market for state-owned shares, the A-shares market for domestic private shareholders, and the B-shares market for foreign investors. Therefore the investors cannot arbitrage between these markets.

Valuation differential between tradable A shares and tradable B shares

Unlike their A-share counterparts, B-share markets constitute a small proportion of the overall market capitalization and have been much less actively traded during the past decade. In addition, instead of being traded at a price premium, B-share stocks are sold at a prevailing and persistent discount. This phenomenon has been called the “Chinese B-share discount puzzle”. Specifically, B shares trade at an average discount of about 60% to the prices at which domestic A shares trade (Chakravarty et al. 1998). Since then, there is enormous literature trying to explain the puzzling B-share

discount. Many researchers presume that foreign investors have less information than domestic investors due to language barriers, different accounting standards and weak access to local information (Brennan and Cao 1997; Chakravarty et al. 1999). Accessible to much more diversification opportunities, foreign investors are assumed to have higher demand elasticity for local stocks. Local firms are able to charge different prices to domestic and foreign investors in order to maximize their firm values (Stulz and Wasserfallen (1995. Ma (1996) proposed that the price differences can be influenced by the investors' attitude toward risk (Pratt-Arrow measure of risk aversion). He argued that the highly speculative behavior of Chinese investors may push up A-share prices and investors might be highly risk tolerant and may want to make money in the short run. That is to say, A-share investors are more risk-loving compared to B-share investors due to their high speculative behavior. The most commonly used indicator for the degree of speculation in a stock market is the average turnover rate, defined as the total annual trading value divided by the average market capitalization. In 1996, the average turnover rate at the Shenzhen Stock Exchange reached 1,350%. In other words, each share changed hands about 13 times in that year. During 1992–2003, the average turnover rate was 543% for the Shanghai Stock Exchange and 498% for the Shenzhen Stock Exchange. These rates were about 10 times higher than the turnover rates of other major stock markets in the world.

Chen-Lee-Rui(2001) computed the relative turnover (trading volume to shares outstanding ratio) of B shares to A shares and found it strongly negatively related to the discount, even after controlling for other factors. They concluded that “the price difference is primarily due to illiquid B-share markets”, indicating B-share investors were more risk-averse than A-share investors. Sun-Tong (2000) found a positive relationship between

the B-share discount and risk levels, which they proxied with the ratio of A to B- share return variances.

Valuation differential between non-tradable A shares and tradable A shares

In the mid-1990s, state-owned banks, which had been primarily responsible for providing loans to SOEs for more than 10 years, had a rate of nonperforming loans that was as high as 40% (Wong and Wong 2001). Subsequently, in 1997, the Government decided to make greater use of the stock market as an alternative fundraising vehicle for SOEs in order to allow state-owned banks some room for restructuring. Since the mid-1990s, a small but increasingly vibrant market has grown up in NTAS. Transactions were negotiated on a one-to-one basis, though sometimes traders made use of auctions. The transactions took place off the exchanges – and were generally subject to fewer rules (including rules on disclosure and protections of minority shareholder rights) as well as oversight than exchange-based transactions. They were generally priced at a significant discount to listed shares but at prices above net asset value (NAV). In Chen and Xiong (2001), NTAS were actually traded transferred at a discount of around 70% to 80% lower than the corresponding market prices of listed shares. One crucial feature of this off-exchange market is that, unlike the market in listed shares, large blocks of shares in listed firms are often transferred, often resulting in the transfer of control rights over the listed enterprise. In other words, this market is facilitating the privatisation of listed firms.

Meanwhile in US, securities issued by a company but not registered with the Securities and Exchange Commission (SEC) can be sold via private placements to sophisticated investors but cannot be resold in the open market except under provisions of the SEC's Rule 144, which permits

holders to of such restricted stock to sell limited amounts of these securities after a two-year holding period. Thus holders of restricted stock are subject to a minimum two-year period of illiquidity. The restricted stocks were found sold at discounts from 34% to 40% off the market prices of the corresponding liquid shares in Pratt (1989) and Siber (1992). Longstaff (1995a, b) explained the discount as compensations for the lack of liquidity in restricted shares and developed valuation models for illiquid securities. In his model, the key determinants are the volatility of the liquid but otherwise identical stock and the lock-up period. The upper bound estimated with Longstaff's model closely approximated the empirical discount estimates of SEC Rule 144 letter stocks at around 35.5% to 45.5%. The higher volatility and the longer lock-up period indicate more discount of illiquid shares, consistent with Chen and Xiong (2001). In addition, Siber (1991) found that the price penalty is sensitive to block size, which indicates that marketing a large block of illiquid securities requires significant price concessions. Table 2.4 compares these three factors (the price volatility of liquid but otherwise identical stock and the lock-up period of illiquid shares as well as the proportion of illiquid shares over the total shares) in China stock markets with those in US stock markets.

	Length of Restricted years	Volatility of TAS (standard deviation)	Number of restricted shares divided by the otherwise identical shares	Price discount within restricted period (%)
China	Uncertain ^a	76.71% (auction); 87.73% (Private Transfer) ^c	NTAS/TAS: 64.62 (historically Max 72.18 and Min 64.28 since 1992) ^a	77.93 for auction; 85.59 for private transfer ^c
US	T = 2 ^b	25%-35% ^d	13.6 ^b	33.75 ^c
<p>Source a. China's Securities and Futures Markets, China Securities Regulatory Commission April 2004, available on: http://www.theCSRC.org.cn/cms/uploadFiles/introduction2004edition.1087888443500.doc</p> <p>Source b. Siber (1991);</p> <p>Source c. Chen & Xiong (2002);</p> <p>Source d. Longstaff (1995)</p>				

Table 2.4 Comparison of main features concerning illiquid discount

The lock-up period of China NTAS is undefined. The standard deviation of TS is around three times larger than that of the liquid but otherwise identical stocks in US. The proportion of NTAS/TAS is about 5 times larger than that in US. From the point view of illiquid discount, there is no wonder that the discount of NTAS in China is much higher than that of illiquid shares in US, almost twice as much.

Or alternatively the price of illiquid state-shares of China listed SOEs was deliberately suppressed in private transfers and auctions due to the Government intervention. In December 2003, the State Council publicised the *Notice on Further Regulating the Work Relating to the Restructuring of State-owned Enterprises* (thereafter Notice 2003), which clearly stated that the price of the transferred State-owned property rights of enterprises should be determined on the basis of the appraisal of properties and funds and account audit, or in other words, the net asset. This pricing method was reinforced in a joint issue of *Interim Measures for the Management of the Transfer of the State-owned Property Right of Enterprises* by MoF and

SASAC one month later. Song (2003) found that the net asset had a significant impact on determining the transfer price of state-owned shares, which may explain the price discount of illiquid state shares to the otherwise identical liquid A-shares.

Comparatively speaking, the NAV-core pricing is more broadly known as the main pricing mechanism of China NTAS than the illiquid-asset pricing hypothesis proposed by Longstaff (1995).

Supply and demand in China stock markets

China's Government adopted measures to control the supply of and the demand for shares in the market. So the market price is not determined in the market place. Rather it is an administrative price. The most important control devices on the supply side were administrative controls aimed at controlling the amount of shares available to domestic shareholders. From 1993 to 1998, the Government imposed an explicit annual quota on the total amount of capital that could be raised through IPOs issuance. According to Wong (2006), the restrictions on the supply of shares served two purposes. First, these restrictions limited the size of the stock market and thus limited potential competition between enterprise shares and other financial assets. Second, the restrictions tended to inflate share prices and thus reduce the investors' returns relative to the investment. In this way, the restrictions effectively increased the implicit tax rates levied on stock ownership held by the investors (Gordon and Li 2003).

Measures to control demand for stocks included regulations imposed to restrict the sources of funds that could be invested in the stock market. First, the investment restrictions on A and B shares enabled the Government to access funds from foreign investments while maintaining control over both domestic and foreign capital. Second, domestic individuals and institutions

were prohibited from using bank loans to invest in the stock market in order to control the amount of funds that could be diverted from the banking sector to the stock market. Third, financial institutions and major institutional investors such as insurance funds and pension funds were not permitted to buy shares and could only invest in Government bonds and bank deposits. From May 1997 to September 1999, all SOEs and listed enterprises were prohibited from buying any shares, even with funds from their own operations.

The supply and demand controls that the Government imposed on the stock market until the late 1990s were aimed at restricting its size and growth. The restrictive strategy was perhaps due in part to the central leaders' lack of experience with operating a stock market within the construct of a socialist economy and also to opposition from the banking sector, which had exercised nearly complete monopolization over the uses of funds before the emergence of the stock market.

With the growth and expansion of China stock markets, nearly all the restrictive regulations that had been imposed on both the supply of and the demand for stocks were relaxed since late 1990s, step by step. On the supply side, the quota system on IPO issuance was the first to be relaxed in 1999 and eventually abolished in 2001. On the demand side, domestic individuals were permitted to buy B-shares from February 2001, and the A-share market was opened to foreign investors under the scheme of Qualified Foreign Institutional Investors (QFII) in 2002. Since February 2000, some selected securities enterprises were also permitted to borrow funds from banks with their shares as collateral. This marked the first step toward allowing bank credits to enter the stock market. Starting in September 1999, institutional investors, including SOEs, listed enterprises, investment funds, insurance funds, and pension funds were gradually allowed to invest in the

stock market either directly or indirectly through investment vehicles such as investment funds.

2.2 Regulatory Framework for Securities Market and Exchanges

2.2.1 People's bank of China as the regulatory agency

The initial stage of shareholding reform experiment was characterized by bold local initiatives, lack of standardization and regulation, and chaotic markets. It was carried out and supervised by local Governments and People's bank of China (PBoC) local branches since such reform involved finance. It fell into the PBoC jurisdiction.

Between 1982 and 1987, some city Governments selected local collective ownership enterprises to be transformed into shareholding companies on an experimental basis. There were no central regulations regarding issues of shares. Local Governments were inactive in regulating share issues until 1984 when the Shanghai Government enacted the first Provisional Measures on the Issuance of Shares in China (Fan, 2001).

In 1987, the State Council designated the PBoC to be the regulatory agency of bond and stock markets and the state established macro-control over the capital market, making it clear that all issues of corporate bonds would have to be approved by the PBOC and the total capitalization would be set by state annual planning⁶. The state retained control over issues of corporate securities through an annual quota set jointly by the PBOC, SDPC, and MoF.

⁶ Details can be found in the No. 21 and 22 documents by the State Council of People's Republic of China, "Temporary Provisions on The Administration of Corporate Bonds", March 27, 1987 (available on http://www.law-lib.com/law/law_view.asp?id=9707) and "The Circular of The State Council On Strengthening the Administration of Stocks and Bonds" (available on <http://www.chinabaike.com/law/zy/xz/gwy/1332433.html>).

The PBOC differentiated the bond and the stock as well as regulated the formation of shareholding companies according to the type of ownership. Basically, three types of enterprises were allowed to become shareholding companies.

The first type was SOEs which would have to be approved for shareholding experiment by the State Commission for Restructuring the Economy (SCRE) or by the PBOC. The second type of enterprises was collective enterprises which, with the approval of local Governments and PBOC branches, could form shareholding companies and, with central Government approval, issue stocks to the public. The third type of enterprises was joint ventures. Almost all joint ventures were shareholding companies, but only limited joint ventures had been allowed to sell shares to the public.

Since issues of stocks would have to be approved by the PBOC local branch, the PBOC used its macro-planning to limit the amount of capital to be raised nationally. Meanwhile capital-starved enterprises allied themselves with local authorities to form joint-stock companies outside central planning.

Furthermore the PBoC, though namely a “central bank”, was in fact a much decentralised entity with principal staffing and functions at the provincial level and a small staff of a few hundred in Beijing. Local branches, although reporting on a direct line to Beijing, had strong links to local Governments such that the local Government had the right to nominate senior branch staff. From this background, the PBOC was hardly an appropriate candidate to act as the national regulator of a rapidly evolving market-based experiment⁷.

Therefore the system of approving stock issuance was regional rather standardised and complicated involving many bureaucratic players who had

⁷ For details, please refer to chapter 5 in “To Get Rich is Glorious! China’s stock markets in the ‘80s and ‘90s” by Carl E. Walter and Fraser J.T.Howie. 2001

different orientation toward shareholding reform. Enterprises ignored the macro-planning and went after what was the fashion of the time to form joint-stock companies. Provincial or city Governments tended to be more enthusiastic in approving applications of shareholding companies while the local branches of the PBoC acting as the main regulatory agency, guarded their shared power with local Governments in approving joint-stock companies' stock issuance (Tan 2004).

In the absence of regulatory institutions and due to local Government failures to observe central planning, enterprises rushed to issue shares without bothering to report to supervising agencies. The total value of share issues was impossible to calculate and state statistics was rather incomplete. Lack of an effective regulatory framework was clearly responsible for the failure of the state to rein in the market.

2.2.2 China Securities Regulatory Commission as regulatory authority

The Shanghai and Shenzhen Securities Exchanges were regulated initially by both the local Governments and local provincial branches of the PBoC. The regional laws were very different. Hence, securities practitioners at that time were confronted with diverse laws varying between regions. The development of China stock markets led to the establishment of a centralized market regulatory body.

In 1992, the State Council Securities Commission (SCSC) and the China Securities Regulatory Commission (THE CSRC) were established. The SCSC is the State authority responsible for exercising centralised policy making. The CSRC is the SCSC's executive branch responsible for conducting daily supervision and regulation of the securities markets in accordance with the law.

The scope of the authority of the SCSC and the CSRC gradually expanded with the growth of the securities markets. In November 1993, the State Council decided to charge the SCSC with the responsibility of the test operation of the futures market to be carried out by the CSRC. In March 1995, the State Council formally approved the Organisation Plan of the CSRC, confirming the CSRC to be a deputy-ministry level unit. The CSRC was authorised to conduct supervision and regulation of the securities and future markets in accordance with the law. In August 1997, the State Council decided to put the security markets in Shanghai and Shenzhen under the supervision of the CSRC. Meanwhile offices of the CSRC commissioners were set up in the two municipalities. In 1998, the Government held the National Finance Conference and decided to reform and reorganise the national securities regulatory mechanism. The local securities regulatory departments will be supervised directly by the CSRC. Organisations engaged in securities formerly supervised by the PBoC were put under the centralised supervision of the CSRC.

In April 1998, the SCSC and the CSRC were merged to form one ministry level unit directly under the State Council. Both the power and the functions of the CSRC have been strengthened. A centralised securities supervisory system was thus established.

In September 1998, the State Council approved *the Provisions regarding CSRC's Functions, Internal Structure and Personnel* (hereafter Provisions CSRC), further confirming CSRC to be one of the enterprise unit directly under the State Council and the authorised department governing the securities and futures markets of China. This strengthened and clarified the CSRC's functions.

- Basic Functions

1. To establish a centralised supervisory system for securities and futures markets and to assume direct leadership over securities and futures market supervisory bodies.
 2. To strengthen the supervision over securities and futures business, stock and futures exchange markets, the listed companies, fund management companies investing in the securities, securities and futures investment consulting firms, and other intermediaries involved in the securities and futures business. To raise the standard of information disclosure.
 3. To increase the abilities to prevent and handle financial crisis.
 4. To organise the drafting of laws and regulations for securities markets. To study and formulate the principles, policies and rules related to securities markets. To formulate development plans and annual plans for securities markets. To direct, co-ordinate, supervise and examine matters related to securities in various regions and relevant departments. To direct, plan and co-ordinate test operations of futures market.
 5. To exercise centralised supervision of securities business.
- Major Responsibilities
 1. Studying and formulating policies and development plans regarding securities and futures markets; drafting relevant laws and regulations on securities and futures markets; and working out relevant rules on securities and futures markets;
 2. Supervising securities and futures markets and exercising vertical power of authority over regional and provincial supervisory institutions of the market;

3. Overseeing the issuance, trading, custody and settlement of equity shares, convertible bonds, and securities investment funds; approving the listing of corporate bonds; and supervising the trading activities of listed Government and corporate bonds;
4. Supervising the listing, trading and settlement of domestic futures contracts; and monitoring domestic institutions engaged in overseas futures businesses in accordance with relevant regulations;
5. Supervising the behavior of listed companies and their shareholders who are liable for relevant information disclosure in securities markets;
6. Supervising securities and futures exchanges and their senior management in accordance with relevant regulations, and securities associations in the capacity of the competent authorities;
7. Supervising securities and futures companies, securities investment fund managers, securities registration and settlement companies, futures settlement institutions, and securities and futures investment consulting institutions; approving in conjunction with the People's Bank of China, the qualification of fund custody institutions and supervising their fund custody business; formulating and implementing rules on the qualification of senior management for the above-mentioned institutions; and granting qualification of the people engaged in securities and futures-related business;
8. Supervising direct or indirect issuance and listing of shares overseas by domestic enterprises; supervising the establishment of securities institutions overseas by domestic institutions; and supervising the

establishment of domestic securities institutions by overseas organizations;

9. Supervising information disclosure and proliferation related to securities and futures and being responsible for the statistics and information resources management for securities and futures markets;
 10. Granting, in conjunction with relevant authorities, the qualification of law firms, accounting firms, asset appraisal firms, and professionals in these firms, engaged in securities and futures intermediary businesses, and supervising their relevant business activities;
 11. Investigating and penalizing activities violating securities and futures laws and regulations;
 12. Managing the foreign relationships and international cooperation affairs in the capacity of the competent authorities; and
 13. Any other duties as commissioned by the State Council.
- Organizational Structure of the CSRC

The CSRC has one chairman, four vice-chairmen, one secretary general, and two deputy secretaries general. It has 13 functional departments or offices, 3 subordinate centers, and one special committee. It also has 10 regional offices set up in key cities around the country and a missionary office in every province, autonomous region, cities directly under the jurisdiction of the State Council, and cities enjoying the provincial-level status in the state economic plan.

The organisation structure of the CSRC is showing in the chart below:

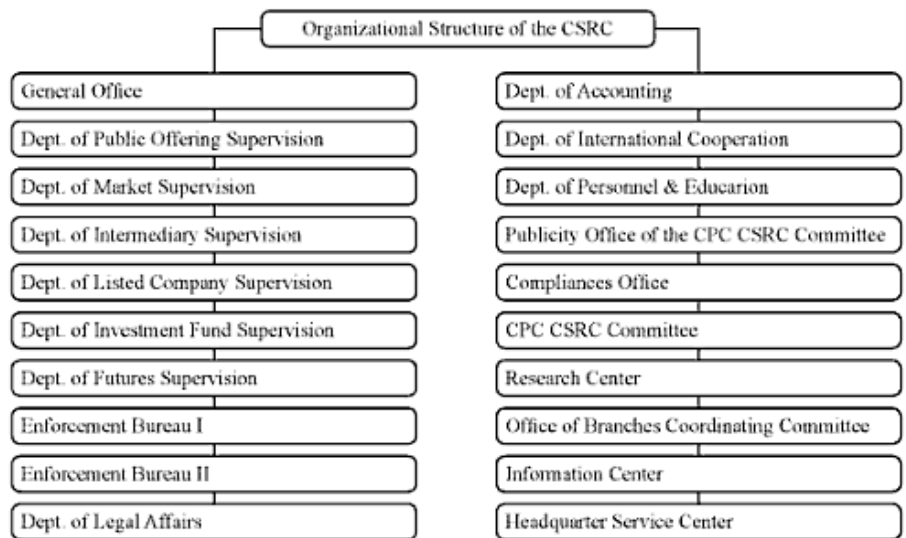
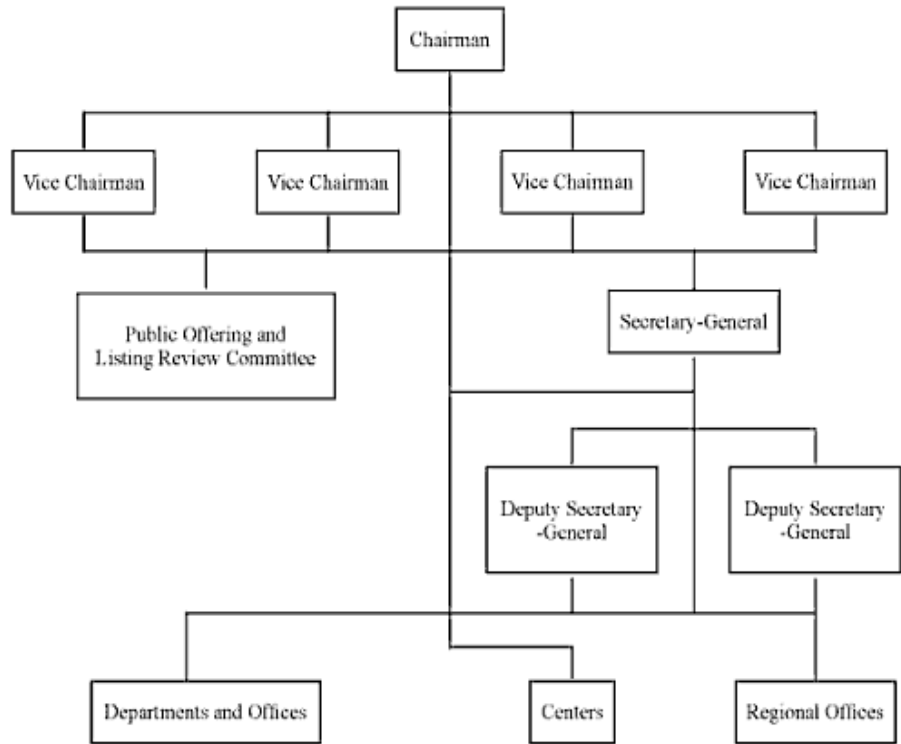


Figure 2.1 The organization structure of the CSRC

2.3 Partial Share Issue Privatisation of State-Owned Enterprises via China Stock markets: Goals and Achievements

As discussed in 2.1.3 above, China stock markets have been facilitating the partial SIP of SOEs, as part of the China SOE reform process and partial privatisation was better than complete privatisation.

2.3.1 To incentivise China SOEs

In line with the SOE reforms, the first goal is to incentivise China SOEs to improve performance, productivity and efficiency.

Sun and Tong (2003)

They evaluated the performance changes of 634 partially privatised SOEs listed on China's two exchanges during 1994-98. They firstly followed literature to examine profitability changes, output changes, leverage changes, and employee and productivity changes pre and post partial privatisation.

- Profitability change

They measured profitability in earnings (real net profit and real EBIT) as well as in returns (ROA and ROE). They observed a general increase in earnings after privatisation but a general decrease in profitability returns now. This hinted at the possibility that sales increased at a faster rate than earnings do.

- Output change

They measured output in real sales and found it increase from a median (mean) of 0.88 (0.91) before privatization to 1.24 (1.45) after privatisation. This conformed to their conjecture that the return decreases were due to the increase in output faster than the increase in earnings after privatisation.

- Leverage change

The measurement of leverage adopted were the operating cash flow to total debt (OCF/TD) and the times interest earned (TIE). The typical measures of leverage - the long-term-debt-to-equity ratio (LLE) and the total debt-to-asset ratio – were abandoned primary SIP led to higher total equities and total assets of the SOEs after privatisation. OCF/TD indicates a firm’s ability to cover total debt with the yearly cash flow. TIE, the ratio of EBIT to interest expense, indicates a long-term debt-paying ability from the income statement view. OCF/TD dropped from a median (mean) of 0.23 (0.35) before privatisation to 0.18 (0.23) after privatisation. The median TIE also dropped from 6.24 to 4.73 after privatisation.

However the increased leverage after privatisation may not tell the full story. As mentioned before, bank loans replaced the Government loans to fund SOEs (bogaidai). The fall in the OCF/TD may reflect the change in the financing mechanisms of SOEs, as part of China SOE reform. Second, interest rates on bank loans and deposits are centrally determined and uniform across China. The savings rate and the borrowing rate set by the Government were not much different before 23 Aug 1996⁸, which indicates an effective approximation of zero interest paid on loan. Furthermore, the tax shield would lead to debt increases as well. In one word, the drop in OCF/TD and TIE doesn’t necessarily imply low profitability or a bad sign if it doesn’t incur bankruptcy.

- Employment and productivity change

⁸ The table below gives the interest rates on loan and deposits from 1990 to 1996.

	Aug 21 1990	Apr 21 1991	May 15 1993	July 11 1993	May 1 1996
Savings rate	9.36	7.92	9.9	11.7	9.9
Borrowing rate	9.36	8.64	9.36	10.98	10.98

They used three variables to capture the productivity effect, the real sales to employee ratio, the real net profit to employee ratio, and the real EBIT to employee ratio. The median employment figure increases from 1,478 workers before privatisation to 1,849 workers after privatisation but changes were not statistically significant. The real sales per employee increased from RMB 105,860 to RMB 126,670 with a Wilcoxon value of 1.82 with statistical significance. The real net profit per employee and the real EBIT per employee also increased after privatisation although without statistical significance. SIP in China seemed to lead to increased employment and higher productivity instead of massive layoff. Only 112 out of 634 samples have employment figures. There is possibility that only firms with good employment and productivity performance were willing to present the figures, which may lead to overestimation of the productivity efficiency.

Secondly Sun and Tong (2003) were also concerned about how the Government retention of significant portions of state shares in the privatised SOEs would relate to the performance changes of SIP firms. They found that the proportion of shares held by the Government was too big and hurt the company performance and suggested reducing the state shares. The TAS owners desired to maximise the share price of the firm while the NTAS holders were indifferent to share prices since they couldn't sell the shares on the open market. Hence, the owners of NTAS may try to seek maximise their benefit in other ways often at the cost of the minority shareholders. Thus the split share structure may lead to a decline in performance of China's public listing companies.

Hu et al. (2004)

They investigated the relative importance of competition, ownership and governance both independently and jointly on the efficiency of state-owned

versus private firms, using a unique World Bank survey data of 736 Chinese firms across seven sectors and five cities from 1996 to 2001.

They defined production and performance variables (sales, employment and capital), competition variables (number of competitors to firms' major business line perceived by managers, potential entry cost for a new player to compete with firms' major products perceived by managers), ownership variables (tradable and non-tradable ownership types and the percentage of private-owned shares) and corporate governance variables (shareholder meeting index, a board of director index,⁹ the existence of external auditors and a firm's autonomy when making decisions).

They applied cross-sectional multi-regression analysis and found that when examined independently, each determinant mattered in explaining the efficiency of sample firms.

They found that private ownership share and its legal status affected a firm's performance positively and significantly. They suggested that the lack of incentives in SOEs was a fundamental issue and changing the nature of ownership, or reducing state ownership, was beneficial to the firm.

Both competition and governance enhanced the SOE's productivity, valuation and performance. However when they were jointly examined, corporate governance were relatively more important while the competition effect was less significant generally. The non-SOEs seemed to have certain

⁹ They constructed a shareholder meeting index and a board of director index. More specifically, two questions are addressed in the shareholder meeting index: 1) Has a shareholder meeting been established? 2) Is the decision made with one-share-one-vote by the shareholder meeting? Four questions are used in the construction of the board of director index: 1) Does a firm have a board of directors? 2) Is the board of directors appointed by the shareholder meeting, or by the Government, or by the firm but with the Governmental approval? 3) Are the CEO and the chairman of the board two different individuals? 4) Are there more non-Government members than Government members in the board? We assign the value of 1 to each question if the answer is yes, and 0 otherwise.

advantage in some governance mechanisms than SOEs and that market competition mattered greatly for SOEs but not so much for non-SOEs. This may be due to the fact that an SOE, because of its internal governance and management problems, needs more pressure from the market in order to improve its productivity. While for non-SOEs, the distinguish features of property rights of the firms may be enough pressure for them to pay attention to their productivity.

Aivazian, Ge and Qiu (2005)

They examined the impact of corporation on the performance of the SOEs without full privatisation in China by employing the annual data on 442 SOEs from 1990 to 1999. Corporation is an alternative expression of partial privatisation. They found that corporatisation (a dummy equal to 1 if after corporatization and 0 otherwise) had a significantly positive impact on SOE performance, event without full privatisation.

They further reported that the sources of productivity engendered by corporation could be traced to the reform of the internal governance structure of these firms. They compared differences between corporatised and noncorporatised SOEs in terms of four major features: institutional structure, managerial appointments, managerial incentives, and credit sources.

- The institutional structures bewteen corporatised and noncorporatised SOEs:

Each corporatised SOE set up a board of directors, and a CEO as part of its requirements under Corporate Law. A higher proportion of corporatised, as compared to noncorporatised, firms established institutions such as a supervisory board, legal, financial, marketing, and research and

development departments, and a labour disputes mediation committee.

There were statistically significant differences between corporatised and noncorporatised firms in the formation of supervisory boards and of finance departments with independent budgets, suggesting that corporatisation did indeed change the governance methods of SOEs.

- The manager selection between corporatised and noncorporatised SOEs:

It appeared that the Communist Party personnel departments had a significant role in the placement of senior managers for both corporatised and noncorporatised firms. However, the influence of the Party was significantly weaker in corporatised than in noncorporatised firms.

More than 60% of firms, corporatised or noncorporatised, reported that Government authorities issued the formal appointment letters to the managers. But part of this decision power was transferred to the board of directors in corporatised firms. The board of directors in 10% of corporatised firms issued the formal appointment letters to the managers.

They found that the demotion of managers was significantly related to firm performance of corporatised firms, while this linkage was insignificant for noncorporatised firms.

- Manager incentives between corporatised and noncorporatised SOEs:

The incentive contracts were widely used in order to link manager payment to enterprise performance and there was no significant difference in the incentives of managers in corporatised firm and noncorporatised SOEs.

- Credit sources between corporatised and noncorporatised SOEs:

More than 70% of corporatised SOEs reported that their superiors' (Government authorities) decision was the most important factor in

borrowing decisions, and almost none reported that the interest on loans was extremely important. There was no significant difference between corporatized and noncorporatized firms concerning factors that were extremely important in their borrowing decisions. However, Corporatized firms had a greater preference for credit from the four major state banks than from other sources of credit, indicating that corporatized SOEs depended highly on these banks instead of on other market-oriented financial institutions.

The main results suggested that the SOE corporatisation program had been fairly successful in improving the effectiveness of the governance system of SOEs and their performance although some problems still persist after corporatisation.

Wong (2006)

She provided a table detailing the profitability of China listed companies from 1992 to 2003.

Year	Ratio of Operating Profits to Total Assets (%)	Ratio of Pretax Total Profits to Total Assets (%)	Percentage of Enterprises with Negative Operating Profits	Percentage of Enterprises with Negative Pretax Total Profits	Changes in Operating Profits (%)	Changes in Pretax Total Profits (%)
1992	4.98	6.62	5.77	3.85	147.15	237.26
1993	7.34	8.56	1.70	0.57	64.11	87.42
1994	5.63	7.56	4.24	0.71	-2.95	21.20
1995	3.76	5.43	14.66	5.21	-18.28	-18.88
1996	4.59	6.84	15.29	6.67	-15.42	0.65
1997	5.61	7.34	12.31	5.87	11.36	11.78
1998	5.26	6.80	17.78	10.35	-1.22	3.08
1999	4.63	6.11	17.32	9.04	-8.42	-3.31
2000	4.13	5.25	16.13	9.49	-0.39	3.98
2001	3.10	3.95	19.79	13.87	-16.02	-16.34
2002	2.92	3.47	20.03	14.14	-2.76	-4.07
2003	2.70	3.39	20.43	12.59	-0.30	3.39

Source: China Stock Market & Accounting Research Database, provided by GTA Information Technology Company, Ltd

Table 2.5 Profitability of China listed companies from 1992 to 2003

Wong concluded the Chins listed SOEs performed poorly because the ratio of pretax operating profit to total asset declined from 7.34 % in 1993 to 2.7 % in 2003, while the ratio of pretax total profit to total asset declined from 8.56 % in 1993 to 3.39% in 2003. Similarly, the percentage of listed enterprises incurring negative operating (pretax total) profits increased substantially from 1.7 (0.57) % in 1993 to 20.43 (12.59) % in 2003. The total amount of operating profits achieved by the listed SOEs has continued to decline since 1998. However her conclusion is based on the comparison of annual after-privatisation performances from 1992 to 2003 rather than performances before privatisation and after privatisation.

2.3.2 To diversify investments

The emergence of enterprise shares also creates potential competition for bank deposits because enterprises now have the option of seeking direct

financing, and domestic households can invest their savings in the stock market rather than deposit them in state-owned banks. Private household savings surged with deposits in state-owned banks increasing from RMB 21.06 billion in 1978 to RMB 1529.3 billion in 1990 and has been continuously growing over the past twenty years.

Code of Industry Classification (1st level)	Name of Industry Classification
I	Farming, Forestry, Animal Husbandry And Fishery
II	Mining And Quarrying
III	Manufacturing
IV	Production & Supply Of Power, Gas & Water
V	Construction
VI	Transportation, Storage
VII	Information Technology Industry
VIII	Wholesale And Retail Trades
IX	Finance, Insurance
X	Real Estate
XI	Social Services
XII	Transmitting, Culture Industry
XIII	Integrated
Source: China statistic yearbook 2009	

Table 2.6 Summary of the 1st level industry categories as evidence on diversification

The listed SOEs cover various industries including manufacturing, real estate, IT, construction, finance, and energy industries etc., which also help create diversification opportunities.

2.4 Concluding Remarks

In 1978, the 3rd Plenum of the 11th Party Congress announced the official prelude to the China economic reform.

Since the founding of P.R. China in 1949, the first thirty years featured a full-planned economy system in which the Government controlled all major sectors of the economy and formulated all decisions about the use of

resources and the distribution of output. Planners decided what should be produced and direct lower-level enterprises to produce those goods in accordance with national and social objectives. SOE executives were appointed and dismissed by the Government and usually treated as Government officials.

After the 3rd Plenum in 1978, China began to move from a centrally planned economic system to a market-oriented system. China SOE reform is a centerpiece of the overall reform. Enterprises have been gradually given more and more autonomy to take control of themselves, dealing with relevant rights and responsibilities. From 1979 to 1993 the Government gave SOEs responsibility for dealing with their own gains in the market but SOEs were not fully responsible for the losses. The managers didn't worry about bankruptcy as they believed the Government was a convenient resort. The rights and responsibilities of SOE stakeholders and management were ill-defined.

The 14th Party Congress in 1992 decided to construct a socialist market economy and establish a modern corporate system. China SOEs were privatised through restructuring and selling. China stock markets were used to privatise selected strong medium and large-sized SOEs through share issuance. The emergence of China stock markets is actually the fourth stage of China SOE reform process.

China stock markets, consisted of SHSE and SZSE, have been growing rapidly since the inception. The listed firms issued three types of shares: tradable A shares available uniquely to domestic investors, tradable B shares available uniquely to foreign investors and non-tradable shares retained by the Government in terms of state shares and legal-person shares. NTAS were allowed to transfer off-market. This classification of share types in

effect has created three segmented markets where TAS, TBS and NTAS could be traded separately without mutual interference and thus valued at differential prices.

The PBoC worked as the regulatory agency in 1980s to supervise the share-issuance but resulted in a chaotic security market. The lack of an efficient regulatory framework stimulated the Government to set up the CSRC as a regulatory authority, hoping to put the security markets under an efficient centralized supervision and setting up an efficient regulatory framework.

The listed SOEs sold averagely one third of the total shares outstanding, which is called partial privatisation.

Sun and Tong (2003) compared SOE performances before and after partial privatisation and found that the revenues and earnings were improved but not the profitability returns, indicating the sales were growing faster than the earnings. The productivity was improved as well. The result was probably overestimated due to the sample selection bias. Aivazian et al. (2005) compared SOE performances between corporatised and noncorporatised firms and found corporatised SOEs performed better than non-corporatised SOEs. These results may not be convincing since only firms relatively stronger were selected for corporatisation. Combined with the findings in Wong (2006), it seemed that listed SOEs didn't improve in performance.

Hu et al. (2004) also showed that the listed SOEs with a more independent board and confronted with a fiercer competition performed better. Aivazian et al. (2005) found that the internal governance structure did improve SOE performances in a small proportion of firms with more developed and independent governance systems.

Sun and Tong (2003) studying China partial privatisations found the retained Government ownership had negative impacts on firm performance, indicating a reduction of NTAS may be beneficial to improve SOE performance. Hu et al. (2004) found that private ownership affected SOE performance positively, suggesting that a further privatisation to increase private ownership could enhance SOE performance.

Partial privatisation in China led to changes in internal governance structure and competition, which were proved to have positive impacts on SOE performances. But in general, SOE performance wasn't improved after partial privatisation. Moreover, there are indications that a further privatisation to reduce Government ownership while increase private ownership may be useful to improve SOE performance.

Chapter 3. 1st Attempt to Reduce Non-tradable Shares by China Government

The State Council issued *The Provisional Measures on Raising Social Security Funds through Sales of State-owned Shares* (Hereafter Measures 2001) on June 12, 2001 to expand the funding sources for the National Social Security Fund (NSSF). Measures (2001) aimed to reduce the state shares in listed companies by transferring them to the public.

3.1 National social security fund (NSSF)

The NSSF is a strategic reserve fund set up by the Chinese Government to mitigate the looming aging crisis in the country and help provide financial protection for the country's pensioners. It is in fact intended to serve as a pension fund of last resort to support those provinces with pension financing difficulties. The National Council for Social Security Fund (NCSSF), a ministerial level entity reporting directly to the State Council, is charged with the responsibility of operating the Fund.

Since its inception in 2000, NSSF has grown significantly in size, stature and influence. By the end of 2008, the total assets of NSSF had reached RMB 563 billion, making it by far the biggest institutional investor in China's pension sector.

3.1.1 The pension crisis in China

China faces a looming crisis to provide old-age pensions for its 1.3 billion citizens. The one-child policy implemented since the late 1970s, combined with improved longevity, means that the population is ageing at a rapid speed. According to data from the UN Population Division, the old age dependency ratio (defined as the number of people aged between 15 and 59

to the number of people aged 60 and above) of China was 6 in 2005, but will rapidly decline to 2 by 2040¹⁰.

The Chinese Government, hoping to build a sustainable pension system, started to implement reforms in the 1990s. After a series of new regulations, pilot programs and revisions, the current Chinese pension model is a five pillar pension system broadly in line with the World Bank's multipillar model¹¹.

The new Chinese pension system, which applies to the urban sector but not the rural community, now includes:

- Pillar zero – a minimum economic support payment provided to people in extraordinary straitened circumstances to ensure their minimum livelihood, with the target group including people: with no labour capability and no income source; with insufficient income source, and their living standard lower than the legal minimum standard; with labour capability, but having temporary interruption of income due to accidents or disasters. No contribution is required for eligibility for this social benefit.
- Pillar Ia – a basic state pension provided through mandatory contributions by employers. Any excess of contributions over benefit payments under Pillar Ia are pooled together at the provincial level and administered by the provincial social security bureaus. Urban retirees will receive pension payments based on average local wage, indexed individual wage and years of employment after a working lifetime.

¹⁰ UN Population Division, World Population Prospects, the 2004 Revision. <http://esa.un.org/unpp/>

¹¹ A more detailed account of the Chinese pension reforms can be found in Pension Funds in China: a New Look, by Stuart Leckie and Yasue Pai, ISI Publications, Hong Kong, 2005.

- Pillar Ib – a mandatory individual system funded by employees contributing 8% of their monthly salary. The amount is accumulated in individual accounts earning interest and cannot be accessed until retirement. These assets are also administered by the provincial social security bureaus.
- Pillar II – also known as “Enterprise Annuities” (EA), which are voluntary defined contribution retirement plans set up by eligible employers. These plans are provided through trustees, administrators, investment managers and custodians approved by the Ministry of Human Resources and Social Security (MoHRSS)³.
- Pillar III – Various other types of voluntary schemes set up by employers which do not conform to the EA format.
- Pillar IV – Voluntary informal family care inherent with the Chinese culture; subsidised healthcare and housing.

However, given the historical pension liabilities accumulated over the decades since the founding of the PRC in 1949, as well as the rapidly deteriorating demographics, these reforms, even when fully implemented, may prove inadequate. A World Bank study estimates that under a baseline scenario with the current pension system, China’s implicit pension debt amounts to 141% of GDP, and the financing gap is as much as 95% of GDP¹².

The vulnerability of the system was keenly felt in the late 1990s and early 2000s, leading to some loss of confidence among many Chinese. Even though the regulations at the time clearly stated that Pillar Ia and Pillar Ib assets were to be segregated from each other, many provinces, facing huge

¹² Yvonne Sin, the World Bank. “Working paper Series on China: Pension Liabilities and Reform Options for Old Age Insurance, Paper No. 2005-1”; May 2005.

benefit payouts and insufficient Pillar Ia contributions, decided to conveniently channel Pillar Ib money to pay Pillar Ia benefits, resulting in a high number of “empty” individual accounts. The problem was most severe in the Northeast provinces of Liaoning, Jilin and Heilongjiang, where the heavy concentration of unprofitable state-owned enterprises meant the provinces had significant difficulties to collect Pillar Ia contributions yet had to pay out significant pension benefits. In fact, workers made redundant were sometimes given full pensions many years before their normal retirement date.

Worry about potential social unrest, the Chinese central Government had to step in to support the provinces. New rules were issued with revised contribution rates for Pillars Ia and Ib. The rules also reinforced the segregation of the two pilot programmes in Liaoning and later in Jilin and Heilongjiang; and the troubled provinces were rumoured to be given relief through reduced taxes from the central Government to tide over the difficulties. Last but not least, a reserve fund at the national level that could bail out potential provincial pension defaults – the National Social Security Fund – was created.

3.1.2 The Establishment and the Administration of NSSF

In late 2000, aware of the looming pension difficulties at the provincial level and concerned about the demographics, the Chinese Government established the National Social Security Fund as “a strategic reserve fund” and a “solution to the problem of ageing”. The National Council for Social Security Fund (NCSSF), a ministerial level entity directly reporting to the State Council, was simultaneously created to operate the Fund. The NCSSF is charged with a range of responsibilities which include:

- Administer the assets of the NSSF

- Formulate and implement the NSSF's investment strategies
- Select fund managers and custodians for the NSSF assets, and monitor their performance. To the extent allowed by regulations, directly invest NSSF's assets
- Provide financial management and accounting for the NSSF, including the preparation of periodic financial statements and accounting reports
- Regularly disclose to the public the financial condition of the NSSF, including assets, returns, cash flows, etc.
- Distribute funds according to directives jointly formed by the Ministry of Finance (MoF) and the MoHRSS
- Undertake other duties assigned by the State Council.

The NCSSF now comprises 21 executive board members. It is led by a Chairman and three Vice Chairmen, all appointed directly by the State Council. The executive board oversees 9 permanent departments which run the day-to-day operations of the NSSF. In addition to the permanent departments, the NCSSF also oversees three nonpermanent committees in charge of investment manager/custodian selection, investment decisions and risk management.

It is interesting to note that many of the NCSSF officials have strong ties with or a background in key Government departments including Ministry of Finance (MoF), Ministry of Human Resources and Social Security (MoHRSS), the People's Bank of China (PBoC), the China Securities Regulatory Commission (THE CSRC) and the China Banking Regulatory Commission (CBRC). The recruitment of senior officials from other agencies is a reflection of the political reality that the NSSF has multiple

stakeholders, and that the smooth functioning of the NSSF will require understanding, coordination and compromise among these various agencies.

3.1.3 NSSF Sources of Assets

By regulation, the assets of the NSSF come from four sources¹³:

- Funds allocated from the central Government's budget

This has historically been the largest source of asset accretion for the NSSF. However, during the past few years, the NSSF sources of funds have become increasingly diversified, and the proportion of monies from state allocation has been in decline from 100% of the NSSF's net addition to assets in 2000 to about 19% in 2006 and back to 32% in 2007.

- Capital and equity assets derived from state-owned enterprise share sales

This refers to a proportion of the IPO proceeds arising from the public offering of SOEs. According to Measures (2001), when joint stock limited companies with state-owned shares conducted IPOs and secondary offerings, it is mandated that additional shares, equivalent in value to 10% of the IPO proceeds, should be sold on the market as well, and the proceeds should be submitted to the NSSF. The policy was originally applied to both domestic and international offerings, but it was suspended for domestic offerings in June 2002. After June 2002, assets from this source came only from overseas listings of Chinese companies. Since July 2005, companies going for overseas listings are required to make a direct transfer of their IPO shares to the NSSF for the sake of NSSF's participation in the long-term growth of Chinese companies. As of 31 May 2008, the total amount derived from international offerings stood at RMB89.5bn. In June 2009, the transfer

¹³“The Preliminary Rules on the Administration of the Investments of the National Social Security Fund” Jointly issued by MoF and MoLSS, Dec. 2001

of shares from domestic offerings was resumed, and a total of 131 SOEs that conducted domestic IPO since July 2005 are required to transfer the equivalent of 10% of their floated shares to the NSSF, expected to reach a total value of RMB64bn.

- Other means approved by the State Council (in practice this refers to state lottery license fees, as well as funds obtained through a securities repo programme)
- Investment returns.

In December 2006, NCSSF was assigned the task of managing and investing monies the central Government granted to 9 pilot provincial Governments¹⁴ as a supplement to their individual account funds for 5 years. The NCSSF promised a minimum of 3.5% p.a. investment return while no management fee or performance fee will be charged. It was also decided that if the investment return exceeds 3.5%, 50% of the extra money will be saved as a provision to cover any future investment losses. At the end of 2008, the balance of “individual accounts” under the NSSF’s management stood at RMB19.8bn.

3.1.4 Summary

The NSSF has made impressive progress in terms of its asset base, sophistication in operations and management, as well as its pioneering efforts in international diversification.

One of the sources of NSSF assets comes from the operation of reduction of state shares, which triggered the first attempt to reduce state shares by China Government in June 2001.

¹⁴ The 9 provinces are Jilin, Heilongjiang, Tianjin, Shanxi, Henan, Xinjiang, Shandong, Hunan and Hubei.

3.2 Measures (2001)

In early 2001, the central Government decided to sell its ownership of the listed enterprises to raise funds to replenish the newly established NSSF. On 12th June 2001, State Council issued a regulation entitled *Provisional Measures on Management over the Reduction of State Shares to Raise the Social-security Fund* (Measures 2001)¹⁵, which detailed the program to reduce state stock.

3.2.1 Overall background

Economic background

The overall economy in China was booming around 2001, which made the Government thought it was a good time to make an announcement of reducing the state-shares.

In the 1990s, the Chinese economy continued to grow at a rapid pace, at about 9.5%. The Asian financial crisis affected China at the margin, mainly through decreased foreign direct investment and a sharp drop in the growth of its exports. However, China had huge reserves, a currency that was not freely convertible, and capital inflows that consisted overwhelmingly of long-term investment. China GDP reached RMB 9.92 trillion (\$1.2 trillion) in 2000 and RMB 10.97 trillion (\$1.32 trillion) in 2001, around 13% of the US GDP at that time. The growth rate of China GDP recorded at 10.6% and 10.5% in 2000 and 2001 respectively, compared to a growth rate of 3.5% in the US and negative growth in Japan.

China stock exchanges entered a bull market since May 1999. Just days before the release of Measures (2001), the A-share market indices went up quickly by over 80% and reached a record high as of the 1998 Asian crisis.

¹⁵ Refer to appendix 1 for full text of Measures (2001)

Under this circumstance, the Government was intended to carry forward the privatisation process.

Relaxing the restrictions on the demand for shares

China Government imposed the supply and demand controls on the stock market until the late 1990s. But the restrictions on both supply and demand sides were relaxed since late 1990s. On the demand side, the controls have been loosened:

- The A and B share markets were completely segmented prior to Feb 19, 2001 but B share markets were opened to domestic investors since then: domestic individuals were permitted to buy B-shares using foreign currency (US dollar for Shanghai B shares, Hong Kong dollars for Shenzhen B shares) with certain conditions. On Feb 19 2001, the CSRC announced that Chinese nationals with existing foreign currency deposit accounts with a domestic commercial bank are allowed to trade B shares starting from Feb 28 2001. Chinese nationals who opened such foreign currency deposit accounts after Feb 19 are allowed to trade B shares from June 1 2001 onwards. The B share markets were closed for a week after the announcement and resumed trading on Feb 28, 2001.
- The A-share market was opened to foreign investors under the scheme of QFII (Qualified Foreign Institutional Investor) in 2002. Chinese mainland stock exchanges were previously closed off to foreign investors due to China's exercise of tight capital controls which restrict the movement of assets in-and-out of the country. The QFII¹⁶ is a Chinese program that was launched in 2002 to allow licensed foreign investors to buy and sell yuan-denominated “A” shares in China's mainland stock exchanges (in Shanghai and Shenzhen). The qualified

¹⁶ More can be found on: <http://www.llinks.com/shangchuan/20092594011.pdf>

foreign institutional investors may, upon approval by the competent regulatory bodies, remit a certain amount of foreign exchange into China under specific regulations and restrictions and convert the foreign exchange into local currency for direct investment in the local securities market through the designated accounts under close supervision, and allowing them to remit abroad capital gains and dividends from the investments after being converted back into foreign exchange upon approval. This QFII regime actually refers to a regulatory system for securities investments introduced before the capital market is fully opened up.

- Some selected securities enterprises were also allowed to borrow funds from banks with their shares as collateral since February 2000. The central bank and the Securities and Futures Commission (SFC) jointly promulgated the “Administrative Measures governing Stock Collateral Loans for Securities Firms”, allowing qualified securities firms with a comprehensive self-stocks and securities investment fund certificates as collateral to borrow from commercial banks, which is considered a new channel of short-term financing for listed companies. The shares a comprehensive security company trades on the primary and secondary market on its own using its own funds are self-stocks.
- Beginning in September 1999, institutional investors were gradually permitted to invest in the stock market either directly or indirectly through investment vehicles such as investment funds.

Relaxing the restrictions on the demand for shares was intended not only to accommodate the increase in the supply of IPO and post-IPO issuance but also to support the Government’s plan of reducing the state ownership stake in listed enterprises (Naughton 2002a, 2002b). The lift of restrictions on the

demand of shares was aimed to promote the investment in the stock markets.

3.2.2 Objective

Measures (2001) aims to reduce the state shares in listed companies (including companies to be listed) by means of transferring the state shares to the public and public investors like securities-investment funds.

3.2.3 Ownership of state shares

In principle, state assets are owned by the state, managed at different levels and operated with authorization. The State Council exercises in a unified manner the ownership over state shares on behalf of the state. Specifically, the units that are authorized to represent the state to hold state shares in listed companies exercise the ownership at different levels.

3.2.4 Approach

The reduction of state shares is mainly carried out through issuing the stocked state shares. When joint-stock limited companies with state shares (including companies listed overseas) launch initial public offerings (IPOs) and issue additional stocks, they shall sell state shares, up to 10 percent of the total funds to be raised. If a joint-stock limited company has been established for less than three years, the state shares to be sold shall be transferred to the Council of the National of Social-security Fund. The council will then authorize the company to sell the shares at one time or over several times when it publicly raises capital by floating stocks. Revenue from the selling of stocked state shares shall all be turned over to NSSF.

3.2.5 Pricing of state shares

The reduction of state shares shall on principle adopt the method of market pricing. The operations shall be examined, approved and implemented by the Inter-ministry Joint Conference (IMJC). The MoF shall be responsible for the convention of the Inter-ministry Joint Conference. The Inter-ministry Joint Conference is comprised of the State Development Planning Commission (SDPC), the State Economic and Trade Commission (SETC), the Ministry of Labor and Social Security (MoLSS), The CSRC and the Council of NSSF. The conference is mainly responsible for working out the fundraising plan and pricing principle in relation to the reduction of state shares. It also studies and solves other major problems related to the reduction of state shares for fund raising. The office of the Inter-ministry Joint Conference, which is set in the MOF, undertakes specific matters related to the Joint Conference. All the members in the conference are expected to work with each other to work out the plans. But Measures (2001) doesn't set forth the definite division of responsibilities affixed to each member.

3.2.6 Required documents

For those the Inter-ministry Joint Conference has decided to reduce state shares, the representative units authorized by state shareholders need to provide the following documents:

- Prospectus (draft) for the reduction of state shares and underwriting agreement (Measures 2001 doesn't specify who is doing the underwriting. In previous cases like China IPOs, underwriters are appointed by issuers. The role of underwriters in equity offerings has gone through three stages in China. Prior to 2001, the task of selecting eligible firms primarily rested with local Governments, which usually

considered firm performance and regional development objectives. Underwriters had limited influence on the choice of issuers. From 2001 to January 2005, the selection of issuers was decentralized to underwriters, who began to pay particular attention to project selection and to play a critical role in equity offerings. However prestigious and less prestigious underwriters were treated equally. Since early 2005, only underwriters with qualified sponsors can underwrite offerings, and competition among underwriters has become increasingly fierce.¹⁷⁾

- Written commitment of the representative unit and the lead underwriter on turning over the revenue from the reduction of state shares
- Other documents required by the Inter-ministry Joint Conference.

3.2.7 Regulatory body

The CSRC is responsible for making rules for the information disclosure and market regulations concerning the reduction of state shares in listed companies.

3.2.8 Use of proceeds

The lead underwriter shall be responsible for turning over the revenue payable from the issuance of stocked state shares to the designated item set by the budget of the MOF within two days after obtaining the revenue. The MOF shall allocate the funds to the Council of NSSF within five days and undergo formalities for verifying the reduction of state-owned capital in related units.

¹⁷ For details on underwriting information in China, please refer to Luo et al. (2010), “Information Risk and Underwriter Switching in SEOs: Evidence from China”, *Journal of Business Finance & Accounting*, 37(7) & (8), 905–928

3.2.9 Verification

After these measures are implemented, the transfer by agreement of the state shares in listed companies shall be verified by the MOF. The securities registrar handles formalities related to the transfer of stock ownership according to the official and written reply of the MOF. Specific proportion of the revenue from the transfer to NSSF and operation methods are made by the Inter-ministry Joint Conference and submitted to the State Council for approval before being implemented.

3.3 Market response

On 12th June 2001 which saw the announcement of Measures (2001), the reduction of state-shares was launched and the Government started offering non-tradable state-shares as if they were freely-traded A shares to the A-share market in IPOs and seasoned offerings (additional stock issued to the secondary market). The trading constraints on the offered restricted shares were also terminated without consulting with the holders of freely-traded A shares.

3.3.1 Short-term effect

Quite a few papers observed a dramatic downturn in both Shanghai Stock Exchange and Shenzhen Stock Exchange following the announcement. Wu (2002) found that in the four months from mid-June to mid-October, the Shanghai A Share Index and the Shenzhen A Share Index dropped by about 31% and 33% respectively. Hou (2010) showed that the Cumulative Market Return (CMR) of the freely-traded shares in two exchanges in China collapsed and greatly underperformed the US and UK Stock Markets, even though the US stock market was affected by the “September-11” attack. De Jonge (2008) also spotted that major indices on both exchanges fell

substantially following the announcement. Although China Government emphasized it was a mere proposal, De Jonge (2008) alleged that its existence contributed to the perception that implementation of a plan to sell state-shares was imminent and thus contributed to a significant downward trend to the relevant indices. Kim et al. (2003) declared that the sell-off of state shares was widely unpopular and was blamed in part for the subsequent equity market decline.

Figure 2.1 shows the main market indices on Chins stock markets from 12 June 2001 till the end of 2005. As highlighted with solid dots, the blue line of Shanghai A-share Index (SHAI) (000002) fell by 29.26% and the red line of Shenzhen A-share Index (SZAI) (399107) slumped by 34.31% within three months after 12 June 2001. The losses were worth some RMB 600 billion. These finding are consistent with the papers listed above.



Figure 3.1 source: <http://www.google.com/finance>

In addition, Figure 2.2 compares the Shanghai A-share Index and Shenzhen A-share Index to S&P 500 (.INX) and UK FTSE All share (FTAS) from 12 June 2001 till end of 2005. As highlighted with the solid dots, the S&P 500 (orange line) and the FTAS (green line) declined by 15.47% and 16.48% respectively within three months as of 12 June 2001, around half the decreases witnessed on the China stock markets over the same period. This

is consistent with Hou (2010) that the US and UK markets greatly outperformed China markets.



Figure 3.2 Source: <http://www.google.com/finance>

China Government suspended the procedure on 22 October 2001 while a new proposal for reducing state-shares was conceived.

In November 2001, the CSRC asked the public for suggestions on how to go about organizing future state share sales. Thousands of letter and emails flew in and the CSRC in December 2001 published an edited list of the proposals and asked the research department of nine security companies to examine seven of them in details. In January 2002, the CSRC convened a consultation meeting to discuss the two most popular methods. The first involved a form of administrative pricing. State shares would be valued on the basis of a formula linking their net asset value with annual earnings. The second option involved market-based pricing above a set floor. An auction would be held for the state shares of selected companies. If the winning bid's price was above the NAV then the sale would be authorised. Many in the CSRC supported the second scheme while MoF backed the first. The meeting finally broke up without consensus. The State Council decided to cancel the program in June 2002 since the market continued to slide down.

As Figure 2.1 suggests, from Jan 2002 to the end of June 2002, SHAI and SZAI dropped by 39% and 44% respectively. Meanwhile Figure 2.2 demonstrates that S&P 500 the FTAS were actually climbing up steadily during the same period, indicating China stock markets tended to be overwhelmingly affected by country-specific factors.

As the market slid down, many private investors, including small investors and a significant interest group of fund management firms, became dangerously exposed. The state Council then had to announce a halt to the sale of state-owned shares on domestic market returns in June 2002. The first attempt to reduce state-shares which were non tradable was regarded as unsuccessful.

3.3.2 Long-term effect

Even after the Government terminated the plan in June 2002, the effect seemed persisted in the long-run. In Figure 2.4, the continuous decline in the main indices of SHAI and SZAI seemed to persistently spread the pessimistic sentiments across the investors. The SZAI was improving relative to the SHAI since the SZAI line is below the SHAI line at the beginning but moves above the red line from the point of middle 2003.

In Figure 2.5, S&P 500 and FTAS in the long-run were moving up steadily and gradually while the SHAI and SZAI kept sliding down. The wider and wider gap along the timeline between the China market indices and the US and UK market indices indicate that the China stock markets were moving further away from the western markets in the long-run. The persistent long-run effect indicates the gloomy clouds were always looming above the investors.

3.3.3 Dilution effect and uncertainty

Many researchers, Wong (2006), Kim et al. (2003) and De Jonge (2008), attributed the market slump to dilution effect in the tradable A-share market, which feared it would be flooded with these state shares, in general twice as much as the tradable A shares. Measures (2001) stated that value of state-shares to be sold should be no more than 10% of the proceeds of IPOs (of companies to be listed) and Post-IPO issuances (of listed companies). This is kind of restriction on state shares immediately available for sale but very ambiguous about the scale of sale, exactly how many state shares would be floated. Green (2003) pointed out the June 2001 scheme failed to lay down reliable guidelines for when, and in what quantities, state shares would be sold. With plans for future sales unclear, investors were left to fear a sudden tidal wave of equity that would destroy the value of their portfolios. This uncertainty over when this would be or what shape the sales would then take aggravated dilution effect. He then suggested a credible timetable was required.

3.3.4 Equal pricing envision

Moreover, Beltratti and Bortolotti (2006) stated that the 1st attempt failed badly in 2001 because the Measures (2001) envisaged an equal pricing for tradable and non-tradable shares. In private transfers and auctions in China, non-tradable state shares were priced at net asset value (NAV), different from the model by Longstaff (1995), which discounted non-tradable shares (lock-up shares) off-exchange by the liquidity premium. According to Chen and Xiong (2001), the NTAS were priced at a discount of 70%-80% of the price of TAS in the informal markets. Equal pricing, therefore, was suspicious of transferring wealth from the private investors to the Government (the holders of NTAS).

3.4 Concluding Remarks

The first attempt to convert NTAS to TAS was operationally designed in order to raise more funds to support the newly established pension system in China. As a by-product, the liberalization of state-held NTAS can help pave the way to facilitate full privatisation of state controlled quoted companies. However, there are not any official documents that clearly announced this as a goal of the liberalization, although there are some studies that might expect this to happen in the future. For instance, China's state controlled backs are listed on the market but they are clearly not fully privatized at the present and also in the foreseeable future, even if they have all of their shares that are tradable on the market.

Though carried out in a favorable macro-economic environment, this initial attempt was responded with a market plummet, which lasted for a quite long period, indicating the confidence of investors in the A-share market was damaged severely in the short-run and failed to recover even in the long-run. This plan therefore scraped in 2002.

The minority private investors, who only possessed relatively one third of the total shares outstanding in the listed firms, dominated the tradable A-share market. The 2001 announcement of floating state shares in majority to the tradable A-share market agitated the investors. Neither were they happy with the scheme of equal pricing as they believed the state shares were overvalued. Moreover, the uncertainties over when this would happen and how many would be sold also fretted the investors.

This unsuccessful attempt indicates that a premise to carry on the reform of reducing state ownership is to take into account the interests of the private investors namely the holders of TAS, to communicate with them effectively and to make compromise if necessary.

Chapter 4. China Full Circulation Reform

The early initiative in 2001 was to invite companies to reduce the proportion of state ownership by selling non-tradable state-owned A shares, up to no more than 10% of IPOs and post-IPO issuances, into the A-share markets without a clear-set scheme, which resulted in a significant decline in stock prices in the A-share markets as shown in figure 2.4 and 2.5. The A-share markets feared that the overwhelming size of state shares going to be sold at the market price of TAS would depress the share prices. The uncertainties, such as when the state shares would be sold and in what quantities, as well as the future plans regarding the remained state shares, kept making the market nervous and unconfident of this selling plan, which drove the market down dramatically. The Government withdrew the plan in October 2002 and this marked the initial, albeit unsuccessful, attempt at share ownership reform.

A-shares are only available to domestic investors. This kind of effort to reduce state-owned A-shares in a large scale only involved domestic investors and the A-share markets. The foreign players on the B-share or H-share markets, which were segmented from the A-share markets, didn't need to worry about the pressure from the flotation of large-size non-tradable A-shares.

4.1 Improvements in protection of minority shareholders

The failure reflected that the public shareholders - the holders of TAS - were not confident that their interests would be protected or even would not be damaged in the operation of reducing state shares. Therefore many efforts were made to comfort the private investors that their interest would be taken into account.

4.1.1 Improvement in voting rights

The CSRC promulgated a *Code of Corporate Governance for Listed Companies* in early 2002 [Code (2002) thereafter]. The Code was developed according to the OECD¹⁸ Principles of Corporate Governance, taking into consideration the peculiarity of the Chinese market.

The Code is mandatory for all listed companies to follow, and puts the protection of shareholders' rights as the basic goal of corporate governance. In doing so, the Code asks for equitable treatment of all shareholders. Listed companies may adopt proxy voting and cumulative voting methods¹⁹ to protect the rights of minority shareholders. The Code also calls for shareholder activism and the increased participation of institutional investors.

To better protect the rights and interests of public investors, On 7th December 2004, the CSRC issued *Strengthening the Protection of the Rights and Interests of Public Shareholders Several Provisions*²⁰[Provisions (2004) thereafter], which aims to establish a constraining mechanism to combat the abuse of control of listed companies and to protect the lawful rights and interests of shareholder. According to the Provisions (2004), listed companies' major business decisions, such as asset

¹⁸ The Organisation for Economic Co-operation and Development is an [international economic organisation](#) of 33 countries. It defines itself as a forum of countries committed to democracy and the market economy, providing a setting to compare policy experiences, seeking answers to common problems, identifying good practices, and co-ordinating domestic and international policies of its members.

¹⁹ Cumulative voting is a type of voting process that helps strengthen the ability of minority shareholders to elect a director. This method allows shareholders to cast all of their votes for a single nominee for the board of directors when the company has multiple openings on its board. In contrast, in "regular" or "statutory" voting, shareholders may not give more than one vote per share to any single nominee.

²⁰ Refer to appendix 3 for main aspects

restructuring²¹ and equity-for-debt plan, should win majority votes (more than one half) from voting holders of public shareholders in the general shareholders meeting.

Given China's vast territory and dispersed geographic location of investors, it is often difficult for many investors to attend shareholders meetings in person. Therefore, the Provisions require listed companies to provide online voting platforms for shareholders' meeting.²² Listed companies must also actively pursue a system of cumulative voting when electing directors and supervisors which fully takes into account the opinions of minority shareholders.

Even if the holder of TAS present were inferior to those of NTAS in terms of the proportion size (one third vs two thirds), their opinions and interest are appreciated, respected and protected. This Provisions landmark the developments to protect public holders in minority.

4.1.2 Call for improvements from the State Council

On 1st Feb 2004, the State Council issued *Some Opinions of the State Council on Promoting the Reform, Opening and Steady Growth of Capital Markets*²³ [Opinions (2004) thereafter], the third article of which read “actively and reliably resolving the problem of separation of equity ownership and trading rights²⁴” and “When resolving this issue, the solution must respect market laws, contribute to the stability and development of the

²¹ Corporate governance reform has been on the CSRC's top agenda since 2001. Vigorous measures have been taken since then to improve the corporate governance of Chinese listed companies. This regulation is one of them.

²² However, more work needs to be done to promote the understanding of on-line voting among investors and increase the turnout rate (statistics show that those who have voted on-line represent no more than 10% of the tradable shares of the company).

²³ Please refer to appendix 2 for full text of Opinions (2004)

²⁴ The separation of equity ownership refers to the separation between the tradable and non-tradable shares. Tradable shares have trading right while non-tradable shares don't.

market and genuinely protect the lawful rights and interests of investors, in particular public investors”. Apparently Opinions (2004) indicated two things. First, the Government was still hoping to reduce the state shares in the listed companies since the NTAS constituted a major hurdle for domestic financial development. Second the market slump following the initial attempt was so impressive that the Government was determined to prevent the reoccurrence of market depression in a next attempt. The Government decided to concentrate on protecting the interests of holders of TAS so that they wouldn’t feel unsure and keep selling shares if the Government was about to announce to reduce state shares.

Opinions (2004) burdened the CSRC with a compulsory task to solve the separation of TAS and NTAS. Under the pressure of Opinions, Dr. Shang Fulin, Chairman of CSRC, frequently gave public speeches as well as held meetings and discussions with relevant important parties.

The lobbying activities by CSRC as well as the improved voting system in accordance with Code and Opinions (2004) finally prepared for the full-circulation Reform.

4.2 China Full Circulation Reform

In line with Opinions (2004), the CSRC started to float non-tradable shares in 2005.

Below is the timeline of the release of FCR-relevant policies, as well as the announcements of group reforms in light of these policies.

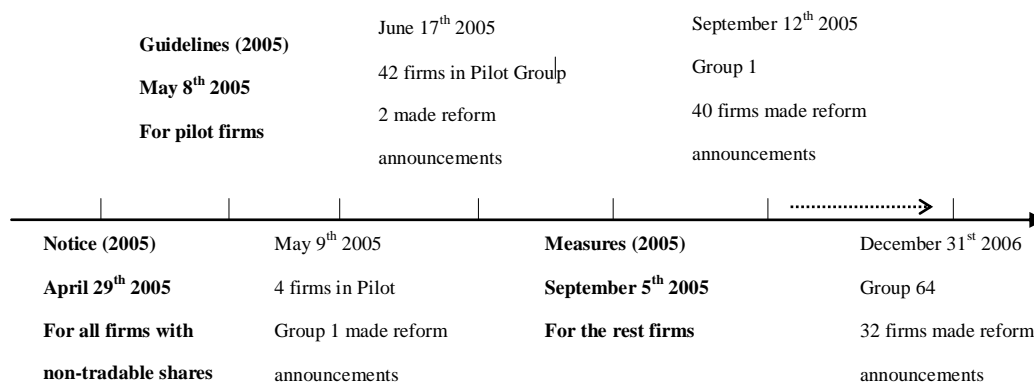


Figure 4.1 The timeline of macro events including the announcement of policies and the relevant groups under guidance

4.2.1 Notice (2005)

On April 29, 2005, the CSRC promulgated the *Notice on the Trial Implementation of Measures on Full Circulation Reform for Listed Companies and Related Questions* [Notice (2005) thereafter²⁵]. This announcement formally launched Full Circulation Reform (FCR thereafter) in China stock markets and was supposed to affect all the listed companies in China.

Equity separation reform

According to Notice (2005), with a view to implement Opinions (2004), a pilot program was to be launched to reform the separation of equity ownership – the separation of tradable A shares and non-tradable A shares – by floating the non-tradable shares of listed firms to the China A-share markets – the Shanghai Stock Exchanges (SHSE) and Shenzhen Stock Exchanges (SZSE) set up in early 1990s.

China FCR is also known as the split-share structure reform or non-tradable shares reform. Since the inception of the Chinese domestic A-share market in the early 1990s, tradable and non-tradable shares of otherwise identical

²⁵ The full Chinese text is available on <http://www.china.com.cn/chinese/FI-c/852093.htm>.

rights coexisted for a company. Under such dual share structure, two thirds of the A-shares outstanding were non-tradable shares owned mainly by the Chinese Government and its affiliates and legal persons. The non-tradable shares were transacted on contract base and subject to the approval of regulatory authorities. The tradable shares were largely held by institutional and individual investors. The purpose of establishing such dual share structure was to enable the SOEs to raise capital and the Government to retain control at the same time. In Chapter 2, it's been illustrated that the partial privatisation, though did improve the internal governance and competition for a small proportion of listed companies, failed to meet the expectation to improve the performance of listed firms. Private shares in listed firms were found to have positive impact while the retained Government ownership seemed to work oppositely. Chapter 3 suggests that the first attempt seeking to reduce the state shares failed because the interests of the TAS holders were neglected which destroyed their confidence in the markets. Therefore the split-share structure is necessary to revitalise Chinese SOEs but has this time taken pains not to repeat the mistake and to safeguard the interests of the owners of TAS.

Statement to protect the interests of investors

Notice (2005) stated that a pilot program should comply with the overall requirement set forth by Opinions (2004) to contribute to the stability and healthy growth of market and to protect the lawful rights and interests of public investors. In line with this statement, Notice (2005) set forth the relevant issues as follows:

- The selection of pilot companies

The final decision is made by the CSRC after considering the proposals submitted from firms with intention to reform.

- Disclosure of relevant information

Pilot firms should disclose relevant information voluntarily, fairly, accurately and completely.

- Time scale

1st suspension: once announced as a pilot firm, the firm should *suspend* immediately. The board should then work with the sponsor employed on the reform proposal.

1st resumption: once the proposal is publicised, the firm should apply to *resume*.

2nd suspension: the firm should *suspend* one day before the scheduled registration date of the shareholders' meeting.

2nd resumption: once the proposal is voted through, the firm should publicise the proposal and the “pass” result within two days, and at the same time apply to *resume trading*. If not, the firm should publicise the “fail” result within two days and apply to *resume trading*.

- Voting rights of shareholders

Online voting and proxy voting are adopted. The reform proposal should win no less than two thirds of the votes from both TAS holders and NTAS holders.

- Lock-up period

No trading of NTAS is allowed within 12 months after the 2nd resumption.

- Trading restriction

NTAS holders who have more than 5% of the firm's total shares outstanding are not allowed to trade more than 5% / 10% of the total shares within 12 / 24 months after the 12 months lock-up. Once there is a large sale of NTAS exceeding 1% of the total shares, the investors should be notified.

- Supervisory duties

The CSRC should supervise the overall reform process in an effort to prevent any illegal operations.

- Operational guidelines

The stock exchanges should draft operational guidelines in accordance with Notice (2005).

Generally speaking, Notice (2005) drew up the basic structure of the reform but missed lots of operational details. Further adjustments, improvements and supplements were required to enrich this basic form as coming down to the concrete and complicated issues. Point 8 reflects that the CSRC have noticed this already. The key elements described from point 1 to 7 were expected to be inherited in general or partially inherited into future documents.

4.2.2 Guidelines (2005)

Based on Notice (2005), the Shanghai Stock Exchange, the Shenzhen Stock Exchange and the China Securities Depository & Clearing Corporation Limited (D&C hereinafter) issued *Operational Guidelines for the Pilot Reform of the Listed Companies* [Pilot Guidelines (2005)]²⁶ on 8th May

²⁶ The full Chinese text is available on

http://www.chinasecurities.xinhua.org/gqfz/zcfg/t20050509_674933.htm.

2005 which set out the operational procedures from the 1st suspension to the 2nd resumption for the pilot reform program.

1. 1st suspension

Once selected by the CSRC, the firm board should immediately report to the stock exchange and apply for *suspending* its shares as well as disclose relevant information like the ownership of NTAS holders, the potential impact of the reform and the risks, the sponsor to be employed etc..

2. 1st resumption

The firm should communicate effectively with the stock exchange and the D&C on the reform proposal. Independent directors should give views on crucial issues, such as how the reform proposal would influence the management and protect public investors. Within two days the proposal is ready, the firms should apply to *resume* to the market.

3. The reform brochure of the firm should include:

- The history of the ownership structure from listing;
- The interaction between the NTAS holders and their respective ownerships;
- The trading of TAS by NTAS holders within six months before the 1st suspension;
- The trading of TAS by the sponsor employed within six months before the 1st suspension;
- The reform proposal;
- Other relevant issues.

4. The sponsor letter should include :
- Whether there is any significant breach of market rules by the firm within three years time;
 - Whether there is any ownership dispute on NTAS of the firm, or pledge of NTAS, or freeze of NTAS;
 - Assessment on how reform proposal would protect the interests of TAS holders of the firm;
 - Assessment on how reform proposal would influence the management of the firm;
 - Independence of the sponsor;
 - Relevant documents check;
 - Other specific issues;
 - Conclusion by the sponsor;
 - Contact details of the sponsor.

5. 2nd suspension

The firm should *suspend* one day before the scheduled registration date of the shareholders' meeting. Formalities required for online voting proxy voting should be ready by then.

6. 2nd resumption

Once the reform proposal receives no less than two thirds of the votes from both the holders of TAS and NTAS, the firm should publicise the proposal and the “pass” result within two days, and at the same time apply to *resume trading*. If not, the firm should publicise the “fail”

result within two days and apply to *resume trading*. The stock exchange should review the relevant documents publicised and decide whether to approve the decision from the shareholders' meeting.

Based on Notice (2005), Pilot Guidelines (2005) further specified the information to be disclosed during the reform.

4.2.3 First pilot group

On May 9, 2005, one day after the release of Pilot Guidelines (2005), the CSRC announced a pilot program, inviting a first group of four companies to transform NTAS into TAS by compensating existing shareholders.

These companies are Shanghai-listed Tsinghua Tongfang (600100), Zi Jiang Enterprise (600210) and Sanyi Heavy Industry (600031), and Shenzhen-listed Jinniu Energy Resources (000937). As Table 4.1 shows, Tsinghua Tongfang is an IT company, Zi Jiang Enterprise is operating in the coal industry, Sanyi Heavy Industry and Jinniu Energy Resources are manufacturing companies, producing plastic products and construction machinery respectively. The proportion of non-tradable A shares (NTAS) by then was 52.48% and 58.47% for Tsinghua Tongfang and Zi Jiang respectively but was 72.11% and 75% for Jinniu and Sanyi respectively.

	Tsinghua Tongfang	Jinniu Energy Resources	Sanyi Heavy Industry	Zi Jiang Enterprise
Listing	SHSE	SZSE	SHSE	SHSE
Code	600100	000937	600031	600210
Main Activities:	Production and Sale of IT products, and software	Manufacture of construction machinery	Manufacture of PET bottles and plastic products	Extraction and sale of Coal
<u>NTAS %</u>	52.48%	75%	58.47%	72.11%
Date of 1 st suspension	9 th May 2005	9 th May 2005	9 th May 2005	9 th May 2005
Date of 1 st resumption	12 th May 2005	16 th May 2005	11 th May 2005	12 th May 2005
Date of 2 nd Suspension	6 th June 2005	6 th June 2005	2 nd June 2005	3 rd June 2005
Date of 2 nd resumption	11 th June 2005 Fail	21 st June 2005 Success	14 th June 2005 Success	26 th July 2005 Success
Consideration paying date ²⁷	NA	28 th June 2005	17 th June 2005	29 July 2005
Consideration size	The NTAS holders would give shares received from the 1.475-for-1 stock split to the TAS owners, equal to 0.525 bonus share for every TAS owned.	The owners of NTAS would give the owners of TAS 0.25 share for every 1 share they own	The owners of NTAS would give the owners of TAS 0.35 share RMB0.8 for every share they own	The NTAS owners would give the TAS owners 0.3 share for every TAS share they own
Computation basis	No details provided	Estimated P/E ratio to calculate the aftermarket share price	No details provided	Valued the NTAS and TAS respectively with NAV and the pre-market price and calculated the weighted mean to estimate

²⁷ A few days after the 2nd resumption date, firms were suspended for one day in order to record the shareholders who were entitled to get Consideration payment. The next trading day is Consideration payment day.

				the aftermarket share price.
Commitments of the NTAS holders	Lock-up of NTAS for the first 12 months. During the following 12 /24 months, up to 5% /10% NTAS are allowed to be sold.	Lock-up of NTAS for the first 12 months. During the following 12 months, up to 10% NTAS are allowed to be sold. The floor selling price is 112.1% of the closing price on April 29 2005 for five consecutive trading days.	Lock-up of NTAS for the first 12 months. During the following 12 / 36 months, up to 4% / 10% NTAS are allowed to be sold. The floor selling price is 110% of the average price 30 days to April 29 2005.	Lock-up of NTAS for the first 24 months. During the following 18 months, up to 5% NTAS are allowed to be sold. The minimum selling price is RMB8.71 (floor price).
	Note: the floor price is adjusted or distributions and stock splits, rights issues, etc.			
Source: http://finance.sina.com.cn/stock/chinagzww/index.shtml				

Table 4.1 Comparison of reform proposals of four companies in the first pilot group

It was expected that the pilot firms would help to test the responses from the public shareholders to the firm-specific reform announcements. As illustrated in sector 3.1, the CSRC, this time, seriously planned to protect the interests of public shareholders who would be affected in the reform, in light of Opinions (2004). Firstly, the holders of NTAS were required to pay the holders of TAS enough Consideration to compensate them for the loss they would suffer in front of the floatation of large-scale NTAS. Secondly the reform proposal including the size of Consideration had to get no less than two thirds of the votes from the holders of TAS and NTAS respectively, as indicated in the classified voting system.

All the 4 firms were suspended from 9th May 2005. Each reform process involved an announcement of a reform plan and a subsequent shareholder's meeting to vote for the proposal.

Tsinghua Tongfang as an example, it publicised on 11th May 2005 an initial reform plan proposed by the holders of NTAS, including the Consideration size and the schedule of shareholders' meeting. Simultaneously, Jingwei Law Firm issued legal opinions on the proposal, declaring that the reform proposal was legal and was authorised by the CSRC. Southwest Securities Company issued recommendation opinions on the proposal, indicating that the reform proposal seriously and fairly considered the interests of the holders of TAS. According to the proposal, Tsinghua Tongfang would carry out a 1.475-for-1 stock split and transfer the new shares that the holders of NTAS would receive to the owners of TAS. Therefore, the owners of TAS would receive approximately 1 share $[(1.475 - 1)/(1 - 52.48\%)]$ for every 1 TAS held before the share split, of which 0.525 share $[(1.475 - 1) \times 52.48\% / (1 - 52.48\%)]$ would be the compensation from the holders of NTAS. The NTAS holders would not be allowed to sell any shares for the first 12 months from the final announcement day if the proposal would pass. They may sell up to 5% of their holdings during the following 12 months and up to 10% during the following 24 months. After the release of reform proposal, Tsinghua Tongfang resumed trading the next day on 12th May 2005. The registration day of shareholders' meeting was 3rd June 2005. Tsinghua Tongfang suspended trading again on 6th June 2005 when the directors began proxy solicitation and the online voting started. The shareholders' meeting took place on 10th June 2005 and the reform proposal only got 61.9% of the votes from TAS owners, less than the minimum requirement of two thirds (66.7%) of the votes from TAS owners. The next day, the failure of Tsinghua Tongfang was publicised and the trading was resumed. Tsinghua Tongfang was brought back to the stage and was suspended again on 23rd Dec 2005. This time, the NTAS holders promised to pay the TAS holders 0.366 for every TAS they own and

committed to lock-up NTAS for the first 36 months. On 5 Jan 2006, the Consideration size was adjusted to 0.38 for every TAS the holders own. The firm was resumed on 6th Jan 2006. The directors started to solicit votes on 12th Jan 2006 on which day Tsinghua Tongfang suspended too. The shareholders' meeting took place on 23rd Jan 2006. The proposal of Tsinghua Tongfang successfully got no less than 66.7% of the votes from the holders of both NTAS and NTAS this time and was resumed on 10th Feb 2006.

The case of Jinniu Energy Resources announced the start of its reform and stopped trading on May 9th 2005. Then it publicised original reform plan on May 13th 2005, underwritten by Hualian Law Firm and China Coal Trust and Investment Company and resumed trading on May 16th 2005.

According to the reform proposal, the owners of NTAS would give the owners of TAS 0.25 share for every 1 share they own. Jinniu estimated the P/E ratio of its shares once they were all tradable from that of its international competitors and calculated how many shares should be transferred to the TAS owners so that the market capitalisation of the TAS based on the estimated P/E ratio would be no less than the current market capitalization of TAS. Mathematically, the estimated market capitalisation of the TAS once all shares are tradable is where N_T is the number of TAS.

The current market capitalisation is $P_{current} \times N_T$. The Consideration is bonus shares offered to the TAS owners in order to compensate them for the market loss, therefore: $P_{current} \times N_T = P_{aftermarka} \times (N_T + C_{onsideration})$. The unit

Consideration per TAS held is consequently equal to: $\frac{P_{current} - P_{aftermarka}}{P_{aftermarka}}$. On

May 30 2005, the NTAS owners made adjustments on the commitment that they would not sell shares for the first 24 months from the day they

successfully announce the reform after the shareholders' meeting. During the next 18 months, they would sell up to 5% of the holdings. The longer-than-required lock-up period made the current investors feel more secure. They also committed that the selling price would be no less than RMB8.71, similar to a put option on the NTAS with an exercise price of RMB8.71, indicating they had confidence in the future development of Jinniu and wouldn't dump shares for proceeds. Jinniu suspended again on June 6th 2005 when the directors began to solicit votes from the holders of TAS. On June 21st 2005, Jinniu successfully completed the announcement of reform and resumed trading. On June 27th 2005, Jinniu suspended for one day and registered TAS shareholders and resumed the next day to pay the Consideration, suggesting only those who had Jinniu TAS by June 27th 2005 were qualified to receive Consideration.

Zi Jiang firstly suspended on 9th May 2005, publicised its reforms proposal underwritten by Haotian Law Firm and Guosen Securities Co.,Ltd. on 11th May 2005 and resumed trading on 12th May 2005. According to its original proposal, the NTAS owners would give the TAS owners 0.3 share for every TAS share they own. Instead using international evidence as a benchmark to estimate P/E ratio, the theoretic share price of Zi Jiang after the reform was computed by dividing the total share value before the reform, the market value of TAS plus the net asset value (NAV) of NTAS by the number of total shares. Mathematically, the theoretic aftermarket share price is:

$$P_{aftermarka} = \frac{P_{current} \times N_T + NAV \times N_{NT}}{N_T + N_{NT}}, \text{ where } N_{NT} \text{ is the number of NTAS}$$

and $P_{current}$ here is the average share price during the 30 days before the reform. And accordingly the pre-market value of TAS is equal to:

$$P_{current} \times N_T = P_{aftermarka} \times N_T + (P_{aftermarka} - NAV) \times N_{NT}. \text{ The part of}$$

$(P_{aftermarket} - NAV) \times N_{NT}$ would be paid in full by allotting share to the owners of TAS as Consideration. Therefore the unit Consideration should

be equal to: $\frac{N_{NT}}{N_T} \times \frac{(P_{aftermarket} - NAV)}{P_{aftermarket}} = \frac{P_{current} - P_{aftermarket}}{P_{aftermarket}}$. The owners of

NTAS would not be allowed to sell any shares in the first 12 months but would be allowed to sell up to 4% of their holdings during the next 12 months and up to 10% during the following 3 years. The selling price should be no less than 110% of its average for the 30 days to April 29 2005 and adjusted for any distributions, stock splits, right issues etc.. Zi Jiang suspended again on June 3rd 2005 when the directors began to solicit votes from the holders of TAS. On July 26th 2005, Zi Jiang successfully completed the announcement of reform and eventually resumed trading. On 28th July 2005, Zi Jiang suspended to register the qualified TAS shareholders and resumed the next day to pay Consideration accordingly.

On 9th May 2005, Sanyi Heavy Industry firstly suspended and publicised initial proposal underwritten by Hunan Qiyuan Law Firm and China Euro Securities Ltd. and resumed on 11th May 2005. In the original proposal, the owners of NTAS would give the owners of TAS 0.35 share RMB0.8 for every share they own. The Consideration was calculated by estimating the P/E ratio after the reform. Sany Heavy Industry failed to provide a proper explanation. The owners of NTAS would not be allowed to sell any shares in the first 12 months but would be allowed to sell up to 10% of their holdings during the next 12 months. The floor selling price is 112.1% of the closing price on April 29 2005 for five consecutive trading days. Sanyi suspended for the second time on 2nd June 2005 when the proxy solicitation by direction began and resumed again on 14th June 2005 after its reform proposal successfully won the majority votes (no less than two thirds) from the TAS owners. The TAS registration day was 16th June 2005 and the firm

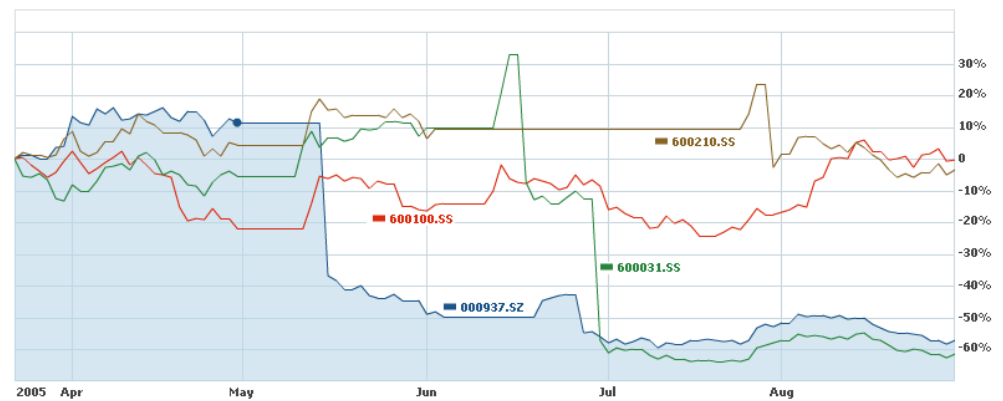
was suspended on this day. The Consideration paying day was 17th June 2005.

Here is the summary of how the minority TAS owners were protected.

- Basically the reform process of each firm consisted of two suspension stages. A firm was suspended when selected by the CSRC to go through the reform process. Initial proposal was released during the 1st suspension period and the firms would resume trading the next working day. The 2nd suspension period started when the directors began to solicit votes. Then a few days later a shareholders' meeting was held to vote for the reform proposal and the voting results were disclosed at the end. The firms usually resumed trading the next working day if the proposal won no less than two thirds of the votes from both the holders of NTAS and TAS. Otherwise, it failed. In the first pilot group, all the proposals were accepted except that of Tsinghua Tongfang, which failed the first time but came back with an improved proposal on 23rd Dec 2005 and successfully passed the second time. The TAS holders had a final say on the reform proposal which directly affected their interests during the reform.
- There was a 12-month lock-up period from the successful announcement of reform after the proposal was voted through in the shareholders' meeting. In the following two to three years, usually no more than 10% of NTAS were allowed to sell. The minority investors were protected as the selling of NTAS was not an immediate or one-off act that would drive the market down. In three out of four cases, a floor selling price was set, usually higher than an average price around the announcement of Measures (2005)

- The Consideration valuation was based on the assumption of a substantial price drop after the reform was successfully announced with a reform proposal voted through. The first step was to calculate the loss the TAS owners would suffer once all shares were tradable. Therefore the estimate of aftermarket share price was essential. Unfortunately the details how each firm estimates the share price are not available. The second step was to compute how many shares should be paid to them to compensate for the loss. Jinniu Energy Resources and Sany Heavy Industry both estimated P/E ratios after the reform to calculate the aftermarket share price. Whereas Tsinghua Tongfang proposed a stock split where all the new shares would be offered to the owners of TAS, presumably based on an estimated of aftermarket share price. Zi Jiang Enterprise estimated the aftermarket share price to be the weighted mean where NAV was used to value NTAS and TAS were market valued.
- Jinniu Energy Resources amended their proposals after taking the advice of the owners of TAS during the trading period between the 1st and 2nd suspension stages. It prolonged the lock-up period and put a floor under the price at which its major shareholders could sell their shares. This suggested that the owners of TAS played an active role to influence the proposals decisions and were protected.

Figure 4.2 shows the share price of the four companies during the reform period.



Source: <http://uk.finance.yahoo.com>

Figure 4.2: Return movements of the four companies

The returns of Zi Jiang (600210.SS), Sanyi (600031.SS) and Tsinghua Tongfang (600100.SS) moved up by more than 10% on the 1st resumption day while that of Jinniu (000937.SZ) dropped by nearly 40%, indicating except Jinniu, the investors in the A-share markets were happy about the reform plans proposed by the other three companies. But Tsinghua Tongfang actually failed in the voting stage which indicated that the TAS investors were not that supportive of its proposal released, opposite to the findings of positive market response here. Comparatively, Jinniu proposal set the least Consideration paid to the TAS owners, probably the reason that its proposal was adjusted later on that the NTAS owners of would not sell shares for the first 24 month and would sell up to 5% of the holdings during the next 18 months, in order to comfort the TAS owners.

The return of Sanyi, Jinniu and Zi Jiang increased on the 2nd resumption day, probably the investors wanted to be registered as the Consideration paying day was approaching. Furthermore, the return of Tsinghua Tongfang

increased as well as the news of failure, in other words the cancellation of reform proposal, was publicised.

Except Tsinghua Tongfang, the returns of Sanyi, Jinniu and Zi Jiang sharply slid down on the Consideration paying day by nearly 50%, 15% and 25% respectively.

4.2.4 Second pilot group

On 20th June 2005, the CSRC initiated the second pilot program involving 42 companies worth 10% of overall stock market value. On August 19th 2005, the second program was successfully accomplished since all the companies successfully announced reform with their reform proposals voted through in the shareholders' meetings.

The reform process of a firm in the second pilot program was similar to that in the first pilot program but changed in a few aspects.

In the 1st pilot group, the voting results in the shareholders' meeting were released the next day and trading was from then resumed, named the 2nd resumption day. In the 2nd pilot group, the voting results were released the next day of the shareholders' meeting but the trading was not resumed till the Consideration paying day. Therefore the 2nd resumption day in the pilot 2 program refers to the Consideration paying day. For instance, Shenzhen-listed Luxi Chemicals (000830) suspended to announce the start of reform on 20th June 2005, publicised the original proposal on 14th July 2005 and resumed trading the next day on 15 July 2005. According to the proposal, the NTAS owners would pay 0.3 share to the TAS owners for every one share they own. Since the 1st resumption day, the holders of NTAS were listening to the public shareholders on the A-share market and adjusted Consideration upward to 0.4 share per TAS held by the owners and

this revised proposal was announced on 1st Aug 2005. The NTAS owners promised they would not sell any share in the first 12 months. Luxi Group, the parent company who held more than 5% of the NTAS, wouldn't sell any of its shares in Luxi Chemicals in the first three years and in the next two years, the selling price shouldn't be less than RMB5.2, 32% higher than the average price in the 30 days before the reform. Luxi suspended again on 5 Aug 2005 when the proxy solicitation started. The shareholders' meeting took place on 16th Aug and the trading was resumed on 23rd Aug 2005, the next day of registration of TAS owners.

In the 2nd pilot group, various types of Consideration were proposed. For example, Jilin Aodong Pharmaceuticals (000623) initially proposed that the NTAS owners to carry out a 1-to-0.6074 reverse stock split and give the TAS owners RMB0.093 for every TAS they own. The cash payment was increased to 0.186 after the TAS owners reacted negatively to the initial proposal. The percentage of NTAS of Jilin Aodong was 46.38% of total A-shares outstanding before the reform and decreased to 34.4% after the reverse stock split. Bao Steel (600019) proposed its NTAS owners would transfer to its TAS owners 2.2 shares as well as 1 European put warranty with an exercise price of RMB4.5 and a maturity of 378 days for every 10 shares they own. If the share price at the maturity was smaller than RMB4.5, the TAS owners probably would sell the TAS at RMB4.5 to gain. Otherwise, they would keep the TAS. The TAS holders were protected from the downside risks in the market. Instead of giving warranty, the NTAS holders of Shanghai Automobile (000717) promised to buy back shares at RMB3.98 subject to a maximum cost of RMB 1 billion if the share price fell below RMB3.98 in two month times after a successful announcement, other than its NTAS holders gave its TAS owners 0.34 share for every TAS they own.

In order to provide further incentives to the companies, the CSRC encouraged all mainland-listed companies to turn NTAS into TAS and stated that reform-compliant companies would be given priority to raise new capital. This is one of the value consequences of accepting the offer. Furthermore, according to the debt tax code, the debt interests in China are tax deductible. The debt covenants were restricted to TAS only before October 2001. A loan was allowed to be pledged against the state shares since the issuance of Notice on State-shares Pledged Loans on 25 Oct 2001 and the state shares were valued as net asset rather market price. Then the transfer from NTAS to TAS increased debt capacity and hence the tax benefits. This also adds to the value of the FCR reform.

4.2.5 The features of the pilot programs

The pilot reform program has four main features:

- It attempted to be flexible rather than impose a one-size-fits-all solution;
- It allowed holders of NTAS and TAS to negotiate with each other over the reform proposal until a mutual agreement is achieved;
- It addressed the concern of price volatility;
- It addressed the effect of price pressure owing to the massive future supply of shares.

Flexibility

Both Notice (2005) and Guidelines Pilot Reform (2005) made no mention of any specific measures to deal with the problem of NTAS. When the CSRC previously carried out a public consultation on the issue in 2002, it received

over 4,000 suggestions, all of which had disadvantages as well as advantages and none stood out as the best solution (Inoue 2005).

The CSRC didn't impose a one-size-fits-all solution and instead allowed companies to come up with proposals of their own. In other words, the companies decided for themselves what was the best solution given their particular shareholder structure financial situation. By eliciting a wide range of responses, such an approach should also reduce the risk of the market moving in one direction in response to a one-size-fits-all solution, as happened on the previous occasion.

The four companies involved in the first pilot group sounded out the views of the shareholders at extraordinary shareholders' meetings, and in all four cases, the owners of NTAS proposed that the owners of tradable shares receive compensation²⁸ in the form of transferred bonus share or cash. Leaving aside the issue of whether owners of TAS should be compensated, the type of compensation proposed and the thinking behind it varied considerably from company to company, and the discussions that were held with shareholders and market professionals elicited a wide range of reactions. In the case of the 42 companies involved in the second pilot group announced on 20th June 2005, the compensation was more varied. One proposed the use of a reverse stock split (Jilin Aodong), four proposed the use of stock options (eg. Bao Steel), while eleven proposed that the owners of NTAS should buy shares if the share price fell below a certain level (eg. Shanghai Automobile).

²⁸ The compensation is termed as Consideration in the official documents issued in September 2005. Details are provided later in this chapter.

Classified voting system

After drafting their reform proposals, companies had to submit them to a meeting of their board of directors and then to an extraordinary meeting of their shareholders. The details of the decision by the board of directors were normally published and shareholders voted on the proposals at an extraordinary meeting. In other words, the shareholders had the final say on whether a company's proposals were accepted or rejected.

Proposals were accepted or rejected on a two-thirds majority of those taking part in an extraordinary shareholders' meeting, and the procedure was the same as that for a special resolution on important matters such as mergers, demergers and amendments to a company's articles of incorporation.

Votes were no longer put to all the shareholders together. No less than two-thirds of votes from the TAS owners must be sought separately so that the TAS owners won't be outvoted. As previously mentioned in Provisions (2004) issued, the CSRC adopted this classified voting system in December 2004 for resolutions on important issues such as rights issues and important asset transactions in order to safeguard the rights of the owners of TAS.

In addition, companies were required to announce extraordinary shareholders' meeting at least three times in order to encourage owners of TAS to attend and to ballot shareholders via the Internet for at least five days, while independent directors collected proxies from owners of TAS.

Two suspension periods

The reform announcements were expanded into two suspension periods, defined by a series of four critical event dates. Trading in a company's shares was suspended from the day on which the company announced its intention to reform (the 1st suspension date) till the day on which it

announced its proposals (the 1st resumption date) as well as from the day when the directors began to solicit votes (the 2nd suspension date: the following day of the record date for the right to attend an shareholders' meeting) till the day on which the results of a vote were publicly announced (the 2nd resumption date: also the Consideration paying day (the following day of the record date for the right to get Consideration) since the second pilot program). No price data was available during the two suspension periods. But trading was resumed on the two resumption dates from when the share prices were available. Information could be leaked before the two suspension dates and the share prices on the previous days were available too.

The event information was released step by step on the four event dates and thus distributed the price effect and volatilities between the event dates. Furthermore, the market response around the previous event date might help to adjust the details to be released next. Consequently this arrangement protected the interests of minority TAS by diluting the risk and negative market impact as well as leaving room for the NTAS owners to adjust to improve the market reaction.

Lock-up period and restrictions

This program also sought to avoid a situation where a sudden and massive release of share onto the market upsets the demand-supply balance. In particular, a 12 month lockup period was established for the holders of NTAS. Furthermore, in the two years after the expiration of the lock-up, a holder of NTAS with more than 5% of the total issued share capital of the listed company is further prohibited from trading on the stock exchange more than 5% (10%) of the company's total share capital within 12 (24) months. Such shareholders were also required to issue an announcement

every time before they sold 1% of a company's shares in order to give the widest possible publicity to information about disposals by major shareholders. The minority TAS holders were thus protected from the shock of large-scale sale in the A-share markets.

4.2.6 Formalisation and expansion of FCR

In August 2005, the Government issued guidelines to extend the reform share project to the rest of the stock market, setting the end of 2006 as the deadline of the process. The new listed companies are required to fully circulate their shares on both exchanges. Non-tradable state-owned shares are not allowed to issue in the IPOs since May 2006.

On September 5, 2005, CSRC issued the *Measures on administration of split share structure reform of listed companies* (Measures 2005), the first official document providing details about the implementation of NTAS reform. And the full-scale reform then started since then.

The program followed the principles established in the pilot reform. It decentralised decision making at the firm level, by allowing shareholders to bargain over the method and terms of the compensation. Furthermore, it safeguarded the interests of TAS holders by seeking no less than two thirds of the votes from the TAS owners, diluted the risks by introducing a series of announcements dates, and prevented market slump by banning any sale of NTAS in the 12 months and restricting the issue size in the following 24 months.

Theme of China FCR

Measures (2005) defined China FCR as a process to eliminate the discrepancies between NTAS and TAS via a negotiation mechanism to balance the interests of holders of NTAS and TAS. In other words, the

central theme of the reform was to convert NTAS to TAS and protect the interests of TAS holders in the A-share market from the invasion of NTAS.

Supervisor and regulator

According to Measures (2005), the main players and their relevant activities are under the surveillance of the CSRC. With authorization of the CSRC, the stock exchanges should act as the front-line regulator to coordinate and direct the reform and handle procedures related to listing of non-tradable shares. Specifically, the stock exchanges and depository & clearing companies should formulate operation guidelines in accordance with the Measures (2005), provide facilities for listed companies to handle issues involving their reform, and exercise continuous supervision over relevant parties involving information disclosure obligations, materialization of the undertakings made for the reform, and the sale of shares by the former non-tradable shareholders after the reform plan is implemented.

A typical reform process

Measures (2005) established the following stages for the implementation of the reform:

1. Holders of NTAS should submit to the board of directors a reform proposal proposed by a shareholder/shareholders holding individually/collectively two-thirds of the NTAS of the listed company to and request the board to start the reform process.

The proposal should include:

- information on the formation and each alteration of capital stock structure as of the establishment of the company;

- shareholding proportion of the holders of NTAS and the association with each other;
 - the holders of NTAS, actual controllers of the holders of NTAS who hold 5% or more of the total shares of the company
 - the share-trading reform scheme
 - commitments made by the holders of NTAS;
 - information on the holding of the company's TAS by the recommending institution on the day prior to the day when the board of directors announces its reform, and the information on the purchasing and selling of the company's tradable shares within the previous six months; and
 - other matters that shall be explained.
2. The board must seek the cooperation of an external sponsoring institution and of a law firm to formulate the proposal. The board has to select from 51 sponsor institutions approved by the CSRC. There is no such requirement to choose a law firm. The board and the external sponsor institution and law firm will reach an agreement on how much the cost is and how the payment is made. The Securities Association of China, Circular on Issues Relevant to Sponsors Engaging in Cases of Full-Circulation Reform issued on 15 July 2005 (Circular 2005) regulates that a sponsor institution should charge no less than RMB2.5 million after the reform proposal was voted through. There is no such payment regulation for a law firm.²⁹ The sponsor must consult the stock exchange about the feasibility of the proposal and arrange a meeting with the relevant market shareholders. The stock exchange neither

²⁹ The data and information on sponsor institutions and law firms are usually not publicly provided.

“approves” the proposal nor provides any judgment on the amount of the proposed compensation, but just advises the company on the technical aspects of the proposal.

The sponsor shall perform the following duties:

- to assist in formulating the reform plan;
 - ✓ to conduct due diligence on the reform plan;
 - ✓ to verify the documents involving the reform plan;
 - ✓ to comment on the competence of the NTAS to implement the consideration plan and fulfill their undertakings;
 - ✓ to issue the sponsor opinion
- to assist in implementing the reform plan;
 - ✓ to assist in drafting and enforcing the measures to stabilize the stock price;
 - ✓ to continuously inspect the parties in respect with their fulfillment of undertakings.

The sponsor opinions should include:

- Whether or not the non-tradable shares of the listed company involve ownership disputes, pledge or being frozen and the influence of the foregoing circumstances on the implementation of the reform plan;
- The assessment of the influence on tradable shareholders’ interests as the reform plan is implemented;

- Conclusion on the verification of the documents relating to the split share structure reform;
 - A feasibility study on the relevant undertakings in the reform plan;
 - Explanation for whether or not there exists any circumstance in which the sponsor cannot duly perform its duties;
 - Other particulars the sponsor deems necessary to be specified;
 - The sponsor conclusion and the grounds.
3. The board of directors then publicises the reform proposal, including date of the shareholders' meeting, a description of the reform proposal as well as the opinions of the recommending institution and the law firm. And trading in the shares of the stock is immediately suspended (t_{1-sus} : the 1st suspension date).
4. Within 10 days after the announcement, the board of directors should assist the owners of NTAS in adequately communicating and negotiating with the holder of TAS of A-share market by such approaches as hosting an investor symposium, a press conference or an online road show, paying a visit to institutional investors and issuing a consultation paper and so on. In addition, the board of directors of the listed company should publicly disclose its hotline, facsimile and e-mail address in order to widely solicit opinions from tradable shareholders so as to lay a broad shareholder foundation for the reform plan.
5. If the proposal is acceptable to both parties, an announcement of consensus will be made and trading resumes (t_{1-res} : the 1st resumption date), which put an end to the first suspension period. Otherwise some more days may pass before resumption of trading until all shareholders

firmly agree on a given proposal. However, once trading resumes the proposal cannot be further modified.

6. Registration starts for the shareholders' meeting and trading is suspended the next day of registration for the second time (t_{2-sus} : the 2nd suspension date).
7. The shareholders' meeting is held. The proposal needs a majority of two thirds of votes from the participants. Such reform plan shall also be approved by the holders of tradable shares owning at least two-thirds of tradable voting shares. The board must publicise the voting results within 2 working days. If the proposal is accepted, the board should publicly release the timetable for actual implementation of the reform. Trading is restarted after the shareholder meeting ratifying the completion of the reform (t_{2-res} : the 2nd resumption date). If the proposal is not approved the board should apply for trading resumption of the listed company's shares from the next day of the announcement. The holders of NTAS of a listed company may redo the reform procedures from the very start but have to wait for at least three months.
8. A 12 month lockup period is established for the holders of NTAS. The initial 12-month lockup expires on t_{12m} . Furthermore, in the two years after expiration of the lock-up, holders of NTAS with more than 5% of the total issued share capital of the listed company is further prohibited from trading on the stock exchange more than 5% (10%) of the company's total share capital within 12 (24) months.

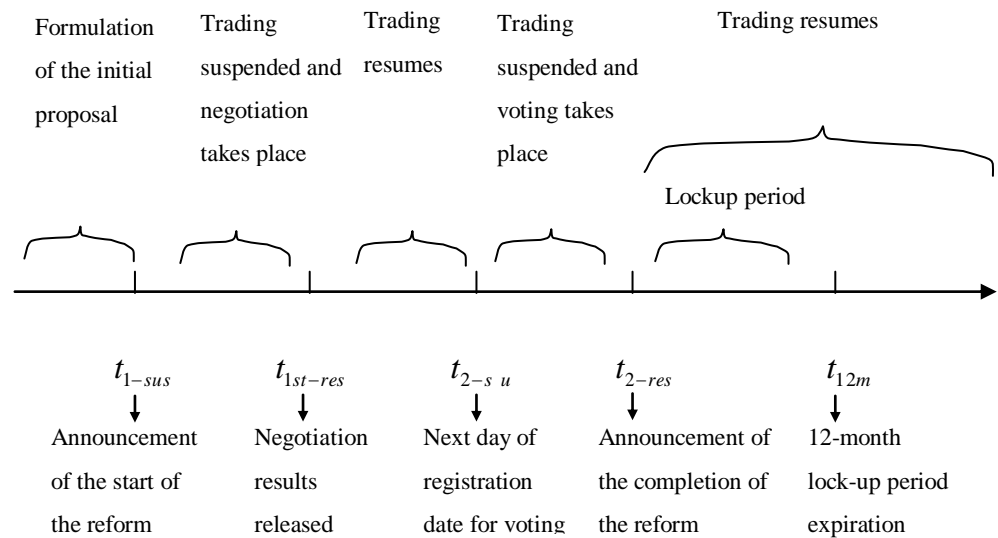


Figure 4.3 The timescale of a firm-specific event (as opposed to macro events)

The above figure presents a typical timeline of reform process from preparation of a reform proposal to its implementation. The descriptions above the timeline indicate what happens in the time intervals below, defined by double-arrows. The explanations under the timeline indicate what news was released on the corresponding event dates above.

- A company firstly suspends on t_{1-sus} to announce the start of reform and publicise the initial reform proposal.
- Since then the holders of NTAS are bargaining with the holders of TAS regarding the proposal and come out with a revised version of proposals.
- The company resumes on $t_{1st-res}$ when the revised proposal is publicised.
- The company suspends again on t_{2-sus} , the next day of the record date of the right to attend the shareholders' meeting.

- Since then the proxy solicitation starts and a shareholders' meeting is held to vote for the revised proposal.
- If the revised proposal successfully wins no less than two thirds of the votes from both the TAS owners and NTAS holders, the company resumes on t_{2-res} when a successful reform is announced and Consideration payment is put into practice.
- Where approved within one year from t_{2-res} to t_{12m} , no NTAS are allowed to be traded. If it is not approved, the company will be suspended until it finally comes up with an approved proposal.

This bulleted procedure regulated by Measures (2005) is one step further than what has been demonstrated for the pilot program before. The formulation of initial reform proposal finishes before a company firstly suspends (t_{1-sus}) rather than during the 1st suspension period between t_{1-sus} and $t_{1st-res}$. And subsequently, the initial proposal is publicised on t_{1-sus} rather than on $t_{1st-res}$. The negotiation between the holders of NTAS and TAS takes place during the 1st suspension period between t_{1-sus} and $t_{1st-res}$ rather than after $t_{1st-res}$. The revised proposal based on the negotiation is publicised on $t_{1st-res}$ rather than sometime before t_{2-sus} .

Commitment in the proposal

Based on Measures (2005):

1. The holder of NTAS should offer guarantee measures to perform their commitment and issue a statement in written form indicating that they will faithfully perform their commitment.

2. Under no circumstances can the holder of NTAS transfer their shares before their commitment is fully performed, even if the lock-up period expires unless the parties to buy the shares are capable and agree to fulfill the commitment for the NTAS.
3. Sponsors are required to comment on the competence of the non-tradable shareholders to implement the consideration plan and fulfill their commitment and to continuously inspect the parties in respect with their fulfillment of commitment.
4. The shareholders, who fail to fulfill their commitment in the reform, are liable to a public censure of the stock exchanges. The CSRC will order such shareholders to make a correction and will take relevant disciplinary actions. If the legitimate interests of other shareholder are infringed in such case, the shareholders shall bear relevant legal liabilities. The penalty measure reduces the risks of default in commitment and thus adds credit to the commitment made by holder of NTAS.

4.2.7 Reform in groups

The reform process was gradual and took place in orderly groups. For firms in the same group, the announcement of start of the reform takes place on the same day (t_{1-sus}). Firms of the same group necessarily do not complete the reform at the same time, although this is dependent upon how each firm progresses. By the end of 2006, the reform took place with 64 regular groups involving 1290 companies that had either completed or were in the reform process after the pilot programs. Among them, 840 companies successfully completed the reform process, comprising around 80% of the market capitalization of the combined SHSE and SZSE. By the end of 2007,

1,254 firms were successful, representing over 97% of the market capitalization at the time. Firms whose proposals were rejected the first time may come back with a revised plan for approval beyond the deadline of 2006.

The list of companies in each group was decided in two stages.

Firm enthusiasm

In the first stage, the stock exchanges set a deadline to accept reform proposals³⁰ from companies wishing to participate. In this sense, the companies which submitted the proposals on time were more enthusiastic than the others to take the reform. Jiang et al (2008) argued that the higher the level of enthusiasm for implementing the reform, the earlier the reform process was completed. Therefore, they measured the firm-enthusiasm with an ascending Group order.

Selection by the stock exchanges

In the second stage, the stock exchanges examined all the applying firms and crossed out those they thought had problems. There is no explicit disclosure illustrating the selection criteria adopted by the stock exchanges. However the Government media, which were suspicious of having connection with the high levels in the stock exchanges, hinted in news that companies which might have exemplary effects and implications for the future were more likely to be selected. Under this guidance, companies showing larger market capitalisation, better cooperation with the sponsors and better practice in the market as well as producing more innovative proposal were probably more favorable than the others. However the stock exchanges sometimes did approve companies which eventually failed to

³⁰ Measures (2005) required the sponsor appointed by a company to consult the stock exchanges regarding the feasibility of the reform proposal.

meet the expectation to achieve votes from at least two thirds of the voting shareholders of NTAS and TAS respectively. The selection standards might vary with the outlook into the future, and were adjusted all the time. From the perspective of setting up an example to the future reforms, firms that implemented their reforms earlier were expected to affect firms in later groups. Li et al. (2011) controlled for market learning by including the Group order and found the later groups paid less Consideration, indicating the uncertainties were reduced due to the learning from the earlier groups. Li et al. (2010) only included those firms which paid Consideration in bonus shares.

Group summary

The table below summarises the Group information, reporting the Group date, the number of firms in a group and the interval in days since the previous Group date.

The first group of 40 companies published the announcement of the start of the process on 12th Sep 2005. All of them accomplished successfully. The last group started the reform process on 30th Dec 2006 involving 32 companies. The 22nd Group is the largest including 49 companies and the 50th and 55 are the smallest Groups including 5 companies each. There is an average of 21 firms per batch. And the interval between two consecutive groups is generally 5 working days.

Group	No.	Group date	Interval in days	Group	No.	Group date	Interval in days
1	40	Sep 12 05	N/A	33	26	May 21 06	5
2	32	Sep 18 05	6	34	30	May 28 06	5
3	22	Sep 26 05	8	35	20	Jun 4 06	5
4	23	Oct 9 05	13	36	21	Jun 11 06	5
5	21	Oct 16 05	5	37	24	Jun 18 06	5
6	18	Oct 23 05	5	38	36	Jun 25 06	5
7	18	Oct 30 05	5	39	32	Jul 2 06	5
8	20	Nov 6 05	5	40	8	Jul 9 06	5
9	20	Nov 13 05	5	41	12	Jul 16 06	5
10	17	Nov 20 05	5	42	8	Jul 23 06	5
11	22	Nov 27 05	5	43	8	Jul 30 06	5
12	19	Dec 4 05	5	44	9	Aug 6 06	5
13	21	Dec 11 05	5	45	8	Aug 13 06	5
14	27	Dec 18 05	5	46	6	Aug 20 06	5
15	38	Dec 22 05	4	47	8	Aug 27 06	5
16	19	Dec 30 05	5	48	8	Sep 3 06	5
17	13	Jan 8 06	5	49	7	Sep 10 06	5
18	24	Jan 15 06	5	50	5	Sep 17 06	5
19	46	Jan 22 06	5	51	11	Sep 24 06	5
20	38	Feb 12 06	5	52	6	Oct 8 06	14
21	39	Feb 19 06	5	53	6	Oct 15 06	5
22	49	Feb 26 06	5	54	7	Oct 22 06	5
23	46	Mar 5 06	5	55	5	Oct 29 06	5
24	25	Mar 12 06	5	56	7	Nov 5 06	5
25	28	Mar 19 06	5	57	12	Nov 12 06	5
26	41	Mar 26 06	5	58	14	Nov 19 06	5
27	25	Apr 2 06	5	59	7	Nov 26 06	5
28	16	Apr 9 06	5	60	10	Dec 3 06	5
29	26	Apr 16 06	5	61	11	Dec 10 06	5
30	35	Apr 23 06	5	62	12	Dec 17 06	5
31	28	May 7 06	14	63	22	Dec 24 06	5
32	23	May 14 06	5	64	32	Dec 31 06	5

Source: <http://finance.sina.com.cn/stock/chinaggzw/index.shtml>

Table 4.2 Summary of reform groups

Firms whose reform proposals didn't get two thirds of the votes from the holders of both NTAS and TAS would come back with a new plan in a new Group, such as Tsinghua Tongfang which failed in the first pilot group but rejoined Group 15 at the end of 2005 and this time its revised proposal was voted through. By the end of 2006, there were 67 firms whose reform proposals were rejected at least once at the shareholders' meeting. The table below specifies these firms and all the groups they had ever participated since failure.

Stock Code	Group Number			Stock Code	Group Number		
	1st Trial	2nd Trial	3rd Trial		1st Trial	2nd Trial	3rd Trial
000026	18	52	59	600327	29	47	
000045	7	43		600333	44	58	
000090	9	36		600338	43	47	
000408	24	31		600354	32	41	
000423	49	60		600380	11	49	
000540	50	56		600499	4	27	
000549	8	46		600515	56	63	
000617	44	64		600559	18	39	
000626	39	57		600568	35	40	
000665	53	56		600578	19	20	
000672	33	40	60	600579	38	50	
000682	35	39		600606	6	31	
000703	47	51		600608	53	64	
000792	28	34		600627	28	51	
000838	33	58		600636	8	28	
000885	40	44		600645	34	59	
000905	27	48		600708	6	33	
000908	47	50		600712	34	50	
000929	32	46		600715	39	51	
600035	38	55		600721	36	61	
600083	58	60		600724	41	57	
600093	48	55		600727	34	36	
600100	pilot 1	15		600763	43	49	
600107	51	60		600766	37	41	
600116	53	56		600767	39	50	
600133	27	58	64	600768	37	57	
600149	54	64		600782	25	46	
600184	38	41		600786	37	44	63
600186	30	64		600789	43	49	
600205	48	60		600790	41	56	
600248	42	45	64	600829	29	51	
600250	37	38		600857	34	39	
600318	33	33		600864	26	26	
600327	29	47		600865	47	62	
600333	44	58					

Source: <http://finance.sina.com.cn/stock/chinaggzw/index.shtml>

Table 4.3 Summary of firms whose proposals ever failed

47 of the firms were listed in SHSE, more than twice as many firms listed in SZSE. 62 firms were successfully through in the second trial. However there were still 5 firms which failed twice but got a pass in the third trial. Unlike firms in the pilot program which were allowed to resume trading after failure, Measures (2005) regulated that firms failed would be continually suspended until they could come up with a reform plan approved by the shareholders. Counting Tsinghua Tongfang out, the interval between the 1st failure till the eventual success was averagely 66 working days, indicating the price data immediately before the second or third trial was unavailable for non-pilot firms.

4.2.8 Consideration

One distinguishing feature of China FCR is the payment of consideration to shareholders of tradable shares. Consideration played an important role in the reform package. The specific terms of Consideration varied from company to company and took effect only when approved by a 2/3 of both shareholders of NTAS and TAS respectively. As introduced above, the holder of NTAS of a company were bargaining with the holders of TAS over the terms subject to the specific shareholding structure and financial situation of the firm. This term of Consideration appeared in Measures (2005) in Article 16 “implement the consideration plan specifically designed to balance the interests of each party in the split share structure reform” but was not specified in terms of the concept and connotation.

Forms of Consideration:

Consideration took various forms and could be used in different combinations.

The most popular forms are:

- Shares Transfer (ST): the owners of NTAS give away certain NTAS to the holders of TAS. The existing investors of TAS receive free shares in proportion to their ownership in a firm from the corresponding owners of NTAS. But in ST, these shares are available to the existing shareholders for free and transferred from the NTAS instead of new shares. Effectively, an implementation of ST indicates a reduction of NTAS with zero revenues. Suppose an investor receives a consideration ratio of C_{ST} per share held by the TAS owners and there are NT non-tradable_A shares and T tradable A shares in a company, an application of ST can reduce the NTAS of this company by $T \times C_{ST}$.
- Cash Payment (CP): the owners of NTAS pay Consideration in cash to the holders of TAS. Under this approach, there is no change in the shareholding structure but at the cash cost of the NTAS owners. NTAS owners opting for this payment method didn't want to give away the shares and instead they paid RMB C_{CP} per share the TAS owners own. In other words, they valued the shares that they would otherwise have paid under SP at $T \times C_{CP}$.
- Recapitalization of retained earnings (RI): a listed company capitalizes its retained earnings and issue new equity shares. The owners of NTAS pay the holders of tradable shares the new equity shares they receive from the company. Under this approach, the number of total shares increases by $(1 + T/NT \times C_{RI})$ times. Retained earnings capitalized are unavailable for future dividends. Therefore this approach is more of a wealth transfer from the future investors to the existing investors than from the NTAS owners to TAS owners.
- European Put Warrants Transfer (PWT): the TAS holders have the right to put (sell) an underlying share to the NTAS holders at a certain strike price on or before a specified date at zero premium. Only when the exercise price (K_{PWT}) is greater than the market price around the mature date ($P_{at-maturity}$), will the put warrant be exercised. Under this approach,

the NTAS owners are required to pay Consideration of $T \times (K_{PWT} - P_{at-maturity})$ to the TAS owners on or before the expiry date. PWT protects the TAS owners when the market price falls below the exercise price.

Usually a put warrant is sold at a certain price, which reduces the warrant holder's payoff by the cost. However in the case of China FCR, the transfer of put warrant to the TAS holders is free of charge. The profit range for the TAS owners is $(0, K_{PWT})$ as the market price of share drops. Different from the approaches of ST, CP and RI, PWT brings the post-market factor into consideration.

- European Call Warrants Transfer (CWT): The TAS holders have the right to buy the underlying share for an agreed price, on or before a specified date at zero premium. Only when the exercise price (K_{CWT}) set up front is lower than the market price around the mature date ($P_{at-maturity}$), will the call warrant be exercised. Under this approach, the NTAS owners are required to pay Consideration of $T \times (P_{at-maturity} - K_{CWT})$ to the TAS owners on or before the expiry date. CWT allows the TAS owners to share profits when the market price rises up above the exercise price.

Like PWT, CWT is free of charge for the TAS holders and the profit range is $(0, +\infty)$ as the market price of share increases.

- Share Split (SS): the owners of NTAS pay the holders of TAS the shares under their name from share split. A stock split increases the number of shares in a public company. Under this approach, the number of total shares increases by $(1 + T/NT \times C_{SS})$ times. Compared to RI, the firm value is the same while the par value of the stock decreases.

The payments through ST, RI and SS implied a reduced state shareholding while the others didn't. RI and SS increased the number of total shares outstanding. RI increased firm value as well but SS didn't. Except for CWT

and PWT which indicated the use of a real post-event price in a certain period, the others estimated a post-reform price.

Valuation of Consideration

The calculation of Consideration was various from company to company on different assumptions. Many reform proposals didn't provide a proper explanation of the calculation process or even presented a proposed Consideration ratio without any explanation on how it was set. Li and Yang (2006) reported that FCR process has characters of diversified Consideration ways, various Consideration bases, unbalanced Consideration levels, and frequent adjustments.

But it was generally based on the assumption of a substantial price drop in the aftermath of the implementation of the reform. Each company thus estimated its price/earning ratio or NAV once all shares were tradable and calculated, 1st the loss the TAS owners would incur as a result of the share price decline and 2nd the number of bonus shares the NTAS holders would have to offer to in order to offset the loss. To illustrate, see the process below:

$$1. \quad \begin{aligned} & \text{Value}_{pre-event} = T \times P_{pre} + NT \times P_{NT} \\ & \text{Value}_{post-event} = (T + NT) \times P_{post} \end{aligned} \Rightarrow \text{Loss}_{for-TAS} = (P_{pre} - P_{post}) \times T$$

where T is the number of tradable shares and NT is the number of non-tradable shares, P_{pre} is the market share price before the event and P_{post} is the market share price after the event.

2. Suppose C refers to the bonus share received for by each TA held,

$$\text{therefore } (P_{pre} - P_{post}) \times T = C \times T \times P_{post} \Rightarrow C = \frac{(P_{pre} - P_{post})}{P_{post}}, \text{ indicating}$$

TAS would receive $\frac{P_{pre} - P_{post}}{P_{post}}$ shares for every premarket TA held.

This is the basic model for the calculation of Consideration.

The valuation of Consideration depends on the estimation of P_{post} , which, generally speaking, is determined by how each firm estimated its post-event P/E ratio or NAV.

Various Considerations forms may differ in presenting Considerations but in general follows the idea that the value before and after the event should be the same and Consideration should compensate for the aftermarket loss to the TAS owners. Following are the theoretic valuation of Considerations for various Consideration forms (on per share basis) although in most proposals the details were not available.

- Consideration for Share Transfer: $C_{ST} = \frac{(P_{pre} - P_{post})}{P_{post}} = \frac{P_{pre}}{P_{post}} - 1$

- Derivation of Consideration for Recapitalised Issuance:

$$\begin{aligned} \text{Value}_{pre-event} &= T \times P_{pre} + NT \times P_{NT} \\ \text{Value}_{post-event} &= (T + NT + T_{RT} + NT_{RT}) \times P_{post} \end{aligned}$$

, where T_{RT} / NT_{RT} is the

number of additional shares from the recapitalised earnings allocated proportionally to the holders of TAS / NTAS.

$$\begin{aligned} P_{pre} \times T - P_{post} \times (T_{RT} + T) &= C_{RI} \times T \times P_{post} \\ C_{RI} &= \frac{P_{pre} \times T - P_{post} \times T_{RT} - P_{post} \times T}{T \times P_{post}} = \frac{P_{pre}}{P_{post}} - \frac{T + T_{RT}}{T} \end{aligned}$$

- Derivation of Consideration for Share Split:

$$\begin{aligned} \text{Value}_{pre-event} &= T \times P_{pre} + NT \times P_{NT} \\ \text{Value}_{post-event} &= (T + NT) \times P_{post} / R_{SS} \end{aligned}, \text{ where } R_{SS} \text{ is share split ratio.}$$

$$\begin{aligned} P_{pre} \times T - T \times P_{post} / R_{SS} &= C_{SS} \times T \times P_{post} \\ C_{SS} &= \frac{P_{pre} \times T - P_{post} \times T / R_{SS}}{T \times P_{post}} = \frac{P_{pre}}{P_{post}} - \frac{1}{R_{SS}} \end{aligned}$$

- Derivation of Consideration for Cash Payment:

$$\begin{aligned} \text{Value}_{pre-event} &= T \times P_{pre} + NT \times P_{NT} \\ \text{Value}_{post-event} &= (T + NT) \times P_{post} \end{aligned}$$

$$\begin{aligned} (P_{pre} - P_{post}) \times T &= C_{CP} \times T \\ \Rightarrow C_{CP} &= P_{pre} - P_{post} \end{aligned}$$

In a proposal using PWT / CWT as Consideration, a strike price instead of a Consideration is provided. The potential aftermarket loss to the holders of TAS depends on the maturity price in the future ($P_{at-maturity}$) rather than the market price immediately after the event (P_{post}).

- Derivation of Consideration for Put Warrant:

$$\begin{aligned} \text{Value}_{pre-event} &= T \times P_{pre} + NT \times P_{NT} \\ \text{Value}_{post-event} &= (T + NT) \times P_{at-maturity} \end{aligned}$$

$$(P_{pre} - P_{at-maturity}) \times T = \text{Max}(0, K_{PWT} - P_{at-maturity}) \times C_{PWT} \times T, \text{ subject to}$$

$C_{PWT} \times T$ is no more than the maximum shares the warranties holders can sell.

$$\Rightarrow C_{PWT} = \frac{(P_{pre} - P_{at-maturity}) \times T}{\text{Max}(0, K_{PWT} - P_{at-maturity}) \times T} = \frac{(P_{pre} - P_{at-maturity})}{\text{Max}(0, K_{PWT} - P_{at-maturity})}$$

Put warrant won't be exercised if $K_{PWT} < P_{at-maturity}$

Put warrant will be exercised if $K_{PWT} > P_{at-maturity}$, and therefore

$$\Rightarrow C_{PWT} = \frac{P_{pre} - P_{at-maturity}}{K_{PWT} - P_{at-maturity}}$$

- Derivation of Consideration for Call Warrant:

$$Value_{pre-event} = T \times P_{pre} + NT \times P_{NT}$$

$$Value_{post-event} = (T + NT) \times P_{at-maturity}$$

$$(P_{pre} - P_{at-maturity}) \times T = \text{Max}(0, P_{at-maturity} - K_{CWT}) \times C_{CWT} \times T, \text{ subject to}$$

$C_{CWT} \times T$ is no more than the maximum shares the warranties holders can buy.

$$\Rightarrow C_{CWT} = \frac{(P_{pre} - P_{at-maturity}) \times T}{\text{Max}(0, P_{at-maturity} - K_{CWT}) \times T} = \frac{(P_{pre} - P_{at-maturity})}{\text{Max}(0, P_{at-maturity} - K_{CWT})}$$

Call warrant won't be exercised if $P_{at-maturity} > K_{CWT}$

Call warrant will be exercised if $P_{at-maturity} < K_{CWT}$, and therefore

$$\Rightarrow C_{CWT} = \frac{P_{pre} - P_{at-maturity}}{P_{at-maturity} - K_{CWT}}$$

4.3 Concluding remarks

Although China Government purposely relaxed restrictions on the stock market to increase the market liquidity, the 2001 scheme of reducing state shares still failed due to the sharp market collapse following the announcement, which also put an end to the bull market from May 1999.

The investors feared the dilution effect from floating the dominant state shares to the tradable A-share market would destroy the market. The uncertainties regarding when the sale began and how many of state shares

would be floated aggravated the dilution effect. They were also critical about the equal pricing plan which they thought overvalued the state shares.

- Improvements in protecting minority holders of TAS

Code (2002) adopted proxy voting and cumulative voting methods.

According to Provisions (2004), the major business decisions of a listed firm should win majority votes from the minority shareholders as well.

Opinions (2004) issued by the State Council drew a blueprint for reforming the country's capital markets, calling for solution to the problem of split share structure (the separation of NTAS and TAS) which should respect market rules and protect the rights of interests. By the end of 2004, the aggregate shares of China listed companies were 714.9 billion, of which, 64% were still non-tradable.

- Official documents and reform groups

The Notice (2005) issued on April 29 2005 by the CSRC signaled the launch of China Full-Circulation Reform and set out the basic format for the reform. This is an announcement for all the listed firms with non-tradable A shares.

The Guidelines (2005) issued on May 8th 2005 outlined the operational procedure for pilot programs. The next day, four medium-sized companies selected by the stock exchanges announced to carry out the FCR (Pilot Group 1). This was followed, on June 17th 2005, by an announcement approving 42 companies to carry out the FCR (Pilot Group 2).

The pilot program didn't impose a one-fit-all solution and instead allowed companies to come up with their own proposals which took in opinions from both the holders of NTAS and TAS. The cooperation of interested shareholders reduced the uncertainties over crucial issues and the

discrepancies between them. Furthermore, both shareholders had equal decision-making power over the reform proposal, which should get no less than two thirds of votes from both shareholders for a pass. This ensured that minority holders of TAS could have a review on the reform proposal and make a decision in their own favor. Each company was required to suspend during producing of reform proposal (1st suspension – 1st resumption) and running of shareholders' meeting to vote for the reform proposal (2nd suspension – 2nd resumption). This reform process was thus purposely extended at the firm-level as to carry forward FCR gradually and steadily and subsequently dilute the effect of FCR over the extension, consistent with a China tradition to develop and reform step by step rather than a shock therapy or big bang. The NTAS, which were announced tradable to the public on the 2nd resumption day, were actually subject to trading constraints, like no trading (lock-up) in 12 months, and a maximum sale as a percentage of total shares outstanding within a certain period after the lock-up. The trading constraints further diminished the dilution effect and uncertainties.

Based on the experiments in pilot program, Measures (2005) were publicised on September 5 2005, setting out details about implementing the FCR. In light of Measures (2005), the rest firms with non-tradable shares took turns to reform in 64 groups across two years. CSRC revealed the names of selected firms group by group with interval of 5 working days. The selected firms made announcements to reform and simultaneously suspended trading the next day of CSRC group announcement.

Figure 4.2 illustrates how FCR would be carried out for the rest of the firms with non-tradable shares. The firm-level reform process has changed slightly. Having a reform proposal ready became a premise to join the reform process. Trading firstly suspended for soliciting the holders of TAS

to share their views regarding the proposal. Adjustments were made if necessary. Then the proposal was finalised and share trading resumed (1st suspension – 1st resumption). Trading suspended again for conducting voting procedure at the shareholders' meeting. If the proposal was voted through, share trading resumed again. If not, share trading kept suspending for revising the proposal for the next round.

- Consideration

Holders of TAS received considerations as compensation from the holders of NTAS in the FCR as to balance the interests of each party in FCR. Consideration took various forms, such as share transfer (ST), cash payment (CP), call/put warrant transfer (CWT/PWT), transfer of shares from recapitalized earnings (RI) or stock split (SS), as well as a combination of any above. SP / CP are payments from the current holdings of NTAS owners to TAS owners in shares / in cash. RI uses the new holdings of NTAS owners from recapitalised dividends resources to pay TAS owners. SS depreciates the value of each share and offers the depreciation under the name of NTAS holders as compensation. CWT and PWT bring in the post-market performance as benchmark. CWT / PWT allows the holders to buy / sell shares at an agreed price if the market increases / decreases at maturity. SP, RI and SS effectively reduce the shareholding of NTAS in proportion. Both RI and SS complicate the payment process and increase the number of total outstanding shares. RI actually sacrifices the benefits of the future investors by taking away the dividends resources. PWT protect the holders of TAS when the market value of share decreases while CWT allows them to share profits when the market value of share increases.

The valuation of Consideration was not specified in official released documents like Measures (2005) and various from firm to firm, but in

general assuming a substantial price drop in the aftermarket of FCR and hoping to compensate the TAS owners for the potential loss.

To sum up, the government learnt lessons from the first attempt and revised the objective and reform goal. The government abandoned the short-term interests which used the reform to raise finance for the pension funds in 2001 as this time the state companies were required to hold their shares for the next 12 months and sell no more than 10% in the following 24 months. In the Full Circulation Reform, the government officially announced that their goal was to maintain the markets. As illustrated in this chapter, the government showed many efforts to protect the minority TAS owners in order to keep them in the markets so that the stock markets wouldn't be damaged severely like in the first attempt. This brilliant scheme designed for the Full Circulation Reform is not thoroughly explored in this chapter but will become the topic of my further research on this issue.

Chapter 5. Literature Review

This chapter is divided into four parts, providing a review of literature on event-study methodology, market efficiency of China stock markets, the China program to reduce state-shares in 2001, and the China Full-Circulation Reform of 2005.

Event-study is the primary methodology used to measure the impact of an event on the stock returns under the assumption that the stock market should be efficient to quickly reflect the information conveyed by the event.

China stock markets are where the investigation is to be carried out and its market efficiency is under concern. Research on the efficiency of China stock markets will provide evidence on how efficient China stock markets are.

The program proposed by China State Council in June 2001 to reduce state-shares of the listed companies resulted in a market crash and was scrapped one year later. Relevant studies on the 2001 program may help to find out the potential defects of the scheme.

The China Government launched a reform on April 29 2005 to sell non-tradable A shares, mainly owned by the Government, on the A-share markets. Under the trial guidelines issued on 8th May by the CSRC, two pilot groups consisting of 4 and 42 firms respectively were announced on 9th May and 20th June. Firms were invited to develop plans to allow non-tradable A-share holders to sell their shares, subject to negotiation with tradable A-share holders on an appropriate reform plan (mainly about a compensation level and trading restrictions). By 19th August, all of these companies had reached a consensus on proposal, and on 24th August, the Government issued formal guidelines to extend this reform scheme to the

rest of the market. By the end of 2006, a total of 64 groups in addition to the pilot groups were announced, involving 1245 companies.

From a firm-specific view, a plan was firstly proposed by the holders of non-tradable A-share and then submitted to the Board of Directors. If accepted, the plan was announced and simultaneously a suspension from the stock market was applied to the firm. Following a negotiation between the holders of tradable A-shares and non-tradable shares, a plan agreement was filed and announced and trading was resumed. The plan was voted in the Shareholders' meeting. In general, another suspension was applied to the firm the same day when the meeting registered its shareholders. Once voted through, trading was resumed again when the approved plan was announced. Otherwise, trading was kept suspended.

The overall event is confounding and consisted of a series of sub-events, including macro policies and subsequent firm-specific decisions under the influence of the policies. Its magnitude and impact hasn't been systematically and fully studied yet. Any relevant studies will be collected, analyzed and discussed.

5.1 Literature Review on Event-Study Method

Using financial market data, an event study measures the impact of a specific event on the value of a firm. The usefulness of such a study is based on the assumption that in an efficient market, the effects of an event will be reflected immediately in security prices. Thus a measure of the event's economic impact can be constructed using security prices observed over a relatively short time period.

The event study has many applications (MacKinlay, 1997). In accounting and finance research, event studies have been applied to a variety of firm

specific and economy wide events. Some examples include mergers and acquisitions, earnings announcements, issues of new debt or equity, and announcements of macro-economic variables such as trade deficit. Besides, in other fields like law and economics, event-studies are used to measure the impact on the value of a firm of a change in the regulator environment (e.g. G. William Schwert 1981).

Event studies have a long history involving an evolution of ideas. This history and evolution is shown in what follows:

5.1.1 Preliminary studies

James Dolley (1933)

His work is perhaps the first published study that can be traced. He examined the price effects of stock splits, studying nominal price changes at the time of the split. Dolley used a very brief time interval and observed only a single day's movement of each stock.

Assume that a stock closed at 100 the day before the split shares were admitted to trading. The next day the new shares, after a four to one split, closed at 26. The aggregate value of the four new shares, therefore, was $26 \times 4 = 104$, representing a 4-point price effect. Here is his formula:

$$\frac{\text{split - date price} \times \text{split ratio} - \text{price one day prior}}{\text{split - date price}}$$

Using a sample of 95 splits from 1921-1931, he found that the price increased in 57 of the cases and the price declined in only 26 instances. No apparent effect is found in the remaining 12.

Myers and Bakay (1948)

They refined the approach by statistically removing the general market action from the split-up stocks over a period from eight weeks before the announcement to eight weeks after the split. They removed market impact by dividing the market price with the individual security price. The formula

employed is:
$$\frac{\text{split - date price} / \text{split - date market index}}{\text{base - date price} / \text{base - date market index}}$$
.

By analysing sample of 70 selected split-ups occurring in 1945 and 1946, they concluded that, at least in the short term, stock split-ups resulted in average price increases of approximately 20% over the Standard & Poor price index. A similar study by Burrell O. K. (1948) also adjusted for the removal of changes in the general market price before surveying the market effect of stock split-ups.

Barker (1956, 1957, 1958)

In his studies, he took into account the confounding influence of dividends, which presumably would or would not have been paid just the same if the stock had not been split.

According to his results, the stocks split with dividend increases registered a gain in real prices 2 to 3 times higher and more persistent than the stocks split without dividend increases.

He further showed that the split-ups unaccompanied by dividend increases were actually followed by a temporary rise in real prices which was quickly wiped off and replaced by a drop in real price.

He then extended his researches to the real effect of stock dividends alone on market price.

Summary

Over the decades following Dolley (1933) until the late 1950s the level of sophistication of event studies increased. The improvements included removing general stock markets price movements (Myers and Bakay 1948, Burrell 1948) and separating out confounding events (Barker 1956, 1957, 1958).

5.1.2 Milestone studies

In the late 1960s seminal studies by Ball and Brown (1968) and Fama, Fisher, Jensen and Roll (1969, hereafter FFJR) introduced the methodology that sets the basic model for event-studies and since then on, event studies have become a predominant methodology for determining the effects of an event on the distribution of security returns.

Ball and Brown (1968) considered the information content of earnings unique to a particular firm, and FFJR (1969) studied the effects of stock splits after removing the effects of simultaneous dividend increases.

Even the most cursory perusal of event studies done over the past 30 years reveals a striking fact: the basic statistical format of event studies has not changed over time. The key focus is still on measuring the sample securities' mean and cumulative mean abnormal return around the time of an event (Khotari and Warner 2006).

FFJR (1969)

FFJR (1969) purposely abstracted from general market conditions in examining the returns on securities during months surrounding split dates in order to study the supposed extraordinary effects a split and its associated dividend history may have on returns.

- Data and sample

They required that a split security must be listed on the New York Stock Exchange for at least twelve months before and twelve months after the split. From January, 1927, through December, 1959, 940 splits meeting these criteria occurred on the NYSE.

- Abnormal return

To capture the effect of the event on stock i , they controlled for the normal relation between the return on i during month t , and the return on a broad stock market index, in their case the CRSP³¹ NYSE Market Portfolio, during month t . Using a sample of monthly return data from 1926 to 1960 including the period containing the event, they estimated the parameters of the following “market” model for each stock i in the sample:

$$\text{Log}_e PR_{it} = \alpha_i + \beta_i \text{Log}_e LR_t + \varepsilon_{it}$$

where

$$PR_{it} = (P_{it} + D_{it}) / P_{i,t-1} = \text{price relative of } i\text{-th security for month } t;$$

$$P_{it} = \text{price of the } i\text{-th stock at end of month } t;$$

$$D_{it} = \text{cash dividends on the } i\text{-th security during month } t;$$

LR_t = the link relative of Fisher’s “Combination Investment Performance Index”, which is the measure of “general market conditions” in FFJR’s study.

³¹ Center for Research in Security Prices

This method removed the effects of economy wide factors from the return on i 's stock, leaving the portion of the return attributable to firm specific information, which contains the effect of the split announcement.

FFJR used continuously compounded returns (natural logarithms) to denote the rate of return for the individual securities and the market index because they found that according to their data, logarithm terms were fairly symmetric.³²

The event period was from 29 months before the split announcement to 30 months after. The month of the split was defined as $t = 0$ in event time and the event period then runs from $t = -29$ to $t = 30$. That is, the event period covered sixty months surrounding the split month ($-29 \leq t \leq 30$).

The residual ε_{it} was from the market model for the calendar month corresponding to month t as an estimator of the abnormal return³³ for stock i during event month t .

- Cross-sectional average

Secondly, FFJR relied on the simple process of averaging to abstract from the eccentricities of stock splits so as to examine whether the process of splitting was in general associated with specific types of return behaviour.

They defined the average residual for month t (where t is always measured relative to the split month) as:

$$\varepsilon_t = \frac{\sum_{i=1}^{N_m} \varepsilon_{it}}{N_t}$$

³² Subsequent researchers generally use simple returns.

³³ Early event studies, e. g., FFJR (1969), Ball and Brown (1968) and Scholes (1972), discussed the market model residuals or prediction errors but do not use the term abnormal return.

where

N_t was the number of splits for which data are available in month t . ε_t was the average deviation of the returns of split stocks from their normal relationships with the market.

- Time-series aggregation: Cumulative abnormal return

The estimates of the average abnormal returns were summed across months to measure the average cumulative effect on the sample securities of company specific information reaching the market from month t_1 to month t_2 .

$$c\varepsilon_{t_1-t_2} = \sum_{t_1}^{t_2} \varepsilon_t$$

where $c\varepsilon_{t_1-t_2}$ was the cumulative deviation (from month t_1 to month t_2), or the cumulative effects of the wandering of the returns of split stocks from their normal relationships of market movements.

- Confounding effect

FFJR examined splits with increased and decreased dividends separately and compared them with average dividends paid by all securities on the NYSE. The hypothesis was the effect of returns of stock splits centered on the dividend behavior of the split shares.

- Results

The cumulative average residuals for both dividend classes rose sharply in the few months before the split, indicating the market was in anticipation of future dividend increase.

The average residuals in the dividend-increased class were in general slightly positive after the split and the cumulative average residuals drifted upward, indicating the large price adjustments could have already been carried out before the split.

Both the average and cumulative average residuals in the decreased class rose before the split but then plummeted in the months following the split, strongly supporting that the dividend behavior dominated the return effect subsequent to the split.

Ball and Brown (1968)

Ball and Brown (1968) extended FFJR (1967)³⁴ methodology to study incomes and earnings announcement effects in the area of accounting and further employed abnormal performance index (API) to estimate the net abnormal return over a holding-period.

- Abnormal return

They estimated abnormal return using market mode with security price

changes: $R_{it} = \alpha_{it} + \beta_{it}R_{mt} + \varepsilon_{it}$

where

$R_{it} = (P_{it} + D_{it} - P_{i,t-1}) / P_{i,t-1}$ = the percentage return of firm i for month t ;

R_{mt} = an estimate of market's return for month t .

³⁴ Ball and Brown (1968) referenced on FFJR (1967). FFJR (1967) was an unpublished paper in 1968 but was referred to as FFJR (1969) after 1969 when it was published on International Economic Review.

They tracked the stock price performance of the good news firms relative to the bad news firms across the 18 month period starting 12 months before the current year earnings were announced. Abnormal performance index

In addition, they performed tests in line with FFJR (1969) on log returns. The results were quite close to those from the simple returns.

The event period was running from 12 months prior to the event announcement till 6 month after.

- Abnormal performance index

They traced out the value of one dollar invested at the end of month 12 and held to the end of some arbitrary holding period after abstracting from market effects. Basically, abnormal performance index (API)³⁵ measured

abnormal return over a certain holding-period: $API_t = \frac{1}{N} \sum_{i=1}^N \prod_{t=-11}^T (1 + \varepsilon_{it})$

where N was the number of securities and T was the end of some arbitrary holding period.

Problems and modifications

There were concerns about the stationarity of the market model parameters in FFJR methodology. Hence it has become commonplace for studies with monthly observations to use five to seven years of data (Blume 1971 and Gonedes 1973).

Second, as both papers pointed out, if the event period is included in the period used to estimate the market model parameters, the coefficient estimates are biased because the disturbances (which contain the effects of the event and related occurrences) are not mean zero.

³⁵ For details, please refer to Fisher (1966).

Therefore subsequent studies, e. g., Scholes (1972), estimated the market model with data prior to the event period (estimation period) and measured the abnormal return during the estimation period as the prediction error, based on the security returns R_{it} and market returns R_{mt} and the parameter estimates. It is assumed that the coefficients are constant during the estimation and event periods.

Also Ball and Brown (1968) noticed the possible correlation between market effects and abnormal returns in terms of inclusion of firm i in the market index. In the income regression model, the firm had been eliminated by exclusion of firm i in calculation of market income. In the stock return model, although the market index contained the return on firm i , the violation was not serious since the return on security i was only a small part of the index due to the index's broad coverage. So any violation in this aspect had little effect on the empirical results.

5.1.3 Development in research design since FFJR (1969)

Since FFJR (1969) which introduced the methodology that is essentially the same as that which is in use today, a number of modifications have been developed. These modifications relate to complications arising from violations of the statistical assumptions used in the early work and relate to adjustments in the design to accommodate more specific hypotheses. In addition, the use of daily (and sometimes intraday) rather than monthly security return data has become prevalent, which permits more precise measurement of abnormal returns and more informative studies of announcement effects.

Assumptions

In general, the assumptions underlying the hypothesis are the estimators of abnormal returns are (1) independent over time, (2) cross-sectional independent, and (3) normal distributed. The constant is also assumed to be constant over time.

However in reality, these assumptions are frequently violated. King (1966) showed that market model residuals were contemporaneously correlated for firms in related industries. Beaver (1968) pointed out that event-induced heteroskedasticity was likely. That is, the abnormal return estimator would likely have a greater variance during the event period than in the surrounding periods. Mikkleson and Partch (1988) discussed that regression residuals (or prediction errors) were correlated since they were based on the same parameter estimates. Considerable bias may be introduced when these problems are not corrected.

Many papers dealt with the practical importance of many of the complications and adjustments. Following is a series of classic studies on several modifications of the FFJR scheme.

Brown and Warner (1980)

The most famous papers are the work by Brown and Warner published in 1980 and 1985. The 1980 paper considered implementations issues for data sampled at a monthly interval and the 1985 paper³⁶ dealt with issues for daily data.

They analyzed the specification and power of several modifications of the FFJR scheme with simulation procedures that used actual security return

³⁶ Will be introduced immediately after the 1980 paper.

data. This design has been followed in almost all subsequent methodology research.

The basic idea behind the event study simulations is simple and intuitive. Different event study methods were simulated by repeated application of each method to samples that have been constructed through a random (or stratified random) selection of securities and random selection of an event date to each.

If performance was measured correctly, these samples should show no abnormal performance, on average. This makes it possible to study test statistic specification, that is, the probability of rejecting the null hypothesis when it is known to be true.

Further, various levels of abnormal performance were artificially introduced into the samples. This permits direct study of the power of event study tests, that is, the ability to detect a given level of abnormal performance.

- Sample construction

They constructed 250 samples of 50 securities each with a maximum of 250 daily returns observations (-244, +5), the estimation period (-244, -6) and the event period (-5, +5).

- Benchmark models tested

A variety of models have been proposed, analyzed and/or used in practice to measure the normal rate of return, conditional on certain variables, and then to generate abnormal return estimates.

Brown and Warner performed tests on abnormal returns estimated from different models.

- (1) Mean adjusted returns

Masulis (1980) assumed that the expected return for a security was equal to the mean return surrounding the event. Mean-adjusted returns were then calculated by subtracting the average return for stock i during the estimation period (K_i) from the stock's return during the event period:

$\varepsilon_i = R_{it} - K_i$ where ε_i was the abnormal return for security i with an expectation of zero and variance $\sigma^2(\varepsilon_i)$.

Although the constant mean return model was perhaps the simplest model, Brown and Warner found it often yielded results similar to those of more sophisticated models. This lack of sensitivity to the model can be attributed to the fact that the variance of the abnormal return was frequently not reduced much by choosing a more sophisticated model.

(2) Market model

FFJR's market model represented a potential improvement over the constant mean return model. By removing the portion of the return that is related to variation in the market's return, the variance of the abnormal return is reduced. This in turn can lead to increased ability to detect event effects.

$\varepsilon_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$ where R_{mt} is the market portfolio return.

Parameters are estimated using a pre-event period sample with OLS regression. The parameter estimates and the event period stock and market index returns are then used to estimate the abnormal returns. This method controls for the risk (market factor beta) of the stock and the movement of the market during the event period.

The benefit from using the market model will depend upon the R square of the market model regression. The higher the R square the greater is the variance reduction of the abnormal return, and the larger is the gain.

(3) Market adjusted returns

Latane and Jones (1979) assumed that the expected return at time t was the market return at the same time. The market-adjusted return was then calculated by subtracting the market return R_{mt} from R_{it} : $\varepsilon_{it} = R_{it} - R_{mt}$.

This method was simpler than estimating market model abnormal returns because it was done in “one step”, rather than two.

(4) Market and risk adjusted returns

Ball and Brown (1969) presumed the expected return was generated from CAPM. Accordingly: $\varepsilon_{it} = R_{it} - [R_{ft}(1 - \beta_i) + \beta_i R_{mt}]$, where R_{ft} was the return on a minimum variance portfolio of risky assets which was uncorrelated with market portfolio or simply return on risk-free assets.

The use of the CAPM was common in event studies of the 1970s. This model introduces the possibility that the results of the studies may be sensitive to the specific CAPM restrictions. Because this potential for sensitivity can be avoided at little cost by using the market model, the use of the CAPM has almost ceased.

(5) Fama-MacBeth residuals

The residuals removed the estimate effect of systematic risk of security i from real return of security: $\varepsilon_{it} = R_{it} - \gamma_1 - \gamma_2 \beta_i$, where β_i was the estimate of the systematic risk of security i over event period and the estimates of γ_1 and γ_2 were reported in Fama (1976, pp.357-360).

(6) Control portfolio residuals

The residuals subtracted the average return on the market index in the months when securities experienced events from the return on portfolio which had approximately the same estimated systematic risk as the market index.

Both these approaches assumed that the market model determined expected returns.

- Statistic tests

They employed several statistic tests dependent on various assumptions.

(1) No-dependence adjustment test

The test assumed abnormal returns from the estimation period were independence over time and across firms and had a same variance as those in the event period.

The standard deviation of the average abnormal return for each security is then estimated on the basis of the standard deviation of the time series of abnormal returns of each firm during the estimation period T .

$$\frac{1}{N} \sum_{i=1}^N \varepsilon_{i0} / \sqrt{\frac{1}{N} \sum_{i=1}^N \left[\frac{1}{T-d} \sum_t (\varepsilon_{it} - \frac{1}{T} \sum_t \varepsilon_{it})^2 \right]}$$

Under the null hypothesis of no abnormal performance, the statistic was distributed as Student-t with $T - d$ degrees of freedom. The degrees of freedom depend on how the standard deviation of abnormal returns was estimated. For example, in the case of prediction errors from the one-factor market model, the degrees of freedom are T-2.

(2) Crude-dependence adjustment

In order to deal with potential cross-sectional dependence, Brown and Warner (1980) suggested that the standard deviation of average residuals should be estimated from the time series of the average abnormal returns over the estimation period under the assumption that the average abnormal returns were independent over time.

$$\frac{1}{N} \sum_{i=1}^N \varepsilon_{i0} / \sqrt{\frac{1}{T-d} \sum_t \left[\left(\frac{1}{N} \sum_{i=1}^N \varepsilon_{it} - \bar{\varepsilon}_{it} \right)^2 \right]}$$
 where $\bar{\varepsilon}_{it} = \frac{1}{TN} \sum_t \sum_{i=1}^N \varepsilon_{it}$ was the overall mean.

Under the null hypothesis of no abnormal performance, the statistic was distributed as Student-t with $T - d$ degrees of freedom.

(3) Jaffe-Mandeler Methodology

They formed sample securities into M portfolios, each of which contained securities experienced event in calendar month t. The statistic followed suit of crude dependence adjustment except changing the individual abnormal returns ε_{it} to portfolio abnormal returns (P_{mt}).

(4) Non-parametric tests

When the assumption of normality of abnormal returns is violated, parametric tests are not well specified.

Non-parametric tests are well-specified and more powerful at detecting a false null hypothesis of no abnormal returns.

Sign test was a simple binomial test of whether the frequency of positive abnormal residuals equals 50%. It examined the null hypothesis that the proportion of sample securities having positive abnormal performance (e.g.

positive residuals) was equal to 0.5 and the alternative hypothesis that the proportion was greater than 0.5. Therefore: $Z = \frac{P - 0.5}{\sqrt{\frac{0.5 * 0.5}{N}}}$, where P was

the proportion of security i in event month having positive signs. The statistic has an approximate unit normal distribution. The advantage of the generalised sign test is that it took into account the evidence of skewness in security returns.

Wilcoxon Signed rank test was carried out as in Lehmann (1975), taking into account both the sign and the magnitude of the abnormal performance.

$Z = \frac{K_0 - \frac{N(N+1)}{4}}{\sqrt{\frac{N(N+1)(2N+1)}{24}}}$, where K was the sum of the positive ranks of the

absolute value of abnormal returns in event month. When N is large, the distribution of ranks of abnormal return, under the null hypothesis of equally likely positive or negative abnormal returns, is approximately a normal distribution with the mean rank of $\frac{N(N+1)}{4}$ and the variance of $\frac{N(N+1)(2N+1)}{24}$.

- Statistic power of event studies

To assess the power of event study methods, Brown and Warner added a constant to each security's return during a month designated as the event month. They used the models described above to estimate abnormal returns.

(1) No event clustering:

When a randomly selected month for each security was designated as the event month and parametric statistical tests were used, Brown and Warner found similar results for the various abnormal return measures. That is,

when abnormal performance was present each method rejects the null of no abnormal performance about as often as was expected owing to chance and the statistical power of the various methods was fairly similar.

(2) Event clustering

When the same calendar month was designated as the event month for each security and cross-sectional dependence in the abnormal return estimators was controlled for in statistical tests, Brown and Warner found results similar to those obtained when there is no clustering.

However when dependence was not controlled for in the calculation of the test statistic, the mean-adjusted return method rejected the null too often when it was true since the estimated standard deviation was downward biased. For other method, the results were found not affected by controlling for dependence. Probably because the securities were randomly selected and were likely to have uncorrelated abnormal returns if the market return captured all the economy wide influences on security returns.

(3) Uncertain event dates

When the event month was not precisely known and abnormal performance of 5% was introduced, Brown and Warner rejected the null hypothesis of no effect in a one tailed test two to three times less often than when the event month was known. Actually the results showed the lower abnormal performance, the more powerful the methodologies were in reflecting abnormal residuals.

- Summary

Brown and Warner (1980) concluded that beyond a simple, one-factor market model, there was no evidence that more complicated methodologies

conveyed any benefit. In fact, evidenced was presented that more complicated methodologies could actually make the inferences worse.

Brown and Warner (1985)

They similarly examined the usefulness of the event study methodology when daily stock returns are used. They pointed out several problems that were more acute with daily returns than monthly returns: (1) nonnormality of returns, (2) the effects of nonsynchronous trading on the estimation of parameters and abnormal returns and (3) biased variance estimation of average abnormal returns.

They examined mean-adjusted returns, market-adjusted returns and market model abnormal returns.

They found that (1) the non-normality of daily returns had no obvious impact on event study methodologies although daily excess returns were highly non-normal. The results also indicated that the different methods were equally powerful when rejecting the null hypothesis when it was false; (2) procedures other than OLS for estimating the market model in the presence of non-synchronous trading conveyed no clear-cut benefit in detecting abnormal performance; (3) with non-normality and biases in estimating the market model, the choice of variance estimator affected both the specification and power of the tests. Evidence was shown that the specification of the test statistic was improved by using simple procedures to adjust the estimated variance to reflect autocorrelation in the time-series of mean daily excess returns. When the implication of adjusting variance estimates to account for dependence in the cross-section of excess returns were studied, only in special cases was such adjustment necessary to prevent misspecification. Tests, which assumed non-zero cross-sectional

dependence, were only about half as powerful and usually no better specified than those employed assuming independence.

Overall, these results indicated that event studies with daily returns performed at least as well in practice as those with monthly returns. That is, the potential problems with daily returns were unimportant or easily corrected in the standard event study. Methodologies based on the OLS market model and using standard parametric tests were well specified under a variety of conditions.

Critical comments on work by Brown and Warner

Findings by Brown and Warner, with daily and monthly returns, that the mean- and market-adjusted return methodologies were as powerful as the OLS market model and risk-adjusted return techniques, were suspicious since the latter abnormal return estimators were likely to be less noisy.

Secondly, the seemingly greater power of tests that did not control for cross-sectional dependence in Brown and Warner (1985) was questionable too. Ignoring cross-sectional dependence is supposed to reject the null too often when it is true, that is, to make Type I error.

Chandra, Moriarty and Willinger (1990) argued that the relatively strong performance of the mean-adjusted return and the seemingly powerful test without controlling for cross-sectional dependence were a statistical artifact, as Brown and Warner used different test statistics for the methods being compared. They re-examined the Brown and Warner results and found that tests with the mean-adjusted return were less powerful than tests with market-adjusted and market model abnormal return estimates and there was no evidence of an increase in power from ignoring cross-sectional dependence when the same statistical test as used in each case.

Choice of estimation period

Following Brown and Warner, the OLS market model is the mainstream in event studies to estimate event effect.

Parameters of α and β are estimated using an estimation period sample with ordinary least squares regression. The parameter estimates and the event period stock and market index returns are then used to estimate the abnormal returns.

- Length of estimation period

It's assumed that the beta estimate from the estimation period is stationary.

However, empirical evidence shows that betas on individual stocks have not been stable over time (Blume 1971, Baesel 1974, Roenfeldt et al. 1978, Theobald 1981, Coutts et al. 1997 etc.).

The pursuit for obtaining better beta estimates has been linked to the length of estimation period in the literature.

Baesel (1974) reported the empirical finding that the stationarity of beta was, indeed, dependent upon the estimation period length over which beta factors were estimated. He found that beta stationarity was an increasing function of the calendar period used for beta estimation, indicating a longer estimation period would provide more appropriate beta estimate. He indicated an estimation period up to 108 months for the US data.

Roenfeldt et al. (1978) investigated the effect varying the length of the second sub-period on the stability of individual security betas. They found that forecasting betas based on a 4-year period were more reliable for 3 and 2-year periods, but not reliable for 1-year period.

Alexander and Chervany (1980) showed empirically that extreme betas were less stable compared to an interior beta. They proved it by using mean absolute deviation as a measure of stability. According to them, best estimation interval was generally four to six years.

However increasing the length of the estimation period could also increase the probability of beta factors having changed due to occurrence of potential significant corporate events in the estimation period. Theobald (1981) showed that beta stationarity increased with the calendar period length but did not increase indefinitely. He measured beta stationarity with product moment correlation coefficient and a range was indicated in which correlation was maximized. He indicated that beta stationarity increased with estimation period length provided that a particular constraint upon the decline in correlation coefficients was fulfilled, indicating low betas stationarity of firms may not increase with the estimation period length. He suggested that the lower bound constraint upon the decline in correlations was fulfilled up to estimation periods of 180 to 210 months for U.K. data.

Coutts et al. (1997) found in their results that when the market model was used within the event study framework, the quantitative results were extremely sensitive to the chosen estimation period, indicating beta was not stable over different time intervals.

Daves et al. (2000) showed that for a given estimation period, daily returns provided a smaller standard error of the estimated beta than do weekly, two-weekly, or monthly returns and also concluded that a much shorter estimation period of two to three years was more appropriate for financial managers to use when estimating beta with daily returns, as opposed to a convention to use five to seven years with monthly data after FFJR (1969).

Odabaşı (2003) found with data from the Istanbul market, the more stable betas were obtained over a 2-year estimation period in the case of weekly returns, while it was a 4-year estimation period with monthly returns.

Diacogiannis and Marki (2008) reported the mean standard errors of estimated betas for eight estimation periods ranging from one year to eight years with daily data from the Athens market. The results showed that the utilization of an estimation period of three years captured most of the maximum reduction in the standard error of beta estimated as compared to other periods.

Using daily data of 625 Chinese listed companies which had IPOs from 1995-1999, Xia et al. (2006) respectively selected the 2nd, 120th, 240th and 480th trading date after the IPO as the beginning point of estimation window (that is, from the 2nd trading day to two years after IPO) and six different estimation window lengths from 30, 60, 120, 240, 360 to 480 trading days (from 6 weeks to 2 years), and accordingly estimated 24 betas for every sample firm. They found that, the means of betas were gradually converging to 1 with longer estimated window given beginning point of window. The estimation period of 360 trading days from the 360th trading day after the IPO yielded a beta closest to 1. The standard deviations showed a downward trend as the estimation windows were longer. The estimation period of 480 trading days from the 2nd trading day after the IPO presented smallest standard deviation of beta.

In the literature of event studies, there is no consensus on an optimal length of the estimation period. Actually in studies using daily data, the choice of estimation period was somewhat arbitrary (Aktas 2007), such as from day -245 till day -6 relative to the event day (Ball and Brown 1980, 1985), the year ending 50 days before the event (Fama and French 1993), from day

-250 till day -21 prior to the event (MacKinlay 1997), from day -250 to day -30 (Atkas 2007), from day -244 to day -6 (Ahern 2009), from day -200 to day -3 (Huang and Chang 2009) etc..

- Pre-event and post-event estimation period

In most event-studies parameters are estimated using a pre-event period sample with ordinary least squares regression (Campbell et al. 1997, Binder 1998).

In case when there is a step change in beta due to the event, abnormal returns can be calculated with a beta estimated from data following the event. Mandelker (1974) addressed this issue by separately estimating parameter coefficients using both pre- and post-event estimation period data on mergers. Since then the application of post-event estimation period has typically been done in limited circumstances and generally for long run studies using monthly data.

Edmister et al. (1996) used post-event estimation period (51, 200) to minimize bias associated with underperformed abnormal returns in the pre-event period for firms chosen by S&P index because S&P selection was empirically found to significantly affect the systematic risks of chosen stocks. Agrawal et al. (1992) and Gregory (1997) used post-event estimation data in long-run studies of mergers.

Pojezny (2006) studied European equity carve-outs and found the companies showed a significant change in their beta parameters. He then used both pre-event estimation period (-230, -51) and post-event estimation period (11, 190). He found the average difference between pre- and post-event estimation period parameters was significant, leading to bias abnormal returns if using pre-event estimation period only. However they

also found the magnitude of the bias seemed economically insignificant for shorter event periods but increased in event period length, implying longer event periods relative to the estimation periods need to test the robustness of their results to alternative specifications of the market model parameters.

Furthermore, as suggested in the discussion of the estimation period length, a short post-event estimation window of no more than 6 months would by itself yield beta non-stationarity, indicating longer estimation periods relative to the event periods would satisfactorily minimize bias and improve beta estimates. In other words, as long as the estimation period is relatively long to the event period, the estimator of event effect in terms of abnormal returns is not biased and has little to do with whether pre- or post-event estimation period is adopted.

- Noisy estimation period

If estimation period is contaminated with confounding events, it is highly suspicious that the parameter stability or beta stationarity can be achieved. Actually in many research areas, the presence of contaminating events during the estimation window has been observed.

(1) Information leakage

Malatesta and Thompson (1985) showed that for partially anticipated events the market model disturbances were not mean zero during periods the event might have occurred but did not. This caused the abnormal return estimates to be biased when the standard event study methodology was used. Aktas (2007) suggested a shorter period, usually 30 days, can then be excluded between the end of the estimation period and the beginning of the event period to neutralize the impact of information leakages (or rumours) before the announcement.

(2) Other significant confounding events

Thompson (1988) investigated the importance of extraneous individual firm events occurring during the estimation period. He tested their impact on the power of the classical event study methodology by removing them, on case by case basis, from the estimation period. He concluded that the extraneous individual firm events occurring during the estimation period had little impact on the power of the tests.

His short estimation period (60 days) probably limited the frequency of such corporate events in his sample, explaining his conclusion.

Furthermore when compiling the data for several hundreds (or thousands) observations, it has become impractical to analyze the estimation period on a case-by-case basis as in Thompson (1988). This may generate a significant risk of bias for the analysis of specific kinds of corporate events.

- Summary

The choice of estimation period affects the parameter estimates. Given the correlation with the market is not too low, longer estimation period may help to obtain a more proper estimate of parameters. It has been suggested in the literature that an estimation period is two to three years. In order to removing the effect from information leakage, usually a period immediately prior to the event time is excluded. This exclusion period is seemingly arbitrary decided and suggested to take 30 days in Aktas (2007). Removing the effect from noisy confounding events in the estimation period is impractical for a large sample size. Hence the results are possibly biased in this aspect, which could limit the interpretation.

Choice of event period

Possibly the most crucial research design issue is the length of the event window used in an event study built on the OLS market model.

- Event study assumptions

The significance of an event study assumes (1) markets are efficient, (2) the event was unanticipated, and (3) there were no confounding effects during the event window. It is likely that significant events occur quite frequently since many of the firms under examination are large, diversified, multinational firms.

Under the assumptions, it is inferred that a short event window will capture the significant effect of an event and at the same time effectively control for the confounding effects.

However many studies are based on long event windows (see Table 1 in McWilliams and Siegel 1997). In fact, 181-day event windows are not uncommon. And the authors have not stated whether they controlled for confounding effects.

- Trade-off over the length of event period

Ryngaert and Netter (1990) indicated the nature of the event being studied should determine the length of the event window used. For example, where there was evidence of information leakage, the window should include some time prior to the announcement of the event so that abnormal returns associated with the leakage would be captured. But they didn't think it necessary to include any days after the announcement since market efficiency implied almost instantaneous adjustment in stock price to the arrival of new information.

MacKinlay (1997) suggested it was customary to define the event window to be larger than the specific period of interest to permit examination of periods surrounding the event, at least the day of the announcement and the day after the announcement. He actually employed an event window comprised of 20 pre-event days through the event day to 20 post-event days. But they didn't seem to control for confounding events.

McWilliams and Siegel (1998) argued that it should be long enough to capture the significant effect of the event, but short enough to exclude confounding effect. They demonstrated that with long event windows, it was highly likely that firms experienced confounding events. Additionally, in a scenario where there was uncertainty about when information was revealed, long windows could be justified. In this case, they referred to techniques in Salinger (1992), which subtracted and controlled for the impact of confounding events³⁷.

- Summary

When the event date is certain and the market is efficient, a short event window is preferred in the hope of controlling for the possible confounding events.

Choice of market index

In the literature, it has been suggested that a broad-based stock index was used for the market portfolio with OLS market model (FFJR 1969, Binder 1998).

- Equal weighted index versus value weighted index

³⁷ See details below.

Brown and Warner (1980) found that event study tests based on a market model using a value weight index were severely misspecified.

Campbell and Wasley (1993) found that the choice between an equal weight or value weight market index was important in event studies using NASDAQ data and strongly recommended using the NASDAQ equal weight market index.

Based on Asia-Pacific financial market returns data, Corrado and Truong (2008) found that the use of an equal weight index to compute market model excess returns provided better test specification than use of a value weight index.

Arithmetic return versus Logarithm return

The continuous compounded return (logarithm return) was firstly used in FFJR (1969) while subsequent researchers generally use arithmetic returns.

Ball and Brown (1968) tested on both arithmetic return and logarithm return and found the results were quite close. Their results didn't detect any significant difference between using the two kinds of returns. But they used monthly data which were less problematic in normality than daily returns.

Brown and Warner (1985) used arithmetic return with daily data and found nonnormality of the individual abnormal return estimators did not cause the average abnormal return estimator to be nonnormally distributed and hence had little impact on the results.

Kothari and Warner (1997), and Barber and Lyon (1997) showed that log returns were negatively skewed, such that test-statistics were unlikely to be well specified. Corrado and Trung (2008) also reported that generally the arithmetic returns were positively skewed and log returns were negatively skewed.

Dissanaike and Le Fur (2003) theoretically proved that cross-sectional average logarithm return (log CAR) was equivalent to the log of the cross-sectional geometric mean. Rothstein (1972) proved if price functions were positive, continuous and differentiable, geometric mean measured the performance of a portfolio that was continuously rebalanced to equal weights. But Rothstein (1972) also pointed out that continuous re-balancing couldn't be literally implemented by a portfolio manager since it involved high transaction costs. Even if the transaction costs were zero, it was questionable to use average log CAR. Given that the researcher was trying to measure effects around the event, introducing the additional effect of continuously rebalancing could contaminate the results. Secondly, in a more realistic world where price functions were stochastic, Brennan and Schwartz (1985) showed that geometric mean actually underestimated the value of a continuously rebalanced portfolio, indicating average log CAR could yield a biased return on a continuously rebalanced portfolio. They suggested that abnormal performance index was more appropriate than that average log CAR to measure the return earned over a particular horizon. If the objective was to test whether sample firms persistently earn abnormal returns, average CARs were considered more appropriate³⁸ than log CAR as the former was based on a series of successive buy-and-hold returns, whereas the latter was based on a series of log geometric means, which would yield an unrealistic return.

In reality, majority studies didn't follow FFJR (1969) to use log returns but stick to simple returns.

³⁸ But not appropriate to measure the return 'earned' when one invests in a sample of firms over a particular horizon (see Barber and Lyon, 1997).

Event date uncertainty

Ball and Torous (1988) explicitly took into account the uncertainty about the event dates

Using a maximum likelihood estimator, they simultaneously estimated, for each day of the event window, the abnormal returns, their variance and the probability of an event. Using simulations, the authors showed that their approach as more powerful (more frequently detecting simulated abnormal returns) than the classical ones when the event date was uncertain.

This paper is not that relevant since the event dates regarding the Full-circulation reform were certain and known.

Development in parametric tests under a variety of conditions

The standard assumptions for using the market model are: the residuals are independent over time and across securities as well as normally distributed. Also it's assumed there is no heteroskedasticity.

- Cross-sectional dependence

As introduced in Brown and Warner, the crude dependence adjustment technically controlled for cross-sectional dependence.

Time-series dependence

Mikkleson and Partch (1988) discussed that regression residuals were correlated since they were based on the same parameter estimates and used a test statistic which incorporated the time-series dependence.

- The MP test

$$\frac{\frac{1}{N} \sum_{i=1}^N \sum_{t1}^{t2} \varepsilon_{it}}{\sqrt{\sum_{i=1}^N \text{Var}(\sum_{t1}^{t2} \varepsilon_{it})} / N}, \text{ where } t1 \text{ is the first day of the event window and } t2$$

is the last day of the event window and $\text{Var}(\sum_{t1}^{t2} \varepsilon_{it})$ is the variance of the cumulative abnormal return firm i .

$$\text{Var}(\sum_{t1}^{t2} \varepsilon_{it}) = P \sigma_i^2 \left[1 + \frac{P}{T} + \frac{(\frac{1}{P} \sum_{t1}^{t2} R_{mt} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2} \right] \text{ where } P \text{ is the number of}$$

days in the event window and equals $t2 - t1 + 1$, \bar{R}_m is the average market return during the estimation period T and σ_i^2 is the security i 's estimated variance of abnormal returns during the estimation period T .

Salinger (1992) followed the MP test and analyzed the bias in hypothesis tests about cumulative average abnormal returns when average abnormal estimators were correlated. The degree of bias depends on the number of observations in both the estimation period T and the event period P . When P is small relative to T , the uncorrected (biased) test statistic is very close to the corrected (unbiased) one. But, when P is relatively large, the bias is substantial. Salinger (1992) indicated that intertemporal correlation could be ignored for very short event windows (P is small relative to T) without inducing serious errors while for longer event window (P is relatively large to T), it was important to include the square root component to adjust for intertemporal correlation.

For example, Cowan (1993, Table I.1) showed that when $P = 5$ and $T = 100$, the uncorrected test statistic was expected to exceed the corrected one by 1.6%. When $P = 60$ and $T = 100$, the figure was 25.2%. The parameter estimation errors due to confounding events in longer event period could be effectively reduced using the MP test.

- Event-induced heteroskedasticity

Brown and Warner verified that event studies work well when an event has an identical effect on all firms. But they also warned that when an event has differing effects on firms, the variance of returns would increase and common methods might fail.

Boehmer et al. (1991) provided a simplest solution to the problem of event-induced heteroskedasticity, which became a standard method in the literature and was used in many classical empirical studies (Aktas, 2007). Boehmer et al. proposed a statistic test (BMP test) to deal with this problem (the BMP test).

In this test, the abnormal return estimates are first standardized by their estimated standard deviation (assuming no event-induced heteroskedasticity), based on the residual variance from the estimation

period: $SR_{i0} = \frac{\varepsilon_{i0}}{S_i \sqrt{1 + \frac{1}{T} + \frac{(R_{m0} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2}}}$ where

SR_{i0} : the security i 's standardized residual on the event day;

S_i : the security i 's estimated standard deviation of abnormal returns during the estimation period T ;

$$\sqrt{1 + \frac{1}{T} + \frac{(R_{m0} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2}} \text{): a common approach to adjust the standard error}$$

by the prediction error.

Then the standard deviation of these standardized variates SR_{i0} is calculated cross-sectionally in the event period and the significance of the estimate of the average standardized abnormal return is tested using the cross-sectionally estimated standard deviation:

$$\frac{\frac{1}{N} \sum_{i=1}^N SR_{i0}}{\sqrt{\frac{1}{N(N-d)} \sum_{i=1}^N (SR_{i0} - \sum_{i=1}^N SR_{i0})^2}}$$

In effect, the procedure of this method assumes that the event-induced increase in variance is proportional to the estimated period variance for each firm and is similar across securities. In other words, the increase in variance is a constant multiplying the estimated period variance for each firm.

Boehmer et al. (1991) found in simulations that with this method the frequency of rejection of the null was essentially equal to the nominal size of the test when the null hypothesis of no abnormal performance was true. When the null was false, their method rejected the null more often than the other methods³⁹ for which the true size of the test was equal to the nominal size. In general, their test was unbiased and more powerful than other well specified alternatives when there was an increase in the variance. When there was no change in variance, their test was well specified even, but less powerful as the variance in this case was overestimated.

³⁹ No Dependence Adjustment method from Brown and Warner (1980), the Patell's (1976) Standardized-residual test, the sign test, the Cross-sectional test and the method-of-moments estimation from Froot (1989).

This test is designed to control for the cross-sectional variation in event time.

Development in non-parametric tests

Non-parametric tests typically make fewer assumptions about the data. Generally a nonparametric test assumes the distribution is unknown or nonnormal and measures central tendency by the median.

Previous studies have shown that abnormal returns distributions show fat tails and are right skewed (Serra 2002). Parametric tests reject too often when testing for positive abnormal performance and too seldom when testing for negative abnormal performance. As alternatives to parametric test, in this case, non-parametric tests are well-specified and more powerful at detecting a false null hypothesis of no abnormal returns.

In a 1980 paper, Brown and Warner claimed that when applied to stock returns, the nonparametric sign test was misspecified and lacking in power. Zivney and Thompson (1989) argued that this claim was incorrect and stemmed from confounding the mean and median of a distribution and from not correcting for the different natural levels of significance. After restating Brown and Warner's results, they found that in general the sign test appeared as powerful and well-specified as the t-test; and when applied to market-adjusted returns and market- and risk-adjusted returns methodologies, the sign test appeared more powerful than the t-test.

Corrado (1989) introduced a non-parametric rank test of significance, which has been used in classical empirical studies (Aktas 2007). His rank test merged the estimation and event windows in a single time series. His rank procedure transformed the distribution of security abnormal returns into a

uniform distribution across the rank values regardless of any asymmetry in the original distribution.

- The Corrado rank test

To implement the rank test, it is first necessary to transform each firm's abnormal returns in ranks [$K_{it} = rank(\varepsilon_{it})$] over the combined period S that includes the estimation and the event window. That is, for firm i , abnormal returns are sorted over the combined period and a rank is assigned to each day of the combined period.

The test then compares the ranks in the event period for each firm, with the expected average rank under the null hypothesis of no abnormal return, equal to the mean rank of $(\bar{K} = 0.5 + S/2)$ when S is odd and of $(\bar{K} = S/2)$ when S is even. The test statistic for the null hypothesis is:

$$\frac{\frac{1}{N} \sum_{i=1}^N (K_{i0} - \bar{K})}{\sqrt{\frac{1}{S} \sum_{t=1}^T \left(\frac{1}{N} \sum_{i=1}^N (K_{it} - \bar{K}) \right)^2}}$$

This statistic is distributed asymptotically as unit normal (Z distribution) and the degree of freedom is S . The use of ranks neutralizes the impact of the shape of the AR distribution (e.g., its skewness and kurtosis and the presence of outliers). It should therefore represent an attractive alternative way of neutralizing contaminating events within the estimation window.

Corrado (1989) found his rank test was better specified under the null hypothesis and more powerful than its traditional parametric counterparts (cross-sectional independence test and crude dependence adjustment test) under alternative hypothesis.

Cowan and Sergeant (1996) showed that if the return variance was unlikely to increase, then Corrado's rank test provided better specification and power than the BMP test in Boehmer et al. (1991). With variance increases this test was, however, misspecified.

Corrado and Zivney (1992) refined the Corrado's rank test to account for a variance increase during an event period. They standardised the abnormal returns as Boehmer et al. (1991) did and then ranked the standardised abnormal returns, which were then used to compute the rank test statistic as Corrado (1989) did. They further refined the sign test. They assigned positive one, negative one and zero signs to each day's observation for abnormal returns above, below and equal to the sample median of the abnormal returns in the estimation period which was zero. They found that without event-induced increase in variance, both the standardised rank test and the median-based sign test were better-specified than the traditional parametric test. In the presence of an event date variance increase, non-parametric tests were less severe in terms of misspecification than the traditional parametric tests. Furthermore the rank test dominated the sign test and the traditional parametric test.

Campbell and Wasley (1993) demonstrated that traditional parametric event study tests were poorly specified with NASDAQ returns data but the non-parametric rank test in Corrado (1989) was robustly specified with these data.

With actual daily security returns, Corrado and Truong (2008) data revealed that the parametric test statistics (the BMP test from Boehmer et al. 1991) were more prone to misspecification with Asia-Pacific returns data than non-parametric tests (the standardised rank test and the median-based sign test introduced in Corrado and Zivney 1992). With both US security market

data and Asia-Pacific returns data, the non-parametric rank test statistics led with the greatest test power, followed by the non-parametric sign test statistics, and then the parametric test statistics. The ranking of test statistics by test power was essentially the same as that found in previous studies using similar simulation methods in Brown and Warner (1980, 1985). In the presence of a doubled event-date excess returns variance, some misspecification was observed with all test statistics examined. Nevertheless the standardised rank test introduced in Corrado and Zivney (1992) were better specified than the others.

Ahern (2009) showed that the combination of OLS market model and the parametric tests (crude dependence adjustment test in Brown and Warner 1980, 1985 and the BMP test in Boehmer et al. 1991) produced incorrect rejection rates under the null hypothesis for securities that were grouped by size, prior returns, and book-to-market ratios and the power of the parametric tests to detect abnormal performance were lower than the nonparametric tests (standardised rank test and median-based sign test in Corrado and Zivney 1992) under the alternative hypothesis.

Generally speaking, non-parametric tests are well-specified and outperform parametric tests under a variety of conditions.

An alternative to OLS market model

An alternative to the OLS market model is known as the parameterized model, proposed by Izen (1978) uses dummy variables to estimate the abnormal returns accruing to the firm on the d th day of the event window:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i D_{it} + \eta_{it} \quad \text{where } D_{it} \text{ is a dummy variable for the } d \text{ th}$$

day in the event window, and γ_i is the estimate of the abnormal return on day d of the event window. In this framework, the mean of the market

model residual $R_{it} - \alpha_i - \beta_i R_{mt}$ during the event period is reflected in the estimate of γ_i , because by construction the mean of the disturbance η_{it} must be zero.

According to Binder (1997), a standard assumption in the system of this equation is that the disturbances are independent and identically distributed within each equation, but that their variances differ across equations. It is also assumed that across equations the contemporaneous covariances of the disturbances are nonzero, but that the noncontemporaneous covariances all equal zero.

Brockett et al. (1999) developed an event-study method with the GARCH (Generalized AutoRegressive Conditional Heteroskedasticity) model. They, however, ignored the importance of event-induced variance, a phenomenon that is emphasized in Brown and Warner (1980, 1985), Boehmer, Musumeci, and Poulsen (1991), and Corrado (1989).

Savickas (2003) used a GARCH model with dummy variables to evaluate a simple test statistic that accounted for the stochastic behavior of volatility during both event and nonevent periods. The test did not require the volatility effect to be the same across firms in the sample. He addressed the conditionally heteroskedastic behavior of volatility and the event-induced

variance increase in a single model:
$$R_{it} = \alpha_i + \beta_i R_{mt} + \gamma_i D_{it} + \eta_{it}$$
 where
$$h_{it} = a_i + b_i h_{i,t-1} + c_i \eta_{i,t-1}^2 + d_i D_{it}$$

$\alpha_i, \beta_i, \gamma_i, a_i, b_i, c_i, d_i$ are parameters to be estimated, h_{it} is the estimated standard deviation of the abnormal returns, which incorporates the event-induced variance through the coefficient d_i . However their test would also be biased in the presence of cross-sectional dependence.

5.1.4 Summary

The event studies have been developing the event-study methodology under a variety of conditions. There is no unique structure of an event-study method. Nevertheless these studies have provided a general flow of analysis.

FFJR (1969) proposed an OLS market model which was verified as appropriate in Brown and Warner (1980, 1985) to estimate the abnormal returns.

In many studies, a long event-window was selected (see Table 1 in McWilliams and Siegel 1998). However the theory of market efficiency suggests that stock prices should respond to an event immediately, which has been empirically supported. The fact that confounding events would contaminate the results also casts doubt on the application of a long event window.

The choice of estimation period was somewhat arbitrary in the literature (Aktas 2007). From the perspective of parameter stationarity, a long estimation period is indicated. But potential confounding events in the estimation period would affect the parameters estimates. For a large sample size, it is unrealistic to remove the confounding events on a case-by-case basis.

A logarithm return is not necessarily better than a simple return because (1) Brown and Warner (1985) showed non-normality of individual abnormal returns had little impact on the results; (2) non-normality could be corrected with non-parametric tests, (3) logarithm returns were found negative skewed empirically; (4) logarithm CAR was proved theoretically to yield biased results (Dissanaike and Le Fur 2003).

Prior research indicates that the choice of equal weight index is better than a value weight index in terms of test specification, i.e. Corrado and Truong (2008).

Many adjustments have been made to the test statistics to account for dependence over time and across firms, and event-induced variance (problem of heteroskedasticity). Generally speaking, non-parametric tests outperform parametric tests in event studies under a variety of situations.

5.2 Market Efficiency in China stock markets

A market is said to be informationally efficient if asset prices in the market immediately and completely reflects all available information at all times. The Efficient Markets Hypothesis (EMH) indicates that it is impossible to make economic profits by trading on the basis of the information as the arbitrage profits from exploiting the information gradually absorbed in stock prices should be all exploited in equilibrium. Therefore, an implication of the EMH is that asset returns are not predictable with respect to the available information.

The idea of the EMH emerged as early as the beginning of the twentieth century in the theoretical contribution of Bachelier (1900) which was the first to model the formulation for a random walk in security prices, as noted by Dimson and Mussavian (1998). Fama (1965, 1970) distinguished different types of efficiency depending upon the information set considered.

- **Weak-form Efficiency:** it implies that current prices incorporate all historical price and volume information. In a weak-form efficient market prices will adjust to news without delay and therefore no excess returns can be earned by studying the past pattern of price changes. Weak-form efficiency is often associated with the random-walk hypothesis, where

future price changes are independent of price changes in the past. In this case, no charts or analysis based only on past prices can help to achieve abnormal profits. In other words, no profits are left unexploited; consequently, the result is a fair game in the end. However various anomalies such as seasonal and day-of-the week effects may be present.

- **Semi-strong efficiency:** it implies all publicly available information is fully reflected in the stock price. Thus, one cannot make abnormal profits by using publicly known information. An implication of semi-strong efficiency is professional security analysts and portfolio managers are not able to outperform a simple index fund providing this fund is efficient. Furthermore, the mention of abnormal profits implies that there has to be a definition of normal profits.
- **Strong-form efficiency:** it implies all available information even private (insider) information would already be incorporated into market prices.

Semi-strong efficiency implies weak-form efficiency. Strong efficiency implies semi-strong and weak efficiency. If the weak-form of the EMH can be rejected, then also the semi strong and strong-form of the EMH can be rejected. They are termed ‘nested hypotheses’.

5.2.1 Empirical Evidence on Efficient Market Hypothesis

There is a great deal of demonstrative research on the quantities and qualities of information which are reflected in security prices.

Weak-form efficiency

Most early empirical works have presented evidence supporting the weak-form of market efficiency. Studies have attempted to test this hypothesis by examining the correlation between the current return on a security and the return on the same security over a previous period(s). If the

random walk hypothesis was true, then correlation would expect to be zero. A violation of weak-form EMH is a presence of correlation in stock returns. Supportive evidence on weak-form EMH was found in Osborne (1959), Fama (1965), Fama (1970) etc.. However more recent studies on autocorrelation in stock returns have shown mean reversion in stock prices, such as Poterba and Summers (1986) and Engel and Morris (1991). Fama (1991) suggested positive autocorrelation infers predictability of returns in the short horizon (typically six to twelve months), and negative autocorrelation reflects predictability in the long horizon.

In late 1980s and early 1990s, studies of market efficiency have used the variance ratio test in addition to the serial correlation and runs tests. However, the results are ambiguous. Lo and MacKinlay (1988) and Huang(1995) rejected the random walk hypothesis while Lee (1992) found the random walk hypothesis still held with weekly return series for the majority of the western stock markets examined.

More recently, unit root tests have been added to examine weak-form EMH together with serial correlation, run test and variance ratio test. According to the results in Al-Loughani and Chappel (1997), the series of FTSE 30-share index does not follow a random walk. Worthington and Higgs (2004) showed that the random walk hypothesis was not rejected in major European developed markets. Gilmore and McManus (2003) found strong evidence against the random walk hypothesis for East European stock markets.

Overall, recent studies have found developed markets not to be completely consistent with weak-form efficiency compared with early results. But the results are mixed and conflicting for emerging markets.

Semi-strong efficiency

In a semi-strong efficient market, stock prices should incorporate fundamental information about the economy and individual companies. If the semi-strong EMH were true, stock market would respond to the announcement of public information instantaneously and unbiasedly.

Event studies provide a direct test of the hypothesis of semi-strong form market efficiency by examining the reaction of stock prices or returns to the announcement of firm-specific events, such as stock split and dividend issues, bonus and right issues which can affect the stock prices and returns.

The magnitude of the abnormal stock price performance (excess returns) in the period surrounding the event announcement date is a measure of the impact of events. The presence of significant non-zero abnormal returns before the announcement indicates the investors have anticipated the information or they have access to inside information. The presence of significant non-zero abnormal returns persisting after the announcement implies overreaction or underreaction in response to the information. A significant abnormal return on the event announcement date is consistent with the null hypothesis that stock prices completely, immediately and accurately reflect the announcement event.

Fama, Fisher, Jensen and Roll (FFJR) (1969) examined 940 stock splits on the NYSE between 1927 and 1959. In their studies, abnormal returns appeared immediately following the announcement of the splits.

Scholes (1972) tested the stock prices responses to the announcement of secondary distribution and found the price decline persisted 14 days after the announcement and the price decline was corresponded to block selling

of insiders. Therefore, the market inefficiently reflects the announcement of the secondary distribution.

Brown et al (1977) conducted a combined study on announcements of profits and announcements of dividends, as they are usually released simultaneously. Semi-strong form efficiency can be inferred as the results showed that returns on the shares reflected the content of the two sources of information precisely and instantly.

Rendleman et al (1987) tested the behaviour of stock prices during the weeks surrounding an earnings announcement. They distinguished between expected earnings and unexpected earnings, and maintained the proposition that only unexpected earnings announcements pass on new information to investors. The unexpected earnings were categorised into ten groups, from high value (positive) to low value (negative). They found that post-announcement drifts of returns show that stock prices overreacted to the announcements, which is inconsistent with the semi-strong form efficient market hypothesis. Foster et al (1984) and Bernard and Thomas (1990) also presented that the stock prices failed to fully reflect the implication of current earnings. Previously announced earnings predict the future abnormal returns.

Lukose and Narayanan (2002) examined the reaction of stock prices around the date of announcement of stock splits and ex-split date. The result of abnormal returns around the ex-split day showed that much of the abnormal returns took place on day 0 and day +1. Amitabh Gupta and Gupta.O.P (2007) maintained that stock splits were associated with positive abnormal returns around the announcement. Strictly speaking, both papers were not that supportive of semi-strong EMH as abnormal returns were observed surrounding other than the exact event dates.

Overall it's hard to conclude on whether the markets are empirically semi-strong efficient as the results are really ambiguous. Moreover, any test using the event study methodology is a joint hypothesis of market efficiency and asset pricing. To identify abnormal returns requires an estimate of a normal return which will be given by the asset pricing model. If the asset pricing model such as a market model is a poor reflection of a normal return then there will be an inappropriate benchmark from which to measure the abnormal return.

5.2.2 Empirical Evidence on China stock markets

As the Chinese economy has been growing rapidly with great reforms towards a market-oriented economy, the efficiency of the Chinese stock markets has been important in academic research.

Weak-form EMH

A substantial number of studies have attempted to determine the extent to which the Chinese stock market is weak-form efficient.

Yu (1994) examined data of Shanghai stock market before 1994 and concluded Shanghai stock market was not weak-form efficient.

Wu (1996) examined efficiency in both Chinese stock markets, on the early stage of development in Shanghai and Shenzhen stock exchanges. Using the serial correlation test on eight and twelve individual shares for the period from June 1992 to December 1993, he found Chinese stock markets to be weak-form efficient.

Liu et al. (1997) examined daily closing prices on the Shanghai and Shenzhen stock exchanges using the ADF unit root and cointegration tests

from the period May 21, 1992 to December 18, 1995.⁴⁰ The ADF unit root test was used to test for randomness in each stock exchange share price index, and cointegration and causality tests were used to examine the relationship between the two share price indexes. Their results suggested that the random walk for both the Shanghai and Shenzhen was accepted, indicating that each market was individually efficient. Results of the cointegration test found a stationary long-run relationship between two stock prices (a stochastic relationship should be found if cointegrated). In addition, the causal relationship between the Shanghai and Shenzhen stock indexes was found to be bidirectional (no causal relationship was expected if the markets were efficient). Consequently, the cointegration and causality test results suggested that the two Chinese stock markets were inefficient collectively.

Laurence et al. (1997) tested for weak-form efficiency in the Shanghai and Shenzhen stock exchanges, and causality among these Chinese stock markets with each other and with the U.S. and Hong Kong stock markets. Their data included 1000 daily observations for Shanghai A-share, Shanghai B-share, Shenzhen A-share and Shenzhen B-share indices, Hong Kong stock exchange index and the Dow Jones industrial average for the U.S. from the period March 1993 to December 1996. They found the presence of significant serial correlation in daily return series in all four Chinese stock shares, however the magnitude of serial correlation decreased after the year 1994, indicating that the Chinese stock market were gradually moving to becoming efficient. They also observed a causal relationship between B-share stock markets to the A-share stock markets, implying that foreign markets exerted a significant influence on the markets open only to Chinese

⁴⁰ For details, please refer to Said and Dickey (1984) and Banerjee, Dolado, Galbraith, and Hendry (1993).

nationals. In addition, they found a weak causal effect from Hong Kong to the Chinese stock markets, and a strong causal effect from U.S stock market to Chinese stock markets and Hong Kong stock market. Based on the results, they argued that Chinese stock markets are gradually become more integrated into the global economy.

Mookerjee and Yu (1999) tested the efficiency of Chinese stock markets from the period December 19, 1990 to December 17, 1993 for the Shanghai stock exchange and from the April 3, 1991 to December 17, 1993 for the Shenzhen stock exchange. Their data included 759 daily closing prices for the Shanghai exchange and 727 daily closing prices for the Shenzhen exchange. Employing the serial correlation and the runs tests, they observed that there were significant inefficiencies present on both exchanges. Their study also tested for the presence of seasonal anomalies on both exchanges and found significant weekend and holiday effects, but no January effects. According to them, the reasons for inefficiency in Chinese equity markets included the restricted supply of stocks, the large holding of shares by the Government, excessive volatility due to abrupt policy changes by the authorities, the inadequate infrastructure, both physically and legally, and a shortage of expertise and geographical segmentation of markets.

Darrat and Zhong (2000) used the variance ratio test of Lo and MacKinlay (1988) and a model-comparison method to examine whether or not stock prices in both Chinese markets follow a random walk. They concentrated their investigation of the market behavior on daily data of the A-share closing index prices of the Shanghai exchange from December 20, 1991 to October 19, 1998 and the Shenzhen exchange from April 4, 1991 to October 19, 1998. Their results indicated that A share indices on both Chinese stock markets did not follow a random walk. The prices of A-share indices exhibited positive autocorrelation, implying the potential for predictability.

They suggested that the inefficiency probably arose from thin trading, asymmetric information, ineffective legal structures and lack of transparency.

Lee et al. (2001) investigated time-series features of stock returns and volatility in four of Chinese stock exchanges, using daily returns of Shanghai A share and B-share and Shenzhen A-share and B-share indices for the period 1990 to 1997. They observed that Chinese stock market did not follow a random walk hypothesis. They found the presence of negative serial correlation in return series indicating the possible mean reversion in returns.

Lima and Tabak (2004) tested the random walk hypothesis for the Shanghai and Shenzhen stock exchanges using daily returns from the period June 1992 to December 2000 for both A-share and B-share indices. Employing the variance ratio tests, the random walk hypothesis was rejected for B-shares for the Shanghai and Shenzhen exchanges, but not for A-shares for both exchanges. They suggested that A-shares in Chinese stock exchanges were weak-form efficient. According to them, B-share markets were not weak-form efficient possibly due to being less liquid or active than A-share markets and making up no more than 5% of the total market capitalisation.

Zhang and Li (2008) utilized tests based on ranks and signs suggested by Wright (2000) together with the traditional variance ratio test to examine the behaviour of some Chinese stock indices. They used daily price data from 21 February 1992 to 2 December 2005 for Shanghai A and B-share indices, from 6 October 2002 to 2 December 2005 for Shenzhen A and B-share Indices. The results suggested that the null hypothesis of random walk behaviour of the index series examined in the study is rejected. The rejection of nonrandom movement in the series examined was much

stronger for the former time than the latter time after 1996, which suggested the evolving market efficiency of Chinese stock market.

Charles and Darne (2009) examined the random walk hypothesis for the Shanghai and Shenzhen stock markets for both A and B shares, using daily data over the period 1992–2007. They used new and conventional multiple variance ratio statistics⁴¹. In addition, the paper investigated Chinese stock market efficiency over various sub-periods in order to analyze the effects of the important changes in the relationship between the banks and the stock market as well as the regulatory change that widened the B share market to include domestic investors.⁴² The results suggested that A-share market appeared more efficient than B-share markets, implying that liquidity, market capitalization and information asymmetry could play a role in explaining the weak-form efficiency. B-share markets became efficient after the re-entry of banks in the stock market but seemed to appear inefficient after the B shares opening to domestic Chinese investors. Nevertheless, the entry of Chinese investors on the B share market has positively influenced the B share market efficiency.

My study concentrates on the China A-share markets as the China Full-Circulation Reform was supposed to only affect A-share markets through floatation of substantial Government-held A shares. Overall speaking, there is no consensus on weak-form China A-share market efficiency. Early studies based on early samples tend to reject the null that

⁴¹ For more details, please refer to Whang-Kim's (2003) subsampling test, Kim's (2006) bootstrap test, which do not rely on asymptotic approximations, as well as the Chow-Denning (1993) test.

⁴² Until 1996, banks had a dominant influence on the stock market. In 1996, regulations were further tightened by preventing banks from offering loans for stock transactions. In early 2000, the 1996 regulations were reversed and banks resumed their position as important sources of funds for stock investment. Moreover, in February 2001, the Chinese Government adopted a more liberal policy that allowed domestic investors to invest in B share markets, which had only been available to foreign investors previously.

weak-form EMH holds for China A-share markets. On the other hand, recent studies including more recent data tend to support the weak-form efficiency in China A-share markets or present a pattern of becoming more and more efficient over time.

Lo and Mackinlay (1989) demonstrated that the traditional statistical tests like autocorrelation and unit root were less powerful relative to the variance ratio tests in detecting serial correlations of stock returns. Moreover, Campbell et al. (1997) argued that the detection of a unit root cannot be used as a basis to support the random walk hypothesis.⁴³ From this point of view, the results of early studies, such as Laurence et al. (1997), Mookerjee and Yu (1999), and Liu et al. (1997), may be flawed and biased.

Also, Lo and MacKinlay (1988, 1990) and Miller et al. (1994) argued that thin trading would induce spurious positive serial correlations in the market index returns. None of the studies on weak-form of China stock markets efficiency mentioned above adjusted to the effect of thin trading although some of them acknowledged that thin trading could be the main source of their detected predictability, such as Laurence et al. (1997) and Darrat and Zhong (2000). Therefore the results of these studies could possibly reject the null of weak-form efficiency unnecessarily.

Finally all these Chinese studies focus on the all-or-nothing notion of absolute market efficiency, making the verdict of whether a market is or is not weak-form efficient for the whole sample period under study. However, according to Self and Mathur (2006:3154), the true underlying market structure of asset prices is still unknown and the market behaves in line with an efficient market for a period but sometimes it behaves in such a way that

⁴³ For recent critiques on the application of unit root tests, see Saadi et al. (2006a, 2006b) and Rahman and Saadi (2007, 2008).

researchers are able to systematically find anomalies to the behavior expected of an efficient market. On the other hand, Emerson et al. (1997) argued that it was not sensible to test market efficiency in its absolute sense for stock markets in Central and Eastern European transition economies that have just emerged as it took time for the price discovery process to become known, the market microstructures to develop, and market participants to become more experienced. They proposed a framework to gauge the changing degree of predictability, and hence evolving weak-form market efficiency. If the market under study becomes more efficient over time, the smoothed time-varying estimates of the autocorrelation coefficient would gradually converge towards zero and become insignificant.

Compared to Laurence et al. (1997) and Zhang and Li (2008) within a time-invariant framework, Li (2003a, 2003b) employed a time-varying framework to examine the informational efficiency of China's A-share and B-share markets over time, covering time periods from 1991 to 2001 and 1992 to 2002 respectively. Li (2003a) showed that both the Shanghai and Shenzhen markets were inefficient at their initial development stages. However, the past decade saw a steady convergence of the two markets towards efficiency. Li (2003b) found The Shanghai A-share market was the first to have become efficient since 3 November 1997, followed by the Shenzhen A-share market (since 3 July 1998). The Shanghai B-share market has shown a convergence (albeit very slow) towards efficiency since 9 December 1996. A similar trend was not observed for the Shenzhen B-share market.

To sum up, China A-share markets (both in Shanghai and Shenzhen) are empirically more weak-form efficient in recent years than in early years. Consequently the China A-share markets are assumed to effectively reflect

the Full-circulation Reform which lasted from April 2005 till the end of 2006.

Semi-strong EMH

Studies have been conducted of the reaction of Chinese stock prices to various important news announcements such as dividend increases or cuts and bonus and rights issues.

Ma (2004) studied semi-strong form efficiency of China A-share stock markets based on four main events, (1) non-dividend issue, (2) cash dividend issue, (2) bonus issue and (4) rights issue, and two types of announcement, (1) proposal and (2) approval⁴⁴. Samples from each type of event were constructed into 37 portfolios in total. Generally speaking, the results showed that China investors perceived non-dividend issue as ‘bad’ news and were pessimistic in responding to the announcement of cash dividend proposals probably because shareholders must pay tax for a cash dividend but not for a stock dividend according to Chinese regulations. The investors’ attitudes toward the announcement of bonus and rights issues depended on the specific scheme of the issues. Whether an announcement was followed by a further announcement of a new event also affected stock price behavior. The underreaction or overreaction of stock prices to the announcement has been found in twenty of thirty-seven portfolios. Therefore the hypothesis of semi-strong form market efficiency was rejected only partly for China’s stock markets in his study.

⁴⁴ According to the laws and regulation of China’s stock markets, important event such as dividend issue, bonus issues or rights issue, should be proposed in the meeting of Board of Directors, and approved in the Shareholders’ meeting before realized. Information related to the event must be published within a short period (usually two days) after the relevant decision is made. The process from proposal of a dividend (or bonus and new rights) issue, to the approval and then the realization effectively constitutes three sub-events for every normal event, called proposal announcement, approval announcement and realization announcement respectively.

As the samples in Ma (2004) were taken before 1998, his findings were probably not very indicative on the efficiency of China A-share markets recently. Since the market microstructures are developing quickly and the investors are becoming mature in the past decade, China A-share markets are expected to be improved in efficiency as well.

Conclusion

In conclusion, China A-share markets are empirically weak-form efficient in recent years. There is some evidence against semi-strong efficiency but the hypothesis is not rejected fully using data more than ten years ago. Overall this is weak evidence against the semi-strong hypothesis.

5.3 China's reducing state shares in 2001

In Chapter 3, the attempted effort to reduce state shares in the listed companies was confronted with dramatic market plunge down by around 40% within three month time after the announcement of Measures (2001) by the State Council in June 2001, which eventually forced China Government to pull out of this program one year later in June 2002. Measures (2001) aimed to initialize a scheme for reducing state shares.

Many articles and book chapters talked about this unsuccessful movement by the Government and tried to give explanations.

Wong (2006), Kim et al. (2003) and De Jonge (2008), attributed the market slump to dilution effect in the tradable A-share market, which feared it would be flooded with these state shares, in general twice as much as the tradable A shares.

Green (2003) pointed out the initial scheme proposed in Measures (2001) failed to lay down reliable guidelines for when, and in what quantities, state shares would be sold. With plans for future sales unclear, investors on the

tradable A-share markets were left to fear a sudden tidal wave of equity that would destroy the value of their portfolios. These uncertainties deteriorated the potential dilution effect. He then suggested a credible timetable was required.

Following Green (2003), Beltratti and Bortolotti (2006) blamed an equal pricing for tradable and non-tradable A shares envisaged in Measures (2001). In Chapter 2, since late 1990s, non-tradable A shares were sold occasionally in private transfers or auctions subject to the administrative approval from state-asset-management authorities. This was done in order to lift pressure from the state-owned banks which funded SOEs and had a rate of non-performing loans as high as 40%. According to Chen and Xiong (2001), the NTAS were priced at a discount of 70%-80% of the price of TAS in the informal markets. Equal pricing, therefore, was suspicious of transferring wealth from the private investors to the Government (the holders of NTAS).

However none of them carry out an investigation into these events. They lack supportive and convincing evidences other than their descriptive opinions.

Calomiris and his co-workers presented a paper published in Journal of Financial Economics in 2010, which is the only one studying this event empirically.

5.3.1 Calomiris et al. (2010)

The authors examined the market responses to the unexpected announcement of the sale of Government-owned shares in China in July 2001 and to the subsequent cancellation of the program in June 2002, defined as Event 1 and Event 2 respectively. Under the dual share structure

of China stock markets, Government-owned shares were not allowed to trade in contrast to the otherwise identical tradable shares.

Announcement effect

They applied an event study method in line with MacKinlay 1997, using a standard market model to calculate the benchmark return and the abnormal return over day -1 through the event day 0 to day 1. Hence the cumulative abnormal return over the event window [-1, +1] was used as the primary measure of the event effect and denoted as CAR [-1, +1]. Day -1 and Day +1 were included to capture anticipation of the announcement and further impact of the announcement respectively. They reported in table 1 that CAR [-1, +1] for Event 1 was -10.49% while for Event 2 was 12.68%, indicating the stock market responded negatively to unanticipated further privatisation and positively to the cancellation of this scheme. Cross-sectionally, Government ownership had a negative impact on returns at the announcement of sales of Government-owned shares with a correlation of -0.2 and a symmetric positive impact at the cancellation announcement with a correlation of 0.22.

Hypotheses

Their sample consisted of 107 firms which issued both A and B shares. B-share prices which were traded by foreigners were employed. They showed that the A- and B-share markets were effectively segmented as there was a huge discount of B share relative to A shares⁴⁵ and the boundaries within which A and B shares moved independently were very large. This segmentation indicated that quantities of B shares available for sale was unaffected by the potential sale of Government-owned shares in the tradable

⁴⁵ This finding was consistent with studies by Chelley-Steeley and Qian (2005) and Kim and Shin (2000)

A-share market. Assuming a downward sloping demand curve, using B-share returns to measure announcement effects avoided the dilution effects in the tradable A-share market.

Without concern over price pressure from dilution, they attributed the findings to the peculiar trajectory of Chinese political and economic development. Despite the transition to the market-oriented economy, the political control over the country still remained firm and widespread. They argued that as a result, the benefits from Government ties could outweigh the positive effects on the efficiency gains from private control, which may be associated with improved governance, productive efficiency and strong incentive to maximize profit.

Cross-sectional regression analysis

They conducted 3-stage regressions.

Firstly, they regressed abnormal event returns CAR [-1, +1] on state-owned shares. After controlling for firm size and profitability, results for Event 1 showed Government ownership has a significant negative coefficient at conventional levels, indicating Government ownership was associated with benefits to Government-connected firms in China where Government continued to exercise substantial control over the economy. Results for Event 2 were of opposite signs to those of Event 1 and comparable in magnitudes.

In the second stage, they pooled abnormal returns from both events⁴⁶ to examine total impact. The estimated coefficients were similar in magnitude to preceding results but of higher level of statistical significance. The dummy of companies that employed at least one city-level officials in senior

⁴⁶ They used using negative CAR [-1, +1] for the cancellation event (Event 2) and included Event 2 dummy variable.

management, a measure of personal political ties, had a significant positive coefficient at conventional levels, indicating personal ties could substitute for institutional connections related to Government ownership.

Finally, they identified and investigated possible sources of Government-related benefits through which Government ties affected firm value: (1) local Government discretion in preferential economic policymaking, as proxied by the location of the firm in a Special Economic Zone; (2) extent of preferential loan access, as proxied by the leverage; (3) social benefits or obligations, as proxied by the ratio of retired employees supported and commonwealth expenditure deflated by sales. The results showed that local Government-related benefits varied with the local Government discretion and firms with higher existing pension burdens relating to their Government connections benefited the most from the privatisation announcement (Event 1) eliminating their institutional connections to Government.

In the appendix, they introduced a subsequent movement by the Government to float all non-tradable A shares in 2005. The holders of non-tradable A shares were permitted to sell their shares subject to negotiation with the holders of tradable A shares about a proper compensation. When the 2005 reform was at the experiment stage (including the macro events such as the initial launch of reform on April 29, the subsequent announcements of two pilot groups and the announcement to extend the reform to the rest of the firms See Figure 4.1), there was discussions on whether B shareholders would receive compensation as the A shareholders. Supporters argued that any compensation should accrue to tradable A and B shareholders equally since they were supposed to have identical rights according to corporate law in China. Opponent argued that B-share investors should not be compensated as the presumed adverse

supply effect of new shares in the domestic A-share market would not affect the B-share market. They reported Government ownership was a significant and positive predictor of B-share returns in the experiment stage, but could be biased due to the likely high compensation expected by B-share investors. It was becoming clear that B-share investors didn't receive such compensation since the first B-share firm implemented a reform in October 2005. The B-share returns around firm-specific events were reported to be irrelevant of the Government ownership.

Critical analysis

- Reliability of the results

Calomiris et al. (2010) measured event effects using cumulative abnormal returns over a 3-day event period [-1, +1] but didn't test whether the CARs computed were significantly different from zero. If the CARs were not statistically significant, they were no more than forecast errors. Therefore it made no sense to regress them, the forecast errors, on the variables of Government ties. In Table 1, though the coefficient of Government ownership was significant, the R square was no more than 5%, indicating most of the variation of the CARs calculated was unexplained. And the predictor of political personal ties was even worse with insignificant coefficient and a R square as low as 0.2%. Overall speaking, the estimators were not powerful in explaining CARs over the event period, supportive of the view that these CARs may be just noise and hence not as relevant to the estimators as the authors wished to see.

- A signal of unfavorable information vs price pressure

Calomiris et al. (2010) used B-share prices traded in B-share market, which is effectively segmented from domestic A-share market where were

supposed to accommodate an immense size of non-tradable A-shares.

Consequently, their results should be unaffected by the price pressure from the potential sale of non-tradable A shares and should only reflect the impact of this attempted sale program on firm value.

The outcomes showed that the overall B-share market responded negatively to the announcement further privatisation sales and positively to the announcement of cancellation, suggesting the attempted sale program signaled unfavorable information to the public investors. They argued that in China where political transition was far behind economic reform, Government divestment reduced Government-connected benefits, which outweighed the positive effects on profits from privatisation, and as a result had a negative impact on firm value. If this view holds, B-share investors in 2005 reform should have been compensated as A shareholders were treated since firms would be devalued because the sale of Government shares eliminated Government-related benefits.

However China Government didn't conform to their conclusion. On the contrary, the Government was more concerned over the price pressure effect from the oversupply of shares in A-share market and insisted paying compensation to A shareholders only.

One explanation is that their results presented were actually not that robust and convincing from a statistic view. Furthermore the market reactions could be just the effect of price pressure from the potential immense sales. As Perotti and Guney (1993) pointed out, it was not easy to distinguish the price pressure effect from the effect of implied unfavorable information to the public investors since both have a similar empirical implication: larger privatisation should be more underpriced.

This literature on the 2001 attempted effort which failed are either superficial with descriptive analysis lack of empirical evidence or like Calomiris et al. (2010), where the results are statistically unconvincing and the conclusion made is disappointedly abandoned by the Government.

However the method used and the variables applied may be of referential importance.

5.4 China's Full Circulation Reform

Only a few papers concerning the impact of China's Full Circulation Reform on the stock markets have been found and collected probably due to the complications involved in this reform and the uncertainties in China's emerging markets.

Basically, China listed firms were guided and directed under a series of policies and relevant documents released by China Government to practice the FCR as shown in Figure 4.1 which sketches a timeline of these macro event dates. For each firm, there was a gradual procedure to put the reform proposal into effect as shown in Figure 4.3 which shows a timescale of firm-specific (micro) event dates.

5.4.1 *Beltratti and Bortolli (2006)*

This is perhaps the first paper discussing the issue of China FCR. They evaluated the stock price effects of the actual implementation of this reform in 368 firms which had completed the reform program before March 31st 2006.

Interested event dates

They looked at four critical firm-specific event dates, the start date of an individual reform process, the date of the first resumption of trading after negotiation of the compensation plan, the record date for registered

shareholders, and the date of the second resumption after the announcement of the results from the shareholders meeting .

Hypothesis

The null hypothesis was that no price change was associated with the announcement and implementation of the reform for a given listed company, consistent with the idea that the no change in economic fundamentals was expected from such reform and that a future supply shock would completely offset the upward shift in demand due to improved governance and liquidity.

Method employed

They applied an OLS market model to measure the abnormal returns around the four critical dates and defined an estimation period from 120 days before till 10 days before the start date of an individual reform process. Their event window started from 10 days before till 10 days after a specific event date. Different event periods applied when the time interval between the first resumption and the second suspension was less than 10 days. They focused on the cumulative abnormal return over an event period and estimated the variance of the average CARs as (1) the cross-sectional variance across CARs of the different companies and (2) the sum of the company variances from the estimation period under the assumption of no cross-sectional dependence and normality of residuals.

Results

They found significant positive CARs around the first three event dates but a large decline on the last event date. The null hypothesis was thus rejected. They explained that the expectation of improved corporate governance outweighed the price pressure from the large-scale non-tradable-shares disposals. The precipitous fall on the second resumption date was due to the

stock traded from the record date of ex bonus. In their preliminary cross-sectional analysis, after controlling for firm characteristics, they found Consideration level irrelevant in explaining the abnormal returns accompanying the first resumption of trading but the quantity of tradable shares outstanding seemed to matter.

Critical comments

Their article is ambiguous and not fully explained in many parts. For example, they didn't explain the reason they selected the explanatory variables nor did they explain the regression results presented. Regarding the price fall on the second resumption date, their one-sentence explanation was very confusing. Trading was actually suspended from the record date and it was impossible to trade stocks so as to drive the price down during this period.

It was too early to conclude that the expectation of improved corporate governance determined the positive CARs observed. First, their long event window could contain some confounding events which would contaminate the real impact of an individual reform. Second, their estimates of CAR variance were not free of question. Actually they didn't specify the underlying assumptions explicitly. For these estimators of the variances to be consistent the first estimator requires the abnormal returns to be uncorrelated in the cross section although cross-sectional homoskedasticity is not required. Campell et al. (1997) suggested non-clustering would be sufficient for this requirement. However it seems there is no definite non-clustering during China's FCR as firms staged reforms in groups and the interval between groups is as short as five working days. The second one assumes time series independence and cross-sectional independence, which is a strong assumption. This may lead to severe bias in results. Third, there was no clear evidence that corporate governance was a significant

determinant because there was no revision suggested for corporate governance reform.

5.4.2 Lu et al. (2008)

This paper investigated the share market response to the Government launch of China's FCR on April 29 2005 which was expected to affect all the listed firms with non-tradable shares as well as to the start date of an individual reform process which was various across firms.

Hypotheses

They predicted (1) share market reaction to the Government announcement of the reform on 29 April 2005 was non-zero. Like Beltratti and Bortololli (2006), they considered the potential benefits from improved governance and enhanced liquidity, as well as the negative effects from oversupply of non-tradable shares. But unlike Beltratti and Bortololli, they didn't expect these effects to offset perfectly; (2) the share market reaction to the company's commencement announcement to undertake the reform was positive due to the inclusion of Consideration scheme, though not yet negotiated with the holders of tradable-shares; (3) share market reaction was a function of the type / level of consideration as the consideration package signaled a company's intention to protect minority shareholders.

Research design

They used the OLS market model and defined an estimation period as 120 trading days prior to the event (-120, -1). However they calculated CARs over three event periods, (-1, 0), (0, +1) and (-1, +1). They didn't introduce what kind of t statistic was used.

After controlling for firm and reform characteristics, they ran three regressions with different variables of interest, share type, cash type,

combination type and size of Consideration. They argued that holders of tradable shares had different investment preferences and tax positions and therefore none of the methods was superior over the others.

Results

They found the investors held a negative view of the 2005 reform at the initial launch of by the Government probably due to the fear of a dilution effect based on past experience in 2001. After more information about the reform became known to the market, particularly the inclusion of consideration in this reform process, investors changed their initial view and reacted more positively to the individual company's announcement to commence the reform.

The regression results suggested that that existing holders of tradable A-shares earned significant abnormal returns when companies paid in cash or warrants or combination method, which was opposed to their expectation. And they didn't provide a proper explanation. They found no relation between the level of consideration and share market response, suggesting that investors perceived the consideration to be fair and adequate.

Critical comments

Companies were suspended from the start day of the individual reform and there was no trading for a while, indicating there was no price available on that day (event day) and the subsequent day. They didn't explain how they managed to calculate the 2-day and 3-day CARs around the individual company's announcement to commence the reform, in the absence of data.

Second their event window and estimation window overlapped on day -1 relative to the event day. This may affect the estimation of parameters and calculation of t statistics, leading to biases in results.

5.4.3 *Li et al. (2011)*

They studied the determinants of the Consideration levels.

Hypotheses

They hypothesized that that gains in terms of risk sharing played an important role in the determination of compensation. In his framework, the holders of NTAS asked the holder of TAS to share idiosyncratic risks, or unsystematic risks through selling NTAS. Higher idiosyncratic risks indicated greater gains from risk sharing for the holders of NTAS, and hence leading to higher Consideration to the holders of TAS.

In addition, they also considered the bargaining power and firm performance, which could play important roles in the determination of compensation ratios. Higher bargaining power of NTAS holders and higher firm performance would result in lower Consideration paid to TAS holders.

Results

After controlling for firm characteristics, they showed that the size of compensation was positively associated with the gain in risk sharing, negatively associated with the bargaining power of the holders of NTAS and firm performance, consistent with their hypotheses.

Critical comments

They used the NTAS ownership to proxy for the weak bargaining power of the NTAS holders, which is questionable. They explained that higher NTAS ownership indicated stronger incentive of them to transform NTAS, and hence weaker bargaining power in determining Consideration. However the NTAS ownership could present the scale of sale or the percentage of Consideration payers. It's hard to distinguish between these effects.

According to them, higher firm performance indicated less NTAS shares to be sold as the holders of NTAS would like to keep them. However the fact is NTAS had to be floated eventually independent of firm performance. Moreover Consideration is computed on the basis of the estimation of aftermarket price, as introduced in Chapter 4. One of the common approaches is to estimate the aftermarket price referring to the normal P/E ratio observed in the mature markets. The more profitable firms would estimate higher aftermarket price and hence produce less compensation mathematically.

5.4.4 *Ren et al. (2009)*

This paper investigated the effect of China's FCR and its impact factors.

They conducted a classic event study using an OLS market model, an estimation period of 100 days (-120, -21) and an event period of 41 days (-20, 20). Their estimator of the variance of CAR (-20, 20) was the cross-sectional variance across CARs of the different companies as Beltratti and Bortololli (2006) did.

They showed that the reform had positive effects on Chinese stock market. They divided their sample by the reform groups, trading post and boards and found there was higher abnormal return in the reform groups which included more Chinese listed companies with high quality performances. The shareholders in Shenzhen Stock Exchange market received higher abnormal return than the shareholders in Shanghai Stock Exchange market. SME board had higher abnormal return than the main board.

Critical comments

They didn't clarify which critical event date they focused on. Their choice of long event window may contaminate the results of CARs due to potential

confounding events included in the event window. They didn't test whether the differences between his sub-samples were significant or not and hence their conclusions made are less convincing.

5.4.5 Yeh et al (2009)

This paper explored the issue of why corporate governance might play an important role in affecting the level of Consideration.

Hypotheses

They examined the relationships between Consideration and ownership structure, board structure and related party transaction respectively.

- Ownership structure

They hypothesized that Consideration level was positively correlated with the proportion of NTAS and the pledge ratio.

There was an agency problem between the Government representatives who controlled the companies and the NTAS holders (the owners). A higher proportion of NTAS suggested a severer agency problem, leading to a higher Consideration. Guo and Keown (2009), with a case study of Valin Steel Tube & Wire Co., Ltd., illustrated the challenges posed by agency problems in China, in terms of the conflicted interests and asymmetric information between the holders of NTAS and TAS.

A higher pledge ratio (the percentage of NTAS that were pledged for bank loans) indicated that the NTAS holders were associated with a lower incentive to have firms run properly and were in greater need of funds, thus required higher Consideration.

- Board structure

They hypothesized that board independence was negatively correlated with Consideration.

- Related party transaction

They hypothesized that related-party transactions of the firm was positively correlated with Consideration. There were agency problems associated with the use of internal markets inside a corporate group. Many studies found that related-party transactions were a commonly used device by which controlling shareholders expropriate wealth from minority shareholders (Shleifer & Wolfenzon, 2002; Wolfenzon, 1999).

Results

They concluded that firms with a weak governance structure or severe agency problems were required to have a higher level of Consideration.

Critical comments

First they used the NTAS ownership to proxy for the agency problem. This variable actually indicates more than the agency problem, i.e. it can be used to proxy for issue size too. Their interpretation of the results is hence less powerful as there is no evidence the agency problem dominates the results.

Secondly, their regression results are not very supportive of their hypotheses.

Except the variable of NTAS ownership, other variables of interests fail to show significance at the 5% level.

5.4.6 Firth et al. (2010)

This paper examined the role played by Government shareholders and mutual funds in China's FCR.

They found that state ownership (the major owners of non-tradable shares) had a positive effect on the final Consideration level (the revised

Consideration level announced on the first resumption day). In contrast, mutual fund ownership (the major institutional owner of tradable shares) had a negative effect on the Consideration level and especially in state owned firms. The evidence seemed consistent with their predictions that state shareholders had incentives to complete the reform quickly and exert political pressure on mutual funds to accept the terms without a fight.

They also conducted event analysis of price effects around the first resumption day based on an estimation period of 60 days (-63, -4) and an event period of 7 days (-3, +3). They found significant positive returns following the announcement, implying that the final terms of the compensation were better than expected and/or there was a palpable relief that the firm could now move forward and management can concentrate on improving operating performance. They also found the Consideration ratio is a significant and positive determinant of the announcement effect.

Critical comments

The implied assumption behind their conclusion is: the bargaining powers of the holders of NTAS and TAS determined the level of Consideration. However in principle Consideration was to compensate the holders of TAS for any loss they were estimated to suffer after the reform, subject to which, the bargaining powers of the two parties had only second-order effects on the Consideration level. In the first place, the positive effect of the state ownership on the Consideration level could come from the pressure of dumping these shares in the markets. The negative effect of the mutual fund ownership on the Consideration level could come from the economic benefits associated with the mutual fund ownership.

5.4.7 Summary

There are two main research interests in these preliminary studies: (1) the impact of China's FCR on the stock prices and the important factors and (2) the determinants of Consideration.

However there are quite a few problems. First there are queries about the reliability of their results. Consequently some of the conclusions they make are not that sound. Second due to the complication of China's FCR, there are series of event dates, both macro policy dates which are expected to influence all the firms involved and firm-specific event dates which are various across companies. Most of the papers were cherry-picking on the event dates. For instance, they were commonly interested in the first resumption day but always missed the second resumption day. A partial analysis due to this preference of dates may lead to biased conclusions too.

5.5 Concluding remarks

This chapter introduces the literature on event-study method, reviewing the development in the structure of an event study and important improvements in parameter estimation and statistics.

Assuming market efficiency, event-study method is used to measure the event effect on stock prices. Next the market efficiency literature is reviewed, with a focus on China stock market efficiency. There is evidence China stock markets are at least weak-form efficient.

China attempted to reduce state shares in June 2001 but failed due to the subsequent market crash. A few articles discussed this issue. Calomiris et al. (2010) suggested that the political benefits associated with the state ownership outweighed the benefits from private ownership. However the low R square cast doubt on their conclusions. Their conclusions implied that

the holder of B shares on the China stock market should receive compensation as the holder of A shares during China's FCR, which was actually abandoned by China Government.

Finally there are few qualified studies on China's FCR, indicating this event hasn't been investigated properly and further research in depth is needed.

Chapter 6. Data, Sample and Research Design

According to Campell et al. (1997), although there is no unique structure of an event study, a classic design of event-study analysis can be conducted in five steps: (1) to define the event of interest and the event window, (2) to determine the selection criteria for the inclusion of a given firm in the study, (3) to model the normal returns so as to measure the abnormal returns, (4) to define an estimation period to estimate the parameters of the normal performance model, and (5) to design the testing framework for the abnormal returns. Binder (1998) pointed out the estimated abnormal returns for the sample firms were frequently used as the dependent variable in a regression with firm specific variables on the right hand side, indicating a sixth step: (6) to regress estimated abnormal returns against potential factors.

This chapter generally follows this outline of an event-study procedure to illustrate the data and sample used to examine the effect of China's FCR and present a particular picture of research design to fit this event study.

6.1 Event definition

The event of interest is China Full-Circulation Reform.

6.1.1 Event description

Basically, China listed firms were guided and directed under a series of policies and relevant documents released by China Government to practice the FCR as shown in Figure 4.1 which sketches a timeline of these macro event dates.

Notice (2005) publicised on April 29 2005 initiated the reform with proposed measures aiming to maintain the market stability, including Consideration agreed to compensate the holders of tradable share for

estimated loss after the reform assuming a sloping downward demand curve. Guidelines (2005) followed to set out operational procedures for pilot firms. Subsequently two pilots, containing 4 and 42 firms respectively, were announced to take the trial reform, based on which Measures (2005) was stipulated and used to extend the successful trial of reform scheme and procedure from the experiments to the rest of firms involved. On Sep. 12th 2005, the first group of 40 firms was announced to take the reform under the guide of Measures (2005). By the end of 2006, the last group of 32 firms was announced.

For each firm, there was a procedure to gradually put the reform proposal into effect as shown in Figure 4.3 which shows a timescale of firm-specific (micro) event dates.

The whole firm-specific process consists of two suspension periods. Trading of firm is firstly suspended when the initial proposal put forward by the holders of NTAS of a firm was announced by the board of director, together with the date of the shareholders' meeting and the opinions of the recommending institution and the law firm. During the first suspension period, the board of directors and holders of NTAS interact with holders of TAS to receive comments and suggestions and form a consensus on the proposal. Once the agreed proposal is announced, the trading is resumed. Trading is suspended for the second time the next day of when registration starts for the shareholders' meeting. During the second suspension period, the proposal is voted in the shareholders' meeting. A pass is issued if the proposal wins a qualified majority of two-thirds of the votes from both the holders of NTAS and TAS. Trading is restarted if the proposal is accepted. If not, the firm needs to restart the reform in another around.

Figure 6.1 is a collective picture of all the event dates in China's FCR:

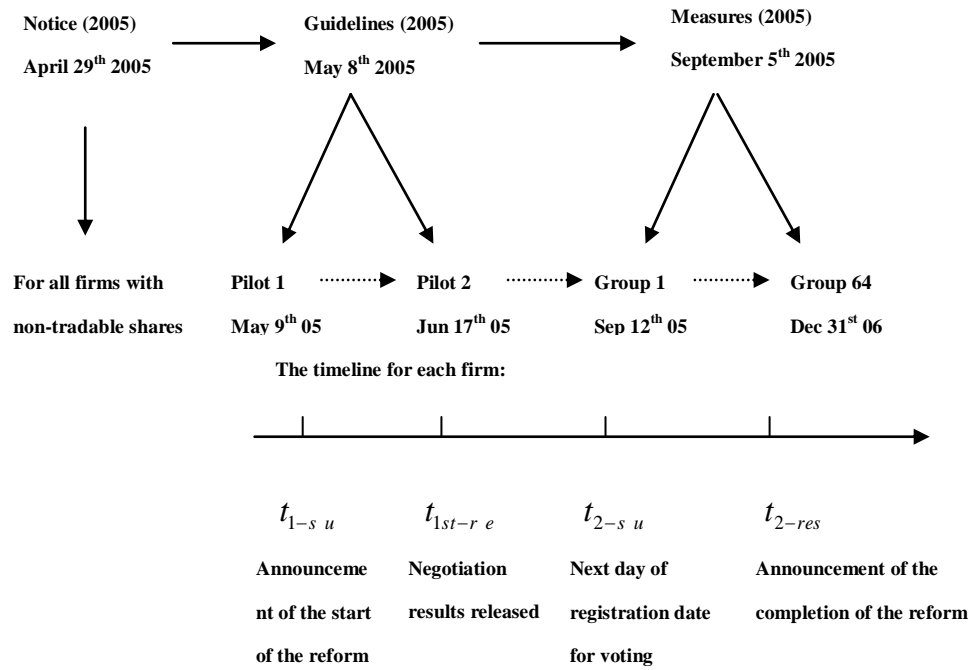


Figure 6.1 A collective picture of all the event dates in China's FCR

Actually the reform didn't cause any changes, from an accounting view, in the book value of a firm involved. Table 6.1 below demonstrates the Balance Sheets of a firm called Shenzhen Accord Pharmaceutical before and after the firm taking the reform.

This firm took 44 days to complete the reform. Initially the holders of NTAS planned to pay 0.25 share for per TAS held as released on the first suspension day, which was revised upwards to 0.3 share after the holders of NTAS and TAS negotiated over the terms in the reform proposal. In addition, the NTAS were banned from trading for the first 12 months and were permitted to sell no more than 5% / 10% in the next 12 / 24 months. The first suspension period lasted for 18 days, followed by a trial trading of 14 days. The second period took 22 days during which the finalised proposal was voted through in the shareholders' meeting held.

The holders of NTAS paid 16,465,680 shares (Consideration) to the holders of tradable shares, resulting in proportional change between the two categories of shares but the total equity kept intact. The non-tradable shares category was renamed as conditional tradable shares, and decreased by 9.23% after the reform. The tradable shares category was renamed as unconditional tradable shares, and increased by 15% after the reform. The total equity remained the same.

General information about Shenzhen Accord Pharmaceutical taking the reform:

Company Name: Shenzhen Accord Pharmaceutical Co., Ltd.

Code: 000028A/200028B

Start FCR (first suspension): 06/03/2006

First resumption: 23/03/2006

Next day of registration (second suspension) 06/04/2006

End FCR (second resumption): 28/04/2006

Original Consideration: 0.25/TAS

Revised Consideration: 0.3/TAS

Restriction on floatation:

- ♦ In compliance with regulations in Measures (2005)
 - ♦ Lock-up for the first 12 months (not sell any shares in the first 12 months from the end date of FCR)
 - ♦ Sell up to no more than 5% in the following 12 months.
 - ♦ Sell up to no more than 10% in the following 24 months.

BS SHEET

	Before taking the reform 12/31/2005	After taking the reform 12/31/2006
Total equity:	288,149,400.00	288,149,400.00

NOTES TO BS SHEET

By 12/31/2005 (Before taking the reform)			By 12/31/2006 (After taking the reform)	
Non-tradable shares		Consideration paid	Conditional tradable-shares	
State shares	124,864,740	-12,078,354	State shares	112,786,386
Legal person shares	53,513,460	-4,387,326	Legal person shares	49,126,134
Sub-total	178,378,200	-16,465,680	Sub-total	161,912,520
Tradable shares		Consideration received	Unconditional tradable-shares	
A share	54,885,600	16,465,680	A shares	71,351,280
B shares	54,885,600	0	B shares	54,885,600
Sub-total	109,771,200	16,465,680	Sub-total	126,236,880
Total	288,149,400	0	Total	288,149,400

Table 6.1 Comparisons of the Balance Sheets before and after the firm taking the reform

6.1.2 Event dates of interest

Macro-event dates

According to Figure 6.1, there are three macro event dates, the releases of Notice (2005), Guidelines (2005) and Measures (2005), which aim respectively at every firm with non-tradable shares, firms in pilot groups and rest of the firms.

The namelist of firms included in the pilot groups were not publicised in Guidelines (2005) therefore the market was uncertain about which firms would respond to this announcement. Due to the uncertainty over the interested firms, this macro event date is excluded from this event-study.

Group announcement of list of firms

In total, there are 66 groups including two pilots by the end of 2006. Each group is like a portfolio of several firms which volunteered to take the reform and then got through the scrutiny by the CSRC. The namelist of firms in the same group was then announced, informing the market these firms were approved by the CSRC to reform. The event dates are clustered for firms in the same group. There are 66 group event-dates.

Firm-specific (micro) event dates

Since each firm, at the firm-specific level, should undergo two suspension periods, which means two suspension dates should be excluded amid non-availability of data and two resumption dates should be investigated.

6.1.3 Event windows

As discussed in the literature, event window should be long enough to capture the significant effect of an event and at the same time effectively control for the confounding effects, but many empirical studies arbitrarily

defined their long event windows without further explanation (McWilliams and Siegel 1997).

Given China A-share markets (both in Shanghai and Shenzhen) are empirically more weak-form efficient in recent years than in early years (Li 2003a, 2003b, Zhang and Li 2008, Charles and Darne 2009), stocks on China stock markets are expected to efficiently respond to the events.

However confounding events are inevitable in the case of serial reforms. Table 4.2 shows that an average interval between groups are 5 working days, indicating an event window of (-5, +5) would involve confounding effects from two other group events. Especially when a firm averagely took about two months to complete a reform procedure, firms disclosed in groups within these two months would be meddling with each other frequently. Considering the noises from confounding events and weak-form efficient China stock markets, a short event-window is preferred.

Following Calomiris et al. (2010) and Lu et al. (2008), an event window of (-1, +1) is defined, subject to data availability.

For instance, the next day of Notice (2005) release was Saturday, 30th April 2005, followed with seven-day public holiday called Labours' Day from 1st May till 7th May. 8th May 2005 was Sunday. Therefore the next trading day after Notice (2005) issuance was 9th May 2005, which overlapped with the announcement of the first pilot group. Consequently the event window for Notice (2005) is (-1, 0).

Usually each firm in the group would suspend trading one day subsequent to the group event-date, announcing the start of its reform and publicising its initial proposal. As a result, an event window of (-1, 0) applies for group announcement except for the first pilot group whose day -1 relative to its

announcement (the previous trading day) overlapped with the release of Notice (2005). The event window for the first pilot group is only the event day 0, 9th May 2005.

There is no data available before the two firm-specific resumption dates; hence an event window of (0, +1) applies in this situation.

Event dates	Event window
Notice (2005) on Apr. 29 2005	(-1, 0)
Measures (2005) on Sep. 5 2005	(-1, +1)
Group event-dates	(-1, 0)
Two resumption dates	(0, +1)

Table 6.2 Summary of event dates and event windows

6.2 Hypotheses development

Table 6.2 shows the interested events in this study are the releases of Notice (2005) and Measures (2005), group announcement of list of companies, as well as 1st and 2nd firm-specific resumptions of trading. As shown in Figure 6.1, these events assemble into a complete reform process. In other words, reform-relevant information has been publicised step by step along the timeline of these events.

6.2.1 Release of Notice (2005)

Notice (2005) was announced on April 29 2005 which formally launched China's FCR for the first time to float non-tradable A shares held by the Government.

Notice (2005) proposed relevant issues in line with Opinions (2004), published by the State Council with focuses on stability and healthy growth of market and protection of the lawful rights and interests of public investors.

Particularly, Notice (2005) set out the timescale of an individual reform process which should include two suspension stages, one is negotiation stage during which the holders of TAS and NTAS confer with each other on the reform proposal, the other is voting stage during which the reform proposal on mutual agreement will be voted in the relevant shareholders' meeting. In addition, Notice (2005) granted the holders of TAS the equal weighted voting rights as the holders of NTAS and put on trading restrictions on the sale of Government shares after the reform.

As can be seen from the details in Notice (2005), it was designed to maintain the market stability and protect minority interests and thus expected to offset the oversupply price pressure.

Hypothesis 1: the average abnormal return is zero at the announcement of Notice (2005).

6.2.2 Release of Measures (2005)

Measures (2005) was announced on Sep 5 2005 and the first official document providing details about the implementation of NTAS reform. The program followed the principles established in the pilot reform.

It decentralised decision making at the firm level, by allowing shareholders to bargain over the method and terms of the compensation. Furthermore, it safeguarded the interests of TAS holders by seeking no less than two thirds of the votes from the TAS owners, compensating them for the estimated loss due to the reform, diluted the risks by introducing a series of announcements dates, and prevented market slump by banning any sale of NTAS in the 12 months and restricting the issue size in the following 24 months.

In general, there is nothing new at this announcement but it summaries the pilot program and uses it as a best practice, with an aim to maintain the

market stability and protect the minority interests. This effort by the CSRC may have a positive impact on the market.

Hypothesis 2: the average abnormal return is positive at the announcement of Measures (2005).

6.2.3 Group-specific announcement

The reform process was gradual and took place in orderly groups. Each group-specific announcement disclosed its respective namelist of companies, which was decided in two steps.

First the stock exchanges set a deadline to accept reform proposals from companies wishing to participate. Next the stock exchanges examined all the applying firms and crossed out those they thought had problems. The selection standards may vary with the outlook into the future, and were adjusted all the time.

The selection process indicates that the companies in the name list were self-confident that they were well prepared for the reform, which was confirmed by the stock exchanges which carried out scrutiny of the submitting firms and assessed the feasibilities of their proposals.

Hypothesis 3: the abnormal return is positive at group-specific announcement.

6.2.4 The first resumption of trading

The trading in the shares of the stock was immediately suspended on the day when the board of directors publicised the reform proposal, including date of the shareholders' meeting, a description of the reform proposal as well as the opinions of the recommending institution and the law firm.

Within 10 days after the announcement, the board of directors should assist the owners of NTAS in adequately communicating and negotiating with the holder of TAS of A-share market by such approaches as hosting an investor symposium, a press conference or an online road show, paying a visit to institutional investors and issuing a consultation paper and so on. In addition, the board of directors of the listed company publicly should disclose its hotline, facsimile and e-mail address in order to widely solicit opinions from tradable shareholders so as to lay a broad shareholder foundation for the reform plan.

If the proposal was acceptable to both parties, an announcement of consensus would be made and trading resumed. Once trading resumed the proposal couldn't be further modified.

As the results disclosed with the 1st trading resumption should reflect a mutual agreement between the holders of TAS and NTAS, there should be no surprise from the market and therefore no abnormal returns is predicted assuming a high rate of participation from the public investors.

Hypothesis 4: the abnormal return on the 1st resumption day is zero.

6.2.5 The second resumption of trading

When the shareholders' meeting was approaching as scheduled, the registration process started for the shareholders' meeting. And trading was suspended the next day of registration for the second time.

Then the shareholders' meeting was held. The proposal was voted and had to win a majority of two thirds of votes from the TAS and NTAS owners respectively. The board must publicise the voting results within 2 working days. If the proposal was accepted, the board should also publicly release the timetable for actual implementation of the reform. Trading was restarted

after the shareholder meeting ratifying the completion of the reform. If the proposal was not approved the board should apply for extension of suspension of the listed company's shares from the next day of the announcement. The holders of NTAS of a listed company may redo the reform procedures from the very start but have to wait for at least three months. Only firms succeeded could resume trading.

The completion of the reform indicates (1) the consideration would be paid soon and (2) the reform is successfully implemented.

The bonus shares offered would effectively increase the number of tradable shares and with all other things remaining the same, the stock price would fall, like in a stock split. The other types of Consideration payment, such as cash or warrants, can be converted to equivalents in bonus shares based on Table 6.6 and could cause similar price fall. Furthermore, as implied in the price behavior on ex-dividend day, it has been widely observed that the price would drop by approximately the amount of dividend, which strongly suggests that the price at the 2nd resumption of trading is expected to drop by the amount of Consideration, like the price-drop on ex-dividend day.

This decline in return may be reduced by the positive effect from the good news of successful completion implied on the 2nd resumption day.

Hypothesis 5: the abnormal return on the 2nd resumption day is negative.

6.3 Sample selection

After identifying the event of interest, it is necessary to determine the selection criteria for the inclusion of a given firm in the study.

As reported in the China Securities Journal, 1305 out of the 1,345 target companies had been successfully restructured within 66 groups including two pilots. No subsequent group was announced. In fact all the firms at least

tried once to implement the reform. Those which failed the first time may come back and start a new round to restructure. However the rest 40 firms were actually very tough ones and considered outliers. Some of them even haven't succeeded by now.

An initial sample consists of 840 companies which successfully completed their reforms with 66 groups and have available data on the reform from Sina Finance, trading and market data from DataStream and corporate information from Resset Database. Sina Finance records the process and operation of China Full-Circulation Reform at firm-level, including reform proposal, critical dates and other details in implementation. Resset Database is a high standard China-based financial research database where firm characteristics information is constructed in a standardised format.

6.3.1 Selection criteria

However the initial data is reduced down to 599 companies for the following reasons:

- Firms that were aged or listed less than two years till April 29 2005 are deleted because the data processing in an event-study requires at least two years of consistent data prior to China FCR. The two years are essential to estimate the normal returns if without the reform, which are discussed in details later in this chapter.
- Firms back-door listed⁴⁷ within two years prior to the announcements of FCR are withdrawn. Back-listing replaces a listed firm with a new entry. The data of the replacee firm has little connection with that of the replacing firm other than the listing code. In other words, a firm newly

⁴⁷ A back-door listing company is seeking listing on exchanges by acquiring an already listed company. A back-door listed company may alter the core business of the previous one and thus lead to a discontinuity and inconsistency in firm data.

back-door listed is no different from a firm newly-listed except that the former inherits an already-existent listing code while the later is allocated a new code. Therefore a back-listing history within two years indicates no consistent data is available.

- Exceptional firms that didn't conform to a general FCR prospectus are removed. For example, firms that invented a new paying method of Consideration, not included in any of above introduced, are deleted. And firms which paid Consideration to TAS holders for NTAS holders are disposed as well.

The eventual sample consisted of 599 companies.

6.3.2 *Sample summary*

Before the reform, there are in total 1345 firms with non-tradable shares, 60.78% listed on SHSE and 39.33% listed on SZSE. In the sample, there are 193 (32.22%) companies listed on SZSE and 406 (67.78%) on SHSE, approximately resembling the total population in terms of the ratio of number of firms listed on each stock market. The most distinct differences between two stock exchanges are the relative size and the characteristics of listed companies of two exchanges. While most companies listed on the SHSE are large and state-owned, those on the SZSE are small, joint ventures and export-oriented. The market capitalization of the SHSE is nearly 3 times larger than the SZSE. According to Liu (2010), development speed of SZSE is faster than that of SHSE. Average P/E ratio of SZSE is little higher than that of SHSE.

My sample has an overwhelming number of 550 (91.82%) companies issuing A shares only, a minority of 34 firms issuing both A and B shares and 15 firms cross-listed on HKSE issuing both A and H shares. China

domestic A-share markets are segmented from the B- and H-share markets due to significant price discrimination. But companies issuing both A and B shares or A and H shares are required to provide financial and accounting information under International Financial Reporting Standards in addition to domestic GAAP, indicating more transparency in information disclosure and closer relationship with international markets for domestically dual-listed China firms.

	SZSE	SHSE	Total
A	171	379	550
A&B	18	16	34
A&H	4	11	15
Total	193	406	599

Table 6.3 Sample data by listing venues and share-types

A proportion of 58.59% sample companies belong to the manufacturing industry, indicating China manufacturing companies, most of which are carried forward from the planned economy, played a key role in this reform. The second and third largest industries are real estate and IT industries, accounting for 6.51% and 6.34% of the total sample. These two industries were inexistent in the planned economy and have been developing quickly recently due to the internet bubble and the housing boom in the past decade. The proportions of other industries vary from 0.5% to 5.18%.

Four financial firms are included in my sample although it is common practice in many empirical studies in finance to exclude financial services firms from the samples used in different stages of the analysis due to the relatively high debt levels and other unique features, like in Firth (2010). Foerster and Sapp (2004) found that excluding financial service firms from empirical asset pricing tests could impact the corresponding inferences. It may influence both the identification of the number of risk factors found to

be significant and the corresponding betas. Consequently, exclusion of financial firms may misrepresent a full picture of China's FCR.

Code of Industry Classification (1st level)	Name of Industry Classification	Total	Proportion
I	Farming, Forestry, Animal Husbandry And Fishery	3	0.50%
II	Mining And Quarrying	11	1.84%
III	Manufacturing	351	58.60%
IV	Production & Supply Of Power, Gas & Water	31	5.18%
V	Construction	13	2.17%
VI	Transportation, Storage	26	4.34%
VII	Information Technology Industry	38	6.34%
VIII	Wholesale And Retail Trades	28	4.67%
IX	Finance, Insurance	4	0.67%
X	Real Estate	39	6.51%
XI	Social Services	18	3.01%
XII	Transmitting, Culture Industry	4	0.67%
XIII	Integrated	33	5.51%
Total		599	

Table 6.4 Sample data by industries

One of the most remarkable features of China's FCR is the introducing of Consideration, which aimed to inducing the minority holders of TAS to hold the shares by offering them proportional bonus so as to maintain the tradable A-share market. While paying consideration was a common feature of the reform, there was some variety in the type of consideration; variously, individual companies used shares, cash, warrants, or any combination of these methods. There is no compelling evidence to suggest that a particular type of consideration is superior over the other, as holders of tradable shares have different investment preferences and tax positions (Lu, 2008).

Table 6.5 provides a detailed breakdown of different Consideration methods employed in the reform. A percentage of 73.29% companies of my sample

opted to pay bonus shares as the sole Consideration, 15.36% chose to pay shares out of the recapitalised earnings as the sole Consideration and 9.36% went for combinations. Only 6 cases selected to pay cash as the sole Consideration and 1 case to issue free warrants as the sole Consideration. However 25 more companies included cash payment in their combination plan of Consideration and 14 more included warrants. Paying shares effectively reduced the holding of non-tradable shares, while paying cash didn't cause any change in the ownership. The distribution of Consideration methods is representative of the overall picture as Li et al. (2011) presented a similar breakdown with a larger sample size of 1107 companies (Table 1 Panel A, Li et al. 2011).

Consideration Plan		Total	%	Average raw Consideration Size
Shares Transfer (ST) only		439	73.46%	0.307 share per TAS
Cash Payment (CP) only		6	1.00%	¥1.1 (≈ £0.073) per TAS
Recapitalisation Issues (RI) only		92	15.19%	0.58 share per TAS
Put/Call Warrant Issues (P/C) only		1	0.17%	0.8 share per TAS
Share Split (SS) only		5	0.83%	0.63 share per NTAS
Combinations	Total	56	9.36%	N/A
	CP + P/C +ST	1	0.17%	N/A
	CP +ST	27	4.51%	N/A
	CP+RI	1	0.17%	N/A
	RI+ P/C	3	0.50%	N/A
	RI+ST	14	2.34%	N/A
	P/C +ST	10	1.67%	N/A
Total		599		

Table 6.5 Data by Consideration method

Firth et al (2010) focused on firms that have offered shares as the sole Consideration to compensate TAS holders to ensure the comparability of compensation across firms and avoid the potential confounding effects that arose from the conversion and aggregation of different forms of compensation.

Li et al. (2011) modeled Consideration levels as the outcome of a bargaining process for his sample so as to make Considerations under different methods comparable and robust checked with Considerations constructed from WIND, a well-known data provider in China. However Consideration is adjusted through the bargaining process but determinate by the estimated market loss for the holder of TAS. Hou (2010) corrected this mistake and solved the implied value of Considerations and used a common proxy so as to compare different types of Considerations. The Consideration levels are reconciled and constructed following Hou (2010). For instance, Considerations for Share Transfer type and Cash Payment type are evaluated respectively as $C_{ST} = \frac{(P_{pre} - P_{post})}{P_{post}} = \frac{P_{pre}}{P_{post}} - 1$ and $C_{CP} = P_{pre} - P_{post}$, the derivation processes of which have been illustrated in Chapter 4 (4.2.8). C_{CP} can be converted into equivalent shares offered as $C_{CP \rightarrow ST} = \frac{C_{CP}}{P_{post}}$. Equivalent Consideration under share transfer type is used as the common proxy to compare different types of Considerations. Table 6.6 summarises the valuation of Consideration of different types and the equivalents shares offered. The common proxy is denoted as C'_{ST} . The estimated post-market prices and maturity prices (P_{post} and $P_{at-maturity}$), the strike prices of warrants (K_{PWT} and K_{CWT}), the number of recapitalisation issues proportionally allocated to the holder of TAS (T_{RT}), as well as the share split ratio (R_{SS}) are provided in the reform proposals and available from Sina Finance.

Consideration Plan	Consideration Valuation	Equivalent shares offered
Shares Transfer (ST)	$C_{ST} = \frac{P_{pre} - P_{post}}{P_{post}}$	$C'_{ST} = C_{ST}$
Recapitalisation Issues (RI)	$C_{RI} = \frac{P_{pre}}{P_{post}} - \frac{T_{RT}}{T}$	$C'_{ST} = C_{RI} / \left(\frac{T_{RT} + T}{T} \right)$
Share Split (SS)	$C_{SS} = \frac{P_{pre}}{P_{post}} - \frac{1}{R_{SS}}$	$C'_{ST} = C_{SS} / R_{SS}$
Cash Payment (CP)	$C_{CP} = P_{pre} - P_{post}$	$C'_{ST} = C_{CP} / P_{post}$
Put Warrant Issues (PWT)	$C_{PWT} = \frac{P_{pre} - P_{at-maturity}}{K_{PWT} - P_{at-maturity}}$ if exercised	$C'_{ST} = C_{PWT}$
Call Warrant Issues (CWT)	$C_{CWT} = \frac{P_{pre} - P_{at-maturity}}{P_{at-maturity} - K_{PWT}}$ if exercised	$C'_{ST} = C_{CWT}$

Table 6.6 Conversion of Considerations of different type into equivalent shares offered

In the sample, there are 27 firms which failed at the 1st attempt and had to join in a later group to complete the reform. They are labeled with the final group number in which they succeeded. In this sense, they are not double-counted in the sample. Table 4.3 summarises how many times these firms failed.

Some of the firms renewed efforts after failure within a month but many others took several months to prepare for another go. The average preparation time is 5 months and the maximum is 9 and half months. Firms in earlier groups seem to prepare longer for a come-back than those in later groups.

6.4 Benchmark models of normal returns

Basically event study aims to assess whether there are any abnormal returns earned by security holders accompanying specific events where an abnormal return is the difference between observed return and expected return.

Expected returns are estimated over a time period surrounding the event day using a return generating model. This time period selected is called estimation period.

In this sector, various return generating models are discussed and a most suitable model will be suggested. Later on in this chapter, the estimation period will be defined in the China context.

To appraise the event's impact a measure of the abnormal return is required.

The abnormal return is the actual ex post return of the security over the event window minus the normal return of the firm over the event window.

The normal return is defined as the return that would be expected if the event did not take place: $\varepsilon_{it} = R_{it} - E(R_{it})$, where ε_{it} , R_{it} , $E(R_{it})$ are the abnormal, actual, and normal returns, respectively, for time period t .

A number of approaches are available to calculate the normal return of a given security and then to generate abnormal returns. Abnormal returns have been measured as (1) mean-adjusted returns (2) market-adjusted returns, (3) OLS market mode: deviations (prediction errors) from the market model, (4) deviations from the one factor Capital Asset Pricing Model (CAPM) or (5) deviations from a multifactor model, such as the Arbitrage Pricing Theory (APT). This section analyzes and appraises these various models.

6.4.1 Mean-adjusted model

Mean-adjusted returns are calculated by subtracting the average return for stock i during the estimation period from the stock's return during the event period. This method does not explicitly control for the risk of the stock or the return on the market portfolio during the event period.

$\varepsilon_i = R_{it} - K_i$ where ε_i is the abnormal return for security i with an expectation of zero and variance $\sigma^2(\varepsilon_i)$, and K_i is the average return for stock during the estimation period.

Although the mean-return model is perhaps the simplest model, Brown and Warner (1980, 1985) found it no worse than those more sophisticated models in terms of the results produced, indicating the variance of the abnormal return is frequently not reduced much by choosing a more sophisticated model. However in the presence of cross-sectional dependence, they found mean-adjusted abnormal returns showed a downward-biased estimated standard deviation, which were not found in other models, indicating the alternative models controlled the cross-sectional dependence from the economy wide influences on security returns.

Chandra, Moriarty and Willinger (1990) argued that the relatively strong performance of the mean-adjusted return and the seemingly powerful test without controlling for cross-sectional dependence were a statistical artifact, as Brown and Warner used different test statistics for the methods being compared. They re-examined the Brown and Warner results and found that tests with the mean-adjusted return were less powerful than tests with market-adjusted and market model abnormal return estimates and there was no evidence of an increase in power from ignoring cross-sectional dependence when the same statistical test as used in each case.

6.4.2 *Market-adjusted returns*

Latane and Jones (1979) assumed that the expected return at time t was the market return at the same time. The market-adjusted return was then calculated by subtracting the market return R_{m_t} from R_{it} : $\varepsilon_{it} = R_{it} - R_{m_t}$.

The market-adjusted return model can be viewed as a restricted market model with α_i constrained to be zero and β_i constrained to be one.

Because the model coefficients are pre-specified, an estimation period is not required to obtain parameter estimates. MacKinlay (1997) and Binder (1998) both suggested considering the possibility of biases arising from the imposition of the restrictions.

6.4.3 *OLS Market model*

The market model is a statistical model which relates the return of any given security to the return of the market portfolio: $\varepsilon_{it} = R_{it} - \alpha_i - \beta_i R_{m_t}$ where ε_{it} is the zero mean disturbance term.

Parameters are estimated using an estimation period sample with OLS regression. The parameter estimates and the event period stock and market index returns are then used to estimate the abnormal returns. This method controls for the risk (market factor beta) of the stock and the movement of the market during the event period. According to Campell et al. (1997), the variance of the abnormal return using the market model is theoretically less than or equal to the abnormal return variance using the mean-adjusted model, dependent on R^2 statistic. The higher R^2 is, the lower variance for the market model, which will carry over into all the aggregate abnormal return measures. As a result, using the market model can lead to more precise inferences.

In some instances there are problems with parameter estimation, for example, the occurrence of confounding events during the estimation period.

For the statistical model, the assumptions that asset returns are jointly multivariate normal, independently and identically distributed through time, and cross-sectionally independent across securities, are imposed. While the assumptions are strong, inferences using the normal return models tend to be robust to deviations from some of the assumptions (Brown and Warner 1980, 1985) and a proper modification of estimator of residual variance in the statistic tests, from the analysis point of view, can help to correct the problems of violation of assumptions (Brown and Warner 1980, 1985, Mikkleson and Partch 1988, Boehmer et al. 1991, Corrado 1989, Corrado and Zivney 1992).

Since FFJR (1969), the OLS market model has been widely accepted in event studies to estimate normal return and abnormal return, such as Mikkleson and Partch (1984,1986), Loderer et al. (1991), Errunza and Miller (2003) etc.

6.4.4 Capital Asset Pricing Model

The CAPM is an economic model which cast restrictions on the statistical models to provide more constrained normal return models. The CAPM is an equilibrium theory where the expected return of a given asset is determined by its covariance with the market portfolio.

The use of the CAPM is common in event studies of the 1970s. However, deviations from the CAPM have been discovered, implying that the validity of the restrictions imposed by the CAPM on the market model is questionable (Fama et al. 1996). This has introduced the possibility that the

results of the studies may be sensitive to the specific CAPM restrictions. Because this potential for sensitivity can be avoided at little cost by using the market model, the use of the CAPM has almost ceased (MacKinlay 1997).

6.4.5 Arbitrage pricing theory

The APT due to Stephen Ross (1976) is an asset pricing theory where the expected return of a given asset is a linear combination of multiple risk factors. A general finding is that with the APT the most important factor behaves like a market factor and additional factors add relatively little explanatory power (Brown and Weinstein 1985). Thus the gains from using an APT motivated model versus the market model are small.

6.4.6 Other factor models

The market model is an example of a one factor model, motivated by the benefits of reducing the variance of the abnormal return by explaining more of the variation in the normal return.

Another variant of a factor model is a procedure which calculates the abnormal return by taking the difference between the actual return and a portfolio of firms of similar size, where size is measured by market value of equity. In this approach typically ten size groups are considered and the loading on the size portfolios is restricted to unity. This procedure implicitly assumes that expected return is directly related to market value of equity. Other multifactor models may include industry indexes in addition to the market. The variance reduction will typically be greatest in cases where the sample firms have a common characteristic, for example they are all members of one industry or they are all firms concentrated in one market capitalization group (MacKinlay 1997).

Brown and Warner (1980, 1985) found that beyond a simple, one-factor market model, there was no evidence that more complicated methodologies conveyed any benefit. Ahern (2009) also reported that the use of multifactor models did not decrease the forecast error bias compared to simpler methods.

6.5 Measuring abnormal returns

The preceding discussion indicates that when a large sample of unrelated securities is used or the event dates are not clustered in calendar time, the OLS market model estimator of the average abnormal return is generally unbiased and under these conditions the market model estimator also appears to be efficient (Binder 1998). Even if some of the assumptions are not met, statistical techniques can be employed to handle the violations and improve hypothesis testing.

In this study, the OLS market model is used as normal return model to predict abnormal returns, consistent with the majority event studies in the literature.

$\varepsilon_{it} = R_{it} - \alpha_i - \beta_i R_{mt}$, where α_i and β_i were the OLS values (parameters) from the estimation period of security i , R_{it} is the return of security i at time t , R_{mt} is the corresponding market return at time t and ε_{it} is the zero mean disturbance term (abnormal return).

6.5.1 China stock market efficiency

Early studies based on early samples tend to reject the null that weak-form EMH holds for China A-share markets. On the other hand, recent studies including more recent data tend to support the weak-form efficiency in China A-share markets or present a pattern of becoming more and more

efficient over time (Lima and Tabak 2004, Zhang and Li 2008, Charles and Darne 2009). In this sense, the market model is appropriate to use for study of the stock prices responding to events on China stock markets.

6.5.2 A-share market index

The sample companies are listed either in Shanghai or Shenzhen stock exchanges.

The Shanghai Securities Exchange Index is a value-weighted average market-capitalization index (Lee et al. 2001). The Shanghai Stock Exchange share price index series are divided into 4 categories in 13 different indices. Among them, the SHSE Composite Index, SHSE 180 Index, SHSE A-Share and SHSE B-Share Index are the most important ones. SHSE Composite is the earliest compiled, which comprise all A-share and B-share companies listed on the SHSE. Components of SHSE 180 Index are 180 stocks selected from the most representative stocks from A-share pool. SHSE A-Share Index includes all A-share companies, while B-Share Index consists of all B-share companies listed on the exchange.

The Shenzhen Securities Exchange Index is also a value-weighted average market-capitalization index (Lee et al. 2001). The SZSE publishes 10 different indices. On the SZSE, the main indices are the SZSE Composite Index, SZSE Component Index; SZSE A-Share Index; and SZSE B-share Index. They are basically similar to the indices on the SHSE.

It has been suggested that a broad-based stock index was used for the market portfolio (FFJR 1969, Binder 1998). Therefore SHSE A-Share Index and SZSE A-Share Index are selected for firms listed in SHSE and SZSE respectively.

Brown and Warner (1980) found that event study tests based on a market model using a value weight index were misspecified. Based on Asia-Pacific financial market returns data, Corrado and Truong (2008) found that the use of an equal weight index to compute market model excess returns provided better test specification than use of a value weight index. However the index on China stock markets is value-weighted, indicating the results may be biased to some extent.

6.5.3 *Arithmetic Returns*

Market indexes are universally calculated from arithmetic returns, so are the index on China stock markets. To avoid a compatibility issue arising from the use of logarithmic returns of individual firms in a market model based on market indexes constructed from arithmetic returns, the arithmetic return is applied.

The security return for firm i is computed as a ratio of the security price

on day t in relation to the security price on day $t-1$:
$$R_{it} = \frac{P_t - P_{t-1}}{P_{t-1}}.$$

With a sample size of 599 companies, there are 599 sets of security returns.

The advantage of using log returns in some cases, for example in FFJR (1969), is that the log returns are expected to be symmetrically distributed, which is consistent with the normality assumption underlying the statistic normal return model.

However Ball and Brown (1968) tested on both simple return and logarithm return and found the results were quite close. Brown and Warner (1985) found nonnormality of the individual abnormal return estimators had little impact on the results.

Kothari and Warner (1997) and Barber and Lyon (1997) showed that log returns were negatively skewed and highly peaked, indicating normality was not achieved with log returns. Corrado and Trung (2008), with data on Asian-Pacific markets from 1994 – 2006, reported the arithmetic / log returns from all return populations were positively / negatively skewed and highly peaked. Specifically, they reported that on China SHSE the arithmetic / log returns had a skewness of 0.35 / -0.2 and a kurtosis of 16.11 / 15.92 and on China SZSE the arithmetic / log returns had a skewness of 0.35 / -0.25 and a kurtosis of 18.34 / 17.93. Both arithmetic returns and log returns on China stock markets are basically non-normal distributed, indicating the advantage of using log returns vanished.

Furthermore the majority of event studies used arithmetic returns rather than log returns when calculating abnormal return with the market model (Binder 1998).

6.5.4 Estimation period

Once a normal performance model has been selected, the parameters of the model must be estimated using a subset of the data known as the estimation window. Defining a proper estimation period usually brings up three questions: (1) how many days are included in the estimation period; (2) which side relative to the event window, pre-event or post-event, generates the estimation period; and (3) how to remove the possible noise from confounding events in the estimation period?

Length of estimation period

There is no consensus on an optimal length of estimation period in the literature of event studies. Actually in event studies using daily data, the choice of estimation period was somewhat arbitrary (Aktas 2007). By convention, the preference of estimation period usually includes one year

(around 240 trading days), such as from day -245 till day -6 relative to the event day (Ball and Brown 1980, 1985), the year ending 50 days before the event (Fama and French 1993), from day -250 till day -21 prior to the event (MacKinlay 1997), from day -250 to day -51 (Pojezny 2006), from day -250 to day -30 (Atkas 2007), from day -244 to day -6 (Ahern 2009), from day -200 to day -3 (Huang and Chang 2009) etc..

Another line of literature on beta estimates has been discussing the beta stationarity associated estimation period length.

Baesel (1974) depicted the stationarity of individual beta as an increasing function of the estimation period length. Roenfeldt et al. (1978) investigated the effect varying the length of the second sub-period on the stability of individual security betas and found 4-year period estimation period was most reliable. Theobald (1981) showed that beta stationarity increased with the calendar period length but did not increase indefinitely. He suggested an optimal estimation period of 180 to 210 months for U.K. monthly data. Daves et al. (2000) concluded that a much shorter estimation period of two to three years was more appropriate for financial managers to use when estimating beta with daily returns. Diacogiannis and Marki (2008) showed that the utilization of an estimation period of three years captured most of the maximum reduction in the standard error of beta estimated as compared to other periods with Athens stocks. With China daily data, Xia et al. (2006) found that the mean of beta was the closest to 1 for an estimation period from 1.5 to 2 years starting from 1.5 years after the interested event. The smallest standard deviation came with an estimation window of 2 years starting from 6 weeks after the interested event. Their results suggested an estimation period of 2 years.

In this study, the estimation period will arbitrarily take 2 years, a moderate period between the requirement of beta stationarity and the conventional preference of estimation period in event studies.

Pre-event estimation period

The most common choice, when feasible, is to use the period prior to the event window for the estimation window (Ball and Brown 1980, 1985, Corrado and Zivney 1992, Boehmer et al. 1991, MacKinlay 1997, Cowan and Sergeant 1996, Aktas 2007 etc.).

In case when there is a step change in beta due to the event, abnormal returns can be calculated with a beta estimated from data following the event (Mandelker 1974). The application of post-event estimation period has typically been done in limited circumstances and generally for long run studies using monthly data (Edmister et al. 1996, Agrawal et al. 1992 and Gregory 1997). Pojezny (2006) found there was significant difference between pre- and post-event estimation period, but the bias in results was insignificant according to short event window, indicating there is no point of using post-event estimation period if the estimation period is relatively long to the event period.

This study uses daily returns and focuses on short event window of no more than three days, which is sufficiently short relative to a 2-year estimation period. Therefore, pre-event estimation period will be applied, which is also consistent with most of the event studies.

Neutralising the risks of information leakage

Considering the impact of information leakages (or rumours) before the announcement, a short period, Aktas et al. (2007) suggested 30 days can usually be excluded between the end of the estimation period and the beginning of the event period to neutralize the impact.

Before the formal launch of China's FCR, Dr. Shang Fulin, Chairman of CSRC, frequently gave public speeches as well as held meetings and discussions with relevant important parties. There are risks of information leakage and therefore 30 days prior to the event day are excluded, following Aktas (2007).

Uniform estimation period

Although my sample consists of 599 companies, a uniform estimation period is applied for all of the sample companies for the following reasons.

- A chaos of confounding events

The sample companies staged reform in 66 groups spanning from May 9th 2005 to Dec 31st 2006. Firms arranged in the same groups started reform around the same time. The time interval between groups is 5 trading days. In the sample, averagely 45 trading days were taken to complete an individual reform process, sufficiently long to allow another 9 groups to announce reforms. If various estimation periods relative to various groups of firms were applied, there would be great chances that previous reform announcements, at group- and firm-specific level, are included. This overlapping would contaminate the estimation periods and lead to beta estimates less meaningful because reform announcements of firms in previous groups would simultaneously affect concurrent security prices of firms in subsequent groups. If these price movements due to earlier announcements were included in the estimation periods for the subsequent groups of firms, the beta estimations for them would be biased and the variance of residuals would be overestimated, leading to a downward bias in the significance test.

This kind of contamination in estimation period was also highlighted in Fuller et al. (2002), which also argued earlier takeover attempts would be included in the estimation period of acquisitions and hence bias beta estimations.

Previous studies have documented intra-industry information transfer between announcing and non-announcing firms in various settings such as earnings announcements (Foster 1981, Freeman and Tse 1992), management forecasts (Han et al. 1989), sales announcements (Olsen and Dietrich 1985), bankruptcy announcements (Lang and Stulz 1992), bond rating adjustment (Akhigbe et al. 1997), dividend change announcement (Firth 1996), security offerings (Szewczyk 1992) and stock split announcement (Tawatnuntachai and D'Mello 2002). In the scenario of China's FCR, those results suggest that earlier reform announcements of firms could convey information about key elements in the reform proposal and process for other firms within the same industry, synchronously affecting their security prices at that time.

Prior research has also suggested that large firms' reactions to common information lead those of small firms (Lo and MacKinlay 1990, Brennan et al. 1993), large announcing firms contain useful information to non-announcing firms (Asthanta and Mishra 2001), and announcing firm's financial reporting signal is useful in assessing the stock prices of non-announcing firms in the business affiliate (Huang and Chang 2009), such as cross-shareholding of listed firms, which is a very common practice among China listed firms (Guo and Yakura 2009). In the scenario of China's FCR, those results suggest that information transfer between firms in earlier groups and later groups vary across size and degree of mutual relationship, indicating it's difficult to measure these complicated effects.

Furthermore, the initial launch of China's FCR on April 29 2005, as well as other macro event dates, would be included if various estimation periods relative to various groups of firms were applied.

- No superior solutions

A natural solution is removing these confounding events to eliminate the contamination effects. Thompson (1988) removed individual firm events occurring during the estimation period on case by case basis. However this operation is impractical for a large sample size.

Aktas et al. (2007) introduced a two-state market model, one corresponding to a low variance regime, and the other to a high variance regime. According to them, this model took into account the probability of the occurrence of contaminating firm-specific events in the estimation period. Firstly this method didn't account for effects from other firms announcing in the estimation period. Secondly there is no definite evidence this method is superior in handling contamination from own announcements in the estimation period. Klein et al. (2009) reported similar results with constant mean model and two-state market model, indicating this sophisticated method were not superior over a simple model in the presence of contaminated estimation period.

- Summary

There would be a complex of confounding events within an estimation period if various estimation periods relative to various groups of firms were applied, which would eventually lead to biases in parameter estimations. Removing the confounding events on a case by case basis is unrealistic in this study due to a large sample size and difficulty in

defining the complicated effects from announcements made by other firm.

Therefore a uniform estimation period is proposed for all the sample companies, which covers two years from Mar 31st 2003 to Mar 31st 2005, 30 days before the formal launch of China's FCR on Apr 29 2005. This uniform estimation period is relatively clean.

One common concern is later groups of firms are more distant from the uniform estimation period than earlier groups of firms. For example, the last group of firms announced reform at the end of 2006, 14 months after the estimation period. Would this distance affect the beta estimations for later groups? Actually the period of 14 months are knowingly subjective to recursive effects from other firms, which would probably affect beta stability for firms in the last group. Comparatively speaking, the beta obtained from a moderately distant but relatively clean estimation period is more likely to meet the requirement of beta stationarity, which is essential to get better estimate of beta. Also Xia et al. (2006), with China daily data, showed that the standard deviation of beta mostly depended upon the length of estimation period, irrespective of the distance between the estimation period and the event day. The longest estimation period tested by them contained 480 trading days (almost 2 years) and showed small standard deviation of beta, even if the distance between the estimation period and the event day was 360 trading days.

Therefore, a uniform estimation period of 2 years and free of noises is supposed to produce stable beta estimates for all the sample companies.

6.5.5 Aggregation of abnormal returns

The abnormal return observations must be aggregated in order to draw overall inferences for the event of interest. The aggregation is along two dimensions-through time and across securities.

Aggregation through time

The cumulative abnormal return is introduced to accommodate multiple sampling intervals within the event window (Campbell et al. 1997).

Define CAR_{i,t_1-t_2} as the cumulative abnormal return for security i from t_1

to t_2 where $t_1 < t_2$, then $CAR_{i(t_1-t_2)} = \sum_{t_1}^{t_2} \varepsilon_{it}$.

Aggregation across securities and through time

To aggregate across securities and through time, it's assumed that there is not any correlation across the abnormal returns of different securities.

Given a sample of N securities, the individual securities' abnormal

returns can be averaged as: $\bar{\varepsilon}_t = \frac{1}{N} \sum_1^N \varepsilon_{it}$ where $\bar{\varepsilon}_t$ is the sample average of

the N abnormal return on day t .

Then this sample average can be aggregated through time using the same

approach for an individual security. Define $\overline{CAR}_{(t_1-t_2)}$ as the cumulative

average abnormal return from t_1 to t_2 where $t_1 < t_2$, then

$$\overline{CAR}_{(t_1-t_2)} = \sum_{t_1}^{t_2} \bar{\varepsilon}_t.$$

Referring to Table 6.2 which summarises the event windows for interested event dates, here are the average cumulative abnormal returns for each event date:

Event dates	Event window
Notice (2005) on Apr. 29 2005	$\overline{CAR}_{(-1,+1)} = \sum_{-1}^0 \frac{1}{N} \sum_1^N \varepsilon_{it}$
Measures (2005) on Sep. 5 2005	$\overline{CAR}_{(-1,+1)} = \sum_{-1}^{+1} \frac{1}{N} \sum_1^N \varepsilon_{it}$
Group event-dates	$\overline{CAR}_{(-1,0)} = \sum_{-1}^0 \frac{1}{N} \sum_1^N \varepsilon_{it}$
Two resumption dates	$\overline{CAR}_{(0,+1)} = \sum_0^{+1} \frac{1}{N} \sum_1^N \varepsilon_{it}$

Table 6.7 Summary of cumulative abnormal returns

6.6 Hypotheses Testing

There are five hypotheses defined for each interested event.

Hypothesis 1: the average abnormal return is zero at the announcement of Notice (2005).

Accordingly, the null is the abnormal return is zero at the announcement of Notice (2005) ($AR_{Notice} = 0$) and the alternative is the abnormal return is larger than zero ($AR_{Notice} > 0$). This is one-tailed test. The critical region is under the right tail of the probability density curve (for a continuous distribution) of the test statistic.

Not rejecting the null is supportive of Hypothesis 1.

Hypothesis 2: the average abnormal return is positive at the announcement of Measures (2005).

The null is the abnormal return is zero at the announcement of Measures (2005) ($AR_{Measures} = 0$) and the alternative is the abnormal return is not larger than zero ($AR_{Measures} > 0$). This is one-sided test.

Rejecting the null is supportive of Hypothesis 2.

Hypothesis 3: the abnormal return is positive at group-specific announcement.

The null is the abnormal return is zero at the group announcement of name list of firms ($AR_{Group} = 0$) and the alternative is the abnormal return is not equal to zero ($AR_{Group} > 0$). This is one-sided test.

Rejecting the null is consistent with Hypothesis 3.

Hypothesis 4: the abnormal return on the 1st resumption day is zero.

The null is the abnormal return is zero on the 1st resumption day

($AR_{1-res} = 0$) and the alternative is the abnormal return is not equal to zero

($AR_{1-res} \neq 0$). This is two-sided test.

Not rejecting the null is supportive of Hypothesis 4.

Hypothesis 5: the abnormal return on the 2nd resumption day is negative.

The null is the abnormal return is zero on the 2nd resumption day

($AR_{2-res} = 0$) and the alternative is the abnormal return is not equal to zero

($AR_{2-res} < 0$). This is one-tailed test. The critical region is under the left tail

of the probability density curve (for a continuous distribution) of the test statistic.

Rejecting the null is consistent with Hypothesis 5.

6.6.1 *Statistic tests*

In the literature, there are many statistic tests proposed under various assumptions.

Traditional no-dependence adjustment test

The test assumed abnormal returns from the estimation period are independence over time and across firms and have a same variance as those in the event period (Brown and Warner 1980).

The standard deviation of the average abnormal return for each security is then estimated on the basis of the standard deviation of the time series of abnormal returns of each firm during the estimation period T .

$$t = \frac{1}{N} \sum_{i=1}^N \varepsilon_{i0} / \sqrt{\frac{1}{N} \sum_{i=1}^N \left[\frac{1}{T-2} \sum_t (\varepsilon_{it} - \frac{1}{T} \sum_t \varepsilon_{it})^2 \right]} \quad \text{where } \varepsilon_{it} \text{ is the}$$

abnormal return for firm i computed using the OLS market model, N is the number of sample firms, and T is the number of days in the estimation period.

Under the null hypothesis of no abnormal performance, the statistic was distributed as Student-t with $T - 2$ degrees of freedom.

Crude-dependence adjustment

When there is event-clustering, the cross-sectional dependence across securities would cause serious problem in testing null hypothesis.

Cross-sectional dependence, if not controlled, can lead to biased results, mostly leading to tests rejecting the null too frequently.

Brown and Warner (1980) contributed to the crude dependence parametric statistic test where the standard deviation of average residuals should be estimated from the time series of the average abnormal returns over the estimation period under the assumption that the average abnormal returns were independent over time.

$$t = \frac{1}{N} \sum_{i=1}^N \varepsilon_{i0} / \sqrt{\frac{1}{T-2} \sum_t \left[\left(\frac{1}{N} \sum_{i=1}^N \varepsilon_{it} - \bar{\varepsilon}_{it} \right)^2 \right]} \quad \text{where } \bar{\varepsilon}_{it} = \frac{1}{TN} \sum_t \sum_{i=1}^N \varepsilon_{it} \text{ is the}$$

overall mean, N is the number of sample firms, and T is the number of days in the estimation period.

Under the null hypothesis of no abnormal performance, the statistic was distributed as Student-t with $T - 2$ degrees of freedom.

Time-series-dependence adjustment

Mikkleson and Partch (1988) argued that regression residuals were correlated since they were based on the same parameter estimates. Ignoring autocorrelation would lead to the underestimation of variance of abnormal and over-rejection of null hypothesis. They proposed a test statistic which incorporated the time-series dependence.

$$t = \frac{1}{\sqrt{N}} \sum_{i=1}^N \frac{\sum_{t1}^{t2} \varepsilon_{it}}{\text{Var}(\sum_{t1}^{t2} \varepsilon_{it})}, \text{ where } t1 \text{ is the first day of the event window and}$$

$t2$ is the last day of the event window and $\text{Var}(\sum_{t1}^{t2} \varepsilon_{it})$ is the variance of the cumulative abnormal return firm i , and $N = 599$.

$$\text{Var}(\sum_{t1}^{t2} \varepsilon_{it}) = P\sigma_i^2 \left[1 + \frac{P}{T} + \frac{(\frac{1}{P} \sum_{t1}^{t2} R_{mt} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2} \right] \text{ where } P \text{ is the number of}$$

days in the event window and equals $t2 - t1 + 1$, \bar{R}_m is the average market return during the estimation period T and σ_i^2 is the security i 's estimated variance of abnormal returns during the estimation period T . The component in the bracket is a common approach to account for time-series dependence.

The degree of bias from autocorrelation of individual abnormal returns depends on the number of observations in both the estimation period T and the event period P . When P is small relative to T , the uncorrected (biased) test statistic is very close to the corrected (unbiased) one. But, when P is relatively large, the bias is substantial. Salinger (1992) indicated that intertemporal correlation could be ignored for very short event windows (P

is small relative to T) without inducing serious errors while for longer event window (P is relatively large to T), it was important to include the square root component to adjust for intertemporal correlation.

Event-induced variance adjustment

If the variance of stock returns increases on the event date, the estimated standard deviation of abnormal return from the estimation period is downward biased, leading to rejecting the null hypothesis too often. Dann (1981) showed that the event-induced standard deviation was more than three and half times as great as the estimation period in his study of stock repurchases.

One remedy is to ignore the estimation-period residual variance and to use instead the cross-sectional variance in the event period itself to form the test statistic, such as in Dann (1981).

Boehmer et al. (1991) provided a simplest solution to the problem of event-induced heteroskedasticity or event-induced variance, which became a standard method in the literature and was used in many classical empirical studies (Aktas, 2007).

Firstly the abnormal return estimates are standardized by their estimated standard deviation (assuming no event-induced heteroskedasticity), based on the residual variance from the estimation period. By dividing each firm's abnormal residual by its standard deviation, each residual has an estimated variance of 1.

$$SR_{i0} = \frac{\varepsilon_{i0}}{S_i \sqrt{1 + \frac{1}{T} + \frac{(R_{m0} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2}}} \quad \text{where}$$

SR_{i0} : the security i 's standardized residual on the event day;

S_i : the security i 's estimated standard deviation of abnormal returns during the estimation period $T = 485$.

Then the standard deviation of these standardized variants SR_{i0} is calculated cross-sectionally in the event period and the significance of the estimate of the average standardized abnormal return is tested using the cross-sectionally estimated standard deviation. This method also requires that security residuals be cross-sectionally uncorrelated. The null hypothesis is the average standardized residual across N firms is equal to zero.

$$z = \frac{\frac{1}{N} \sum_{i=1}^N SR_{i0}}{\sqrt{\frac{1}{N(N-2)} \sum_{i=1}^N (SR_{i0} - \sum_{i=1}^N SR_{i0})^2}}$$

Non-parametric tests

Non-parametric tests typically make fewer assumptions about the data. Generally a nonparametric test assumes the distribution is unknown or nonnormal and measures central tendency by the median.

Corrado (1989) introduced a non-parametric rank test of significance, which has been used in classical empirical studies (Aktas 2007). His rank test merged the estimation and event windows in a single time series. His rank procedure transformed the distribution of security abnormal returns into a uniform distribution across the rank values regardless of any asymmetry in the original distribution.

To implement the rank test, it is first necessary to transform each firm's abnormal returns in ranks [$K_{it} = rank(\varepsilon_{it})$] over the combined period S that includes the estimation and the event window. That is, for firm i , abnormal returns are sorted over the combined period and a rank is assigned to each day of the combined period.

The test then compares the ranks in the event period for each firm, with the expected average rank under the null hypothesis of no abnormal return, or in other words, equal to the mean rank of $(\bar{K} = 0.5 + S/2)$ when S is odd and of $(\bar{K} = S/2)$ when S is even. The test statistic for the null hypothesis is:

$$R = \frac{\frac{1}{N} \sum_{i=1}^N (K_{i0} - \bar{K})}{\sqrt{\frac{1}{S} \sum_{i=1}^S \left(\frac{1}{N} \sum_{i=1}^N (K_{it} - \bar{K}) \right)^2}} \quad \text{where } S \text{ denotes the days in the combined}$$

period, equal to the sum of estimation period and event period.

This statistic is distributed asymptotically as unit normal (Z distribution) and the degree of freedom is T . The use of ranks neutralizes the impact of the shape of the AR distribution (e.g., its skewness and kurtosis and the presence of outliers). It should therefore represent an attractive alternative way of neutralizing contaminating events within the estimation window.

Corrado and Zivney (1992) refined the Corrado's rank test to account for a variance increase during an event period. They standardised the abnormal returns as Boehmer et al. (1991) did and then ranked the standardised abnormal returns, which were then used to compute the rank test statistic as Corrado (1989) did. Under a null hypothesis of no abnormal performance, the distributions of the rank test statistics rapidly converge to standard normal (Corrado and Truong 2008).

They further refined the sign test. They assigned positive one, negative one and zero signs to each day's observation for abnormal returns above, below and equal to the sample median of the abnormal returns in the estimation period which was zero: $G_{it} = \text{sign}(\varepsilon_{it} - \varepsilon_i)$, equal to +1, -1 or 0 when G_{it}

was positive, negative or zero respectively. The median-based sign test is:

$$S = \frac{\frac{1}{\sqrt{N}} \sum_{i=1}^N G_{i0}}{\sqrt{\frac{1}{S} \sum_{t=1}^S \left(\frac{1}{\sqrt{N}} \sum_{i=1}^{N_t} G_{it} \right)^2}} .$$

Under the null hypothesis of no abnormal

performance, the distributions of signs test statistics converges rapidly to standard normal.

6.6.2 *Statistic power of tests*

Brown and Warner (1980) reported that in the absence of cross-sectional dependence, all the tests were well specified and powerful. In the presence of cross-sectional dependence, the crude dependence adjustment method didn't explicitly outperform traditional no dependence adjustment method.

In general, Boehmer et al. (1991) found their standardised cross-sectional test designed to solve event-induced variance was unbiased and more powerful than other well specified alternatives, such as traditional no dependence adjustment method from Brown and Warner (1980), when there was an increase in the variance. When there was no change in variance, their test was well specified even, but less powerful as the variance in this case was overestimated.

Cowan and Sergeant (1996) showed that if the return variance was unlikely to increase, then Corrado's rank test (1989) provided better specification and power than the BMP test in Boehmer et al. (1991). With variance increases this test was, however, misspecified.

Corrado and Zivney (1992) found that without event-induced increase in variance, both the standardised rank test and the median-based sign test were better-specified than the traditional parametric test. In the presence of an event date variance increase, non-parametric tests were less severe in

terms of misspecification than the traditional parametric tests. Furthermore the rank test dominated the sign test and the traditional parametric test.

Aktas et al. (2007) found that in the absence of an event-induced increase in return volatility, Corrado's rank test outperformed other tests with and without contaminating events in the estimation period under the alternative hypothesis. In the presence of an event-induced increase in return volatility, the rank test was comparatively the most powerful approach but not well specified under the null hypothesis.

Corrado and Truong (2008) data revealed that the parametric test statistics (the BMP test from Boehmer et al. 1991) were more prone to misspecification with Asia-Pacific returns data than non-parametric tests (the standardised rank test and the median-based sign test introduced in Corrado and Zivney 1992). With both US security market data and Asia-Pacific returns data, the non-parametric rank test statistics led with the greatest test power, followed by the non-parametric sign test statistics, and then the parametric test statistics. The ranking of test statistics by test power was essentially the same as that found in previous studies using similar simulation methods in Brown and Warner (1980, 1985).

Ahern (2009) categorised his data into high, medium and low groups based on the market capitalisation, prior returns, and book-to-market value of the sample firms. The results showed that the combination of OLS market model and the parametric test produced incorrect rejection rates under the null hypothesis. The power of the parametric test was lower than the nonparametric tests under the alternative hypothesis.

To sum up, non-parametric tests are better specified under the null and more powerful in detecting abnormal returns than the parametric tests under a variety of conditions.

6.6.3 In the context of China Full-Circulation Reform

The purpose of this study is to investigate the impact of China Full-Circulation Reform on the stock prices of listed companies.

Cross-sectional dependence

Event clustering is a common practice during the reform. The macro event when Notice (2005) was released is supposed to affect all the listed firms with non-tradable shares, which means the event date is the same for those firms. Similarly the announcement of Measures (2005), the second macro event of concern, leads to event date clustering for the rest firms after the pilot groups. The group announcement indicates an identical event date for firms in one group. Even the two firm-specific resumption dates of an individual firm, as discussed, have great chance to overlap with announcements of other firms. Therefore cross-sectional dependence is implied in abnormal returns across securities. The adjustment to cross-sectional dependence, as suggested in Brown and Warner (1980), is called crude dependence adjustment test, which estimates the standard deviation of the day zero average excess return using the cross-sectional mean abnormal returns from the estimation period. This portfolio t-test explicitly takes into account any potential cross-sectional dependence in the security specific abnormal returns.

Consequently, crude dependence adjustment test is employed in this study.

$$t = \frac{1}{N} \sum_{i=1}^N \varepsilon_{i0} / \sqrt{\frac{1}{T-2} \sum_t \left[\left(\frac{1}{N} \sum_{i=1}^N \varepsilon_{it} - \overline{\varepsilon_{it}} \right)^2 \right]}$$
 where ε_{it} is the abnormal

return for firm i computed using the OLS market model,

$$\overline{\varepsilon_{it}} = \frac{1}{TN} \sum_t \sum_{i=1}^N \varepsilon_{it}$$
 is the overall mean, $N = 599$ is the number of sample

firms, and $T = 485$ is the number of days in the estimation period from day -514 to day -30 relative to April 29 2005.

The statistic test for the cross-sectional average CAR:

$$t = \frac{1}{N} \sum_{i=1}^N \sum_{t_1}^{t_2} \varepsilon_{it} / \sqrt{\frac{P}{T-2} \sum_t \left[\left(\frac{1}{N} \sum_{i=1}^N \varepsilon_{it} - \overline{\varepsilon_{it}} \right)^2 \right]}$$

where P is the number of days in the event window and equals $t_2 - t_1 + 1$. Since the event window covers either 2 days or 3 days in this study, then P is either 2 or 3.

Time-series dependence

The residuals based on the same parameter estimates are suspiciously correlated. Since the same estimation procedure is applied in this study, it's better to take into account the time-series dependence.

Based on the MP test, the event-day test statistic adjusted for time-series

$$\text{dependence is: } t = \frac{1}{\sqrt{N}} \sum_{i=1}^N \left\{ \varepsilon_{i0} / S^2_i \left(1 + \frac{1}{T} + \frac{(R_{m0} - \overline{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \overline{R}_m)^2} \right) \right\}, \text{ where}$$

$$S^2_i = \frac{1}{T-2} \sum_t (\varepsilon_{it} - \frac{1}{T} \sum_t \varepsilon_{it})^2$$

is the security i 's estimated standard deviation of abnormal returns from the estimation period $T = 485$,

$N = 599$ is the number of sample firms, \overline{R}_m is the average market return during the estimation period T , and R_{mt} is the market return on day t from the estimation period.

The denominator component in the bracket $\left(1 + \frac{1}{T} + \frac{(R_{m0} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2} \right)$ is a

common approach to adjust for time-series dependence. The longer the estimation period T is, the smaller effect from autocorrelation of residuals.

The statistic test for the cross-sectional average CAR:

$$t = \frac{\frac{1}{N} \sum_{i=1}^N \sum_{t1}^{t2} \varepsilon_{it}}{\sqrt{\sum_{i=1}^N \text{Var}(\sum_{t1}^{t2} \varepsilon_{it})} / N}, \text{ where } N = 599 \text{ is the number of sample firms,}$$

and $T = 485$ is the number of days in the estimation period from day -514 to day -30 relative to April 29 2005.

$$\text{Var}(\sum_{t1}^{t2} \varepsilon_{it}) = PS_i^2 \left[1 + \frac{P}{T} + \frac{(\frac{1}{P} \sum_{t1}^{t2} R_{mt} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2} \right], \text{ where } P = 2 \text{ or } 3 \text{ is the}$$

number of days in the event window and equals $t2 - t1 + 1$, \bar{R}_m is the average market return during the estimation period, and

$$S_i^2 = \frac{1}{T-2} \sum_t (\varepsilon_{it} - \frac{1}{T} \sum_t \varepsilon_{it})^2 \text{ is the security } i \text{'s variance of abnormal}$$

returns from the estimation period.

When P is small relative to T , the uncorrected (biased) test statistic is very close to the corrected (unbiased) one as the component in the bracket

$$\left[1 + \frac{P}{T} + \frac{(\frac{1}{P} \sum_{t1}^{t2} R_{mt} - \bar{R}_m)^2}{\sum_{t=1}^T (R_{mt} - \bar{R}_m)^2} \right] \text{ is close to 1.}$$

Event-induced variance

Many studies pointed out, the event-induced variance should be considered when conducting a statistic test since the problem of heteroskedasticity may lead to over-rejection of the null hypothesis. And the standardised cross-section test proposed by Boehmer et al. (1991) has become a standard to handle the event-induced variance.

However in the scenario of China's FCR, involved firms were going through the same procedure group by group under the scrutiny of the CSRC. Thus the cross-sectional variation was controlled to some extent.

Even if there is significant cross-sectional variation so that the variance in the event period increases, with positive abnormal returns it only means the distribution shifts upwards and becomes wider. The location of the mean doesn't change. The purpose of an event study is to examine whether firms react abnormally in an event against the benchmark normal return from the estimation period which is supposed to depict their usual behaviours. In other words, how significant the event-window abnormal returns are, against the benchmark mean which is zero. In this sense, it seems not that meaningful to control for the event-induced variance as long as the mean location keeps unchanged.

Therefore the BMP by Boehmer et al. (1991) is not employed here.

Non-parametric test

In addition, non-parametric tests don't require independence over time or across securities, or normality of residuals. As an alternative test, the standardised rank test in Corrado (1989) is employed in addition to the two parametric test.

The test statistic for the null hypothesis is:

$$R = \frac{\frac{1}{N} \sum_{i=1}^N (K_{i0} - \bar{K})}{\sqrt{\frac{1}{S} \sum_{i=1}^S \left(\frac{1}{N} \sum_{i=1}^N (K_{it} - \bar{K}) \right)^2}}$$

where S denotes the days in the combined

period, equal to the sum of estimation period and event period. As Table 6.7 shows, the event window is either 2-day period or 3-day period, then S is 488 for the macro event of the release Measures (2005), and 487 for the release of Notice (2005), groups announcements and events of two firm-specific resumption of trading. $K_{it} = rank(\varepsilon_{it})$ is a rank assigned to each day of the combined period S based on an ascending order of abnormal returns over the combined period S . \bar{K} is the mean rank, equal to $S/2 = 244$ when S is 488 and equal to $0.5 + S/2 = 244$ when S is 487.

Many papers have shown that this test is leading in test power, ahead of other non-parametric tests as well as parametric tests (Campbell and Wasley 1993, Cowan and Sergeant 1996, Aktas et al. 2007, Corrado and Truong 2008, Ahern 2009).

6.7 Cross-sectional Models

According to MacKinlay (1997), theoretical insights can result from examining the association between the magnitude of the abnormal return and characteristics specific to the event observation. Often such an exercise can be helpful when multiple hypotheses exist for the source of the abnormal return.

6.7.1 Hypotheses for regression

There are five hypotheses developed for each interested event in this study, which are normal hypotheses with regard to the magnitude of abnormal

returns. Following are regression hypotheses on the coefficients of determinants of these abnormal returns drawn from each interested event.

Release of Notice (2005)

Hypothesis 1 states that the average abnormal return is zero at the announcement of Notice (2005) because Notice (2005) was designed to maintain the market stability and thus expected to offset the oversupply price pressure.

Therefore there are two dynamics underlying the abnormal return at the announcement of Notice (2005).

- Price pressure

The first variable of interest is the issue size, which indicates the price pressure from the sale of non-tradable shares.

Many papers have used the proportion of shares / firm value to be sold over the pre-event total firm shares outstanding / pre-announcement firm value to proxy for issue size, such as Scholes (1972), Masulis and Korwar (1986), Eckbo and Masulis (1992), Slovin et al. (2000), Cheung et al (2007).

However this proxy for issue size has more than one implication. For instance, the study by Yeh et al. (2010) on China's FCR used the proportion of NTAS to denote the agency problem or interest conflicts between the TAS and NTAS owners, which is criticised by me for ignoring its multiple implications. Perotti and Guney (1993) also pointed out that in a subsequent tranche of privatisation it was not easy to distinguish the market constraint (price pressure) from the unsystematic risks to be shared since both have a similar empirical implication: larger privatisation should be more underpriced. Choi and Nam (1998) provided a solution and used the

proceeds of each privatisation divided by market capitalization of domestic capital market of the country to proxy market constraint (price pressure)

Hypothesis 1.1: the issue size is negatively related to the abnormal return at the announcement of Notice (2005).

- Benefits from Notice (2005)

Notice (2005) was to protect the interests of minority group – the holder of TAS in the reform from two aspects: applying equal weighted voting rights and introducing the negotiation process between the TAS and NTAS owners. Firms in which the conflicting interests of the TAS and NTAS owners were most severe were likely to benefit most from Notice (2005). In other words, more severe agency problems between the TAS and NTAS owners indicate more benefits under Notice (2005).

Hypothesis 1.2: the agency problem is positively related to the abnormal return at the announcement of Notice (2005).

Release of Measures (2005)

Hypothesis 2 states that the average abnormal return is positive at the announcement of Measures (2005) which summarised the pilot program and reiterates the determination to maintain the market stability and protect minority interests.

Firms with worse agency problem would benefit more from Measures (2005).

Hypothesis 2.1: the agency problem is positively related to the abnormal return at the announcement of Measures (2005).

Group specific announcement

Hypothesis 3 states that the abnormal return is positive as the firms in the name list disclosed at the group announcement were regarded as self-confident and also passed strict scrutiny by the stock exchanges.

As Jiang et al. (2008) and Li et al. (2010) indicated, the firms in earlier groups were more self-confident than those in later groups and may face stricter scrutiny as the stock exchanges always tried to set up examples in earlier groups for future reforms in later groups.

Hypothesis 3.1: the group order is negatively related to the abnormal return at the group announcement.

The first resumption of trading

Hypothesis 4 states that the abnormal return on the 1st resumption day is zero assuming a high rate of participation from the public investors. In other words, participating TAS holders didn't respond to the announcement while non-participating TAS holders, if any, responded.

A short negotiation period (1st suspension period) indicates insufficient solicitation and a diversified ownership may be an obstacle to have enough participants. A higher non-participating ratio would yield abnormal return closer to zero at the 1st trading resumption. In other words, negotiation period (1st suspension period) and diversified ownership are positively related to the magnitude of the abnormal returns at the 1st resumption of trading (without respect to sign of abnormal returns). For this purpose, some transformation of abnormal return that abstracts from its sign has been initially proposed by Beaver (1968). This transformation is to take the square of the abnormal returns, used in many studies such as Landsman and Maydew (2002). Shorter negotiation period and lower ownership

concentration indicate lower participation ratio and hence more information content, which leads to higher squared abnormal returns.

Hypothesis 4.1: the negotiation period and the ownership concentration are negatively related to the squared abnormal returns at the 1st trading resumption.

The unexpected information for non-participating TAS holders may be reduced by previous examples.

Mola and Loughran (2004) found that firms issuing equity within one year of a prior offering had significantly lower average discounts of seasoned issues than firms with no recent offerings, indicating frequent occurrence of similar events may mitigate the effect of subsequent events, assuming an efficient market.

Therefore non-participating TAS holders in later groups would be more indifferent to the 1st resumption announcement than those in earlier groups.

Hypothesis 4.2: the group order is negatively related to the squared abnormal returns at the 1st trading resumption.

Non-participating TAS holders are expected to respond to the reform proposal including Consideration size which they didn't know before the announcement. If the Consideration size was more than what they expected, there would be a positive abnormal return. Otherwise, there would be a negative abnormal return.

Hypothesis 4.3: Consideration size is positively related to the abnormal returns at the 1st trading resumption.

Non-participating TAS holders may respond to various Consideration types as well. Lu et al. (2008) regressed event-window abnormal returns against

Consideration size as well as Consideration types, such as share type, cash type and combination type. They found existing holders of tradable A-shares earned significant abnormal returns when companies paid in cash or warrants or combination method, opposed to their expectation that none of the types was superior over the others as the holders of TAS had different investment preferences and tax positions.

Consideration paid in shares (1) is uncertain and subject to risks of future price changes, and (2) locked their investment.

Consideration paid in cash is (1) certain and (2) effectively allows the holders of TAS to reduce their investment by taking some cash out. Figure 6.2 shows cash Consideration actually shifts the TAS owners' original risk exposure upwards by the cash.

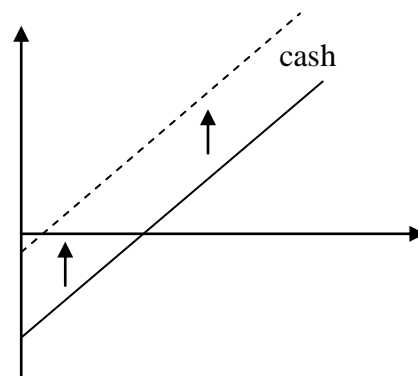


Figure 6.2 Payoff when Consideration paid in cash

Consideration in the form of warrants fixes the strike price at a future time. Put warrant actually hedges the risks exposed and eliminates the downside risks. Call warrants doubles the upside gains.

Figure 6.3 shows the payoff from the put warrant offset the risk exposure (the left-side diagram) and the combined effect is like a call warrant (the green line in the right-side diagram).

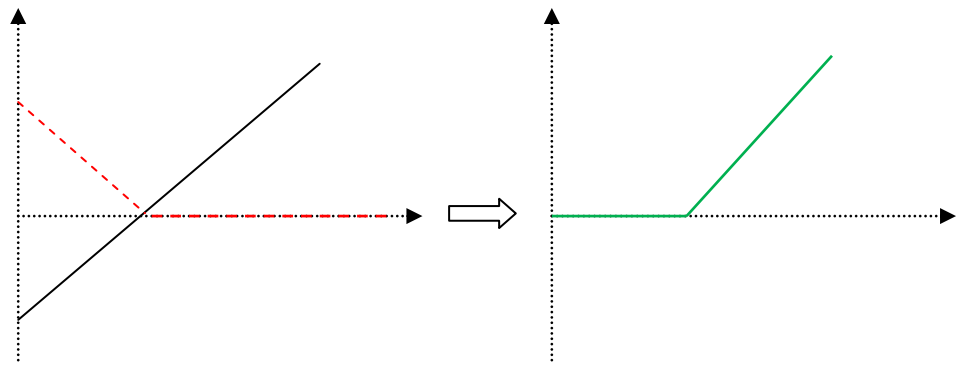


Figure 6.3 Payoff when Consideration in the form of put warrant

Figure 6.4 shows the payoff from the call warrant doubles the upside gain (the green solid line in the right-side diagram).

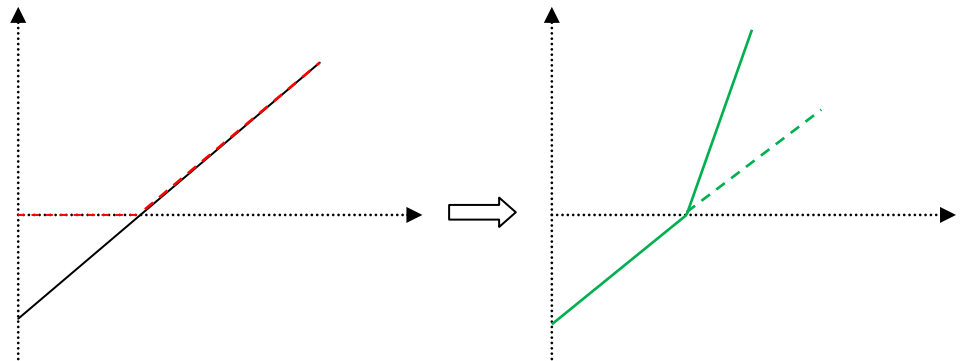


Figure 6.4 Payoff when Consideration in the form of call warrant

Therefore cash type, or warrant type, or combination type which includes either cash or warrant, could have a positive impact on the abnormal returns.

Hypothesis 4.4: Consideration dummy equal to 1 if paid in cash, or warrant, or combination including cash or warrant, is positively related to the squared abnormal returns at the 1st trading resumption.

The second resumption of trading

Hypothesis 5 states that the abnormal return on the 2nd resumption day is negative because the free bonus shares offered would effectively increase the number of tradable shares and with all other things remaining the same,

drive the stock price down, like in a stock split, consistent with the literature on price drop-off by the amount of dividend on ex-dividend day.

Hypothesis 5.1: Consideration size is negatively related to the abnormal return at the 2nd resumption of trading

Secondly the successful completion of reform is more meaningful for companies with more serious agency problems and hence implies more favorable response from those non-participating investors.

Hypothesis 5.2: Agency problem is positively related to the abnormal return at the 2nd resumption of trading

6.7.2 Regression models

A cross-sectional regression model is an appropriate tool to investigate the association implied in those regression hypotheses. The basic approach is to run a cross-sectional regression of the abnormal returns on the characteristics of interest.

Regression Model 1

Regression Model 1 is designed to investigate the hypotheses which define relationships between proposed determinants and the abnormal return at the announcement of Notice (2005).

$$CAR_{i-Notice} = \alpha + \beta_1 IS_i + \beta_2 AP_i + \beta_3 LP_i + \beta_4 ID_i + \beta_5 ST_i + \beta_6 CG_i + \beta_7 FS_i + \beta_8 EPS_i + \beta_9 VOL_i$$

IS denotes issue size, the value of NTAS divided by the pre-announcement market capitalization.

AP denotes agency problem, the ratio of NTAS to TAS to proxy for the agency problems between the TAS and NTAS holders. Higher ratio

indicates more severe agency problem, and the minority of TAS holders would benefit more from the release of Notice (2005).

Based on Hypothesis 1.1, 1.2 and 1.3, β_1 are predicted to be negative while β_2 is predicted to positive.

I include several firm-level controls.

FS controls for firm size effect on the CARs and is proxied with the logarithm of market capitalization.

CG controls for the effect of governance quality on the CARs and is measured by the percentage of independent directors in the board.

EPS controls for the effect of performance, earnings per share released in the financial reports preceding the reform;

VOL controls for the effect of firm risk and is measured by the standard deviation of daily stock returns during the estimation period.

LP controls for listing venue and is a dummy equal to 1 if listed in SHSE and zero if listed in SZSE. The most distinct differences between two stock exchanges are the relative size and the characteristics of listed companies of two exchanges. While companies listed on the SHSE are mostly large and state-owned, those on the SZSE are mostly small, joint ventures and export-oriented. Many papers document that the size of SHSE is bigger than that of SZSE in term of total number of listed companies and total market capitalization.

ID controls for industry is a dummy equal to 1 if in the manufacturing industry and zero otherwise. In Table 6.4, there are 351 samples firms in the industry of manufacturing, accounting for 58.2% of the total sample. For all

the other first-level industries, the number of sample firms varies from 3 to 39. Manufacturing firms are more likely to be long-established and large firms while non-manufacturing firms are comparatively newer and smaller.

ST controls for share type, a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares. There are 550 companies in my sample issue A-shares only and 49 companies issue both A and B or both A and H shares. The China FCR only affects domestic A-shares. In this sense, companies issuing A-shares only are fully involved while companies having dual shares are only partially involved. Dual-share companies may have relatively smaller proportion of A-shares than A-share-only companies. Secondly dual-share companies are required to prepare financial information in accordance with International Financial Reporting Standards while A-share-only companies only need to publish financial statements in line with China GAAP.

Regression Model 2

Regression Model 2 is designed to investigate the hypotheses which define relationships between proposed determinants and the abnormal return at the announcement of Measures (2005).

$$CAR_{i-Measure} = \alpha + \beta_1 AP_i + \beta_2 LP_i + \beta_3 ID_i + \beta_4 ST_i + \beta_5 CG_i + \beta_6 FS_i + \beta_7 EPS_i + \beta_8 VOL_i$$

AP denotes agency problem, the ratio of NTAS to TAS to proxy for the agency problems between the TAS and NTAS holders.

Based on Hypothesis 2.1 β_1 is predicted to be positive.

Regression Model 3

Regression Model 3 is designed to investigate the hypotheses which define relationships between proposed determinants and the abnormal return at the group announcement.

$$CAR_{i-Group} = \alpha + \beta_1 GO + \beta_2 LP_i + \beta_3 ID_i + \beta_4 ST_i + \beta_5 CG_i + \beta_6 FS_i + \beta_7 EPS_i + \beta_8 VOL_i$$

GO is the ascending order of groups, starting from the 1st pilot group ranked 1, ending up with the last group announced at the end of Dec 2006 ranked 66.

Based on Hypothesis 3.1, β_1 is predicted to be negative.

Regression Model 4

Regression Model 4 is designed to investigate the hypotheses which define relationships between proposed determinants and the abnormal return at the 1st resumption of trading.

Hypothesis 4.1 and 4.2 relate the determinants to the magnitude of abnormal returns at the 1st trading resumption. And according to Beaver (1968), some transformation of abnormal return that abstracts from its sign is to take the square of the abnormal returns.

Regression Model 4A:

$$CAR^2_{i-1-res} = \alpha + \beta_1 NP_i + \beta_2 OC_i + \beta_3 GO_i + \beta_4 FS_i + \beta_5 LP_i + \beta_6 ID_i + \beta_7 ST_i + \beta_8 CG_i + \beta_9 EPS_i + \beta_9 VOL_i$$

NP denotes the length of the negotiation period, measured in days.

OC denotes the ownership concentration, the logarithm of the number of shareholders.

GO is the ascending order of groups.

Based on Hypotheses 4.1 and 4.2, β_1 , β_2 and β_3 are predicted to be negative.

Regression Model 4B:

$$CAR_{i-1-res} = \alpha + \beta_1 CS_i + \beta_2 CD_i + \beta_3 FS_i + \beta_4 LP_i + \beta_5 ID_i + \beta_6 ST_i + \beta_7 CG_i + \beta_8 EPS_i + \beta_9 VOL_i$$

CS denotes the Consideration size, adjusted on the same scale according to Table 6.6.

CD denotes the Consideration dummy, equal to 1 if Consideration is paid in cash, warrant, or combination including cash or warrant and 0 otherwise.

Based on Hypothesis 4.3 and 4.4, β_1 and β_2 are predicted to be positive.

Regression Model 5

Regression Model 4 is designed to investigate the hypotheses which define relationships between proposed determinants and the abnormal return at the 2nd resumption of trading.

$$CAR_{i-2-res} = \alpha + \beta_1 CS_i + \beta_2 AP_i + \beta_3 IS_i + \beta_4 LP_i + \beta_5 ID_i + \beta_6 ST_i + \beta_7 CG_i + \beta_8 FS_i + \beta_9 EPS_i + \beta_{10} VOL_i$$

CS denotes the Consideration size, adjusted on the same scale according to Table 6.6.

AP denotes agency problem between the TAS and NTAS holders, the ratio of NTAS to TAS. Higher ratio indicates more severe agency problem.

Based on Hypothesis 5.1 and 5.2, β_1 is predicted to be negative and β_2 is predicted to be positive.

6.8 Concluding remarks

This chapter introduces the research design for an event study on China Full-Circulation Reform, including selecting critical event dates and sample, identifying hypotheses for each event selected, justifying the use of market model to estimate normal returns and the application of uniform estimation period to estimate model parameters, illustrating suitable statistic tests for hypotheses testing, and defining regression hypotheses and relevant variables.

Chapter 7. Results and Analysis

Empirical results of event study and from cross-sectional regression models are presented in this chapter.

There are five interested events. For each of them, event-window abnormal returns are reported, together with the significance from three different statistic tests, crude dependence adjustment test (Brown and Warner 1980), time-series adjustment test (Mikkleson and Partch 1988), and rank test (Corrado, 1989).

A multiple regression is run for each interested event. The event-window abnormal return is regressed against variables defined in the corresponding regression models introduced in the last section of Chapter 6.

Secondly all these empirical results lead to insights about the mechanisms by which the China's FCR event affected security prices, which are interpreted respectively.

7.1 Empirical results of event-study

There is a time sequence of the interested events, which are classified into three levels: macro level, group level and firm level, as shown in Figure 6.1. In the first place, results are presented and analyses are provided for each event separately. Afterwards an overall view is taken, which connects all these events and tells a continuous story of the full event effect of the China reform in 2005.

7.1.1 Event of Notice (2005) issuance

On April 29 2005, Notice (2005) formally launched China's Full-Circulation Reform aiming to float non-tradable A shares held by the Government.

In Notice (2005), a timescale of process was set out for an individual reform, introducing the negotiation between the holders of TAS and NTAS on the reform proposal in the first suspension period as well as the equal voting system for the approval of the reform proposal in the second suspension period. In addition, Notice (2005) put on trading restrictions on the sale of Government shares after the reform.

The measures proposed in Notice (2005) were to maintain the stability and healthy growth of market and protect of the lawful rights and interests of public investors, as required by Opinions (2004) which was released by the State Council.

Hypothesis 1 predicts that the efforts in Notice (2005) to maintain market stability and protect minority interests would approximately offset the negative effect from the price pressure, which implies zero abnormal performance at the release of Notice (2005).

Overall sample

Table 7.1 presents the event effects in terms of the abnormal returns on the event day (Friday April 29 2005) and the trading day before (Thursday 28th April 2005) with a sample size of 599 companies. The next trading day was Monday, 9th May 2005, and was excluded as it overlapped with the announcement day of the first pilot group. The results of three significance tests are provided as well.

TOTAL	AR(-1)	AR(0)	CAR(-1,0)
Average	0.006	-0.003	0.003
BW	1.449	-0.686	0.441
MP	8.512**	-3.713**	10.582**
Rank	1.698*	-0.726	
Sample size	599	599	599
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)			

Table 7.1 Summary of abnormal returns around Notice (2005) issuance

MP test is designed to adjust for time-series dependence but assuming cross-sectional independence. Even if there is relatively moderate cross-sectional dependence in an event study with clustered event days could introduce considerable downward bias in the standard deviation and cause serious over-rejection of the null hypothesis of no abnormal performance, or Type I errors (Salinger 1992, Aktas et al. 2007, Kothari and Warner 2007, Kolari and Pynnönen 2010). The macro event of Notice (2005) publication is supposed to affect all companies with non-tradable shares and subsequently the cross-sectional dependence in event window could be large, which cast doubt on the high significances with MP test in Table 7.1.

BW test is designed to control for cross-sectional dependence but assuming time-series independence. If there is large residual autocorrelation, the statistic could be biased upwards, leading to over-rejection of the null of no abnormal performance. In reality, there are 341 sample companies whose residual autocorrelations (1-day lag) from the estimation-periods are close to zero within the range of (-0.05, +0.05) and 73 sample companies with autocorrelations either larger than 0.1 or smaller than -0.1. Figure 7.1 shows

the histogram of the 1-day lag residual autocorrelations from the estimation periods for all the sample companies, with a step of 0.05.

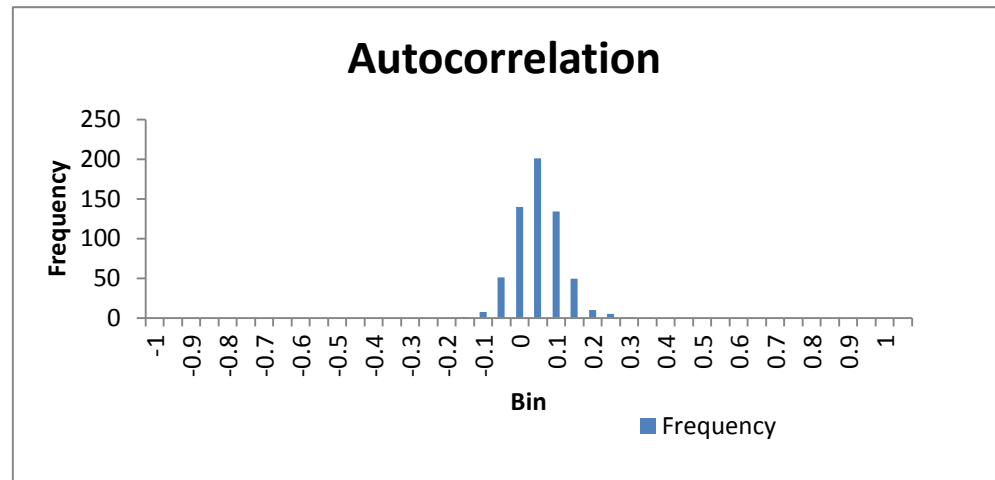


Figure 7.1 The histogram of autocorrelation

Within the range between -1, perfect negative correlation, and +1, perfect positive correlation, the sample autocorrelation converges around 0.025 with a maximum of 0.25. Generally speaking, the problem of time-series dependence is not very serious, indicating BW test by controlling cross-sectional dependence only may make fewer Type I error of rejecting the true null and is more likely to be sufficient to give proper significance. In Table 7.1, BW test presents much lower statistic figures than MP test and suggests insignificance for all abnormal returns and CAR (-1, 0). The conservative performance of BW test compared to MP test implies that at this event, the cross-sectional dependence prevails over time-series dependence.

The rank test examines whether the position of the abnormal returns in event-window are significantly away from the centre position over the combined period (estimation period plus event period). As the rank test is free of distribution and doesn't require independence across securities or over time, it provides a robust alternative to BW and MP tests.

Therefore BW test and the rank test seem more reliable than MP test at this event.

The average abnormal return across securities on the day before the release of Notice (2005) is a positive (0.6%), significant at the 1% level according to MP test and at the 5% level according to the rank test but insignificant according to BW test. The rank test suggests there is probably some information leakage.

On the event day of Notice (2005) issuance, the average abnormal return is -0.3%. Both BW test and the rank test report insignificance, indicating the null of no abnormal return performance is not rejected, which is consistent with Hypothesis 1.

The average cumulative abnormal return over the event window (-1, 0) is 0.3%, insignificant according to BW test, indicating no rejection of the null of zero abnormal performance and support for Hypothesis 1.

The movement from the positive return on day -1 to negative return on day 0 indicates that investors were initially drawn towards the good news with regard to protecting minority interests and then reacting down to contemplate the negative news of large sales of NTAS, which eventually lead to a statistically insignificant effect.

Using a sample of companies included in the China Securities Index 300, Lu et al. (2008) found a significant negative effect during their event period (-1, 0), one day before though April 29 2005, and attributed it to the fear of a dilution effect based on past experience in 2001 even though the Chinese Government was promising to protect the minority traded shareholders. They used an estimation period of only 6 months before the event which may bias their estimations of parameters and the final results. China

Securities Index 300 composes of the largest 300 companies listed on China stock markets, which may also affect their results as larger companies may be more vulnerable to the reform.

Subsamples

Part A in Table 7.2 shows the abnormal returns on each day in the event period, including days before and on April 29 2005, in two stock exchanges. There are 193 companies in my sample listed in the SZSE and 406 listed in the SHSE. While companies listed on the SHSE are mostly large and state-owned, those on the SZSE are mostly small, joint ventures and export-oriented.

Part B in Table 7.2 gives the abnormal returns on each day in the event period, including days before and on April 29 2005, for subsamples divided by share types. There are 550 companies in my sample issue A-shares only and 49 companies issue both A and B or both A and H shares. The China FCR only affects domestic A-shares. In this sense, companies issuing A-shares only are fully involved while companies having dual shares are only partially involved. Dual-share companies may have relatively smaller proportion of A-shares than A-share-only companies. Dual-share companies are required to prepare financial information in accordance with International Financial Reporting Standards while A-share-only companies only need to publish financial statements in line with China GAAP.

Part C in Table 7.2 displays the abnormal returns on each day in the event period, including days before and on April 29 2005, for manufacturing industry and non-manufacturing industry. In Table 6.4, there are 351 samples firms in the industry of manufacturing, accounting for 58.2% of the total sample. For all the other first-level industries, the number of sample firms varies from 3 to 39. Manufacturing firms are more likely to be

long-established and large firms while non-manufacturing firms are comparatively newer and smaller.

PART A						
Stock Exchange	SZSE			SHSE		
	AR(-1)	AR(0)	CAR(-1,0)	AR(-1)	AR(0)	CAR(-1,0)
Average	0.003	0.001	0.004	0.007	-0.005	0.002
BW	0.852	0.254	0.684	1.733*	-1.133	1.159
MP	2.617**	1.318	2.267*	8.535**	-5.418**	1.795*
Rank	1.673*	0.325		1.653*	-1.018	
Sample size	193	193	193	406	406	406
PART B						
Share Type	A Share			Dual share		
	AR(-1)	AR(0)	CAR(-1,0)	AR(-1)	AR(0)	CAR(-1,0)
Average	0.006	-0.003	0.003	0.005	0.001	0.006
BW	1.494	-0.747	0.431	1.245	0.249	0.862
MP	8.232**	-4.128**	2.364**	2.182*	0.849	1.746*
Rank	1.724*	-0.839		0.745	0.915	
Sample size	550	550	550	49	49	49
PART C						
Industry	Manufacturing			Non-Manufacturing		
	AR(-1)	AR(0)	CAR(-1,0)	AR(-1)	AR(0)	CAR(-1,0)
Average	0.004	-0.003	0.002	0.008	-0.003	0.005
BW	0.996	-0.747	0.287	1.992*	-0.747	0.719
MP	4.544**	-2.785**	1.013	7.823**	-2.457**	3.091**
Rank	1.722*	-1.1		1.701*	-0.085	
Sample size	351	351	351	248	248	248
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)						

Table 7.2 Summary of abnormal returns around Notice (2005) issuance for subsamples

In general, all subsamples yield very similar results as the overall sample: there is no rejection of the null of no abnormal return as the CARs (-1, 0) in all subsamples are positive but insignificant according to BW test,

consistent with Hypothesis 1. High MP test statistics may be overestimated due to serious event clustering and is thus not reliable.

The information leakage seems serious for firms listed in the SHSE or in the non-manufacturing industry as both BW test and the rank test report significance of positive abnormal returns in the two subsamples on day -1.

7.1.2 Event of Measures (2005) issuance

On Sep 5 2005 Measures (2005) was announced and became the first official document providing details about the implementation of NTAS reform. This critical event date has never been paid attention in the literature on China FCR, although it led the reforms for all the remaining firms which were not involved in the pilot program and should be carefully investigated.

The program was built upon the principles established in the pilot reform, such as negotiation with the TAS holders on Consideration levels and methods, equal-weighted voting rights for the minority of TAS holders and trading restrictions on the sale of NTAS. Basically there is nothing special at this announcement. But the CSRC made efforts to summarise and then formalise the best practices in the pilot program by officially filing Measures (2005) which reiterate the determination to protect minority interests and hence may have a positive impact on the market. Hypothesis 2 predicts positive abnormal return at the release of Measures (2005).

Overall sample

Table 7.3 presents the event effects in terms of the abnormal returns on the event day (Monday Sep 5 2005), the trading day before (Friday Sep 2 2005) and the trading day after (Tuesday Sep 6 2005) with a sample size of 553 companies, associated with the results of significance tests. The sample size is reduced from 599 to 553 as the firms in the pilot program are excluded.

Total	AR(-1)	AR(0)	AR(1)	CAR (-1, 1)
Ave	0.01	0.012	0.008	0.03
BW	2.49*	2.988**	1.992*	4.312**
MP	14.256**	17.162**	11.931**	24.974**
Rank	0.873	1.297	0.937	
Sample size	553	553	553	553
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)				

Table 7.3 Summary of abnormal returns around Measures (2005) issuance

The release of Measures (2005) also indicates event clustering for the remaining firms after the pilot program and hence MP test which doesn't control for cross-sectional dependence may make Type I errors of rejecting the true null. Actually MP test statistics are very high in Table 7.2, suggestive of over-rejection of the null, and should be used with caution.

The abnormal return is 1%, 1.2% and 0.8% on day -1, day 0 and day 1. BW test finds the abnormal returns significant at the 5% level on day -1 and day 1 and significant at the 1% level on the event day, which rejects the null of no abnormal performance and supports Hypothesis 2. The positive abnormal returns seems persistent over the 3-day event window, indicating the information was obviously leaked before the event day and remained at a significant level after the event day.

These abnormal returns on single days in the event window are reported significantly different from the estimated mean of zero by the parametric BW test and MP test. But the nonparametric rank test doesn't report any significance of them, indicating the ranked-positions of these single-day abnormal returns are not significantly different from the centre position (the

mean rank) over the combined period which covers both estimation period and event window.

The average CAR (-1, 1) is 3%, reported significant at the 1% level in both BW test and MP test, indicating the null of no abnormal performance is rejected at the release of Measures (2005), which is consistent with Hypothesis 2 that the investors seemed to react positively to the efforts made by the CSRC to show its determination to protect minority interests.

Subsamples

Part A in Table 7.4 shows the abnormal returns around Sep 5 2005 in two stock exchanges.

Part B in Table 7.4 gives the abnormal returns around Sep 5 2005 for subsamples divided by share types.

Part C in Table 7.4 displays the abnormal returns around Sep 5 2005 for manufacturing industry and non-manufacturing industry.

PART A	AR(-1)	AR(0)	AR(1)	CAR (-1, 1)
SZSE	0.01	0.008	0.007	0.025
BW	2.49*	1.992*	1.743	3.594**
MP	8.261**	7.083**	5.564**	12.047**
Rank	1.168	1.042	1.651	
Sample size	193	193	193	193
SHSE	0.01	0.014	0.009	0.033
BW	2.49*	3.486**	2.241*	4.744**
MP	11.621**	15.962**	10.656**	22.028**
Rank	0.695	1.274	0.607	
Sample size	406	406	406	406
PART B	AR(-1)	AR(0)	AR(1)	CAR (-1, 1)
A-share-only	0.01	0.012	0.008	0.03
BW	2.49*	2.988**	1.992*	4.312**
MP	13.794**	16.351**	11.083**	23.751**
Rank	0.855	1.302	0.913	
Sample size	550	550	550	550
Dual-share	0.009	0.013	0.012	0.033
BW	2.241*	3.237**	2.988**	4.744**
MP	3.632**	5.223**	4.583**	7.743**
Rank	0.785	0.783	0.893	
Sample size	49	49	49	49
PART C	AR(-1)	AR(0)	AR(1)	CAR (-1, 1)
Manufacturing	0.011	0.012	0.008	0.031
BW	2.739**	2.988**	1.992*	4.456**
MP	11.322**	13.29**	9.008**	19.369**
Rank	1.015534	1.138287	0.962363	
Sample size	351	351	351	351
Non-manufacturing	0.01	0.012	0.008	0.029
BW	2.49**	2.988**	1.992*	4.169**
MP	8.686**	10.861**	7.826**	15.769**
Rank	0.1723	0.699627	0.352551	
Sample size	248	248	248	248
<p>Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)</p>				

Table 7.4 Summary of abnormal returns around Measures (2005) for subsamples

All subsamples yield similar results as the total sample. There are positive abnormal returns in the 3-day event window. Both BW test and MP test report the 1% level significance of CARs (-1, 0). Basically, the null of zero abnormal performance is rejected for all the subsamples, consistent with Hypothesis 2.

7.1.3 Group-specific announcement

The reform process was gradually carried out group by group. There are in total 66 groups, starting with two pilot groups in early 2005 and ending with a group announced at the end of 2006.

The namelist of firms was publicised at the group announcement. The selection process involves (1) first the stock exchanges set a deadline to accept reform proposals from companies wishing to pitch in and (2) the stock exchanges examined all the applying firms carefully and crossed out those they thought had problems or were not well-prepared yet. It's like an honor to be included in the namelist which means the companies were self-confident that they were well prepared for the reform, and also passed the check by the stock exchanges. Hypothesis 3 predicts positive abnormal returns around the group announcements.

Overall sample

Table 7.5 shows the average abnormal return at various group announcements, associated with tests of significance results.

	AR(-1)	AR(0)	CAR (-1,0)
Average	0.005	0.008	0.013
BW	1.353	1.922*	1.891*
MP	8.295**	11.486**	11.396**
Rank	0.714085	1.219572	
Sample size	599	599	599
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)			

Table 7.5 Summary of abnormal returns at group announcements

Firms in the same group were publicised on the same day of group announcement, which indicates the event-clustering is inevitable and MP test may reject the null too frequently.

Consistent with Hypothesis 3, the 2-day event-window CAR (-1, 0) is significantly positive (1.3%) in Table 7.5 at the 5% level according to BW test. The abnormal return is 0.5% on day -1 and insignificant, indicating there is no information leakage. The event-day abnormal return is 0.8%, reported significant at the 5% level by BW test. The rank test doesn't report significance of the single-day abnormal returns on day -1 and day 0, indicating the ranked-position of these two abnormal returns are not statistically far from the ranked-position of the medium.

The results suggest that the investors were happy about the news that their firms were in the final list.

Ren et al. (2009) reported that there was a big difference among CAR (-20, 20) values for different groups, with a minimum of -7.13% and a maximum of 31.94%, but the average CAR (-20, 20) was a positive. Their results were based on a sample size of 939 companies and an event period from 20 days

before the event through the event day to 20 days after. But they didn't tell which critical event day they selected for investigation.

Figure 7.2 shows the average CAR (-1, 0) curve at the 66 group announcements.

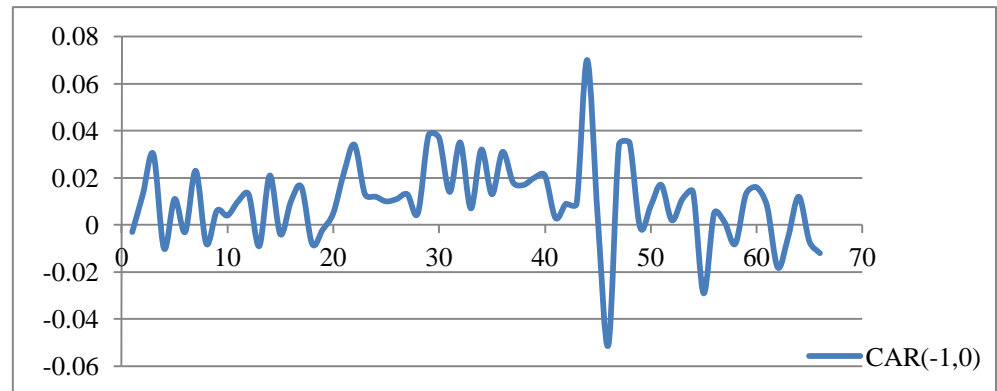


Figure 7.2 CAR curve at the 66 group announcements

Generally speaking, this CAR curve is volatile with a maximum above 6% and a minimum below -0.4% while the average CAR (-1, 0) is positive (1.3%), consistent with the findings in Ren et al. (2009). There is no wonder a 2-day event-window CAR is smaller in size than a 41-day event-window CAR in Ren et al. (2009). But what is clear is that there is no pattern in the time series to suggest that there was any learning through time from the successful implementation of the scheme.

Subsamples

Naturally each group is a subsample of firms. There are 599 sample companies and 66 time-sequential groups. Hence the average group size is about 9. In some cases, the group size can be as small as 2, which is far than enough to qualify as an unbiased analysis.

If dividing the 66 groups into three categories, the first category covers the first 22 groups, from Pilot Group 1 to Group 20; the second category spans

from Group 21 to Group 42; and the third category include Group 43 to Group 64. These three categories are named early, middle and late stages.

According to the full-size data in Table 4.2, there are 540 companies in the early stage, 598 companies in the middle stage and 221 companies in the late stage. Referring to my sample, there are 233, 268 and 98 sample companies in the early, middle and late stages respectively. The weights of each stage in my sample are similar to those in the full-size data, indicating my sample is representative of the full-size data from this viewpoint.

TABLE 7.6 shows the abnormal returns of each stage and the results of corresponding significance tests. The 2-day event window from the previous day to the group announcement day (-1, 0) is applied. As firms in the same group usually suspended on the day immediately after the group announcement, the data is not available for most of the firms on day +1 which is for this reason excluded from the event window.

	Early Stage (Pilot 1 - Group 20)		
	AR(-1)	AR(0)	CAR (-1,0)
Average	0.005	0.007	0.012
BW	1.245	1.743*	1.725*
MP	4.219**	6.598**	6.232**
Rank	0.461782	1.191598	
Sample size	233	233	233
	Middle Stage (Group 21 - Group 42)		
	AR(-1)	AR(0)	CAR (-1,0)
Average	0.007	0.01	0.017
BW	1.743*	2.49**	2.444**
MP	7.797**	9.791**	10.133**
Rank	1.140257	1.370208	
Sample size	268	268	268
	Late Stage (Group 43 - Group 64)		
	AR(-1)	AR(0)	CAR (-1,0)
Average	0	0.003	0.003
BW	0	0.747	0.431
MP	0.648	1.544	1.263
Rank	0.530923	0.410679	
Sample size	98	98	98
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)			

Table 7.6 Summary of the abnormal returns for early, middle and late stages

Hypothesis 3 holds for the early and middle stage. The CAR (-1, 0) is 1.2% in the early stage, which is significant at the 5% level according to BW test. The CAR (-1, 0) is 1.7% in the middle stage which is significant at the 1% level according to BW test.

Hypothesis 3 is rejected for the late stage which shows insignificant CAR (-1, 0), indicating the investors in the late stage didn't view the nomination as unexpected good news. As the full-size data in Table 4.2 suggests, the early and middle stages actually account for 83.74% of a total of 1,359 companies. And the last group in the middle stage was announced on Jul 23

2006 while the Government set the end of 2006 as the deadline of the process in Measures (2005). The investors in the late stage were probably (1) more certain about the time-slot their firms would be in; and (2) less happy about their less enthusiastic firms (Jiang et al 2008), which would cause a fall in the abnormal returns. Alternatively there is an argument that the later groups had learnt from the earlier groups and were not over compensated by their schemes.

7.1.4 Firm-specific 1st resumption day

When the board of directors publicised the reform proposal, the trading of the shares of this stock was immediately suspended.

The reform proposal included date of the shareholders' meeting, a description of the reform proposal as well as the opinions of the recommending institution and the law firm.

Within 10 days after the announcement, the board of directors should assist the owners of NTAS in adequately communicating and negotiating with the holder of TAS of A-share market by such approaches as hosting an investor symposium, a press conference or an online road show, paying a visit to institutional investors and issuing a consultation paper and so on. In addition, the board of directors of the listed company publicly should disclose its hotline, facsimile and e-mail address in order to widely solicit opinions from tradable shareholders so as to lay a broad shareholder foundation for the reform plan.

If the proposal was acceptable to both parties, an announcement of consensus would be made and trading resumed. Once trading resumed the proposal was not allowed to be further modified.

As the results disclosed with the 1st trading resumption should reflect a mutual agreement between the holders of TAS and NTAS, there should be no surprise from the market. Therefore Hypothesis 4 predicts no abnormal returns assuming a high rate of participation from the public investors.

Overall sample

Table 7.7 shows the abnormal returns around the firm-specific 1st resumption of trading, associated with the significance tests results. The 2-day event window from the announcement day to the next trading day is applied. There is no data available before the resumption of trading and hence the day immediately before the 1st resumption day is excluded.

	AR(0)	AR(1)	CAR (0, 1)
Average	0.031	0.012	0.043
BW	7.819**	2.957**	6.222**
MP	44.281**	17.499**	35.593**
Rank	2.952**	0.852	
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)			

Table 7.7 Summary of abnormal returns around 1st resumption day

The 1st resumption day is seemingly various from company to company since it is firm-specific, indicating the event-clustering may not be that serious. But the event-clustering is still not uncommon because (1) firms in the same group may have great chance to share the same 1st resumption day; (2) the five-working-day group interval may increase the chance for firms in different groups to have the same 1st resumption day. For instance, 599 sample companies have 207 1st resumption dates. Averagely speaking, approximately every 3 sample companies share the same 1st resumption

dates. Therefore MP test which doesn't control cross-sectional dependence should be used with caution if used by itself.

The abnormal return on the event day is 3.1%, significant according to all three tests. The abnormal return on day +1 is 1.2%, significant in BW test and MP test, indicating the event effect persists after the event day. The rank test statistic suggests insignificance which means the ranked-position of the abnormal return is not statistically significant away from the ranked-position of the median. The CAR (0, 1) is 4.3%, significant in BW test and MP test. Conclusively, Hypothesis 4 which predicts zero abnormal performance is rejected, indicating the publication of the reform proposal on the 1st resumption day which should be a mutual agreement between the holders of TAS and NTAS is actually a positive surprise in the market. In other words, there were uninformed investors, probably non-participating investors who didn't pitch in the discussion. The reform proposal, especially the level of Consideration, was more than what they expected.

Significant positive returns at 1st resumption day is observed in quite a few studies, such as Beltratti and Bortolotti (2006), Lu et al. (2008) and Firth et al. (2010).

Beltratti and Bortolotti (2006) argued that the expectation of improved corporate governance outweighed the price pressure from the large-scale non-tradable-shares disposals and thus resulted in positive returns. This was a strange argument given that the process was not about improved governance rather more about protecting the interests of minorities.

Lu et al. (2008) argued that investors reacted positively due to the inclusion of consideration in this reform process. However they later found no relation between the level of consideration and share market response,

suggesting that investors perceived the consideration to be fair and adequate, which contradicts their argument.

Firth et al. (2010) argued that the final terms of the compensation were better than expected and/or there was a palpable relief that the firm could now move forward and management can concentrate on improving operating performance. They also found the Consideration level is a significant and positive determinant of the announcement effect. Their conclusion is like a combination of Beltratti and Bortolotti (2006) and Lu et al. (2008).

According to the reform process, the investors should agree on the reform proposal before the announcement of trading resumption and the negotiation process should take all related issues into account so as to reach a fair compensation plan. In this sense, there should be no surprise in the market. But none of papers explained this puzzle of over-compensation in reality (significant positive abnormal returns) and fair compensation in theory.

My explanation introduces the concept of participation ratio. In theory, all TAS holders take part in and express their opinions fully. In reality, this is impossible. The reform process indicates that the firms are required to do as much as possible to solicitate the opinions from the public investors. But various investors may have various interests in a reforming firm. For example, if their shareholdings were quite small in the reforming firm, it may not be worthwhile for them to get involved. Or if their interests were diversified in several reforming firms in the same group or in the consecutive groups, they may be able to manage them all during a short period of time. And these non-participating investors may trust institutional shareholders to bargain for them and at the announcements of resumption found the final plan was more than what they wanted. Various reforming

firms may work variously to facilitate the solicitation. Some of them may make greater efforts than the others. There may be some investors who thought they were marginalised and were thus not very happy about the final plan. However, the average CAR (-1, 0) is significant and positive, indicating the overall effect tends to be overwhelmed by the non-participating investors rather than the marginalised investors. In addition, China stock market is labeled as a “highly-speculative” market (Wong, 2006) where there are many short-run arbitragers. The positive response from the non-participating investors may be exaggerated by the temporary speculative behavior in the market.

Subsamples

Part A in Table 7.8 shows the abnormal returns around the 1st resumption day in two stock exchanges.

Part B in Table 7.8 gives the abnormal returns around the 1st resumption day for subsamples divided by share types.

Part C in Table 7.8 displays the abnormal returns around the 1st resumption day for manufacturing industry and non-manufacturing industry.

PART A	SZSE			SHSE		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	0.026	0.009	0.035	0.034	0.013	0.047
BW	6.473**	2.241*	5.031**	8.465**	3.237**	6.756**
MP	21.138**	7.987**	16.781**	39.212**	15.749**	31.663**
Rank	3.743**	1.075		2.411*	0.698	
Sample size	193	193	193	406	406	406
PART B	A-share-only			Dual-share		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	0.03106	0.01158	0.043	0.035	0.015	0.05
BW	7.733**	2.883**	6.181**	8.714**	3.735**	7.187**
MP	42.032**	16.16**	33.525**	14.003**	7.043**	12.126**
Rank	2.799**	0.864		3.685**	0.388	
Sample size	550	550	550	49	49	49
PART C	Manufacturing			Non-Manufacturing		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	0.03	0.012	0.042	0.033	0.012	0.045
BW	7.469**	2.988**	6.037**	8.216**	2.988**	6.469**
MP	32.907**	13.274**	26.606**	29.671**	11.405**	23.664**
Rank	2.555**	0.803		1.669*	0.258	
Sample size	351	351	351	248	248	248
<p>Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)</p>						

Table 7.8 Summary of abnormal returns around 1st resumption day for subsamples

These subsamples yield similar results as the overall sample. Significant and positive abnormal returns throughout the 2-day event window indicate contradictions with Hypothesis 4. In each subsample, the uninformed investors, either existing or new investors, found the reform proposal, particularly the level of Consideration, was more than what they expected. This surprise seems the largest in the dual-share subsample and the least in the SZSE subsample. This may simply be random chance.

7.1.5 Firm-specific 2nd resumption day

When the shareholders' meeting was approaching as scheduled in the reform proposal, the registration process started for the shareholders' meeting. And trading was suspended the next day of registration for the second time.

The proposal was voted on the shareholders' meeting and had to win a majority of two thirds of votes from the TAS and NTAS owners respectively. The board must publicise the voting results within 2 working days. If the proposal was accepted, the board should also publicly release the timetable for actual implementation of the reform. Trading was restarted after the shareholder meeting ratifying the completion of the reform. If the proposal was not approved the board should apply for extension of suspension of the listed company's shares from the next day of the announcement. The holders of NTAS of a listed company may redo the reform procedures from the very start but have to wait for at least three months. Only firms succeeded could resume trading.

Hypothesis 5 predicts negative abnormal returns at the 2nd resumption of trading because the bonus shares offered would effectively increase the number of tradable shares and with all other things remaining the same, the stock price would fall, consistent with the literature which suggests that the price usually drops by approximately the amount of dividend on ex-dividend day, which could be extended to the payment of Consideration. In addition, the good news of successful completion of the reform plan may have positive impact, which may reduce the negative return.

Overall sample

Table 7.9 presents the abnormal returns at the 2nd resumption of trading, together with the significance tests. The 2-day event window from the

announcement day to the next trading day is applied. There is no data available before the resumption of trading and hence the day immediately before the 2nd resumption day is excluded.

	AR(0)	AR(1)	CAR (0, 1)
	-0.14	-0.006	-0.145
BW	-34.826**	-1.395	-20.912**
MP	-205.068**	-7.755**	-122.612**
Rank	-5.853**	-1.341	
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)			

Table 7.9 Summary of abnormal returns around the 2nd resumption day

Like the 1st resumption day, the 2nd resumption day also varies from company to company, indicating the event-clustering may be not that serious. But 599 sample companies have 281 2nd resumption dates. Averagely speaking, approximately every 2 sample companies share the same 2nd resumption dates. Therefore the event-clustering is still a problem though on a reduced basis. And MP test which doesn't control cross-sectional dependence should also be used with caution if used by itself.

The abnormal return is -14% on the event day, significant at the 1% level according to all three tests. On day +1, this negative return almost vanished, with -0.6% insignificant in both BW test and the rank test. The CAR (0, 1) of -14.5% is dominated by the negative abnormal return on day 0 and significant according to both BW and MP test.

This result is consistent with Hypothesis 5 which predicts a negative abnormal return.

This critical final date is always missed in the studies on China FCR, probably intentionally because it seems bizarre to have a negative return of such magnitude. Only Beltratti and Bortolotti (2006) talked about this large decline on the 2nd resumption day and argued it was due to the stock traded from the record date of ex bonus, which was quite obscure. They didn't give further explanation or evidence.

As Hypothesis 5 indicates, the return would fall by the amount of Consideration, but the decline may be reduced by the positive effect of the good news implied on the 2nd resumption day, a successful completion of the reform plan. The difference between the estimated abnormal return based on Consideration and the true abnormal return is the premium, which reflects the real market response.

The average Consideration level (adjusted Consideration levels based on Table 6.6) is free bonus share of 0.295 for every TAS held, which indicates a decline in return by 22.78% and leads to an estimated abnormal return of -0.23⁴⁸. The real abnormal return on the 2nd resumption day is -0.14. Therefore there is an approximate premium of 9%. The empirical results are consistent with the implications of Hypothesis 5.

Subsamples

Part A in Table 7.10 shows the abnormal returns around the 2nd resumption day in two stock exchanges.

Part B in Table 7.10 gives the abnormal returns around the 2nd resumption day for subsamples divided by share types.

⁴⁸ Estimated return assuming a drop by Consideration: $E(R_{i0}) = 1/(1 + Con_i) - 1$. Estimated abnormal return: $E(AR_{i0}) = E(R_{i0}) - \alpha_i - \beta_i R_{m0}$.

Part C in Table 7.10 displays the abnormal returns around the 2nd resumption day for manufacturing industry and non-manufacturing industry.

PART A	SZSE			SHSE		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	-0.189	-0.001	-0.19	-0.117	-0.008	-0.124
BW	-47.057**	-0.249	-27.312**	-29.131**	-1.992*	-17.825**
MP	-155.406**	-1.497	-90.402**	-141.938**	-8.387**	-86.601**
Rank	3.743**	1.075		2.411*	0.698	
Sample size	193	193	193	406	406	406
PART B	A-share-only			Dual-share		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	-0.146	-0.00515	-0.151	-0.074	-0.011	-0.085
BW	-36.284**	-1.282	-21.706**	-18.424**	-2.739**	-12.219**
MP	-206.999**	-6.766**	-123.155**	-23.481**	-4.445**	-16.091**
Rank	2.799**	0.864		3.685**	0.388	
Sample size	550	550	550	49	49	49
PART C	Manufacturing			Non-Manufacturing		
	AR(0)	AR(1)	CAR (0, 1)	AR(0)	AR(1)	CAR (0, 1)
Average	-0.149	-0.007	-0.156	-0.127	-0.004	-0.131
BW	-37.098**	-1.743*	-22.425**	-31.62**	-0.996	-18.831**
MP	-165.456**	-7.389**	-99.585**	-121.864**	-3.261**	-72.082**
Rank	2.555**	0.803		1.669*	0.258	
Sample size	351	351	351	248	248	248
Test statistic with one star on the upper right corner (*) indicates significance at the 5% level while with two stars (**) indicates significance at the 1% level BW: the crude dependence adjustment test (Brown and Warner 1980) MP: the time-series adjustment test (Mikkleson and Partch 1988) Rank: the rank test (Corrado 1989)						

Table 7.10 Summary of abnormal returns around the 2nd resumption day for subsamples

Similar results are reported for all subsamples: a sharp decline in abnormal return at the 2nd resumption of trading, consistent with Hypothesis 5. The largest decline in abnormal return is found in the SZSE subsample (-0.189) and smallest in the dual-share subsample (-0.074).

Table 7.11 summaries the subsamples' estimated abnormal returns assuming returns falling by Consideration levels, the real abnormal returns and the premiums between.

Subsample	SZSH	SHSE	A-share-only	Dual-share	Manufac-turing	Non-Manufa-cturing
Estimated AR	-0.231	-0.224	-0.228	-0.211	-0.227	-0.226
Real AR	-0.189	-0.117	-0.146	-0.074	-0.149	-0.127
Premium	0.042	0.107	0.082	0.137	0.078	0.099

Table 7.11 Summary of premiums between estimated ARs and true ARs at the 2nd resumption of trading for subsamples

The highest premium is found in the dual-share subsample (0.137) and the lowest in the SZSE subsample (0.042), indicating the investors holding TAS in the dual-share companies were the happiest about the successful completion while the investors holding TAS in the SZSE-listed companies were the most conservative.

7.1.6 A full story

Here is a full story of China FCR.

The abnormal return is not significant around the release of Notice (2005), consistent with Hypothesis 1 which predicts the substance in Notice (2005) aiming to protect minority interest offset the negative effect from the price pressure.

The abnormal return is positive and significant around the release of Measures (2005), consistent with Hypothesis 2 which predicts the efforts made by the CSRC to extend the successful protection of minority interests in the pilot program to the rest firms may have a positive impact in the price behaviour.

The average abnormal return is positive and significant around the group announcements, consistent with Hypothesis 3 which predicts the inclusion in the namelist disclosed at group announcement indicates self-confidence and approval from the stock exchanges and may have a positive impact in the price behaviour.

The abnormal return is positive and significant at the 1st resumption of trading, rejecting Hypothesis 4 which predicts zero abnormal performance since a mutual agreement on the reform proposal shouldn't be a surprise to the public investors who have joined in the negotiation. The results indicate that there were non-participating investors who found the proposal was more than what they expected. In addition, the speculative China stock markets may drive the return even higher.

The abnormal return is negative and significant at the 2nd resumption of trading, consistent with Hypothesis 5 which predicts the return would fall by Consideration payment but the price-drop would be reduced in the wake of the successful completion of the reform.

Figure 7.3 depicts the CAR curve following the timeline from the release of Notice (2005) by the CSRC to the firm-specific completion of reform on the 2nd resumption day. Approximately the market response is positive except on the 2nd resumption day (the red line). However if the CAR is replaced by the premium on the 2nd resumption day which removes the Consideration effect (the blue line), the CAR curve then moves upwards instead, indicating China FCR is, generally speaking, successful since the market reacted positively to the reform, opposite to the market crash following the attempted effort to reduced NTAS by the State Council in 2001.

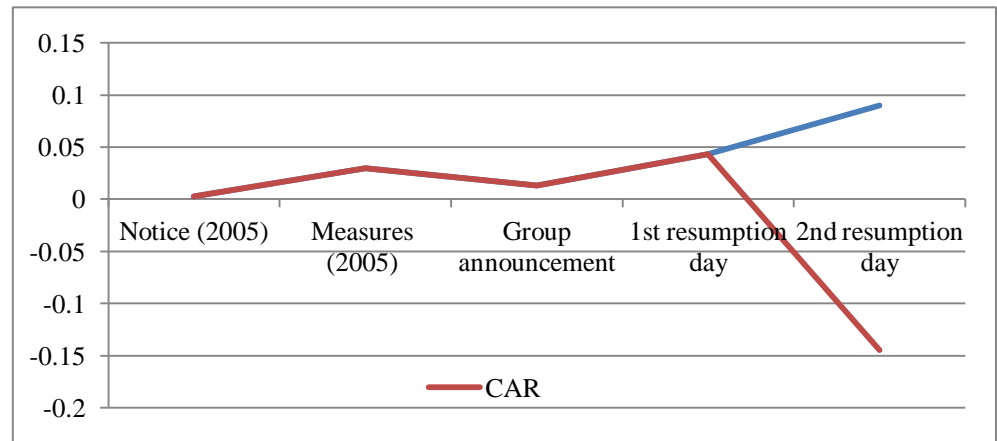


Figure 7.3 CAR curve following the timeline

7.2 Regression results

Cross-sectional regressions are run against the CARs drawn from each of the five interested events to investigate the associations with the factors implied in the regression hypotheses.

7.2.1 Regression results from Regression Model 1

Hypothesis 1 states that the abnormal return is zero at the announcement of Notice (2005) because Notice (2005) was designed to maintain the market stability and thus expected to offset the oversupply price pressure, which is supported by the results that the average CAR around the release of Notice (2005) is 0.3% and insignificant.

Hypothesis 1.1 predicts the issue size, which stands for the price pressure and is proxied as the NAV value of NTAS, provided in DataStream, divided by the pre-announcement market capitalization, is negatively related to the abnormal return at the announcement of Notice (2005).

Hypothesis 1.2 argues that companies in which the conflicting interests of the TAS and NTAS owners were most severe were likely to benefit most from Notice (2005) and predicts the agency problem, which is measured as

the ratio of NTAS to TAS, is positively related to the abnormal return at the announcement of Notice (2005).

Table 7.12 shows the coefficients of factors defined in Regression Model 1, together with the significance results of these coefficients.

	<i>Average</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept		0.011	0.044	0.256	0.798
IS	0.002	-0.09	0.161	-0.561	0.575
AP	1.771	0.004	0.002	2.248	0.025
ST		-0.009	0.006	-1.542	0.124
ID		-0.006	0.003	-2.025	0.043
LP		-0.004	0.003	-1.325	0.186
FS	21.22	0.00009	0.002	0.046	0.963
CG	0.296	0.002	0.016	0.147	0.883
EPS	0.168	-0.03	0.011	-2.871	0.004
VOL	1.954	0.001	0.0004	2.486	0.013
R Square: 0.042					
F statistic: 2.858*, significant at the 5% level.					
Regress Model 1:					
$CAR_{i-Notice} = \alpha + \beta_1 IS_i + \beta_2 AP_i + \beta_3 LP_i + \beta_4 ID_i + \beta_5 ST_i + \beta_6 CG_i + \beta_7 FS_i + \beta_8 EPS_i + \beta_9 VOL_i$					
<p>IS (Issue Size): the value of NTAS divided by the pre-announcement market capitalization;</p> <p>AP (Agency Problem): the ratio of NTAS to TAS to proxy for the agency problems between the TAS and NTAS holders;</p> <p>ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;</p> <p>ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;</p> <p>LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;</p> <p>FS (Firm Size): the logarithm of market capitalization;</p> <p>CG (Corporate Governance): the percentage of independent directors in the board;</p> <p>EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;</p> <p>VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.</p>					

Table 7.12 Summary of regression results from Regression Model 1

The average *IS* (Issue Size) is 0.2%, which means the total market capitalisation of tradable A-share market before the reform is 500 times the average value of NTAS across firms. The average annual trading volume is 1.8% of the total market capitalisation of tradable A-share market before the reform, which means the average market liquidity could only allow no more than 9 companies to dump all the NTAS in one go. Consistent with Hypothesis 1.1, the coefficient of *IS* is negative (-0.09). But this

coefficient is statistically insignificant due to a p-value of 0.56, indicating the price pressure from the sale of NTAS was not strongly affecting the market reaction around the release of Notice (2005) and hence a weak factor. It may be that the trading restrictions on the sale of NTAS assure the investors that dump of shares would not happen.

Lu et al. (2008) found a significant negative effect around April 29 2005 which is different from my finding of an insignificant return, and they attributed it to the fear of a dilution effect based on past experience in 2001. They didn't further investigate the hypothesized relationship (for example, by regressing the abnormal returns against various dilution effects and other variables across firms) and there is no evidence for their argument.

The average *AP* (Agency Problem) is 1.771%, which implies the average NTAS ownership is 1.771 times the average TAS ownership. Consistent with Hypothesis 1.2, the coefficient of *AP* (Agency Problem) is positive (0.004), and is statistically significant due to a p-value of 0.025, indicating the public investors of firms which had larger conflicting interests between the holders of TAS and NTAS would rank the announcement of Notice (2005) higher as they believed they would benefit more from it. This potential determinant *AP* has never been used to explain the market response around the Notice (2005) issuance in the past.

There are three controlling variables which are proved to be significant determinants of the CAR around the Notice (2005) issuance.

ID, the industry dummy, equals to 1 if in the manufacturing industry and zero otherwise. The coefficient of *ID* is negative (-0.006) and statistically significant because of a p-value of 0.043, indicating the firms in the manufacturing industry had lower CARs than those in the non-manufacturing industry. Manufacturing firms are more likely to be

long-established and large firms while non-manufacturing firms are comparatively newer and smaller. It seems the old firms which have a long history behind were more conservative about the news of reform than the new firms.

EPS refers to the earnings per share preceding the reform and a proxy for firm performance. The average *EPS* is 0.168. The coefficient of *EPS* is negative (-0.03) and statistically significant, according to a p-value of 0.004, which suggests the firms with higher performance had smaller CARs than those with lower performance. It seems the firms with higher quality were less keen on the reform than those with lower quality. In other words, the reform was more attractive to lower-quality firms which would benefit more from reducing non-tradable shares since private ownership and its legal status affected a firm's performance positively and significantly (Hu et al., 2004).

VOL refers to the stock standard deviation during the estimation period. The average *VOL* is 1.954. The coefficient of *VOL* is positive (0.001) and significant due to a p-value of 0.013, indicating the investors of firms with higher risks were convinced they would benefit more from the reform implied in the Notice (2005) issuance.

In general, the public investors of firms with more serious agency problem, worse performance, higher volatility, or of shorter history were more favorable to the reform news implied in the release of Notice (2005).

The R square is 4.2%, which indicates all the selected variables in Regression Model 1 can only explain 4.2% of the CAR variance. Most of the variability in the CARs hasn't been explained. The F-statistic is significant, indicating the selected variables are when taken together powerful predictors.

7.2.2 Regression results from Regression Model 2

According to Hypothesis 2, the average abnormal return is positive at the announcement of Measures (2005) since the efforts made by the CSRC to formalise the reform procedure for the purpose of protecting the minority interests are assumed have a positive impact on the market. Consistent with Hypothesis 2, the average CAR around the announcement of Measures (2005) is 3% and significant.

Hypothesis 2.1 predicts that the agency problem is positively related to the abnormal return at the announcement of Measures (2005) as firms with worse agency problem may benefit more from filing Measures (2005) to extend the successful practice in protection of minority interests in the pilot program to the rest firms.

Table 7.13 shows the coefficients of factors defined in Regression Model 2, together with the significance results of these coefficients.

	<i>Average</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept		0.105	0.079	1.316	0.189
AP	1.771	0.079	0.037	2.157	0.031
ST		-0.001	0.011	-0.048	0.962
ID		0.001	0.006	0.168	0.867
LP		0.003	0.006	0.44	0.66
FS	21.22	-0.005	0.004	-1.291	0.197
CG	0.296	0.052	0.033	1.591	0.112
EPS	0.168	-0.012	0.021	-0.57	0.569
VOL	1.954	0.0007	0.0009	0.804	0.422
R square: 0.023					
F statistic: 1.512					
Regression Model 2:					
$CAR_{i-Measure} = \alpha + \beta_1 AP_i + \beta_2 LP_i + \beta_3 ID_i + \beta_4 ST_i + \beta_5 CG_i + \beta_6 FS_i + \beta_7 EPS_i + \beta_8 VOL_i$					
AP (Agency Problem): the ratio of NTAS to TAS to proxy for the agency problems between the TAS and NTAS holders;					
ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;					
ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;					
LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;					
FS (Firm Size): the logarithm of market capitalization;					
CG (Corporate Governance): the percentage of independent directors in the board;					
EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;					
VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.					

Table 7.13 Summary of regression results from Regression Model 2

Consistent with Hypothesis 2.1, the coefficient of *AP* (Agency Problem) is a positive (0.079) and statistically significant with a p-value of 0.031, indicating the public investors of firms with more serious conflicts of interests between the TAS and NTAS owners (the minority and majority shareholders) felt assured that they would be backed in the reform by the filing of Measures (2005) to reinforce the determination to protect minority interest.

None of the controlling variables have significant coefficients, suggesting these variables don't have much power in explaining the CARs around the release of Measures (2005).

This critical event of Measures (2005) issuance has never been investigated in the past and therefore no comparison can be made.

The R square is 2.3%, which indicates all the selected variables in Regression Model 2 can only explain 2.3% of the CAR variance. Most of the variability in the CARs remains unexplained. The F-statistic is insignificant, indicating the selected variables are not very powerful predictors.

7.2.3 Regression results from Regression Model 3

Hypothesis 3 predicts the abnormal return is positive at group-specific announcement because the inclusion of companies in the list disclosed indicates that the companies in the name list were self-confident that they were well prepared for the reform and passed the scrutiny conducted by the stock exchanges. Consistent with Hypothesis 3, the average CAR around the group announcements is 1.3% and significant.

As Jiang et al. (2008) and Li et al. (2010) indicated, the firms in earlier groups were more self-confident than those in later groups and may face stricter scrutiny as the stock exchanges always tried to set up examples in earlier groups for future reforms in later groups.

Hypothesis 3.1 predicts the group order, which is an ascending order of 66 sequential groups, is negatively related to the abnormal return at the group announcement.

Table 7.14 shows the coefficients of factors defined in Regression Model 3, together with the significance results of these coefficients.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept	-0.092	0.044	-2.093	0.037
GO	0.00005	0.0001	-0.45	0.653
ST	-0.004	0.006	-0.679	0.497
ID	-0.001	0.003	-0.259	0.796
LP	0.002	0.003	0.471	0.638
FS	0.005	0.002	2.369	0.018
CG	0.027	0.018	1.48	0.139
EPS	0.005	0.012	0.46	0.646
VOL	0.0004	0.0005	0.867	0.386
R square: 0.0234				
F statistic: 1.768				
Regression Model 3:				
$CAR_{i-Group} = \alpha + \beta_1 GO + \beta_2 LP_i + \beta_3 ID_i + \beta_4 ST_i + \beta_5 CG_i + \beta_6 FS_i + \beta_7 EPS_i + \beta_8 VOL_i$				
<p>GO (Group Order): the ascending order of groups, starting from the 1st pilot group ranked 1, ending up with the last group announced at the end of Dec 2006 ranked 66;</p> <p>ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;</p> <p>ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;</p> <p>LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;</p> <p>FS (Firm Size): the logarithm of market capitalization;</p> <p>CG (Corporate Governance): the percentage of independent directors in the board;</p> <p>EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;</p> <p>VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.</p>				

Table 7.14 Summary of regression results from Regression Model 3

The group order *GO* has a coefficient close to zero (0.00005) and is insignificant due to a p-value of 0.653, which rejects Hypothesis 3.1. The insignificant coefficient means the group order neither has any impact on the dependent variable of CARs, which suggests the investors didn't see the later entries into the reform as an indication of less self-confident. As long as the firms registered when they thought they were ready and got approvals from the stock exchanges, the investors were satisfied.

The variable of firm size *FS* has a positive coefficient (0.005) which is significant due to a p-value of 0.018, indicating the public investors of those larger firms were more optimistic when their firms were included in the namelists publicised at group announcements. One potential explanation is that larger firms may find it more difficult to draw proper reform proposals, may need to pluck up more self-confidence to submit the proposals to the stock exchanges, and may encounter higher level of examination by the stock exchanges, which could help to improve the public investors' confidence in the market.

The negative intercept (-0.092) is significant according to a p-value of 0.037, meaning the expected mean value of CAR is a negative significantly different from zero when all independent variables are set to zero.

The R square is 2.34%, which indicates all the selected variables in Regression Model 3 can only explain 2.34% of the CAR variance. Most of the variability in the CARs remains unexplained. The F-statistic is insignificant, indicating the selected variables are not very powerful predictors.

7.2.4 Regression results from Regression Model 4

Hypothesis 4 predicts that the abnormal return on the 1st resumption day is zero. There should be no surprise from the market since a mutual agreement between the holders of TAS and NTAS had been achieved before the announcement of the 1st resumption. The average CAR at the 1st resumption of trading is 4.3% and significant, which rejects Hypothesis 4 and indicates there were uninformed investors, probably non-participating investors who didn't pitch in the discussion and the reform proposal, especially the level of Consideration, was more than what they expected.

Regression Model 4A

A short negotiation period (1st suspension period) indicates insufficient solicitation and a diversified ownership may be an obstacle to have enough participants. In other words, negotiation period (1st suspension period) and diversified ownership are positively related to the magnitude of the abnormal returns at the 1st resumption of trading (without respect to sign of abnormal returns). Hypothesis 4.1 predicts the negotiation period and the ownership concentration are positively related to the squared abnormal returns at the 1st trading resumption.

Mola and Loughran (2004) found that firms issuing equity within one year of a prior offering had significantly lower average discounts of seasoned issues than firms with no recent offerings, indicating frequent occurrence of similar events may mitigate the effect of subsequent events, assuming an efficient market. Hypothesis 4.2 predicts the group order is negatively related to the squared abnormal returns at the 1st trading resumption.

Table 7.15 shows the coefficients of factors defined in Regression Model 4A, together with the significance results of these coefficients.

	<i>Average</i>	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>
Intercept		0.008	0.001	6.445	0
NP	17.656	-0.00008	0.00002	-3.61	0.0003
OC	0.221	-0.003	0.003	-1.075	0.283
GO		0.00002	0.00003	0.509	0.611
ST		-0.001	0.002	-0.508	0.612
ID		-0.002	0.001	-1.726	0.085
LP		0.0004	0.001	0.354	0.723
FS	21.22	-0.001	0.001	-1.015	0.311
CG	0.296	0.004	0.005	0.693	0.488
EPS	0.168	-0.006	0.003	-1.766	0.078
VOL	0.018	0.00004	0.00014	0.296	0.768
R square: 0.0383					
F statistic: 2.44**, significant at the 1% level					
Regression Model 4A:					
$CAR^2_{i-1-res} = \alpha + \beta_1 NP_i + \beta_2 OC_i + \beta_3 GO_i + \beta_4 FS_i + \beta_5 LP_i + \beta_6 ID_i + \beta_7 ST_i + \beta_8 CG_i + \beta_9 EPS_i + \beta_{10} VOL_i$					
NP (Negotiation Period): the length of the negotiation period, measured in days;					
OC (Ownership Concentration): the logarithm of the number of shareholders;					
GO (Group Order): the ascending order of groups, starting from the 1st pilot group ranked 1, ending up with the last group announced at the end of Dec 2006 ranked 66;					
ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;					
ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;					
LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;					
FS (Firm Size): the logarithm of market capitalization;					
CG (Corporate Governance): the percentage of independent directors in the board;					
EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;					
VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.					

Table 7.15 Summary of regression results from Regression Model 4A

The average negotiation period length NP is 17.565 days. The coefficient of NP is negative (-0.00008) and significant (p-value = 0.0003), supporting Hypothesis 4.1 which says that reforming firms coming out with shorter negotiation period indicate less sufficient solicitation from the side of reforming companies and hence have greater abnormal returns. The

finding of negative *NP* impact is consistent with Lu et al. (2008) which also found that companies that took a longer period to work out a reform plan generated a lower CAR at the 1st resumption of trading.

The coefficient of ownership concentration *OC* is negative (-0.003) as predicted in Hypothesis 4.2. However it is insignificant (p-value = 0.283), indicating this variable is not an important factor determining the CAR at the 1st resumption of trading.

The coefficient of group order *GO* is positive (0.00002) and insignificant (p-value = 0.611), rejecting Hypothesis 4.2 which says firms in earlier groups would have greater abnormal returns. This result indicates which groups the reforming firms were in has no impact on the CAR at the 1st resumption of trading, inconsistent with the findings in Lu et al. (2008) which reported a significant negative coefficient and indicated later reforms had smaller positive market responses. Lu et al. (2008) included 208 sample companies from the largest firms listed in SZSE and SHSE, and their results may be biased by the sample selection. Furthermore, their sample size indicated there were averagely three companies in each group, which may bias the group performance as well.

None of the controlling variables are significant, indicating these variables don't have much power in explaining the CARs at the 1st resumption of trading.

The R square is 3.83%, which indicates all the selected variables in Regression Model 4A can only explain 3.83% of the CAR variance. Most of the variability in the CARs remains unexplained. The F-statistic is significant, indicating the selected variables taken together are powerful predictors.

Regression Model 4B

Non-participating TAS holders should also respond to the reform proposal including Consideration size which they didn't know before the announcements. Hypothesis 4.3 predicts Consideration size is positively related to the abnormal returns at the 1st trading resumption.

Consideration paid in shares is uncertain and subject to risks of future price changes. Consideration paid in cash is certain. Consideration in the form of warrants fixes the strike price at a future time. Put warrant actually hedges the risks exposed and eliminates the downside risks. Call warrants doubles the upside gains. Lu et al. (2008) found the public investors responded to various Consideration types as well. In light of Lu et al. (2008), Hypothesis 4.4 predicts Consideration dummy equal to 1 if paid in cash, or warrant, or combination including cash or warrant, is positively related to the abnormal returns at the 1st trading resumption.

Table 7.16 shows the coefficients of factors defined in Regression Model 4B, together with the significance results of these coefficients.

	Average	Coefficients	Standard Error	t Stat	P-value
Intercept		0.158	0.095	1.653	0.099
CS	0.295	0.034	0.042	0.807	0.42
CD		0.016	0.012	1.293	0.196
ST		0.001	0.013	0.054	0.957
ID		-0.013	0.007	-1.808	0.071
LP		-0.001	0.007	-0.123	0.902
FS	21.22	-0.006	0.004	-1.269	0.205
CG	0.296	0.021	0.039	0.531	0.595
EPS	0.168	-0.05	0.025	-1.97	0.049
VOL	1.954	0.001	0.001	1.046	0.296

R square: 0.019
F statistic: 1.27

Regression Model 4B:

$$CAR_{i-1-res} = \alpha + \beta_1 CS_i + \beta_2 CD_i + \beta_3 FS_i + \beta_4 LP_i + \beta_5 ID_i + \beta_6 ST_i + \beta_7 CG_i + \beta_8 EPS_i + \beta_9 VOL_i$$

CS (Consideration size): adjusted on the same scale according to Table 6.6;
CD (Consideration dummy): equal to 1 if Consideration is paid in cash, warrant, or combination including cash or warrant and 0 otherwise;
ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;
ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;
LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;
FS (Firm Size): the logarithm of market capitalization;
CG (Corporate Governance): the percentage of independent directors in the board;
EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;
VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.

Table 7.16 Summary of regression results from Regression Model 4B

The average Consideration size CS is a payment of 0.295 bonus share for every TAS held, which is increased by 0.025 from the average of the original Consideration sizes publicised at the 1st suspension of trading. There are 430 sample companies increased their Consideration sizes after the negotiation, 150 sample companies didn't make any change in their Consideration sizes, and 19 sample companies decreased their Consideration sizes. The coefficient of CS is positive (0.034) and

insignificant (p-value = 0.42), indicating there is no relationship between the level of consideration and share market response and the investors perceived the consideration to be fair and adequate, rejecting Hypothesis 4.3 which predicts a significant positive relationship. This insignificant coefficient of CS is consistent with Lu et al. (2008), but inconsistent with Firth et al. (2010) which on the contrary reported a significant and positive coefficient as Hypothesis 4.3 predicts. Firth et al. (2010) focused on firms that have offered shares as the sole consideration to compensate tradable A shareholders to ensure the comparability of compensation across firms as they didn't convert and aggregate different forms of Consideration (e.g., warrants, cash). And their estimation period to calculate the abnormal return is only 60 trading days (-63, -4) before the 1st resumption day. Therefore their conclusion may be biased.

According to Table 6.5, there were 63 sample companies who used warrants, cash or combination to pay Consideration. The coefficient of Consideration dummy CD is positive (0.016) and insignificant (p-value = 0.196), suggesting the choice of Consideration type didn't affect the market reaction at the 1st resumption of trading and rejecting Hypothesis 4.4 which predicts a significant positive coefficient. This insignificant coefficient of CD is inconsistent with Lu et al. (2008) which reported significant and positive coefficients of cash dummy, warrants dummy and combination dummy. Lu et al. (2008) included 3 sample companies which paid Consideration in cash, 1 sample company which used warrant type and 22 sample companies which selected combination type, which indicates their results from Consideration type dummies are not very convincing.

The firm performance controller, the variable of EPS , has a negative coefficient (-0.05) which is significant (p-value = 0.049), indicating the

public investors of less profitable firms were more pleased about the reform proposals released at the 1st resumption of trading.

The R square is 1.9%, which indicates all the selected variables in Regression Model 4A can only explain 1.9% of the CAR variance. Most of the variability in the CARs remains unexplained. The F-statistic is insignificant, indicating the selected variables are not very powerful predictors.

Lu et al. (2008) reported an R square of 3.88% and insignificant F statistic for their regression model examining the relationships between the CARs at the 1st resumption of trading and the determinants they defined, including the variables of group order, negotiation period and Consideration size.

Firth et al. (2010) reported an R square of no more than 0.06% for their regression models examining the relationships between the CARs at the 1st resumption of trading and the determinants they defined, including Consideration size, state ownership and fund ownership.

Generally speaking, the R square is relatively low in the regression models which investigate the associations between the market response at 1st resumption of trading and the common factors, indicating there may be some other important factors which haven't been identified and further research and deeper insights are needed.

7.2.5 Regression results from Regression Model 5

Hypothesis 5 predicts that the abnormal return on the 2nd resumption day is negative since the bonus shares offered would effectively increase the number of tradable shares and with all other things remaining the same, the stock price would fall. The average CAR of -14.5% at the 2nd resumption of trading supports this hypothesis.

Hypothesis 5.1 predicts Consideration size is negatively related to the abnormal return at the 2nd resumption of trading.

Furthermore the decline in return may be reduced by the positive effect from the good news of successful completion implied at the 2nd resumption of trading. The successful completion of reform is more meaningful for companies with more serious agency problems and hence implies more favorable response from those investors.

Hypothesis 5.2 predicts agency problem is positively related to the abnormal return at the 2nd resumption of trading.

Table 7.17 shows the coefficients of factors defined in Regression Model 5, together with the significance results of these coefficients.

	Average	Coefficients	Standard Error	t Stat	P-value
Intercept		1.028	0.294	3.504	0.0005
CS	0.295	-0.758	0.135	-5.597	3.35E-08
AP	21.22	-0.005	0.012	-0.373	0.71
ST		-0.176	0.04	-4.398	1.30E-05
ID		0.032	0.022	1.432	0.153
LP		0.029	0.023	1.253	0.211
FS	21.22	-0.039	0.013	-2.904	0.004
CG	0.296	0.06	0.12	0.499	0.618
EPS	0.168	-0.024	0.077	-0.311	0.756
VOL	1.954	-0.00034	0.003	-0.108	0.914
R square: 0.105					
F statistic: 7.685**, significant at the 1% level					
Regression Model 5:					
$CAR_{i-2-res} = \alpha + \beta_1 CS_i + \beta_2 AP_i + \beta_3 IS_i + \beta_4 LP_i + \beta_5 ID_i + \beta_6 ST_i + \beta_7 CG_i + \beta_8 FS_i + \beta_9 EPS_i + \beta_{10} VOL_i$					
CS (Consideration size): adjusted on the same scale according to Table 6.6;					
AP (Agency Problem): the ratio of NTAS to TAS to proxy for the agency problems between the TAS and NTAS holders;					
ST (Share Type): a dummy equal to 1 if issuing only A-shares and zero if issuing dual shares, like A and B shares or A and H shares;					
ID (Industry Dummy): a dummy equal to 1 if in the manufacturing industry and zero otherwise;					
LP (Listing Place): a dummy equal to 1 if listed in SHSE and zero if listed in SZSE;					
FS (Firm Size): the logarithm of market capitalization;					
CG (Corporate Governance): the percentage of independent directors in the board;					
EPS (Firm Performance): earnings per share released in the financial reports preceding the reform;					
VOL (Firm Risk): the standard deviation of daily stock returns during the estimation period.					

Table 7.17 Summary of regression results from Regression Model 5

The coefficient of Consideration size CS is negative (-0.758) and significant due to a very small p-value of 3.35E-08, consistent with Hypothesis 5.1 which predicts a significant and negative relationship between the market response at the 2nd resumption of trading and Consideration size. In other words, the abnormal returns dropped more if the

investors were promised to receive higher Consideration, also supportive of Hypothesis 5.

The coefficient of AP , the ratio of NTAS to TAS, is negative (-0.005) and insignificant (p-value = 0.71), indicating the non-participating public investors didn't view the successful completion of the reform as a surprise, which rejects Hypothesis 5.2.

The variable controlling firm size FS has a negative coefficient (-0.039) which is significant (p-value = 0.004), indicating the investors of larger firms didn't value the successful completion of the reform plan as high as those of smaller firms as larger firms may encounter more difficulties when carrying out the reform and proceeding with the sale of NTAS.

The Share Type dummy ST has a negative coefficient (-0.176) which is significant (p-value = 1.30E-05), indicating the investors of firms issuing A-shares only held a less positive view of the successful completion of the reform plan than those of firms issuing A&B or A&H shares as the firms issuing A-shares-only may be influenced more in the reform implementation than those firms issuing dual-shares.

The R square is 10.5 %, which indicates all the selected variables in Regression Model 5 can only explain 10.5% of the CAR variance, which is improved a lot compared to the other regression models. The F-statistic is significant at the 1% level, indicating the selected variables are relatively highly powerful predictors.

No previous studies have ever investigated into the abnormal returns. They may be cherry-picking about the critical event dates in China FCR.

7.2.6 Summary of regression results

According to the results from Regression Model 1, the issue size *IS* is negatively related to the market response around the release of Notice (2005), consistent with Hypothesis 1.1. Meanwhile the agency problem *AP* is positively related to the market response around the release of Notice (2005), consistent with Hypothesis 1.2 which predicts that the public investors of firms having more serious conflicts of interests between the holders of NTAS and TAS (the minority and majority shareholders) should benefit more from the substances in Notice (2005).

According to the results from Regression Model 2, the agency problem *AP* is positively related to the market reaction around the filing of Measures (2005), consistent with Hypothesis 2.1 which predicts that the public investors of firms with more serious conflicts of interests between the TAS and NTAS owners felt assured that they would be backed in the reform by the filing of Measures (2005) with an aim to reinforce the determination to protect minority interest.

According to the results from Regression Model 3, the group order *GO* is not statistically related to the market response at the group announcement, rejecting Hypothesis 3.1 which predicts firms in earlier groups were more self-confident than those in later groups and may face stricter scrutiny as the stock exchanges. This result suggests that the investors were satisfied as long as the firms registered when they thought they were ready and got approvals from the stock exchanges, and the sequence of the group they were in doesn't count.

According to the results from Regression Model 4A, the negotiation period is negatively related to the market response at the firm-specific 1st resumption of trading, supportive of the first half of Hypothesis 4.1 which

predicts that reforming firms coming out with shorter negotiation period indicate less sufficient solicitation from the side of reforming companies and subsequently low participating ratio, and hence have greater abnormal returns. Meanwhile there is no significant relationship between the ownership concentration *OC* and the market response at the 1st resumption of trading, rejecting the second half of Hypothesis 4.1 which predicts that firms with diversified ownership may have low participating ratio due to the diversified interests and hence have abnormal returns statistically different from zero. Also there is no significant relationship between the group order *GO* and the market response at the 1st resumption of trading, rejecting Hypothesis 4.2 which predicts firms in earlier groups should have greater abnormal returns. Neither the ownership concentration *OC* nor the group order *GO* is significant determinants of the magnitude of the market reaction at the 1st resumption of trading.

According to the results from Regression Model 4B, the Consideration size *CS* is not significantly related to the market response at the 2nd resumption of trading, rejecting Hypothesis 4.3 which predicts non-participating investors should respond positively to the reform proposal. The Consideration dummy *CD* is not significantly related to the market response at the 2nd resumption of trading, rejecting Hypothesis 4.4 which predicts non-participating investors should respond positively to Consideration in the form of cash, warrants and combination which reduced the downside risks or increased the upside risks. The results show that neither Consideration size *CS* nor Consideration dummy *CD* has any impact on the market response at 1st resumption of trading.

According to the results from Regression Model 5, the coefficient of Consideration size *CS* is negatively related to the market response at the 2nd resumption of trading, consistent with Hypothesis 5.1 which predicts the

abnormal returns dropped more if the investors were promised to receive higher Consideration. There is no significant relationship between the agency problem *AP* and the market response at the 2nd resumption of trading, rejecting Hypothesis 5.2 which predicts the non-participating public investors of firms with more serious agency problem should more welcome the successful completion of the reform plan with an aim to protect their interests. Actually the non-participating public investors didn't view the news as a surprise.

7.3 Concluding Remarks

There are five interested event dates for each sample firm: the releases of Notice (2005), the filing of Measures (2005), the group announcement, and the firm-specific 1st and 2nd resumption of trading.

The price behaviours around these five critical event dates have been investigated using event-study method to see if there is any abnormal performance. Hypothesis 1, 2, 3, 4 and 5 defined in Chapter 6 are examined.

The empirical results suggest that (1) the substance in Notice (2005) aiming to protect minority interest offset the negative effect from the price pressure; (2) the efforts made by the CSRC to extend the successful protection of minority interests in the pilot program to the rest firms may have a positive impact in the price behavior; (3) the inclusion in the names disclosed at group announcement indicates self-confidence and approval from the stock exchanges and may have a positive impact in the price behavior; (4) there were non-participating investors who found the proposal was more than what they expected; (5) the return which should have dropped by Consideration size was improved a bit in the wake of the successful completion of the reform.

Furthermore the associations between hypothesized factors and the market responses around these five interested event dates are investigated with multiple regressions.

The regression results indicate that (1) the negative impact of issue size *IS* on the market response around the release of Notice (2005) seems to have been neutralized by the positive impact of the substance released in Notice (2005); (2) the efforts by the CSRC to protect minority interests through filing Measures (2005) have a positively effect on the market response; (3) those firms which were included in the later groups are not necessarily less self-confident than those in the earlier groups; (4) as a proxy for participation ratio, the negotiation period *NP* negatively affect the magnitude of the market reaction at the 1st resumption of trading; and (5) those firms with higher Consideration size *CS* seem to have lower market response at the 2nd resumption of trading.

Chapter 8. Conclusion

China began its modernization program in the late 1970s and gradually reformed its state-owned enterprises. In the early 1990s, the Government partially privatized some state-owned enterprises through share issuances on the newly established China stock exchanges. For the listed state-owned enterprises, there are multiple classes of shares outstanding: (1) Yuan-denominated A-shares which are available for trading by domestic shareholders; (2) B-shares are available for trading by foreign investors in foreign currencies on the domestic stock exchanges; (3) H shares are allowed to trade on Hong Kong Stock Exchanges only and denominated in HK dollars. Most distinctively, the Government launched a split-share structure in which about two thirds of A shares were banned from trading and only about one third of A shares were freely-traded in Shanghai and Shenzhen exchanges. Non-tradable A shares were mainly held in the hands of the Government and its affiliates, and tradable A shares were mainly held by domestic investors. Tradable A shareholders received little protection and had limited power to affect firm management due to the minority shareholding in the listed companies. In addition, unlike the fixed lockup period in IPO and for letter stocks in the US (Siber 1991, Longstaff 1995), the constraint horizon in China was not explicitly specified in the IPO prospectuses.

The early initiative in 2001 was to invite companies to sell their state shares to tradable shareholders without bargaining beforehand with tradable shareholders. This action resulted in a significant decline in stock prices, about 40 per cent within 15 days of the announcement.

In 2005, the Government launched China Full-Circulation Reform to terminate the trading constraints and convert the non-tradable A shares into

freely-traded A shares. The State Council drew a blueprint for reforming the country's capital markets, emphasizing the reforming firms should respect market rules and protect the interests of minority public shareholders.

The reform was conducted gradually step by step as shown in Figure 6.1 which sketches a timeline of this overwhelming reform at three levels. At the macroeconomic level, China listed firms were guided and directed under a series of policies and relevant documents released by China Government to practice China Full-Circulation Reform. At the group level, China listed firms involved were organized into groups to prepare for the reform. At the firm-specific level, the relevant firms listed in China should undergo a scheduled reform procedure.

Notice (2005) publicised on April 29 2005 initiated the reform with proposed measures aiming to maintain the market stability, including Consideration agreed to compensate the holders of tradable share for estimated loss after the reform assuming a sloping downward demand curve. Guidelines (2005) followed to set out operational procedures for pilot firms. Subsequently two pilots, containing 4 and 42 firms respectively, were announced to take the trail reform, based on which Measures (2005) was stipulated and used to extend the successful trial of reform scheme and procedure from the experiments to the rest of firms involved. On Sep. 12th 2005, the first group of 40 firms was announced to take the reform under the guide of Measures (2005). By the end of 2006, the last group of 32 firms was announced.

For each firm, there was a procedure to gradually put the reform proposal into effect. The whole firm-specific process consists of two suspension periods. Trading of firm is firstly suspended when the initial proposal put forward by the holders of NTAS of a firm was announced by the board of

directors, together with the date of the shareholders' meeting and the opinions of the recommending institution and the law firm. During the first suspension period, the board of directors and holders of NTAS interact with holders of TAS to receive comments and suggestions and form a consensus on the proposal. Once the agreed proposal is announced, the trading is resumed. Trading is suspended for the second time the next day of when registration starts for the shareholders' meeting. During the second suspension period, the proposal is voted in the shareholders' meeting. A pass is issued if the proposal wins a qualified majority of two-thirds of the votes from both the holders of NTAS and TAS. Trading is restarted if the proposal is accepted. If not, the firm needs to restart the reform in another around. A series of announcements for a certain event like this is not rare in China. For instance, the regulatory nature produces several announcement dates of equity offerings in China, such as board of directors meeting date, shareholders meeting date, CSRC approval date, and announcement to the public.

Summarily, there are five interested event dates for each sample firm: the releases of Notice (2005), the filing of Measures (2005), the group date at which the name of companies were announced, and the firm-specific 1st and 2nd resumption of trading. The other event dates are excluded from the study due to the data unavailability.

8.1 Main Findings of the Thesis

There are five main hypotheses for each interested event date during the reform: (1) Hypothesis 1 which predicts the substance in Notice (2005) aiming to protect minority interest offset the negative effect from the price pressure; (2) Hypothesis 2 which predicts the efforts made by the CSRC to extend the successful protection of minority interests in the pilot program to

the remaining firms may have a positive impact in the price behavior; (3) Hypothesis 3 which predicts the inclusion in the names disclosed at group announcement indicates self-confidence and approval from the stock exchanges and may have a positive impact in the price behavior; (4) Hypothesis 4 which predicts zero abnormal performance at the 1st resumption of trading since a mutual agreement on the reform proposal shouldn't be a surprise in the market as the public investors were supposed to join in the negotiation; and (5) Hypothesis 5 which predicts the return at the 2nd resumption of trading would fall by Consideration payment but the price-drop would be reduced in the wake of the successfully completion of the reform.

The price behaviours around these five critical event dates have been investigated using the event-study method to see if there is any abnormal performance.

8.1.1 Release of Notice (2005)

The empirical results show that the cumulative abnormal return is not significant around the release of Notice (2005), consistent with Hypothesis 1, which also holds strongly even if examined with subsamples divided by listing place, share type or industry.

Notice (2005) proposed relevant issues in line with Opinions (2004), published by the State Council with focuses on stability and healthy growth of market and protection of the lawful rights and interests of public investors. Particularly, Notice (2005) set out the timescale of an individual reform process which should include two suspension stages, one is negotiation stage during which the holders of TAS and NTAS confer with each other on the reform proposal, the other is voting stage during which the reform proposal on mutual agreement will be voted in the relevant

shareholders' meeting. In addition, Notice (2005) granted the holders of TAS the equal weighted voting rights as the holders of NTAS and put on trading restrictions on the sale of Government shares after the reform.

All the measures illustrated in Notice (2005) aimed to hear the voices from the holders of TAS and let them have the joint-decision powers on a range of issues regarding the reform which may hugely affect their interests. The findings suggest that the inspiring substance in Notice (2005) did effectively turn back the negative powers of the price pressure from the potential sale of large amounts of NTAS, which was blamed for having enormously hit China stock markets in the attempt by the State Council to reduce the state shares in June 2001.

8.1.2 Release of Measures (2005)

The cumulative abnormal return is positive and significant [CAR (-1,1) = 0.03] around the release of Measures (2005), consistent with Hypothesis 2, which also holds strongly even if examined with subsamples divided by listing place, share type or industry.

Measures (2005) decentralised decision making at the firm level, by allowing shareholders to bargain over the method and terms of the compensation. Furthermore, it safeguarded the interests of TAS holders by seeking no less than two thirds of the votes from the TAS owners, compensating them for the estimated loss due to the reform, diluted the risks by introducing a series of announcements dates, and prevented market slump by banning any sale of NTAS in the 12 months and restricting the issue size in the following 24 months.

There is nothing new in Measures (2005) but it summaries the pilot program and uses it as a best practice to guide the reforms in the remaining firms,

with an aim to maintain the market stability and protect the minority interests. The filing of Measures (2005) reflects the determination of the CSRC to extend to a much broader dimension the measures which were proved to work efficiently to protect the minority interests in the pilot program. The results suggest that the public investors thought highly of this extension announcement and gave it a very warm welcome.

8.1.3 Group-specific announcements

The cumulative abnormal return is positive and significant [CAR (-1,0) = 0.013] around the group announcements, consistent with Hypothesis 3 which also holds strongly even if examined with subsamples divided by listing place, share type or industry.

The reform process was gradual and took place in orderly groups. Each group-specific announcement disclosed its respective namelist of companies, which was decided in two steps.

First the stock exchanges set a deadline to accept reform proposals from companies wishing to participate. Next the stock exchanges examined all the applying firms and crossed out those they thought had problems. The selection standards may vary with the outlook into the future, and were adjusted all the time.

The selection process indicates that the companies in the name list were self-confident that they were well prepared for the reform, which was further confirmed by the stock exchanges which carried out scrutiny of the submitting firms and assessed the feasibilities of their proposals.

The outcomes indicate that the public investors did get the message at the group announcements that the firms included in the publicised namelists not only had strong belief in their abilities to cope with the reform, but also had

survived the strict investigation by the stock exchanges, and furthermore, the NTAS owners of those firms were able to and ready to pay certain Consideration. Consequently, the combined effect led to a rising market.

8.1.4 The first resumption of trading

The cumulative abnormal return is positive and significant [CAR (0,1) = 0.043] at the 1st resumption of trading, rejecting Hypothesis 4 which is also rejected with subsamples divided by listing place, share type or industry.

The trading in the shares of the stock was immediately suspended on the day when the board of directors publicised the reform proposal, including date of the shareholders' meeting, a description of the reform proposal as well as the opinions of the recommending institution and the law firm.

Within 10 days after the announcement, the board of directors should assist the owners of NTAS in adequately communicating and negotiating with the holder of TAS of A-share market by such approaches as hosting an investor symposium, a press conference or an online road show, paying a visit to institutional investors and issuing a consultation paper and so on. In addition, the board of directors of the listed company publicly should disclose its hotline, facsimile and e-mail address in order to widely solicit opinions from tradable shareholders so as to lay a broad shareholder foundation for the reform plan.

If the proposal was acceptable to both parties, an announcement of consensus would be made and trading resumed. Once trading resumed the proposal couldn't be further modified. The results disclosed with the 1st trading resumption should reflect a mutual agreement between the holders of TAS and NTAS.

However the significant results indicate that there were non-participating investors who found the proposals were more than what they expected, resulting in positive market reactions. In addition, the uncertainty surrounding the measures and the risk aversion of the investors contributed to this positive effect. Of course, there is always the possibility of a moment of irrationality in the markets driving the shares up in price.

8.1.5 The second resumption trading

The abnormal return is negative and significant [$AR(0) = -0.14$] at the 2nd resumption of trading, but higher than the estimated abnormal return [$EAR(0) = -0.23$] if the price dropped by the size of Consideration, resulting in an actual premium of 0.09 which is consistent with Hypothesis 5.

When the shareholders' meeting was approaching as scheduled, the registration process started for the shareholders' meeting. And trading was suspended the next day of registration for the second time.

Then the shareholders' meeting was held. The proposal was voted and had to win a majority of two thirds of votes from the TAS and NTAS owners respectively. The board must publicise the voting results within 2 working days. Trading was restarted after the shareholder meeting ratifying the completion of the reform. If the proposal was not approved the board should apply for extension of suspension from the next day of the announcement and prepare for a come-back plan. Only firms succeeded could resume trading.

The results indicate that the price went down dramatically but less than the amount of Consideration to be paid, suggesting the public investors perceived the successful completions of reform and the settlement of the reform plans as encouraging news.

8.1.6 Some important regression results

In addition multiple regressions are applied to examine the associations between the abnormal performances and the hypothesized determinants defined in Regression Hypotheses in Chapter 6.

The issue size is negatively related to the market response around the release of Notice (2005), indicating the negative effect of the price pressure from the sale of non-tradable A shares. Meanwhile the agency problem between the majority and minority shareholders is positively related to the market response around the release of Notice (2005), indicating the minority public investors were happy about the substance in Notice (2005) aiming to protect their interests. The negative effect of the issue size and positive effect of the benefit for minority holder of tradable A shares disclosed in Notice (2005) seem to offset each other and coincide with Hypothesis 1.

The agency problem between the majority and minority shareholders is positively related to the market reaction around the filing of Measures (2005), indicating the minority public holders were convinced by the determination of the Government to protect their interests.

The group order is not statistically related to the market response at the group announcement, suggesting that the sequence of the group in which the firms were included didn't affect the investors' favorable perception of the selection process of firms included. Therefore there was no significant learning in the market from earlier events which is perhaps a surprising result given evidence of earlier over payments to the tradable A shareholders.

The negotiation period is negatively related to the magnitude of the market response at the firm-specific 1st resumption of trading, indicating the

participation ratio of public investors, proxied by the negotiation period, is a key determinant of whether or not this announcement was a surprise in the market. Meanwhile there is no significant relationship between the ownership concentration and the magnitude of market response at the 1st resumption of trading, implying the ownership concentration didn't affect the participation ratio of public investors. Also there is no significant relationship between the group order and the magnitude of market response at the 1st resumption of trading, suggesting the sequence of the group in which the firms were included didn't affect the extent to which the public investors reacted to the announcement.

Both the Consideration size and the Consideration dummy are not significantly related to the market response at the 1st resumption of trading, indicating Consideration size and types were considered fair and adequate by all public investors, both participating investors and non-participating investors. The significant and positive market reaction at the 1st resumption of trading was not driven by Consideration size or types.

The coefficient of Consideration size is negatively related to the market response at the 2nd resumption of trading, indicating the price fell more if higher Consideration was to be paid. There is no significant relationship between the agency problem between the majority and minority shareholders and the market response at the 2nd resumption of trading, implying that the non-participating minority investors didn't view the successful completion of the reform as unexpected news.

Overall speaking, this reform is more beneficial to firms with serious agency problems between the majority and minority shareholders, which can offset the fear of potential large sale non-tradable A shares into the market. The number of non-participating public investors who should respond to announcement of revised proposal at the 1st resumption of

trading decreased with the negotiation period. Consideration size and type released at the 1st resumption of trading was regarded as fair and adequate. At the 2nd resumption trading, the Consideration size had an influential negative impact on the market response.

8.2 Limitations and suggestions for further research

The main methodology used in this thesis is the classic event-study method. And the reliability of my results is constrained to the accuracy of this method in the context of China stock markets. A key assumption is that of market efficiency to guarantee that all the reaction is contained within the event window.

8.2.1 *The parameter estimates*

The parameters of α and β in the market model are estimated using an estimation period sample with ordinary least squares regression. The underlying assumption is that the beta estimate from the estimation period is stationary. However, empirical evidence shows that betas on individual stocks have not been stable over time (Blume 1971, Baesel 1974, Roenfeldt et al. 1978, Theobald 1981, Coutts et al. 1997 etc.). Shen et al. (1999) also found evidence that neither individual stock nor stock portfolio had a stable beta in China's stock market.

Many studies show that the beta estimate could be improved by choosing a relatively long estimation period (Roenfeldt et al. 1978, Theobald 1981, Daves et al. 2000, Xia et al. 2006 etc.) and suggest proper estimation periods in different contexts. But there is no consensus on how long an estimation period should be to get an appropriate beta estimate and in the literature, the choice of estimation period is arbitrary (Ball and Brown 1980, 1985, MacKinlay 1997, Atkas 2007 etc.). There is a trade-off in the choice

between a short period where there will be a statistical weakness in terms of lack of observations but a more likely stability in the underlying population beta parameter and a longer period which will reduce the variance of the estimator from more observations but at the expense of instability in the underlying beta parameter as the firm changes both business and financial risk. My choice of 2-year estimation period is based on Xia et al. (2006) which found that China beta was stationary over an estimation period of 480 trading days (2 years). My choice of estimation period may be subject to biases in Xia et al. (2006), such as the sample selected from ten years ago and the estimation periods tested were no more than two years. However Pojezny (2006) found the magnitude of the bias in abnormal returns seemed economically insignificant for shorter event periods but increased in event period length. Subsequently, my choice of no more than 3-day event period is short relative to 2-year estimation and may still produce robust and reliable results.

Coutts et al. (1997) suggested that if event studies continued to be pursued in the applied finance literature, it was essential that tests of parameter stability were incorporated into this framework. Changes to the estimation period and cross-section sample employed, could be investigated, to see how sensitive the cumulative abnormal returns are to such changes. However, due to my large sample size, it seems impractical for me to conduct such tests company by company. Hence further research may be needed to test the parameter stability in China stock markets around 2005, which may improve the parameter estimation. At this time the research design for this study has been informed by the best evidence available on parameter estimation.

8.2.2 Market index

There is some evidence that the use of an equal weight index to compute market model excess returns provides a better test specification than use of a value weight index (Brown and Warner 1980, Campbell and Wasley 1993, Corrado and Truong 2008). However, both the market indices in SHSE and SZSE are value-weighted average market-capitalization indices (Lee et al. 2001), which may lead to biased results. Further research is called to take into account this problem. However this would require the construction of an equally weighted portfolio index which would be costly.

8.2.3 Low R square

There are in total 6 regression models carried out in this thesis. Except for Regression Model 5, the other regression models only yield no more than 5% R square, indicating most of the variability of the dependent variable of CARs has not been explained. This result of low R square is consistent with the similar studies on China Full-Circulation Reform (Lu 2008, Firth et al. 2010 etc.), indicating there could be some undiscovered factors. If there are other factors and if they are correlated with the explanatory factors used here in this study this will have a consequence for the interpretation of the estimated coefficients. If however they are uncorrelated what has been said is robust and reliable with respect to omitted factors.

Further research is needed to investigate whether there are more factors and whether they are correlated with the existing factors. However it may well be that there is a large amount of unexplained variability in returns.

8.3 An overall picture

The unparalleled feature of ownership structures in China in which about two thirds of A shares were Government-owned and banned from trading,

and only about one third of A shares were freely-traded in SZSE and SHSE, can lead to divergent interests and incentive conflicts between tradable and non-tradable shareholders and has long been recognized as the source of many corporate governance problems in China (Sun and Tong 2003, Hu et al. 2004, Aivazian et al. 2005 and Wong 2006). Over recent years, the state has undertaken a process to streamline and unify the various share classes.

8.3.1 The failure of the attempted effort in 2001

In early 2001, the central Government decided to sell its ownership of the listed enterprises to raise funds to replenish the newly established National social security fund which is a strategic reserve fund set up by the Chinese Government to mitigate the looming aging crisis in the country and help provide financial protection for the country's pensioners. According to the Government strategy, the reduction of state shares should be mainly carried out on the assumption that the stock market could absorb what would in effect be very large trades without damaging the market prices and hence the confidence of the market participants. However the stock market reaction to this initial attempt was a market plummet, which lasted for quite a long period, indicating the confidence of investors in the A-share market was damaged severely in the short-run and failed to recover even in the long-run. This plan was therefore scrapped in 2002.

8.3.2 The lessons learnt

Many researchers, Wong (2006), Kim et al. (2003) and De Jonge (2008), attributed the market slump to dilution effect in the tradable A-share market, which feared it would be flooded with these state shares, in general twice as much as the tradable A shares. This attribution was the exact opposite to

the government assumption about the ability of the stock markets to absorb such large trades.

The attempted effort in 2001 planned to sell the state-shares no more than 10% of the proceeds of IPOs (of companies to be listed) and Post-IPO issuances (of listed companies), which was very ambiguous. Green (2003) pointed out the June 2001 scheme failed to lay down reliable guidelines for when, and in what quantities, state shares would be sold.

Moreover, Beltratti and Bortolotti (2006) stated that the 1st attempt failed badly in 2001 because in an official release an equal pricing for TAS and NTAS was to be adopted. According to Chen and Xiong (2001), the government was ignoring the evidence that NTAS were priced at a discount of 70%-80% of the price of TAS in the informal markets. Equal pricing, therefore, was suspicious of transferring wealth from the private investors to the Government (the holders of NTAS).

The minority TAS investors, though only possessed relatively one third of the total shares outstanding in the listed firms, dominated the tradable A-share market. The attempted effort in 2001 to float state shares in majority to the tradable A-share market agitated the investors, indicating that a premise to carry on the reform of reducing state ownership is to take into account the interests of the private investors namely the holders of TAS, to communicate with them effectively and to make compromise if necessary.

Accordingly, the Government gradually took some steps to improve the situation the TAS investors were in.

The CSRC promulgated a mandatory Code (2002) which permitted proxy voting and cumulative voting methods to protect the rights of minority shareholders.

The CSRC issued Provisions (2004), which regulated that listed companies' major business decisions, such as asset restructuring and equity-for-debt plan, should win majority votes (more than one half) from voting holders of public shareholders in the general shareholders meeting. Given China's vast territory and dispersed geographic location of investors, it is often difficult for many investors to attend shareholders meetings in person. Therefore, the Provisions require listed companies to provide online voting platforms for shareholders' meeting. Listed companies must also actively pursue a system of cumulative voting when electing directors and supervisors which fully takes into account the opinions of minority shareholders.

The State Council issued Opinions (2004) which indicated two things: (1) the Government was still hoping to reduce the state shares in the listed companies since the NTAS constituted a major hurdle for domestic financial development; and (2) the market slump following the initial attempt was so impressive that the Government was determined to prevent the reoccurrence of market depression in a next attempt. The Government decided to concentrate on protecting the interests of holders of TAS so that they wouldn't feel unsure and keep selling shares if the Government was about to announce to reduce state shares.

8.3.3 The China Full-Circulation Reform

China Full-Circulation Reform has learnt from previous experiences and set up a scheme to protect minority interests. In general, it had four main features.

- The CSRC didn't impose a one-size-fits-all solution and instead allowed companies to come up with proposals of their own. In other words, the companies decided for themselves what was the best solution given their particular shareholder structure financial situation. By eliciting a wide range of responses, such an approach should also reduce the risk of the market moving in one direction in response to a one-size-fits-all solution, as happened on the previous occasion.
- Reform proposals were accepted or rejected on a two-thirds majority of those taking part in an extraordinary shareholders' meeting, and the procedure was the same as that for a special resolution on important matters such as mergers, demergers and amendments to a company's articles of incorporation.

Votes were no longer put to all the shareholders together. No less than two-thirds of votes from the TAS owners must be sought separately so that the TAS owners won't be outvoted. As previously mentioned in Provisions (2004) issued, the CSRC adopted this classified voting system in December 2004 for resolutions on important issues such as rights issues and important asset transactions in order to safeguard the rights of the owners of TAS.

- The reform announcements were expanded into two suspension periods, defined by a series of four critical event dates, 1st suspension and resumption and 2nd suspension and resumption. The event information was released step by step on the four event dates and thus distributed the price effect and volatilities between the event dates. Furthermore, the market response around the previous event date might help to adjust the details to be released next. Consequently this arrangement protected the interests of minority TAS by diluting the risk and negative market

impact as well as leaving room for the NTAS owners to adjust to improve the market reactions.

- This program also sought to avoid a situation where a sudden and massive release of share onto the market upsets the demand-supply balance. In particular, a 12 month lockup period was established for the holders of NTAS. Furthermore, in the two years after the expiration of the lock-up, a holder of NTAS with more than 5% of the total issued share capital of the listed company is further prohibited from trading on the stock exchange more than 5% (10%) of the company's total share capital within 12 (24) months. The minority TAS holders were thus protected from the shock of large-scale sale in the A-share markets.

The insignificant CAR at the release of Notice (2005), the first noticeable announcement day during the reform, suggests that the intention to protect the minority interests, as illustrated above, offset the negative influence of the potential large sale of NTAS.

The significant and positive CAR at the release of Measures (2005), indicates that the announcement to extend the protection of minority interests to the remaining firms earned the public investors confidence in the market, especially when compared to the market crash in the failed attempt in 2001 due to the lack of confidence in the market.

The extraordinarily positive CAR at the group-announcements implies that the firms taking initiative to reform on the basis of protecting the minority interests under the monitoring by the stock exchanges provoked market uprising again.

The significantly positive CAR at the 1st resumption of trading when the revised reform proposal was released on the basis of negotiation between

the holders of NTAS and TAS suggests that the non-participating investors were satisfied with the specifics out of the discussion to protect their interests.

The aggressive premium at the 2nd resumption of trading after adjusting back the Consideration payment indicates that the implementation of protecting minority interests implied in the successful completion of reform in reality strongly boosting the market.

To sum, the measures and the procedure taken by the Government to protect the minority interests in China Full-Circulation Reform effectively sort out the issue of potential market slump observed in the attempted effort to reduce the state shares in 2001. And the main objective of maintaining the market stability while floating the NTAS has been successfully achieved, according the empirical results.

8.4 Contributions

There are only a few papers investigating the market response to China Full-Circulation Reform (Beltratti and Bortololli 2006, Lu et al. 2008, Ren et al. 2009 and Firth et al. 2010). None of them looked at the reform as a continuous story. Instead, they were cherry-picking on the event dates. For instance, they were commonly interested in the first resumption day but always missed the second resumption day. Although Beltratti and Bortololli (2006) studied four firm-specific dates (1st suspension and 1st resumption as well as 2nd suspension and 2nd resumption), they ignored macro event dates, such as the release of Notice (2005) and Measures (2005). A partial analysis due to this preference of dates may lead to biased conclusions. In this thesis, all event dates relevant to the reform are investigated intensively and linked together. Each chain contributes to a part of a continuous story about the

reform and reveals how the reform was carried out step by step cautiously by the Government.

Since the very start of the China economic reform, the Government has been playing an important role throughout. The China-marked gradual cautious approach, observed throughout the economic reform (Sinchen 1997 and Wong 2006), was praised by many researchers as one of the key reasons for China's success (Sinchen 1997). Kazakevitch et al. (2005) argued that China reform was gradual in macroeconomic sphere but sharp in the microeconomic sphere in terms of "the boldness of the reforms and the rapidity of the changes China has made in moving to a market economy, which has exceeded that attempted in most countries". My thesis also contributes to this line of literature by supporting with new evidence in China Full-Circulation Reform, which was completed successfully using a gradual cautious approach in macroeconomic sphere together with the "boldness" and "rapidity" in microeconomic sphere. The reform was carefully guided by the official document releases, experimented with the pilot program, and then extended to the majority firms group by group. At the firm-level, each reforming firm was gradually implemented through two suspension stages. At the same time, a majority of China listed firm with non-tradable shares successfully completed the reform over two years' time. By the end of 2007, 1,254 firms were successfully restructured, representing over 97% of the market capitalization at the time.

Thirdly the previous papers applied the event-study method somewhat arbitrarily and lacked a convincing and plausible illustration of the application in the context of China stock markets, which weakens the power of their results and conclusion. In this thesis, the process of conducting an event-study on China FCR has been reasonably explained and justified, which outperforms all the previous papers.

Most importantly, the results show that this reform was very successful in terms of maintaining and developing the China stock markets. The implication is China government learned lessons from their first failure in the attempt to sell NTAS in 2001. The government realised the minority TAS owners were seriously unhappy about the flotation of the NTAS as they feared their interests in the markets would be damaged severely due to the enormous dilution effect from the selling of NTAS almost twice the size of TAS. The minority owners, although less powerful in making decisions, were the major players in the China stock markets as the NTAS were not allowed to trade. In order to avoid the anticipated loss, the TAS owners began to sell their shares quickly after the government announcement to sell NTAS. As a result, the China stock markets shrank 40 percent in a very short time which was quite a shock to the government because the western markets, like US and UK markets, outperformed China stock markets even if they suffered from the 9-11 attack around that time. And this miserable situation persisted till the Government had to scrap the program. But the China stock markets didn't recover full to the original level, indicating the investors were still suspicious and aware of this danger hanging around. Therefore the China government improved their approaches in 2005. They showed they cared about the minority TAS owners and protected their interests. The government issued documents nine months before to enhance the voting power of TAS owners. Any essential company decision wouldn't be approved without winning the majority votes from the TAS owners. They put restrictions on selling the NTAS in three years after the reform. Most distinctively, the government paid the TAS owners either in cash or shares or zero-premium warrants for their ownership in the listed companies. According to the results, the adjusted total payment made by the government was worth up to 22 percent of the TAS held. The stock markets

actually gained 9 percent overall after the reform. Obviously the China government was willing to pay to keep and develop the stock markets and was satisfied this goal was achieved very successfully as well. This practice, the Full Circulation Reform, was introducing ideas that a government, performing at the macro level, should not focus on profits and figures only. They need to think in a much broader context and consider the long-run interests, even if it means they may have to sacrifice some short-term interests to achieve that. Apparently, the China government evaluated the Full Circulation Reform not in a way how much profits could be made out of the practice but whether it would bring healthier and more prosperous stock markets in the future. They locate their interests in the potentials of the stock markets in the long run rather than the short-term profits at that moment. This is a lesson can be delivered to the next leadership in China and in other countries when they want to take similar actions to sell large amount of restricted shares in the stock markets. Furthermore, in the context of financial crisis or any macro-level financial difficulties, this is a lesson to be spread onto the governments all over the world. Calculating profits would be the last thing a government should do in a scenario like this. Reducing the damage to the minimum, getting the problems sorted out, and maintaining the markets and the society, should be prioritised, even at a huge cost of the government. Otherwise, things may get worse and worse due to the snowball effect and go out of control and eventually the government and the whole country would end up with paying much more to correct the mistake and solve the problem. This practice taken by the China government in 2005 is very meaningful to the other countries in similar difficulties.

Appendix

Appendix 1

The State Council announced the "Provisional Measures on Management over the Reduction of State Shares to Raise the Social-security Fund," on June 12th, 2001. The full text is as follows:

Article 1: These measures are made in a bid to perfect the social-security system, open new fundraising channels for the social-security fund and support the reform and development of state-owned enterprises (SOEs).

Article 2: The "reduction of state shares" (including state-owned shares and state-owned corporation shares, the same below) mentioned in these measures refers to any action that transfers the state shares in listed companies (including companies to be listed, the same below) to the public and public investors like securities-investment funds.

Article 3: The State Council exercises in a unified manner the ownership over state shares on behalf of the state.

"Representative units authorized by state shareholders" in these measures refers to units that are authorized to represent the state to hold state shares in listed companies, in accordance with the principle that state assets "are owned by the state, managed at different levels and operated with authorization."

Article 4: Funds raised through reducing state shares shall be turned over to the Council of the National Social-security Fund for management. Specific management measures shall be made separately by the Ministry of Finance (MOF), which will be implemented upon approval by the State Council.

Article 5: The reduction of state shares is mainly carried out through issuing the stocked state shares. When joint-stock limited companies with state shares (including companies listed overseas) launch initial public offerings (IPOs) and issue additional stocks, they shall sell state shares, up to 10 percent of the total funds to be raised. If a joint-stock limited company has been established for less than three years, the state shares to be sold shall be transferred to the Council of the National of Social-security Fund. The council will then authorize the company to sell the shares at one time or over several times when it publicly raises capital by floating stocks. Revenue from the selling of stocked state shares shall all be turned over to the National Social-security Fund.

Article 6: The reduction of state shares shall on principle adopt the method of market pricing.

Article 7: The reduction of state shares shall be examined, approved and implemented by the Inter-ministry Joint Conference. The MOF shall be responsible for the convention of the Inter-ministry Joint Conference. The State Development Planning Commission (SDPC), the State Economic and Trade Commission (SETC), the Ministry of Labor and Social Security (MOLSS), the China Securities Regulatory Commission (THE CSRC) and the Council of the National Social-security Fund are members of the Inter-ministry Joint Conference. The conference is mainly responsible for working out the fundraising plan and pricing principle in relation to the reduction of state shares. It also studies and solves other major problems related to the reduction of state shares for fund raising.

Article 8: The office of the Inter-ministry Joint Conference, which is set in the MOF, undertakes specific matters related to the Joint Conference.

Article 9: For those the Inter-ministry Joint Conference has decided to reduce state shares, the representative units authorized by state shareholders need to provide the following documents:

1. Prospectus (draft) for the reduction of state shares and underwriting agreement;
2. Written commitment of the representative unit authorized by state shareholders and the lead underwriter on turning over the revenue from the reduction of state shares; and
3. Other documents required by the Inter-ministry Joint Conference.

Article 10: The CSRC is responsible for making rules for the information disclosure and market regulations concerning the reduction of state shares in listed companies.

Article 11: The National Social-security Fund shall be established, together with a council.

The National Social-security Fund is composed of cash realized from the reduction of state shares, the budgetary allocation by the central finance and funds raised through other channels. The Council of the National Social-security Fund assumes the following main responsibilities:

1. To manage funds from the reduction of state shares, funds allocated by the central finance and funds raised through other channels;
2. To allocate funds in accordance with the instructions and methods jointly determined by the MOF and the MOLSS;
3. To select and authorize domestic and overseas professional investment management institutions to operate the funds so as to preserve and increase their value;

4. To publicise the financial status of the National Social-security Fund regarding assets, earnings and cash flow; and

5. To undertake other tasks assigned by the State Council.

Article 12: The lead underwriter shall be responsible for turning over the revenue payable from the issuance of stocked state shares to the designated item set by the budget of the MOF within two days after obtaining the revenue. The MOF shall allocate the funds to the Council of the National Social-security Fund within five days and undergo formalities for verifying the reduction of state-owned capital in related units.

Article 13: The professional investment management institution authorized to operate the fund must report regularly to the Council of the National Social-security Fund on the operations and performances. The Council of the National Social-security Fund shall then disclose the information to the public and accept supervision.

Article 14: The Inter-ministry Joint Conference may, according to the needs of the social-security fund and the development of the securities market, select a few listed companies for the trial of state share placement and oriented repurchase, while adopting the method of issuing the stocked state shares. The trial plan shall be subject to the deliberation of the Inter-ministry Joint Conference and submitted to the State Council for approval before being implemented.

Article 15: After these measures are implemented, the transfer by agreement of the state shares in listed companies, including the transfer by agreement of the state shares held by non-initiators, shall be verified by the MOF. In case the state stock ownership is reduced as a result of the transfer by agreement, the representative unit authorized by state shareholders shall

turn over a certain portion of the revenue from the transfer to the National Social-security Fund. Specific proportion and operation methods are made by the Inter-ministry Joint Conference and submitted to the State Council for approval before being implemented. The securities registrar handles formalities related to the transfer of stock ownership according to the official and written reply of the MOF.

When a representative unit authorized by state shareholders uses state shares of a listed company for bank loans or as pledge for issuing corporate bonds, the amount shall be no more than 50 percent of the total state shares in the listed company. Details for the management shall be made by the MOF.

Article 16: These measures are effective as of the date of promulgation.

Appendix 2

Some Opinions of the State Council on Promoting the Reform, Opening and Steady Growth of Capital Markets (31st Jan 2004)

The people's Governments of all provinces, autonomous regions, and municipalities directly under the Central Government, all ministries and commissions of the State Council, and all agencies under the direct control of the State Council: Since the issuance of the "Notice of the State Council on Further Enhancing the Macro-control of the Securities Market" (Guo Fa [1992] No.68), China's capital market has embraced rapid growth and reaped stunning achievement. With scale-forming on a preliminary basis, continuous improvement of the market infrastructure, gradual perfection of the legal system, and further upgrading of the market standardization, China's capital market has become an important component of the socialist market economy by contributing greatly to the reform and development of state-owned enterprises and the financial market, to the optimization of resources allocation and to the promotion of economic restructuring and growth. In order to vigorously promote the reform, opening up and steady growth of the capital market by implementing the guidelines laid down by the 16th National Congress and the 3rd Plenary Session of the 16th Central Committee of the CPC and by aiming at the strategic target of building a well-off society in an all-round way, the opinions are hereby put forward as follows:

I. Fully Understanding the Importance of Developing the Capital Market

Developing the capital market is a task of strategic importance to the strategic target of quadrupling the national economy within the first two decades of this century. First, it will perfect the socialist market economy system, bring into fuller play the role of the capital market in optimizing

resources allocation, and successfully turn the social funds into long-term investment. Second, it will facilitate the structural adjustment and strategic reorganization of national economy and enhancement of non-state economy development. Third, it will improve the direct financing proportions, perfect and uplift the structure and efficiency of the financial market, and safeguard the finance security.

China's capital market has been developing step by step with the course of economic system reform. Due to the inappropriate reform and limitations in the system design in the preliminary stage of establishment, there still exist some deep-seated problems and structural inconsistency in China's capital market, which restricts its effective functions. These problems arise from the development of the capital market, and only can be worked out in the course of development. The strategic goal of building a well-off society in an all-round way brought forward by the 16th National Congress and the "Decisions of the Central Committee of the Communist Party of China on Some Issues of Improving the Socialist Market Economy" approved at the 3rd Plenary Session of the 16th Central Committee of the CPC have made deployment to the development of China's capital market, and clarified the orientation towards its reform, opening up and steady growth. We should eye the situation clearly, seize opportunities and change concepts, thus vigorously developing the capital market, increasing the direct financing proportions, creating and cultivating a friendly investment environment, bringing into full function exertion of the capital market in pushing the of capital formation, optimizing the resources allocation, improving the adjustment to economic structure and perfecting companies' governance structure, all of which will make a brand-new contribution to the continuous, speedy, coordinated and healthy development of national economy and building of a well-off society in an all-round way;

II. The Guidelines for and Tasks of Promoting the Reform, Opening and Steady Growth of the Capital Market

Guiding ideologies that promote the reform, opening up and steady growth of the capital market are as follows: carrying forward the spirit of the 16th National Congress and the 3rd Plenary Session of the 16th Central Committee of the CPC in an all-round way with the guidance of Deng Xiaoping Theory and the important thought of “Three Represents”, complying with the principles of “openness, fairness and justice” and guidelines of “law, regulation, self-discipline and standardization”, persisting in serving the national economy and achieving the coordinative development between the capital market and the national economy; insisting on regulating the market in accordance with the law, safeguarding the legitimate rights and interest of investors, especially those of public investors; adhering to market-oriented reform in the capital market, and giving full play to the market mechanism; keeping to the uniformity of reform momentum, development speed and market endurance, and striking a balance among reform, development and stability; insisting on solving problems cropping up on our way forward through development, and achieving a harmony between speedy development of the capital market and protecting against the market risks; and upholding the principle of progressiveness and the continuous upgrading of opening to the outside world.

Tasks of promoting the reform, opening up and steady growth of the capital market are as follows: building the transparent and efficient capital market featuring a rational structure, a sound mechanism, perfect functions and safe operations while aiming at the goal of expanding direct financing, consummating the modern market system as well as bringing into play the basic role of market in resources allocation to a greater extent. Centered on

this goal, we should establish an efficient capital market system in helping enterprises of various types raise funds and in satisfying diverse investment needs. We must perfect market-oriented product innovative mechanism, and form a harmonious product structure of capital market between price discovery and risk management also share financing and bonds financing. We must foster listed companies and market intermediaries with honesty and trustworthiness, standardized operation and sound governance system, and strengthen the mechanism for restraint of market players and survival of the fittest. We must consummate the market regulatory system with clear duty location, effective risk control and in-place coordination to protect the legitimate rights and interests of investors;

III. Further Improving Relevant Policies to Promote the Stable Development of Capital Market

Appropriate policy guidance and support are a must for the steady growth of capital markets. And all the departments should further improve relevant policies to create a friendly environment for the stable development of capital market.

The approval system for the issuance and listing of securities must be improved. We should consummate the mechanism under which high quality enterprises of all types can utilize capital markets on an equal footing, thus improving the efficiency for resources allocation.

Investment returns on the capital market must be highlighted. We should take practical measures to reverse the situation in which some listed companies focus excessively on listing and fund raising while paying inadequate attention to restructuring and investment returns, and enhance the overall quality of listed companies to provide good opportunity for investors to share the fruits of economic growth and increase their wealth.

Qualified capital shall be encouraged to enter into the market. We should continuously develop the securities investment funds, support the multi-form direct investment of insurance funds in the capital market, and gradually improve the proportions of funds invested into the capital market including the social security funds, enterprise supplementary pension funds and commercial insurance funds. Besides, we should cultivate a group of honest, law-abiding and professional institutional investors, and make the institutional investors mainly composed of fund management companies and insurance companies the leading force in the capital market.

Financing channels of securities companies must be expanded. We should continuously support qualified securities companies in public issuance of shares or bonds to raise long-term funds, perfect the management methods of pledge loans of securities companies and their entry into the inter-bank market, formulate the examination and approval standards for securities companies' M & A and loans of securities underwriting business, as well as create favorable conditions for securities companies to utilize loan facility funds under a sound risk control mechanism. In addition, the financing pilot of fund management companies should also be carried out steadily.

The problems in the equity division must be settled vigorously and steadily. We should standardize the transfer of non-floating shares of listed companies, thus preventing loss of state-owned assets. Additionally, we should steadily solve the distribution of untradeable shares of listed company at present. While steadily making tradable the presently untradeable shares of listed companies, we should respect the law of market, maintain the stability and growth of the market, and effectively protect the lawful rights and interests of investors or individual investors in particular.

The tax policies of the capital market must be refined. We should study and formulate taxation policies encouraging more investments from public investors, consummate the administrative measures for the collection of turnover tax and income tax on securities and futures companies, as well as implement centralized collection and administration of income tax towards qualified securities and futures companies;

IV. Consummating the Capital Market System and Diversifying the Varieties of Securities Products

A multi-level system of stock market must be established. Based on the rational layout and functional localization of the capital market, we should establish a multi-level system of capital market to meet every need of financing for various enterprises step by step, work out the corresponding conditions for securities' issuance and listing as well as establish a supporting company selection mechanism. Moreover, we should continuously standardize and develop the main board market, improve the structure of listed companies in the main board market, push the construction of growth enterprise market in phases, perfect the mechanism for venture capital investments, open new channels for financing of small and medium-sized enterprises as well as probe into and consummate the shares transfer system under unified regulation.

The bonds market must be developed in a positive and reliable manner. Under the precondition of strict risk-control, we should encourage the qualified enterprises to raised funds through issuance of corporate bonds in order to reverse the sluggish growth of bonds financing and diversify products on the securities market and promote the coordinative development of the capital market. Besides, we should formulate and perfect the company's rules and regulations regarding the corporate bonds issuance,

transactions, information disclosure and credit rating, etc., and establish and improve the secured loan repayment mechanism including assets mortgage and credit guarantee, and gradually build a bond market with concentrated regulation and integration.

The futures market must be developed steadily. Under the precondition of strict risk-control, we should introduce commodity futures products to provide the functions of price discovery and hedging for producers and consumers of bulk commodities.

The market-oriented products innovation mechanism must be established. We should study and develop new varieties and their derivatives related to shares and bonds. In addition, we should enhance the development of fixed income securities products of low risk, provide investors investment with deposit-replacing securities products, and vigorously grope for and develop variety of assets securitization;

V. Further Improving the Quality of Listed Companies and Promoting the Standardized Operation of Listed Companies

The quality of listed companies must be upgraded. The quality of listed companies stands for the headspring of its investment value in the securities market. Directors and senior management of listed companies should regard the optimization of stockholders' interests and sustained improvement of profitability as the starting point and final goal, further perfect the management system of shares issuance, advocate the sponsor system for securities issuance and listing, support companies with strong competitiveness, standardized operation and good returns to go public, and improve their quality at root. We should also encourage listed companies to conduct market-oriented merger, acquisition or restructuring propitious to the company's sustainable development, consummate the re-financing

policy as well as support the superior listed companies to speed up their development and grow stronger by utilizing the capital market.

The operation of listed companies must be standardized. We should perfect the legal-person governance structure of listed companies, form the check-and-balance system among the authority organ, decision-making organ, supervisory organ and the management in compliance with requirements of modern enterprise system. Moreover, we should strengthen the credibility and responsibility of directors and senior management, further improve the independent director system, standardize the behavior of controlling shareholders, and prosecute controlling shareholders for damaging the interest of listed companies and minority shareholders. Additionally, we should reinforce the responsibilities of listed companies and other obligors of information disclosure, ensure the trueness, accuracy, completeness, timeliness of information disclosure, as well as set up and perfect incentive and restraint mechanisms for the senior management of listed companies.

The market exit mechanism must be improved. We should take effective measures and take the construction of a multi-level market system into consideration to further improve the market exit mechanism. While implementing the survival of the fittest in listed companies, we should also set up the mechanism of responsibility investigation on derelict members of senior management in delisted companies, and safeguard the legitimate rights and interest of investors;

VI. Promoting the Regulated Development of Intermediary Institutions on Capital Market and Upgrading their Practicing Level

Securities and futures companies must be built into competitive modern financial enterprises. Conforming to the principle of prudential supervision,

we should perfect the market access system of securities and futures companies, urge them to improve the governance structure, standardize the behavior of their shareholders as well strengthen the credibility and responsibility of the directorate and executives. Moreover, we should innovate the management system of transaction and settlement capital of securities and futures clients, study and perfect the depository system of clients' transaction and settlement capital, strictly prohibit the appropriation of clients' assets, and protect the legitimate rights and interest of investors. Besides, securities and futures companies should consummate the internal control mechanism, and reinforce the centralized management over their branches. And we should also improve the risk-monitoring indicator system centralized on net capital, urge securities and futures companies to carry out stable financial policies, encourage them to be better and stronger by way of merger & restructuring and optimization & integration as well as set up and amplify their exit mechanisms.

The administration of other intermediaries must be enhanced. We should standardize the development of securities & futures investment consultation organization and securities credit rating organization, strengthen the administration of accounting firms, law firms and assets evaluation institutions, thus upgrading the level of professional service of intermediaries;

VII. Enhancing the Construction of Legal and Credit Systems and Improving the Supervision of Capital Market

The legislation system of the capital market must be improved, and the credit building must be enhanced. In compliance with the overall deployment for developing the capital market, we should consummate the legislation system which is propitious to the steady development of the

capital market and protection of investors' rights and interests, clear the administrative regulations, local laws and regulations, department rules and policy documents that frustrate the market development as well as vigorously create a positive legislation environment for developing the capital market. Furthermore, on the basis of requirements for perfecting the social credit system of the modern market economy, we should formulate the integrity criterion of the capital market, maintain the integrity order, and impose the banning of market access on organizations and individuals in serious violation of laws and regulations or in serious loss of trustworthiness.

The law-based administration must be promoted, and the supervision over the capital market must be reinforced. In accordance with requirements for deepening the reform of administrative approval system and implementing the "Administrative License Law", we should improve the quality and law enforcement level of law executors, set up regulatory concepts advancing with the times, institute and perfect a regulatory approach adaptable to the development of capital market, consummate the regulatory approaches as well as enhance the regulatory efficiency. Besides, we should further reinforce the regulatory organ, integrate regulatory resources and cultivate a regulatory team with superior political and professional qualities. Through the effective market regulation, we should also endeavor to promote the fairness, transparency and efficiency of the market, reduce its system risks and guarantee the legitimate rights and interests of market participants.

The role of self-disciplines and media supervision must be brought into full play. We should bring the self-disciplines of trade associations including the securities & futures exchanges, depository and clearing companies, securities & futures associations, lawyers, accountants and assets assessment institutions into play. In addition, the publicity and regulation

over the securities & futures market by news media should also be guided and reinforced;

VIII. Strengthening the Coordination and Cooperation, and Preventing and Reducing Market Risks

A friendly environment for development of the capital market must be created. The risk prevention of capital market has respect to the country's financial security and healthy development of the national economy. All regions and departments should show their concerns about and support the standardized development of capital market; they should give full consideration to the sensitivity, complexity and particularity of the capital market when policies and measures related to the capital market are promulgated, and establish a coordinative and cooperative mechanism with shares information, easy communication and clear duties to create a favorable environment and conditions for the steady development of the market.

Market risks must be prevented and defused with common efforts. All regions and departments should implement their duties provisioned in relevant laws and regulations including the "Company Law", adopt effective measures to prevent and timely correct behaviors of initiator's feigned contribution and appropriation of listed companies' assets by major shareholders or actual controller; all regions and relevant authorities should strengthen their administration over delisted companies according to laws, ensure a smooth delisting. Concerning the securities & futures companies that must withdraw from the capital market or be imposed on other administrative measures due to their significant operating risk, authorities including the local people's Governments, financial regulatory departments, police and judicial departments should enhance the coordination and

cooperation, take active and effective approaches to make a good job in risk handling in terms of the provisions in laws and regulations and relevant policies, and establish the rapid response mechanism dealing with emergency in the capital market and permanent mechanism preventing and reducing risks.

Illegal activities in the securities & futures market shall be subject to harsh crackdown. All regions should implement relevant documents of rectifying and standardizing the economic order of the market outlined by the State Council, and strictly prohibit the illegal issuance of securities, illegal establishment of securities & futures operating agencies, illegal commissioned purchase and sale of securities & futures, illegal or disguised establishment of securities & futures exchanges and other illegal activities related to securities & futures in the local area. Government sectors including the Ministry of Finance, the Ministry of Public Security, the Ministry of Audit and the Ministry of Industry and Commerce and the state-owned assets supervision and administration institution should enhance the coordination and cooperation, intensify the crackdown to maintain the order of the capital market.

IX. Conscientiously Summing Up Experiences, and Actively and Steadily Promoting Opening Up

China will strictly fulfill its promises about the opening up of securities services industry when entering into the WTO. We should encourage qualified overseas securities agencies to take a stake in securities companies or fund management companies as well as continuously implement the tentative mechanism of qualified overseas institutional investors.

The overseas capital markets should be vigorously utilized. Conforming to the market discipline and international practices, qualified domestic

enterprises are encouraged to conduct overseas securities issuance and listing, and qualified domestic institutions also individuals are encouraged to engage in overseas capital market investment-related service and hedging business. We should conscientiously work out a system for qualified domestic institutional investors.

The exchange and operation should be strengthened. We should carry out the arrangement for a much closer operation on economy and trade with Hong Kong and Macao, and further intensify the contact and operation with relevant international organization and overseas securities regulatory agencies.

Vigorous development of the capital market is a decision of great importance made by the CPC Central Committee and the State Council from an overall and strategic perspective. All regions and departments should attach great importance to it, set up overall point of view, fully understand the significance of developing the capital market, firm the confidence, seize opportunities and make innovation, thus jointly creating positive conditions for the development of capital market, actively promoting the reform, opening up and steady development of China's capital market, and making great contributions to the ambitious goal of building a moderately prosperous society in an all-round way.

Appendix 3

Regulations on strengthening protection of public shareholders

The CSRC has adopted Regulations on strengthening protection of public shareholders' rights and interests, which came into effect on 7 December 2004.

The regulations will not apply in the case of shareholder resolutions adopted and announced prior to the release of the regulations. However, the regulations will apply where companies have issued notices on shareholders' meetings but the relevant shareholders' meetings have not yet been held.

The main aspects of the regulations are as follows:

* listed companies must implement public shareholder voting systems for major issues; the following actions require to be approved by more than one half of voting public shareholders at a shareholders meeting:

1. additional offerings, convertible bonds issues and right issues,
2. major asset restructuring, where the assets premium reaches or exceeds 20% of the net audited book value of assets purchased,
3. where a shareholder proposes to repay debts owed to a listed company with stock rights,
4. where a company affiliated to a listed company (and which is "significant" to the listed company's operations) makes an IPO overseas,
5. other events that have a significant impact on the interests of public shareholders;

* when holding shareholders' meetings, a listed company must provide an online voting platform in addition to voting at the meeting (spot voting);

listed companies must also actively pursue a system of cumulative voting when electing directors and supervisors which fully takes into account the opinions of minority shareholders;

* for events that have significant impact on public shareholders' interests, the regulations require listed companies to re-announce notices of the relevant shareholders' meetings within three days after the date of confirming all shareholders' identities for the purposes of the vote (the share right recording date);

* when declaring resolutions passed at shareholders' meetings, listed companies must set out the number of public shareholders who have participated in the vote, the number of shares held by them and the proportion of total tradable shares represented by those shares; companies must also announce how the ten largest shareholders voted;

* the regulations also aim to improved the independent director system; in particular, independent directors will have special duties in relation to connected transactions and the employment of accounting, auditing and consulting firms;

* the regulations aim at the strengthening of investor relations management, and the enhancement of disclosures by listed companies; company secretaries will be responsible for companies' investor relation management;

* listed companies must adopt active profit distribution methods and prescribe such methods in their articles of association; companies which have not distributed cash dividends in the previous three years will not be permitted to launch additional offerings, convertible bonds issues or rights issues;

* under the regulations, controlling shareholders (whether direct or indirect) may not illegally use the capital of listed companies or provide guarantees for affiliated parties; in addition, they may not use affiliated transactions, profit distributions, asset restructurings or investments to damage legal rights and interests of shareholders;

* the regulations require senior management of listed companies to faithfully perform their duties and safeguard the interests of the companies and all shareholders

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