

Shirai, Sayuri

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Is the Equity Market Really Developed in the People's Republic of China?

Sayuri Shirai

September 2002

Since two domestic stock exchanges were established in the People's Republic of China (PRC) in the early 1990s, equity market growth has been remarkable. Nevertheless, closer scrutiny reveals that the market is highly segmented and distorted.

This paper assesses the state of PRC's equity market development by focusing on its following three main functions: (1) a source of stable financing for firms' investment, (2) improving firms' corporate governance and performance, and (3) signaling information on issuers to public investors.

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Sayuri Shirai

ABOUT THE AUTHOR

Sayuri Shirai is a visiting scholar at the ADB Institute working in the fields of developing capital markets and strengthening financial and exchange systems. She is also an Associate Professor at Keio University and was formerly a staff economist at the International Monetary Fund.

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PREFACE

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Masaru Yoshitomi
Dean
ADB Institute

ABSTRACT

Since two domestic stock exchanges were established in the People's Republic of China (PRC) in the early 1990s, equity market growth has been remarkable. Nevertheless, the closer scrutiny reveals that the market is highly segmented and distorted. This paper assesses the state of the PRC's equity market development by focusing on its following three main functions—(1) a source of stable financing for firms' investment, (2) improving firms' corporate governance and performance, and (3) signaling information on issuers to public investors. It concludes that the equity market has so far failed either to provide stable sources of finance for firms' investment or improve their performance (indeed, firms' performance has even deteriorated following initial public offerings).

Moreover, while firms' fundamentals have been reflected to a large extent in stock prices, suggesting that there is at least some signaling role, their co-movement has declined in recent years despite clampdowns against accounting malpractices. Indeed, it is likely that co-movement between stock prices and earnings per share has encouraged accounting manipulations to bump up stock prices.

These findings suggest that PRC's equity market remains underdeveloped. If the Government is to privatize listed SOEs, the governance needs to introduce measures to prevent asset stripping undertaken by managers of SOEs. Moreover, if the Government needs to develop a sound equity market, it must urgently improve the informational, legal, and judicial infrastructure, and educate public investors.

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Executive Summary

- Since the Shanghai and Shenzhen stock exchanges were established in the early 1990s, the People's Republic of China (PRC's) equity market has shown remarkable growth. For example, the ratio of equity market capitalization to gross domestic product (GDP) rose rapidly from 4% in 1992 to 54% in 2000. Also, the number of domestically listed firms (which include firms that issue only A-shares, only B-shares, both A- and B-shares, or A- and H-shares) soared from 53 in 1992 to 1,088 in 2000. Both these indicators are comparable to those in advanced countries. The ratio of market capitalization as of 2000 was below that of the United States, but was comparable to that of Japan and Germany. Meanwhile, the number of listed firms was smaller than in India, United States, and Japan, but greater than in Republic of Korea (Korea), Thailand, and Singapore.
- However, one needs to be cautious in using market capitalization as an indicator for measuring equity market size. This is because in the PRC about 60% of the shares are non-tradable and related to State-owned and legal person shares (which are ultimately State-owned). The ratio of market capitalization to GDP actually exaggerates the true state of the PRC's equity market development. For this reason, it is important to use the ratio of negotiable market capitalization to GDP (including only staff shares, ordinary domestic shares, foreign individual shares, etc.) as a supplementary indicator. If this is used, the ratio of negotiable market capitalization to GDP has increased more moderately from 2.5% in 1993 to 18% in 2000.
- Moreover, a unique feature of the PRC's equity market is that the same company can issue A- and B-shares aimed at different types of investors. Domestic investors have been allowed to trade only A-shares, while foreign investors are restricted to B-shares, even though the two shares are identical with respect to shareholder rights (i.e., voting and profit sharing rights). Thus, these two domestic markets are highly segmented owing to the de facto non-transferability of shares between them.
- Reflecting the rapid increase in the number of investors (whose brokerage accounts rose from 2.2 million in 1992 to 58 million in 2000) and the consequent high demand, A-shares have been traded at a substantial premium over identical B- (also H-) shares. Thus, the price-earnings ratio (PER) of A-shares has remained substantially high—in the 30-50% range in 1996-2000. This PER seems high even by international standards—greater than in United States, Japan, Korea, United Kingdom, and Thailand. Such high price differentials have fueled speculation by investors. Since A-shares have been heavily oversubscribed, they account for most of the differential. B-shares are generally regarded as representing better value, even though the A-share market has the higher trading volume and turnover value. However, the Government opened the B-share market to individual domestic investors legally holding foreign currency accounts

in early 2001 and to all domestic investors in mid-2001, helping to narrow the price differentials from a factor of more than five to two.

- The Government's greatest difficulty with the equity market is that it faces a tradeoff. On the one hand, there is a desire to sell off its shares in listed companies in order to finance the forecast shortfall of the national social security fund. And on the other, there is a concern that a plunge in stock prices would increase non-performing loans of state-owned banks, given that banks have increased credit to securities firms through various indirect measures (since banks are not allowed to provide credit directly to securities firms. Moreover, the Government fears that a decline in stock prices will anger millions of individual investors, some of whom have invested well above their income levels. In early 2001, the Government announced that companies selling domestic and foreign shares on public markets should sell additional shares equivalent to 10% of the original offer size and that the proceeds would be transferred to the national social security fund. In response, the prices of A-shares plunged 30% up to late 2001, when the Government backed down. In June 2002, the China Securities Regulatory Commission (CSRC) tightened the requirements on the launch by listed companies of additional share issues, in response to growing calls to slow down the pace of additional public offers of shares held by the State. The tradeoff explains why the government has been slow to privatize listed State-owned enterprises (SOEs) and enact the necessary capital market reforms. The Government wants to generate money for the national social security fund, so it is reluctant to sell its shares at a discount, which would also attract political oppositions.
- Since A-shares are equivalent to the ordinary common shares that are generally accepted in other market economies, they dominate the PRC's equity market, dwarfing the amount of B- and H-shares. Although no cross-listings between the two markets are permitted, a firm is allowed to be dual listed on the domestic and foreign markets (B- and H-share, and other foreign markets). Issuing H-shares is generally regarded as more prestigious than B-shares. Also, foreign investors often feel more comfortable investing in shares offered in the stock exchange of Hong Kong, China than the two stock exchanges of the PRC, due to the former's reputation for modern and transparent corporate governance.
- Another factor in the dominance of A-shares is the legal requirement that they should account for not less than 25% of total shares issued when a company goes for listing. Also, new quotas for A-shares are determined by the State in accordance with the national investment and credit plan. Moreover, there is a less stringent accounting system applied to firms issuing A-shares compared with those issuing B- and H-shares. Also, firms issuing only A-shares face lower initial public offering (IPO) requirements. For example, in order for a firm to be listed in the A-share market, it must achieve at least two or three consecutive years of operating profits, while one issuing B- or H-shares must also be able to generate sufficient foreign exchange incomes to pay dividends in foreign currencies.

- Moreover, most listed firms have been corporatized or established in recent years, especially since 1992, when the Government changed its stance on improving the performance of SOEs. From 1978 to 1991, the Government attempted to improve corporate governance of SOEs mainly through reducing government intervention, allowing management greater autonomy (e.g. the contract system), and encouraging them to take a commercial approach. When these measures failed to improve SOE performance, the Government in 1992 moved to clarify property rights of SOEs through corporatization—a conversion of SOEs into limited liability companies and joint-stock companies.
- But listed firms have remained largely State-owned. The proportion of shares under State ownership (sum of State-owned and legal person shares) is in the 40-80% range for about 90% of listed firms. This indicates that the majority of listed firms remain SOEs. The predominance of State ownership indicates that there remain fundamental problems of corporate governance in listed SOEs because public shareholders are not in a position to exercise voting power with any prospect of control. Moreover, such large-scale State ownership leaves ambiguities concerning property rights associated with State ownership. The state manages SOEs without in practice bearing any residual risks or profiting from the control and use of their assets, while SOEs continues to obtain a large amount of bank loans and subsidies. Thus, there are few incentives for the State to perform better. The people bear the residual risks, but these are ultimately felt through the budget. This, then, is the classic problem of who monitors the monitor?
- In addition, many listed firms operate in protected sectors (such as petrochemicals, energy and raw materials), which are largely monopolistic. Since each IPO remains small and competition among SOEs for listing is intense, State and regional authorities are subject to lobbying and political pressure. This suggests that firms selected for public listings are not necessarily better performers than those rejected. It is sometimes pointed out that the State Council and CSRC select SOEs in the protected sectors, because these firms are State monopolies and operate under the direct supervision and control of the State Council. These protected firms often obtain direct subsidies from the central Government's budget, and some chief executive officers (CEOs) of these firms have even previously held Cabinet-level positions. By contrast, firms in unprotected sectors are mostly under the supervision of provincial or local governments. Thus, they do not receive direct support from the central Government and many have to compete in domestic markets. Also, managers in unprotected sectors enjoy greater freedom to set prices and can function as business people rather than as politicians or bureaucrats.
- This paper attempts to examine the state of equity market development according to its three main function: (1) a source of stable financing for firms' investment, (2) improving firms' performance, and (3) signaling information on issuers to public investors. On the first point, this paper finds that the equity market has been a significant investment source, but its contribution has declined in recent

years—while the role of loan finance in investment has increased. These results appear to reflect a lack of adequate and precise information about issuers, encouraging public investors to hold stocks for only short-term gains, making stock prices highly volatile and equity an unstable source of external finance. Since listed firms now face hard budget constraints under the banking sector reforms, it is crucial that the Government develops a sound equity market so that firms have an alternative stable source of finance to bank loans. To do so, the informational, legal, and judicial infrastructure must be improved in order to gain the confidence of investors and increase their incentive to impose discipline on invested firms.

- On the second function, the relationship between State ownership and firms' performance (measured by returns on asset, returns on equity, and earnings per share) turns out to be V-shaped. This suggests that when the ownership of the State is great, the direct State controls are stronger, so there are few opportunities for asset stripping by managers. Moreover, these firms often receive various kinds of preferential treatment, enabling them to achieve a performance that is superior to that of unprotected firms. By contrast, when State ownership is below 20%, conflicts of interest are likely to be large so that public investors have a greater incentive to impose discipline on invested firms. However, since there are so few firms with State ownership below 20%, it is rare for public investors in the PRC to show a strong interest in imposing discipline. Thus, the Government urgently needs to improve the governance structure if it wishes listed firms to raise more capital from the market and, at the same time, avoid a deterioration of firms' performance.
- This paper also finds that firms issuing B- and H-shares turn in inferior performances to firms issuing only A-shares, even though more stringent requirements for listing are applied to IPOs for foreign investors. The results could be a reflection of the fact most listed firms were given approval to issue only A-shares, so that there is a greater proportion of relatively profitable firms among them. Alternatively, firms that issue only A-shares may find it easier to manipulate their books, since they face lower accounting and auditing standards than those applied to issuances for foreign investors. Managers might exaggerate profitability in order to achieve higher issuing prices. In addition, firms issuing only A-shares get higher prices so that they are able to raise funds more cheaply. Further, results suggest that the monitoring role of foreign investors has not been effective so far. This reflects not only that the State remains the largest shareholder, but also that minority shareholders' rights are not yet well-established.
- Another finding of this paper is that firms' performance declined not only in the year they launched their A-share IPOs but also subsequently. Also, the same results are obtained in the case of B-share IPOs, even though they would be expected to perform better, given that they are intended for foreign investors who have a diverse set of portfolio choices. These results may be explained by the following three factors related to pre-IPO performance: (1) managers had nonpecuniary reasons for performing better—for instance, so that they could be

selected for listing or to meet the Government's stipulation that profits should be generated in order to raise the offering price; (2) earnings can be boosted in the corporatization process that accompanies a conversion of the accounting rules and standards from socialist fund accounting to Western principles; and (3) SOEs could carve out temporarily profitable business units and then siphon the profits earned by the corporatized and listed units. In addition, the following three factors are related to post-IPO performance: (4) public shareholders lack the incentive to impose discipline owing to their small cash flows/control rights; (5) stock options and rewards for producing better performance are rarely used; and (6) internal audits have been ineffective due to the excessive powers of CEOs.

- On the third function, this paper finds that firms' stock prices indeed reflect their fundamentals (proxied by earnings per share) to a significant extent. This suggests that stock prices have been playing a role in signaling information about issuers' fundamentals. These results are contrary to expectation, given the high correlation between the stock composite price indices in the Shanghai and Shenzhen stock exchanges (even though no cross-listing is allowed) and volatility in stock prices (both of which point to the presence of herd behavior). Nevertheless, the co-movement between stock prices and earnings per share has declined in recent years although it is still present—notwithstanding that CSRC from 1998 tightened regulations against undertaking illegal share price manipulation and financial malpractices. These results may indicate that such regulations have been ineffective. Moreover, it is possible that a high degree of co-movement between stock prices and earnings per share has indeed encouraged accounting manipulations to bump up stock prices (and thus lower costs of funding). The Government, therefore, must improve the informational, legal, and judicial infrastructure, as well as educate public investors, in order to develop a sound equity market.

Is the Equity Market Really Developed in the People's Republic of China?

Sayuri Shirai¹

1. Introduction

Before the Government of the People's Republic of China (PRC) launched its open economic policy in 1978, private firms, a modern banking system, and capital markets were non-existent. The Government lifted the ban on private business activities, with the 1982 Constitution recognizing their role by providing for the protection of their lawful interests. This led to an increase in the number of nonstate firms, such as town and village enterprises, and joint ventures with foreign capital. (Tian, 2002). A further amendment to the Constitution stressed the role of the private sector as a complement to the socialist economy. In 1988, moreover, the State Council provided a basis for authorization and control of private businesses (defined as those employing more than eight persons) by issuing Preliminary Regulations for Private Business. The same year, the State Enterprise Law recognized State-owned enterprises (SOEs) as legal entities separate from the State and defined their operational spheres of autonomy, while a contract responsibility system was introduced to enhance the accountability of SOE management.

In 1992, the 14th National Congress of the Communist Party established a socialist market system and gave priority to reforming SOEs by distancing them from government bureaucracy so that they could be allowed to operate independently. The introduction of 14 autonomous rights for SOEs in the same year was intended to enhance the autonomy of their managements. In 1994, Supervision Regulations were introduced to provide the legal basis for the system under which the State owns and supervises companies. In July that year, the Company Law became effective; by this time, many nonstate firms had already been established, while large numbers of SOEs were corporatized. Given that dominant financial institutions were State-owned banks, which allocated financial resources predominantly to SOEs, most of these newly-emerged nonstate firms had no choice but to become self-financed. Meanwhile, the gradual decline in cheap funding from the Government or State-owned banks encouraged SOEs to sell their stocks directly to the public in 1984, giving rise to unofficial, independent, local secondary trading markets for stocks (Gordon and Li, 1999).

Against this background, the Government legalized the trading of stocks by establishing the Shanghai stock exchange in December 1990 followed by the Shenzhen stock exchange in July 1991. The local authorities of these regions developed their own local company and securities laws, since the national securities law had not yet been enacted (Asian Development Bank, 1999). In 1992, B-shares were issued for the first

¹ This paper benefited from useful comments provided by the participants of the seminar organized by the ADBI on 2 August, 2002. The author acknowledges the excellent research assistance of Mr. Prithipal Rajasekaran.

time to foreign investors, providing them with a legal channel to invest in PRC stocks. The Government established the State Council Securities Commission (SCSC), the highest regulatory body in the country, and China Securities Regulatory Commission (CSRC), the executive branch of SCSC, in October 1992. SCSC determines overall policies related to the securities market (e.g., approval of the establishment of new stock exchanges and new securities legislation and regulations) and sets the quota of securities issues at the national and provincial levels. In 1993, SCSC issued its first Interim Regulations on Share Issuing and Trading. CSRC, meanwhile, is responsible for drafting securities legislation and regulations; supervising the public issuance and trading of securities; monitoring securities firms, mutual funds, and settlement/delivery operations; supervising issuers; and regulating companies wishing to be corporatized and listed, including those to be listed overseas.

In 1993, CSRC signed the Chinese Hong Kong Memorandum of Regulatory Cooperation with Hong Kong, China with respect to the issuance of H-shares on the Hong Kong stock exchange. The next year, it signed another Memorandum of Understanding with the New York Stock Exchange (NYSE) and US Securities and Exchange Commission on the issuance of N-shares on the NYSE. Also in 1994, the Shanghai and Shenzhen stock exchanges designated domestic or overseas securities dealers as specially licensed brokers to accept foreign investors' consignment for trading and began to offer them special seats for B-share floor trading. That year, the Company Law—containing provisions on issuance, transacting, and listing of public securities—became effective. In 1999, the Securities Law became active, aiming to standardize the issuing and trading of securities, protect investors, and promote the development of the socialist market economy. Moreover, in 1998, SCSC and CSRC merged to form one ministry rank unit directly under the State Council in a move intended to strengthen the functions of CSRC as a centralized securities supervisory authority.

The equity market has grown rapidly since it was established in the early 1990s. The Government's intention in developing the equity market was to improve the performance of relatively promising SOEs, restructure problematic ones through mergers and acquisition, and raise funds to finance companies and the budget. In 1997, moreover, the Government endorsed a plan to transform more than 10,000 SOEs into publicly listed companies. Thus, development of a sound equity market is one of the most important policy issues facing the PRC. In this context, it is important to identify the current status and constraints to equity market development by examining the characteristics of listed companies and their performance. Moreover, it is essential to examine the roles the equity market has played since its inception. In particular, this paper focuses on three main functions of the equity market: (1) financing firms' investment; (2) improving firms' corporate governance and, hence, performance; and (3) signaling information regarding issuers to public investors. Therefore, this paper attempts to assess the current status of the PRC's equity market development by investigating the extent to which these three functions have been performed. The paper consists of six sections. Section 2 undertakes an overview of the equity market development and identifies the characteristics of existing companies listed on the Shanghai and Shenzhen stock exchanges. Section 3 explores the issue of whether and to what extent the equity market

has contributed to increasing firms' investment. Section 4 focuses on whether the equity market has improved corporate governance and, hence, the performance of listed companies. Section 5 analyses whether stock price movements have increasingly reflected changes in firms' fundamentals rather than movements of overall composite stock prices (caused by herd behavior of investors). Section 6 contains concluding remarks.

2. Characteristics of Listed Firms in the PRC

2.1. Overview of the Equity Market

The equity market has been growing rapidly in recent years, compared with the corporate bond market (Table 1). The ratio of equity market capitalization to gross domestic product (GDP) (including A- and B-shares) grew from 3.9% or Y104 billion in 1992 to 53.8% or Y4.8 trillion in 2000. The number of domestically listed firms (which include firms that issue only A-shares, only B-shares, both A- and B-shares, or A- and H-shares) rose from 53 in 1992 to 1,088 in 2000 (Table 2). As of May 2002, there are 1,169 companies listed on the PRC's domestic stock exchanges. The number of firms that issue only A-shares has risen more rapidly than the number of firms that issue both A- and B-shares or A- and H-shares. Both these indicators are comparable to those of advanced countries. The ratio of market capitalization as of 2000 was below that of the United States, but was comparable to that of Japan and Germany (Chart 1). The number of listed firms, meanwhile, was smaller than in India, United States and Japan, but was greater than in Republic of Korea (Korea), Thailand, and Singapore (Chart 2).

Table 1. Market Capitalization, Bonds and Domestic Credit, 1992-2000
(% of GDP)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Market Capitalization									
Total	3.9	10.2	7.9	5.9	14.5	23.4	24.5	32.3	53.8
A-Shares		9.6	7.5	5.7	13.9	22.9	24.3	31.9	53.1
B-Shares		0.6	0.4	0.3	0.6	0.5	0.3	0.4	0.7
Negotiable Market Capitalization									
Total		2.5	2.1	1.6	4.2	7.0	7.2	10.0	18.0
A-Shares		2.0	1.7	1.4	3.7	6.5	7.0	9.7	17.4
B-Shares		0.5	0.3	0.3	0.5	0.5	0.3	0.3	0.6
Corporate Bonds ^{1/}	3.6	2.6	1.7	4.0	4.6	5.6	7.3	8.8	9.2
Domestic Credit	94.7	103.6	92.3	91.1	97.2	106.2	119.5	130.4	132.7
Government Bonds	4.8	4.6	4.9	5.6	6.4	7.4	9.9	12.9	15.3

Note: 1/ Corporate Bonds include bonds issued by financial institutions and enterprises.

Source: China Securities and Futures Statistical Yearbook, 2001; International Financial Statistics Database, International Monetary Fund; DRI Asia Database, CEIC Data Company.

Table 2. Summary Table of the Equity Market, 1992-2000

	1992	1993	1994	1995	1996	1997	1998	1999	2000
	(in Units)								
Number of Listed Companies (A-, B- and H-Shares) ^{1/}	53	182	291	323	530	745	851	949	1,088
Number of Listed Companies (B-Shares) ^{2/}	18	41	58	70	85	101	106	108	114
Number of Listed Companies (H-Shares) ^{3/}		6	15	18	25	42	43	46	52
Turnover	(in 100 Million Yuan)								
Total	681.3	3,667.0	8,127.6	4,036.5	21,332.2	30,721.8	23,544.3	31,319.60	60,826.65
A-Shares		3,522.6	8,003.1	3,958.6	21,052.3	30,295.2	23,417.7	31,049.55	60,278.67
B-Shares		104.7	124.6	77.9	279.9	426.6	126.5	270.04	547.97
Trading Volume	(in Millions)								
Total	3,795.4	23,422.2	201,333.9	70,547.1	253,314.1	256,079.1	215,411.0	293,238.88	475,840.00
A-Shares		20,916.5	98,802.4	68,106.6	246,492.9	247,129.9	209,250.1	280,974.70	455,802.07
B-Shares		1,739.9	2,531.5	2,424.2	6,821.5	8,872.0	6,160.5	12,264.18	20,036.13
Turnover Rate	(Percent)								
Shanghai		341.0	787.0	519.4	760.1	535.0	355.3	421.6	
Shenzhen	265.5	324.4	691.8	309.6	949.7	662.3	411.1	371.6	
New York	47.0	53.0	53.0	59.0	52.0	65.7	69.9	74.6	
Tokyo	20.0	26.0	25.0	26.8	26.9	32.9	34.1	49.4	
Hong Kong, China	53.0	61.0	40.0	37.1	43.9	90.9	61.9	50.6	
Republic of Korea	133.0	187.0	174.0	105.1	90.7	145.5	207.0	344.9	
	(in 10,000s)								
Number of Investor Brokerage Accounts (10,000)	216.7	777.7	1,059.0	1,242.5	2,307.2	3,333.3	3,911.1	4,481.19	5,801.14
Stock Price Index	(Index)								
Shanghai Stock Exchange Composite Index	780.4	833.8	647.9	555.3	917.0	1,194.1	1,146.7	1,366.58	2,073.48
Shenzhen Stock Exchange Composite Index	241.2	238.3	140.6	113.2	327.5	381.3	343.9	402.18	635.73
Price-Earnings Ratio	(Ratio)								
Shanghai		42.5	23.5	15.7	31.3	39.9	34.4	38.13	58.22
Shenzhen		42.7	10.3	9.5	35.4	41.2	32.3	37.56	56.03

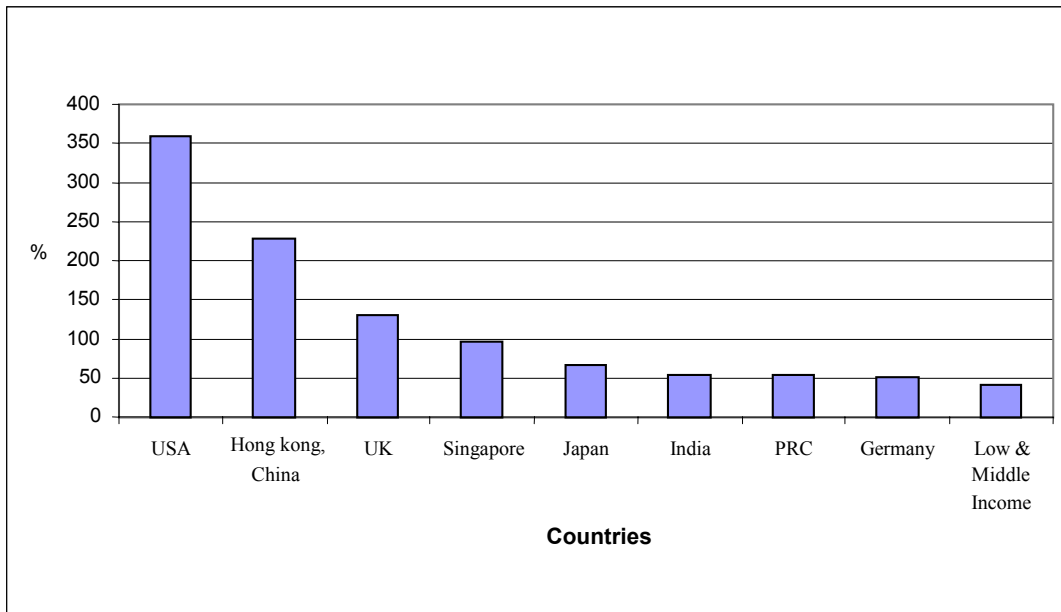
Notes: 1/ Includes firms that issue only A-shares, both A- and B-shares, and both A- and H-shares.

2/ Includes firms that issue only B-shares and both A- and B-shares.

3/ Includes firms that issue H-shares.

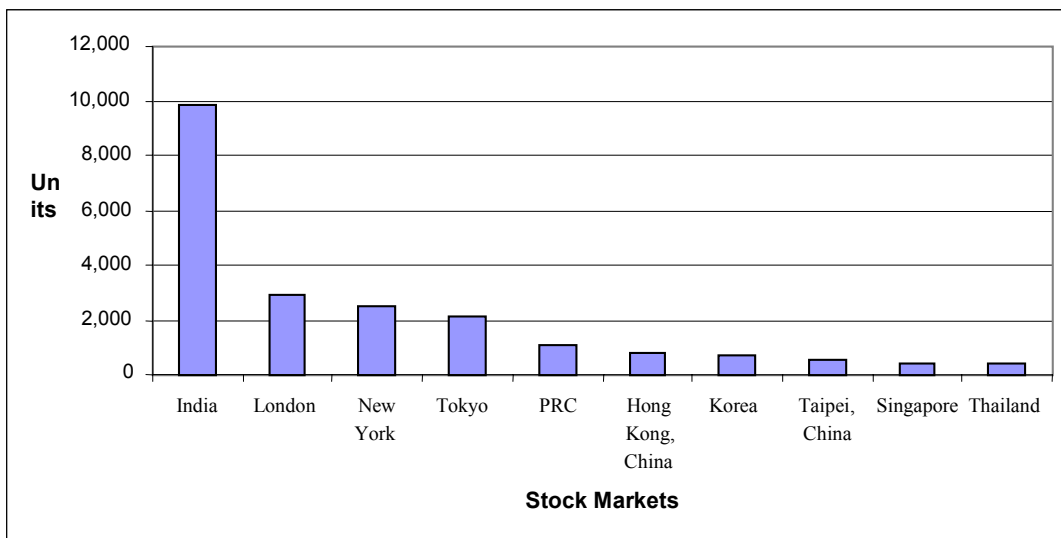
Source: *China Securities and Futures Statistical Yearbook, 2001*

**Chart 1. Market Capitalization, 2000
(As % of GDP)**



Source: *Indian Securities Market – A Review*, National Stock Exchange of India Ltd., 2001.

Chart 2. Numbers of Listed Companies, 2000



Source: *Indian Securities Market—A Review*, National Stock Exchange of India Ltd., 2001; *China Securities and Futures Statistical Yearbook*, 2001

However, one needs to be careful in using market capitalization as an indicator of equity market size. This is because in the PRC, about 60% of shares are non-tradable and related to State-owned and legal person shares. State-owned shares refer to shareholdings of the central and local governments, or institutions (including other SOEs) and departments designated by the State Council or by local governments. Legal person shares refer to those owned by domestic enterprises or other economic entities enjoying legal person status—generally promoters of the invested company. If the legal person is an SOE or institution where the State has a majority but less than 100% ownership, these shares are also called State-owned legal person shares (Lin, 2000). The ratio of market capitalization to GDP exaggerates the true status of the PRC’s equity market development. For this reason, it is important to use the ratio of negotiable market capitalization to GDP (including only staff shares, ordinary domestic shares, foreign individual shares, etc.) as a supplementary indicator. If this is used, the ratio of negotiable market capitalization to GDP increased more moderately—from 2.5% in 1993 to 18% in 2000.

A unique feature of the PRC’s equity market is that the same company can issue A- and B-shares but aimed at different types of investors. Domestic investors have been allowed to trade only A-shares, while foreign investors are restricted to trading B-shares, even though the two shares are identical with respect to shareholder rights (i.e. voting and profit sharing rights). Thus, these two domestic markets are highly segmented owing to the de facto non-transferability of shares between them. Reflecting a rapid increase in the number of investors (whose brokerage accounts rose from 2.2 million in 1992 to 58 million in 2000) and the consequent high demand for shares, A-shares have been traded at a substantial premium over identical B- (also H-) shares. Thus, the price-earnings ratio (PER) has remained high—in the 30-60% range in 1996-2000 (Table 2). This PER ratio seems high even by international standards—greater, for instance, than in the United States, Korea, United Kingdom, and Thailand (Table 3).

Table 3. Price-Earnings Ratios in Major Stock Markets, 1992-1999

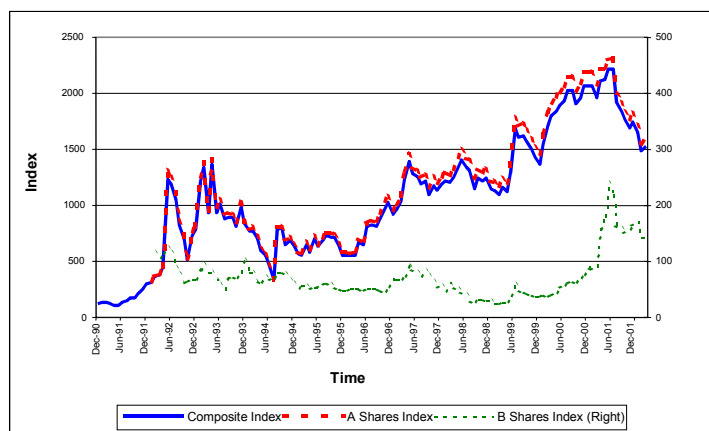
Year	Shanghai	Shenzhen	Taipei,China	New York	Tokyo	Korea, Rep. of	London	Hong Kong	Thailand	Singapore
1992			22.90	22.70	36.70	10.80	17.50	13.10	16.30	19.50
1993	42.48	42.69	39.70	23.40	64.90	16.00	24.80	21.60	26.10	37.30
1994	23.45	10.28	33.50	29.70	79.50	21.80	17.40	10.70	19.50	26.20
1995	15.70	9.46	21.30	35.30	86.50	16.00	15.60	11.40	19.80	24.00
1996	31.32	35.42	29.00	26.30	79.30	16.00	15.90	16.70	12.00	21.70
1997	39.86	41.24	27.00	26.40	37.60		19.20	12.10	6.60	15.20
1998	34.38	32.31	26.10	27.20	103.10	27.80	23.30	10.70	26.10	19.00
1999	38.13	37.56	47.70	31.30	NA	34.60	30.50	26.73	14.70	99.20

Source: China Securities and Futures Statistical Yearbook, 2001

The price differentials between A- and B-shares (and H-shares) have also remained high (Charts 3a and 3b), fueling a great deal of investor speculation. B-shares are supposed to be offered only to foreign investors. But it is often pointed out that PRC

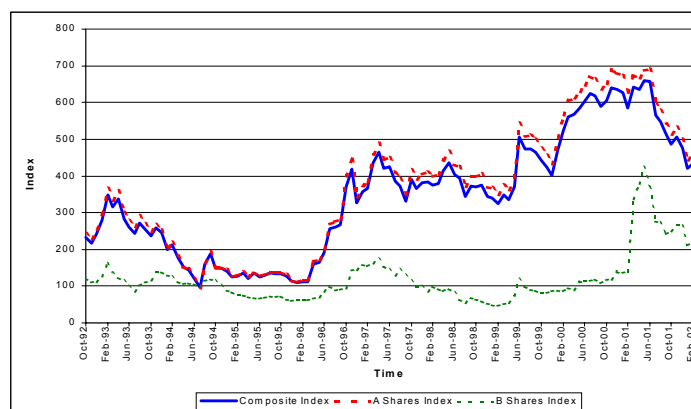
nationals with access to foreign exchanges have been purchasing them, in anticipation of capital gains to be earned from cheaper B-shares in the event of an eventual merger between A- and B-shares. Similarly, even though foreign investors are not permitted to hold A-shares, some seem to have been offered to them, probably in proxy names in PRC (Asian Development Bank, 1999). Since A-shares have been heavily oversubscribed, they account for most of the differentials. B-shares are generally regarded as representing better value, even though the A-share market has the higher trading volume and turnover value (Table 2). However, the Government allowed individual domestic investors legally holding foreign currency accounts to purchase B-shares in February 2001, and fully liberalized the B-share market to all domestic investors in June 2001, helping to narrow the price differentials from a factor of more than five to only two. Investors widely interpreted this move as a sign that B-shares would soon be abolished and the A- and B-share markets would be integrated; consequently, the prices of B-shares shot up.

Chart 3a. Composite Price Index of Shenzhen Stock Exchange, 1990-2001



Source: DRI Asia Database, CEIC Data Company.

Chart 3b. Composite Price Index of Shanghai Stock Exchange, 1992-2002



Source: DRI Asia Database, CEIC Data Company.

The Government's greatest difficulty with the equity market is that it faces a tradeoff. On the one hand, there is the desire to sell off its shares in listed companies in order to finance the forecast shortfall in the national social security fund. And on the other, it fears the wrath of the millions of individual investors, some of whom have invested well above their income levels. In June 2001, the Government announced that companies selling domestic and foreign shares on public markets should sell additional shares equivalent to 10% of the original offer size and that the proceeds from this would be transferred to the national social security fund. In response, the prices of A-shares plunged 30% up to October 2001, when the Government backed down. In January 2002, however, CSRC announced new proposals to unload State-owned shares, which immediately led to a 6-9% drop in stock prices in the space of a day, again forcing the Government to back down.

In June 2002, CSRC responded to growing calls to slow down the pace of public offers of additional shares held by the State. Under the provisional regulations, a company can launch additional share offers only if the weighted average net returns on assets over the past three years are not lower than 10%; its asset-liabilities ratio is no less than the average level of industry; and projects funded by their previous share issues are at least 70% complete. Moreover, the provisional regulations state that if a company plans to make an additional offer and the number of new shares exceeds 20% of the total, it must gain at the general meeting the approval of more than half of votes of shareholders holding tradable shares. Further, if a company's earnings drop by 50% or more after an additional offer, the main underwriter would have its underwriting business curtailed or suspended. Last, if a company has already gained approval to launch an additional offer, but does not qualify under the new rules, it may switch to a rights issue as long as it meets the relevant requirements.

The tradeoff explains why the Government has been slow to privatize listed SOEs and bring the necessary capital market reforms. The Government wants to generate money for the national social security funds, so it is reluctant to sell its shares at a discount, which would also attract political opposition.

2.2. Characteristics of Listed Companies

This subsection analyzes the main characteristics of the 1,098 firms (including 10 firms listed officially in 2001 but included in the database of 2000) that have been listed in the Shanghai and Shenzhen stock exchanges during 1992-2000. The data are from public source provided with assistance of some staff of the People's Bank of China and exclude firms that issue only at foreign exchanges. Thus, the data cover firms that issue (a) A-shares only, (b) B-shares only, (c) both A- and B-shares, or (d) both A- and H-shares. Based on this database, the following five features with respect to the equity market can be seen.

Dominance of A-Shares

Since A-shares are equivalent to the ordinary common shares that are generally accepted in other market economies, they dominate the PRC's equity market, dwarfing the amount of B- and H-shares both in the Shanghai and Shenzhen stock exchanges. Listed firms are quite evenly distributed between the two stock exchanges, with about 52% listed in the Shanghai stock exchange and the rest in Shenzhen. Although no cross-listings between the two markets are permitted, a firm is allowed to be dual listed in domestic and foreign markets (B- and H-share and other foreign markets). Firms that issue only A-shares account for about 90% of total listed firms (Table 4). Firms that issue both A- and B-shares are the next most numerous type of company, but these account for only 6.3% of the total listed firms in both stock exchanges. There are no firms that issue both B- and H-shares. It is generally regarded as being more prestigious to issue H-shares than B-shares. Also, foreign investors often feel more comfortable investing in shares offered in the stock exchange of Hong Kong, China than the two stock exchanges of the PRC, due to the former's reputation for a modern and transparent corporate governance system (Asian Development Bank, 1999).

Table 4. Distribution of Listed Companies by Types of Stocks, 2000

Shanghai Stock Exchange		Shenzhen Stock Exchange	
All Shares	573	All Shares	522
A-Shares Only	510	A-Shares Only	464
B-Shares Only	14	B-Shares Only	9
Both A- and B-Shares	31	Both A- and B-Shares	38
Both A- and H-Shares	18	Both A- and H-Shares	11
Both B- and H-Shares	0	Both B- and H-Shares	0

Source: People's Bank of China

Another factor in the dominance of A-shares is the legal requirement that they should account for not less than 25% of total shares issued when a company goes for listing (Lin, 2000). Also, new quotas are determined for each share by CSRC, the People's Bank of China, and the State Planning Commission, in accordance with the national investment and credit plan. Aharony, Lee, and Wong provided 1993 as an example, when there was a quota of 800 million B-shares; thus only 24 B-share IPOs were approved despite hundreds of SOE applicants.

Moreover, a more stringent accounting system—such as International Accounting Standards for B-shares and the Hong Kong Statement of Standard Accounting Practice for H-shares—is applied to firms that issue B- and H-shares. However, there have been some concessions to accommodate the lack of a conventional legal infrastructure (Asian Development Bank, 1999). To increase the confidence of foreign investors in the quality of the financial reports, international auditing firms are hired during the corporatization process (Aharony, Lee, and Wong, 2000). Financial

reports of the to-be-listed firms must be converted from a cash basis to an accrual basis in accordance with international accounting standards. Owing to the lack of expertise and knowledge, managers of SOEs often hire foreign underwriters, accounting firms, and lawyers to adopt the new accounting standards.

Another factor in the dominance of A-shares is that less stringent initial public offering (IPO) requirements are applied to firms that issue only A-shares. For example, a firm wishing to be listed in the A-share market must achieve three consecutive years of operating profits, while firms that want to issue B- or H-shares must additionally be able to generate sufficient foreign exchange incomes to pay dividends in foreign currencies (Aharony, Lee, and Wong, 2000).

Concentrated Timing of IPO

Second, the number of listed firms issuing A-shares peaked in 1996-1997, contributing to a sharp rise in market capitalization as a percentage of GDP. The rapid increase in the number of listed firms reflects a rapid rise in investors during this period. In contrast, the number of listed firms issuing B-shares peaked earlier in 1992-1994, when B-shares were permitted for the first time (Table 5). Moreover, the IPOs were large during this period. In addition, out of the firms issuing both A- and B-shares, 61% had IPOs on A-shares before or at the same time as IPOs on B-shares (Table 6).

Table 5. Distribution of Listed Companies by Listing Timing, 1990-2000

	Shanghai	Shanghai	Shenzhen	Shenzhen	Total:	Cumulative	Total	Cumulative
1990	7	-	1	-	8	8	-	-
1991	1	-	4	-	5	13	-	-
1992	20	9	19	9	39	52	18	18
1993	71	12	53	10	124	176	22	40
1994	69	13	42	5	111	287	18	58
1995	14	2	10	10	24	311	12	70
1996	101	4	102	11	203	514	15	85
1997	80	7	126	4	206	720	11	96
1998	54	3	54	2	108	828	5	101
1999	45	2	54	-	99	927	2	103
2000	87	1	48	1	135	1,062	2	105
2001	10	-	-	-	10	1,072	-	105

Source: People's Bank of China

Table 6. Distribution of Listed Companies by Listing Timing and Types of Firms, 1990-2001

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
(1) A-Share Only Firms	7	3	19	100	94	19	189	199	104	97	134	9
(2) A- and B-Share Firms												
A-Shares	1	2	15	20	12	1	9	4	3	1	1	0
B-Shares	0	0	14	15	14	5	11	4	1	0	0	0
B-Share First												25
A-Share First												28
Same Time												11
(3) A- and H-Share Firms												
A-Shares	0	0	5	4	5	4	5	3	1	1	0	1
(4) B-Share Only Firms	0	0	0	1	2	5	1	12	3	2	2	0

Source: People's Bank of China

Dominance of Recently Corporatized or Established Listed Firms

Third, most listed firms have been corporatized or established in recent years, especially since 1992, when the Government changed its stance in improving the performance of SOEs (Table 7). From 1978 to 1991, the Government attempted to improve the corporate governance of SOEs without reforming property rights—mainly through reducing government intervention, providing management with greater autonomy (e.g. the contract system), and inducing SOEs to operate on a more commercial basis (Lin, 2000). Moreover, the Government launched at State-owned enterprise groups (connecting firms vertically and horizontally) in order to realize scale economies, promote technological advancement, and facilitate intra-group financing. When these measures failed to improve SOE performance, the Government in 1992 moved to clarify property rights of SOEs through corporatization—a conversion of SOEs into limited liability companies and joint-stock companies. Corporatization involves not only the clarification of property rights, financial independence, and accountability, but also a separation of government from management and promotion of commercially-oriented management and responsibilities. Moreover, the measures to provide SOEs with greater operational autonomy have been strengthened in 14 defined areas of decision-making. In recent years, corporatization has become the generic solution not only in improving the performance of SOEs, but also in obtaining external funding for them through the equity market. A company wishing to be listed first needs to obtain from CSRC an approval for corporatizing itself, followed by permission from the relevant local and national authorities.

Table 7. Distribution of Listed Companies by Years of Corporatization or Establishment

Years of Operation as of 2000	Number of Companies	Cumulative Distribution
Before 1980	1	1
1980	1	2
1982	1	3
1983	1	4
1984	5	9
1985	3	12
1986	5	17
1987	11	28
1988	37	65
1989	36	101
1990	14	115
1991	21	136
1992	162	298
1993	291	589
1994	69	658
1995	21	679
1996	53	732
1997	111	843
1998	128	971
1999	94	1,065
2000	2	1,067

Source: People's Bank of China

Lin (2000), however, warns that the increasing separation of the Government from management also separates the principal from the agent, or ownership from management. Thus, corporate governance problems could grow to become even more serious than those faced by SOEs before corporatization. Lin (1994) provides evidence that SOEs have continued to be subject to State intervention even after corporatization. Further, corporate governance did not improve (or even deteriorated in some cases) owing to greater problems of informational asymmetries and monitoring, and the formation of insiders groups (among management and the State). As the profitability of overall industrial SOEs and their contribution to GDP declined, the Government announced in 1997 and confirmed again in 1999 and 2000 that the ownership of SOEs would become more diversified in a number of sectors, although the State would remain dominant in strategically important ones.

Concentration of State Ownership

Fourth, listed firms have remained largely State-owned in both stock exchanges. The proportion of shares under State ownership (the sum of State-owned and legal person shares) is concentrated in the 40-80% range in about 90% of listed firms (Table 8). This indicates that the majority of listed firms remain SOEs, which are generally defined as firms whose State ownership exceeds 50%. In recent years, the ownership of a large

number of SOEs has been transferred from the central Government to local authorities or local government-owned enterprises. Nevertheless, the ultimate owner of these shares remains the State Council. State-owned and legal person shares are both non-tradable and subject to the same restrictions. Sales of legal person shares to foreign investors were allowed until May 1996 when they were suspended (Lin, 2000).

Table 8. Distribution of Listed Companies by Types of Ownership, 2000

% of State Ownership	Number of Firms as of 2000	Cumulative Distribution	% of Public Shares	Number of Firms as of 2000	Cumulative Distribution
0-10	8	8	0-10	69	69
10-20	1	9	10-20	75	144
20-30	17	26	20-30	250	394
30-40	60	86	30-40	354	748
40-50	126	212	40-50	171	919
50-60	248	460	50-60	87	1,006
60-70	366	826	60-70	38	1,044
70-80	198	1,024	70-80	9	1,053
80-90	24	1,048	80-90	0	1,053
90-100	10	1,058	90-100	5	1,058

Source: People's Bank of China

A-shares refer to the sum of public shares, staff shares, and reserves shares and/or rights issues. Public shares are those held and traded by the general public—individual investors, staff and employees of companies who have not acted as promoters, and institutional investors (Lin, 2000). The number of investor brokerage accounts amounted to 57 million in 2000 and individual investors, staff, and employees accounted for more than 99% of total investors (Table 2). Employee shares are those offered to employees (staff and management) of listed firms to provide a benefit or incentive to workers rather than raise capital for firms. These shares are registered under the title of the labor union (workers' council) of the company. In general, after the initial holding period of six to 12 months, the company may file an application with CSRC if it wishes to get an approval for its employees to sell their shares in stock exchanges. A-shares are issued in a registered form with nominal values in yuan and traded only in this currency. Only PRC nationals or residents of the country are qualified to purchase, own, and trade such shares. By contrast, B-shares are issued in registered form with nominal values in yuan, but traded in foreign currencies: US dollars in the Shanghai stock exchange and Hong Kong dollars in the Shenzhen stock exchange. B-shares have been offered only to foreign individuals and firms, those in Hong Kong, China; Macau, China; Taipei, China; and PRC citizens living abroad. Meanwhile, H-shares are issued in Hong Kong, China. Other shares include N-, L-, and S-shares, which are listed and traded in New York, London, and Singapore, respectively.

Table 9 shows that the degree of State ownership declined slightly from 68% in 1992 to 60.5% in 2000. Meanwhile, the percentage of public shares has risen from 21% in 1992 to 34% in 2000. Nevertheless, the predominance of State ownership indicates that there remain intrinsic and fundamental problems of corporate governance in listed SOEs, because public shareholders are not in a position to exercise voting power with any prospect of control (Asian Development Bank, 1999). Moreover, there is the ambiguity of property rights associated with State ownership (Lin, 2000). Under State ownership, property rights of firms belong to the people, so that the State (central and local governments and institutions delegated by them) manages the SOEs on behalf of the people. It does this, in practice, without bearing any residual risks or profits over the control and use of their assets, while SOEs continues to obtain a large amount of bank loans and subsidies. Thus, there are few incentives for the State to perform better. The people bear the ultimate residual risks, but with these risks ultimately felt through the budget. This, then, is the classic problem of who monitors the monitor (Lin, 2000)?

Table 9. Average Shareholding Patterns of Listed Companies, 1992-2000

(% of Total Shares)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
State-Owned Shares	32.6	34.3	34.1	33.6	35.6	31.6	30.7	28.8	29.3
Legal Person Share	35.5	35.9	35.3	38.2	36.0	36.0	32.5	31.4	31.2
Domestic Legal Person Share	9.8	14.2	17.9	25.1	25.5	27.0	23.3	22.7	22.2
Foreign Legal Person Share	1.3	1.8	1.7	2.2	1.8	1.6	1.4	1.4	0.7
Private Placement of Legal Person Shares	5.1	6.5	10.5	10.9	8.5	7.4	7.9	7.0	7.5
Total of Negotiable Shares	21.6	22.2	23.5	20.2	23.7	28.0	32.2	34.9	37.1
Public Share	20.6	19.5	20.5	18.1	20.0	24.2	28.3	31.2	33.7
Staff Shares	5.0	6.6	5.9	5.9	4.0	3.4	3.2	2.3	1.2
Reserves Shares & Rights Issue	0.0	0.0	0.1	0.6	0.6	0.9	1.0	1.0	0.5
B-Shares	2.7	2.6	3.2	3.0	3.0	3.2	3.2	1.8	2.7
H-Shares	0.0	0.4	0.6	0.6	0.7	0.6	0.7	1.9	0.8
Preference Stock	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1
Other Shares	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.7	0.3

Source: People's Bank of China

Moreover, the ratio of State-owned shares to total shares tends to be greater for firms that issue only B-shares or both A- and H-shares than for others (Table 10). This suggests that firms under greater direct controls of the Government end up being listed for foreign investors. An increase in this could be the selection of eligible firms, which is frequently dictated by the Government. For example, the Government may want to encourage the listing abroad of B-shares of firms with greater State ownership in order to boost foreign exchanges. Table 10 indicates that firms that issue only A-shares have the largest percentage of legal person shares, suggesting that these listed firms are largely a spin-off of the SOEs.

Table 10. Average Shareholding Pattern of Listed Companies by Types of Shares, 2000

	Only A- Share	A- and B- Share	Only B-Share	A- and H- Share
State-Owned Shares	28.5	28.0	34.8	31.9
Legal Person Share	32.0	24.3	26.7	26.3
Domestics Legal Person Share	22.8	18.1	16.7	20.8
Foreign Legal Person Share	0.6	0.8	5.6	1.6
Private Placement of Legal Person Shares	8.0	5.4	1.4	3.5
Total of Negotiable Shares	36.8	46.5	38.4	40.8
Public Shares	36.8	17.9	10.3	11.3
Staff Shares	1.3	0.4	0.1	1.0
Reserves Shares & Rights Issue	0.6	0.3	0.0	0.1
B-Shares	0.0	28.6	28.1	0.0
H-Shares	0.0	0.0	0.0	29.5
Preference Stock	0.1	0.0	0.0	0.0
Other Shares	0.3	0.5	0.0	0.0
Total Shares	100.0	100.0	100.0	100.0

Source: People's Bank of China

Presence of the Protected Sector

Fifth, many listed firms operate in protected sectors (such as petrochemicals, energy and raw materials), which are largely monopolistic. Table 11 shows that listed firms in the protected industries account for about 40% of total listed firms, implying that there might be some arbitrariness in the selection of listed firms. Since each IPO remains small and competition among SOEs to be listed is intense, State and regional authorities are subject to lobbying and political pressure (Aharony, Lee, and Wong, 2000). This suggests that firms selected for public listings are not necessarily better performers than those rejected. Aharony, Lee, and Wong point out that the State Council and CSRC seem to favor SOEs in the protected sectors in their selection decisions, because these firms are State monopolies and operate under the direct supervision and control of the State Council. Protected firms often obtain direct subsidies from the central Government's budget, and some chief executive officers (CEOs) of these firms have previously held Cabinet-level positions. Also, most Cabinet ministers who regulate the protected sectors have worked in the same sectors as the managers. By contrast, firms in unprotected sectors are mostly under the supervision of provincial or local governments. Thus, they do not receive direct support from the central Government and many of them have to compete in domestic markets. Also, managers in unprotected sectors have greater freedom to set prices and to act more as business people than politicians or bureaucrats.

Table 11. Distribution of Listed Companies by Sector, 2000

	A-Share Only	A- and B-Share	A- and H-Share	B-Share Only
Protected Sectors	381	18	14	15
Petrochemicals	53	3	2	0
Utility	65	5	1	3
Raw Materials	138	4	5	4
Other Sectors	595	53	15	8
Agriculture	13	2	0	0
Automobiles, Motorcycles, Planes	51	6	1	2
Conglomerate	44	2	2	0
Consumer Products	101	12	2	0
Commerce	128	7	2	2
Electronics	73	10	3	2
Finance	7	0	0	0
Glass and Glass Products	5	2	1	0
High-technology	15	0	0	0
Information	17	0	1	0
Machinery	58	1	4	5
Medical Equipment	4	0	0	0
Medicine	46	1	1	0
Others	0	1	0	1
Properties, Real Estate	61	8	1	0
Telecommunications	12	0	1	1
Textiles, Clothes	67	5	2	3
Transportation	18	2	0	0

Source: People's Bank of China.

3. The Role of the Equity Market in Providing Stable Financing Sources for Investment

In anticipation of the intense competition that will result from the PRC's accession to the World Trade Organization (WTO), State-owned banks have increasingly tightened their lending policies in recent years to help improve their balance sheets. Thus, the primary goal of companies wishing to be listed is to raise funding for their investment, not to promote privatization (Asian Development Bank, 1999). This partly explains why most companies that have issued new shares so far have done so through IPOs, not through a large shift in ownership from the State to public investors.

Firms' investment and, with it, their economic growth, depend primarily on financial sources of investment and, hence, the financial and capital markets if internal sources (retained profits and depreciation) are not sufficient. This is true especially for developing countries, where large numbers of firms do not have sufficient profits to generate retained earnings. There have been various studies on the relationship between investment and corporate finance. McKinnon (1973) and Shaw (1973) have stressed a

positive relationship between the accumulation of financial assets and physical capital formation. Moreover, the finance literature has found that external sources of finance (such as bank loans and the issuance of securities) are generally more expensive than internal sources when there are high transaction costs, agency problems, and problems of information asymmetry (Jensen and Meckling, 1976; Stiglitz and Weiss, 1981; Mayers and Majluf, 1984; Bernanke and Gertler, 1990; and Hubbard, 1998). According to the literature, companies with high levels of agency problems and information asymmetry between insiders and outsiders may find it more difficult to raise external funds, compared with those with low levels, because the costs of information collecting/processing and monitoring are higher.

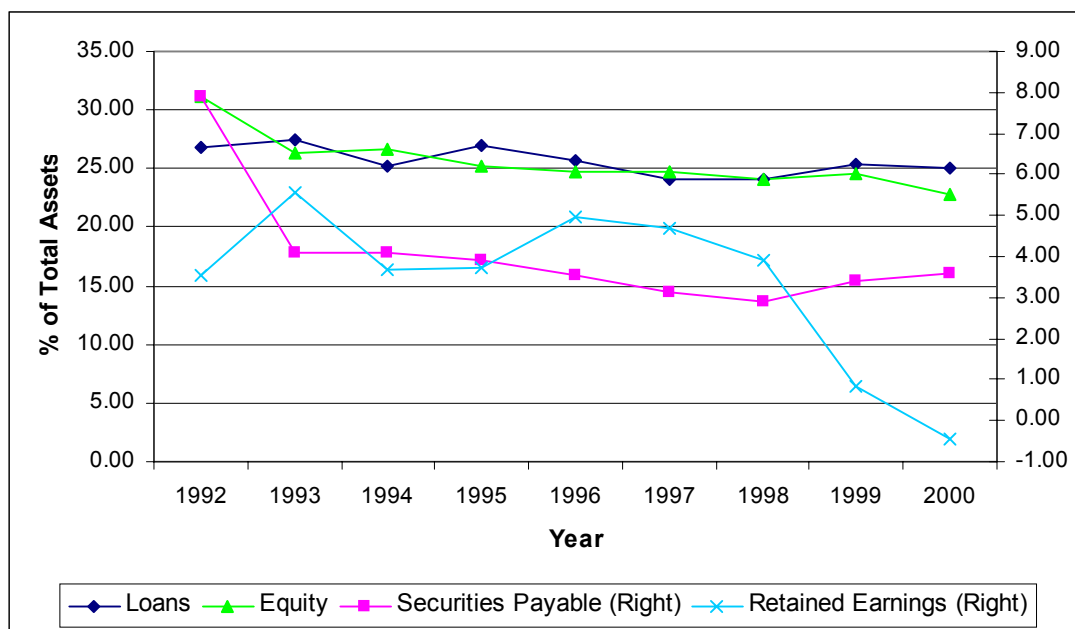
These problems are likely to be severe in developing countries, since there are large numbers of small and medium enterprises (SMEs) whose returns are highly idiosyncratic, making it difficult for their information to be transferable to the public. Moreover, an underdeveloped capital market limits the amount of publicly available and precise information about issuing companies. Thus, firms with a high degree of agency problems and information asymmetry find that their internal and external sources cannot be substitutes for each other, because of differential costs of information collecting/processing and monitoring. In the debt market, banks may ration credit by charging a lower-than-equilibrium interest rate in an attempt to avoid an increase in risky borrowers (Stiglitz and Weiss, 1981). In the capital market, investors may charge lemons premium in order to compensate for higher risk (Myers and Majluf, 1984). If this happens, investments would be constrained by the availability of internal sources of funds.

In order to test the role of the equity market in financing firms' investment, this section estimates an investment function using the notion of information asymmetry and agency problems. A dependent variable, or investment, is defined as the ratio of changes in the sum of fixed assets, long-term investment, and intangible assets to the sum of fixed assets, long-term investment, and intangible assets of the previous year (INV). As a sales accelerator variable, the ratio of changes in sales (proxied by changes in incomes from main business) to the sum of fixed assets, long-term investment, and intangible assets of the previous year (SALES) is used (Ganesh-Kumar, Sen, and Vaidya, 2001b). A firm's investment is expected to increase when the market value of a firm's capital stock or Tobin's Q rises. Since the time series data on firm-level market capitalization and the number of stocks (often used as a proxy to measure Tobin's Q) are not available, this section uses returns on assets (ROA) as a proxy to measure changes in investment opportunities surrounding a firm or Tobin's Q. As alternative variables, earnings per share (EPS) and returns on equity (ROE) are used.

In many developing countries including the PRC, external sources are more important than internal source. This is because the limited amount of internal finance is not able to meet the high demand for investment in the absence of adequate capital stock (Chart 4). Especially when information asymmetry and agency problems are high, firms are more likely to be financially-constrained since it is expensive to raise funds (Ganesh-Kumar, Sen, and Vaidya, 2001b). This situation of limited internal sources is applicable to the PRC (Chart 4). To assess whether firms are financially constrained, this section adopts changes in outstanding equity capital (EQUITY), changes in outstanding

short- and long-term liabilities plus long-term liabilities due within one year (LOAN), and changes in corporate bonds (BOND) with all of these variables being divided by the sum of fixed assets, long-term investment, and intangible assets of the previous year.

Chart 4. Corporate Financing Pattern, 1992-2000
(% of Total Liabilities)



Source: People's Bank of China

This model also includes variables indicating firms' characteristics, some of which reflect the extent of information asymmetry and agency problems (such as size, years of corporatization or establishment, State ownerships, places of stock exchanges where firms' stocks are issued, types of shares, sector classification). The size of a firm is measured by the natural logarithm of a firm's asset (ASSET). AGE reflects the number of years between the year of corporatization or establishment and 2000 and, thus, the greater AGE is, the older the firm or the earlier the corporatization process took place. To assess the impact of State ownership, the ratio of State ownership to total shares (STATE) is used. SHANGHAI is a dummy variable reflecting the stock exchange in which the firms' stocks are listed, and is equal to 1 if a firm is listed on the Shanghai stock exchange and 0 if listed on the Shenzhen stock exchange. As for the types of shares, BSHARE and HSHARE are adopted. BSHARE equals 1 if a firm issues both A- and B-shares or only B-shares and 0 otherwise. HSHARE equals 1 if a firm issues both A- and H-shares and 0 otherwise. Moreover, the model includes two types of sector dummy variables: one based on the six classifications adopted by CSRC (PROPERTY, INDUSTRY, FINANCE, COMMERCE, UTILITY, CONGLOMERATE) and the other based on protected sectors (petrochemicals, utilities, and materials) classified by Aharony, Lee,

and Wong (2000) (PROTECTED).² PROPERTY equals one if a firm belongs to the real estate and property sectors and zero otherwise. INDUSTRY equals 1 if a firm belongs to the manufacturing and other industry sectors and 0 otherwise. FINANCE equals 1 if a firm belongs to the finance sector and 0 otherwise. COMMERCE equals 1 if a firm belongs to the wholesale, retail, and distribution sectors and 0 otherwise. UTILITY equals 1 if a firm belongs to utility sectors and 0 otherwise. CONGLOMERATE equals 1 if a firm engages in a wide range of sectors and 0 otherwise. PROTECTED equals 1 if a firm belongs to protected sectors and 0 otherwise. Time dummy variables (TIME) are also introduced for each year.

The signs of SALES, ROA, EPS, and ASSET are expected to be positive. The sign of AGE is expected to be negative if a newly corporatized or established firm engages in more investment. The sign of STATE is expected to be negative if the degree of public ownership increases when a firm undertakes more investment. The sign of PROTECTED is expected to be positive if protected industries require a large amount of capital formation. The signs of EQUITY, LOAN, and BOND reflect the degrees of sensitivity of investment to each external financing source. Regression analysis was conducted using the ordinary least squares (OLS) method based on the same database used in Section 2. The variables were tested for the presence of a high degree of multicollinearity among them using simple correlation matrix. The test rejected the presence of a high degree of multicollinearity. This paper used White's heteroscedasticity-corrected standard errors in the entire analysis in order to correct for the presence of heteroscedasticity. PROPERTY is excluded from the model as an intercept. TIME94 is also excluded from the model as an intercept. The observation period covers 1994-2000, since 1992-1993 data are used for the lag variable for the sum of fixed assets, long-term investment and intangible assets, as well as SALES.

The results reported in Table 12 are summarized as follows. First, the coefficient of LOAN was statistically insignificant and negative, but the coefficients of the cross variable between TIME and LOAN were statistically significant and positive for 1997-2000. Since the sum of the coefficients of LOAN and the cross variable (e.g., LOAN×TIME95) is the coefficient of LOAN for the particular year (e.g., 1995), these results indicate that the relationship between investment and loans turned positive in 1997-2000. Second, the coefficient of EQUITY turned out to be statistically significant and positive, but the coefficients of the cross variable between TIME and EQUITY were statistically significant and negative. The sum of these coefficients suggests that the positive contribution of equity finance to investment has weakened recently as compared with 1994, although the positive relationship was sustained during 1995-1999. Third, the coefficient of BOND was statistically insignificant in most cases. This result should be interpreted as reflecting limited bond issuance (Table 1). Since the contribution of BOND is small, the cross variable was not adopted.

² Two alternative variables (SALETAX and INTEREST) were used as a proxy for protected industries. SALETAX refers to the ratio of business tax payment to earnings from main business, while INTEREST refers to the ratio of interest payment to total liabilities. However, both variables turned out to be statistically insignificant.

Table 12. Regression Results for Investment (INV)

Variable	Regression 1		Regression 2		Regression 3		Regression 4		Regression 5	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-28.39	-0.75	-21.74	-0.61	-76.52*	-1.63	-16.90	-0.48	-18.20	-0.52
TIME95	-8.23	-0.46	-8.57	-0.48	-9.42	-0.53	-8.97	-0.50	-8.87	-0.50
TIME96	-12.99	-0.75	-13.39	-0.77	-14.34	-0.82	-13.94	-0.79	-13.93	-0.79
TIME97	-18.47	-1.02	-19.01	-1.04	-20.78	-1.14	-19.42	-1.06	-20.12	-1.10
TIME98	-11.27	-0.60	-11.75	-0.62	-13.47	-0.72	-12.40	-0.65	-13.97	-0.73
TIME99	-16.40	-0.90	-17.20	-0.93	-19.04	-1.03	-17.96	-0.95	-19.91	-1.06
TIME00	-18.26	-0.99	-18.93	-1.01	-21.03	-1.12	-19.93	-1.03	-21.89	-1.15
BSHARE	-11.95***	-2.50	-11.34**	-2.45	-11.89**	-2.40	-11.52**	-2.43	-12.36***	-2.60
HSHARE	14.49	0.52	14.64	0.53	11.47	0.43	14.78	0.54	11.87	0.44
SHANGHAI	-0.04	-0.01	0.29	0.09	-0.74	-0.23	0.30	0.09	0.45	0.14
AGE	-1.73***	-4.09	-1.67***	-3.98	-1.52***	-3.65	-1.73***	-4.04	-1.88***	-4.55
LOAN	-0.10	-0.89	-0.10	-0.90	-0.10	-0.92	-0.10	-0.89	-0.10	-0.89
EQUITY	1.96***	5.98	1.96***	5.98	1.96***	6.06	1.96***	5.93	1.95***	5.97
BOND	-0.32	-0.80	-0.33	-0.81	-0.33	-0.83	-0.33	-0.82	-0.32	-0.81
ASALES	0.21***	3.33	0.21***	3.33	0.21***	3.33	0.21***	3.26	0.21***	3.36
ASSET	7.03*	1.70	6.40*	1.65	8.43*	1.91	5.99	1.51	6.51*	1.67
ROA	0.51**	2.30	0.47**	2.17	0.43**	1.95				
EPS							9.64	1.27		
ROE									0.01	0.45
STATE	-0.20	-1.33	-0.24	-1.48	-0.21	-1.34	-0.22	-1.34	-0.22	-1.38
TIME95*LOAN	0.09	0.41	0.10	0.43	0.12	0.54	0.09	0.42	0.09	0.40
TIME96*LOAN	0.03	0.16	0.04	0.18	0.03	0.15	0.03	0.16	0.03	0.16
TIME97*LOAN	0.53***	2.73	0.54***	2.73	0.56***	2.81	0.53***	2.71	0.53***	2.72
TIME98*LOAN	0.57***	3.74	0.57***	3.72	0.57***	3.76	0.57***	3.74	0.57***	3.74
TIME99*LOAN	0.29**	2.28	0.29**	2.29	0.31**	2.36	0.29**	2.28	0.29**	2.30
TIME00*LOAN	0.65***	3.46	0.65***	3.47	0.65***	3.51	0.65***	3.48	0.65***	3.46
TIME95*EQUITY	-1.57***	-4.44	-1.57***	-4.46	-1.56***	-4.41	-1.57***	-4.43	-1.56***	-4.44
TIME96*EQUITY	-1.09***	-3.12	-1.10***	-3.13	-1.09***	-3.13	-1.09***	-3.09	-1.08***	-3.09
TIME97*EQUITY	-1.32***	-4.44	-1.32***	-4.42	-1.32***	-4.44	-1.32***	-4.38	-1.31***	-4.41
TIME98*EQUITY	-1.84***	-3.81	-1.84***	-3.79	-1.82***	-3.85	-1.83***	-3.77	-1.81***	-3.73
TIME99*EQUITY	-1.78***	-4.84	-1.77***	-4.81	-1.77***	-4.85	-1.76***	-4.74	-1.74***	-4.77
TIME00*EQUITY	-2.02***	-5.33	-2.02***	-5.29	-2.00***	-5.23	-2.01***	-5.22	-1.99***	-5.26
PROTECTED			10.48**	1.98			10.95**	2.04	11.01**	2.06
INDUSTRY					34.29**	2.31				
FINANCE					37.90	1.11				
COMMERCE					38.85***	2.44				
UTILITY					43.75***	2.76				
CONGLOMERATE					33.02**	2.17				
R-Squared	0.86		0.86		0.86		0.86		0.86	
F-Statistic	1077.24		1042.36		922.93		1043.43		1042.02	
N	5,146		5,146		5,146		5,146		5,149	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Fourth, the coefficients of STATE were negative but statistically insignificant, suggesting that there were no substantial differences between firms with greater public ownership and those with greater State ownership in terms of investment activities. Fifth, the coefficient of BSHARE was negative (with a statistically significance level of 10%), suggesting that firms that issue only B-shares or both A- and B-shares invest less intensively than firms that issue only A-shares. On the other hand, the coefficient of HSHARE was statistically insignificant and, thus, no distinct differences were observed in terms of investment between firms that issue both A- and H-shares and those that issue only A-shares.

Sixth, the coefficient of AGE was negative and statistically significant. This means that recently corporatized or established firms invested more actively than older firms, probably because of the need to build up fixed capital formation in an initial stage of corporate formation. Seventh, the coefficients of •SALES, ROA, and ASSET were statistically significant and positive in line with the expectation. Eighth, the coefficients of PROTECTED turned out to be statistically significant and positive in line with the view that protected sectors heavily invested in large-scale investment compared to unprotected sectors. Ninth, the coefficients of INDUSTRY, COMMERCE, UTILITY, and CONGLOMERATE were positive and statistically significant. Thus, firms in these sectors invested more heavily than firms in the real estate and property sectors. Tenth, the coefficient of SHANGHAI was statistically insignificant, suggesting that it does not matter on which stock exchanges a firm lists its stocks. Last, the overall regression results remained fairly the same when EPS or ROE was used instead of ROA.

The above results suggest that the equity market contributed to investment growth in early years, but its degree of contribution has declined recently. This may be due to the fact that the lack of adequate and precise information about issuers has encouraged public investors to hold stocks for only short-term capital gains. This renders stock prices highly volatile and equity finance unstable as a source of external finance (this issue will be explored further in Section 5). The high turnover ratio as compared with other countries appears to support this argument (Table 2). On the other hand, the positive impact of loan finance on investment strengthened in 1997-2000. This implies that the banking system continues to play a crucial role in financing corporate investment and, thus, reinforces the view that the banking system remains an important function of the economy.

Moreover, the positive relationships between investment on the one hand and loan and equity finance on the other suggest that firms have operated under hard budget constraints, so that a decline in bank loans and equity finance would lead firms to undertake less than desired investment. In the past, SOEs could obtain cheap finance nearly automatically from the predominant State-owned banks so that these firms faced soft-budget constraints. However, banking sector reforms since 1994 and the recent changes under the WTO framework have made banks more cautious when extending credit to SOEs, since their overall performance has been rapidly deteriorating. As a result, these firms have found it increasingly difficult to obtain bank loans and, thus, they have become financially constrained. Banks are under pressure to improve their balance

sheets in anticipation of greater competition from foreign banks. This leaves them increasingly reluctant to extend credit to firms (instead preferring government bonds). Therefore, the Government urgently needs to adopt appropriate measures if the equity market is to provide stable financing sources for investment and, hence, help sustain high and stable economic growth.

4. The Role of the Equity Market in Improving Firms' Performance

The second approach to assess the state of equity market development is to examine the market's role in improving firms' performance during 1992-2000. In the PRC, the State Council is the ultimate owner of SOEs and the overseer of the IPO process. To be listed, firms are supposed to be selected by CSRC or the department authorized by the State Council based on objective criteria (such as asset size, financial conditions, recent performance, and future prospects) (Asian Development Bank, 1999). This approach, however, differs substantially from that in other countries, where listed firms are selected in accordance with the criteria generally set by the stock exchanges. In the absence of transparency and accountability, moreover, the scope for manipulation of the selection process by the authorities could be greater in the PRC, given that CSRC is not independent from the State. The Asian Development Bank also points out that companies selected for listing are perhaps a little more successful than the average SOEs, but they are not necessarily superior to those that would have been selected by the market or stock exchanges.

Since the establishment of the two stock exchanges, one would expect the listed firms to have improved their performance, given that relatively well-performing firms have been selected and outside shareholders are supposed to monitor their invested firms after the IPOs. To be listed, a firm must meet minimum profitability qualifications and accounting standards, as mentioned above; thus, listed firms are normally perceived to be relatively healthy. Moreover, to attract international investors for their IPOs, many SOEs list only their profitable business units for public offering and keep nonproductive and unprofitable units in the original State-owned entities (Tian, 2002). Tian reports that these unprofitable units are generally either maintained by the original SOEs (which become the parent holding companies and their shares are recorded as legal person shares) or absorbed by municipal government agencies (which operate as holding companies of various IPO firms in the municipalities).

Surprisingly, the average performance of listed firms has deteriorated steadily based on all three indicators (ROA, ROE, and EPS as defined in Section 3) during 1992-2000, as shown in Charts 5a-5c and 7a-11c. To identify the factors affecting firms' performance and examine how the equity market has contributed to the results, this section conducts an empirical analysis. Since data needed to construct Tobin's Q are not available, the dependent variables adopted are ROA, ROE, and EPS instead.

As an explanatory variable for State ownership, STATE defined in Section 3 is used. In the PRC, the Company Law clearly defines the role of the board of directors as the monitoring of managers. The board of directors consists of large shareholders and,

typically, the former party secretary or retired government bureaucrats are often assigned as chairperson of the board (Tian, 2002). Large shareholders also nominate managers to be members of the board, while the board appoints the general manager, approves the annual reports, and sets corporate strategy.³ Despite the introduction of the modern corporate governance system, managers of listed firms often have little incentive to improve their performance. This is partly because of the rare use of stock options and the prohibition on transferring shares during their tenure. Moreover, a large proportion of shares is non-tradable so the threat of takeover bids is non-existent. These factors are likely to result in lower performance for listed firms whose State ownership is greater, so the coefficient of STATE is expected to be negative. On the other hand, Tian points out that managers of SOEs may have an indirect incentive to perform better, since they may gain prestige and other nonpecuniary benefits if their firms are selected for listing. Moreover, the Government may direct managers of SOEs to increase profitability in order to obtain as high an offering price and as much foreign exchanges as possible. If this indirect impact is greater, the performance of listed firms with greater State ownership is superior to that of largely publicly-owned listed firms and thus the coefficient of STATE is expected to be positive.

³ The board monitors management and has the power to intervene if necessary. From March 1999, the regulation authority has promoted the inclusion of external directors in the board.

Chart 5a. Returns on Assets (ROA) for SOEs and Non-SOEs, 1992-2000

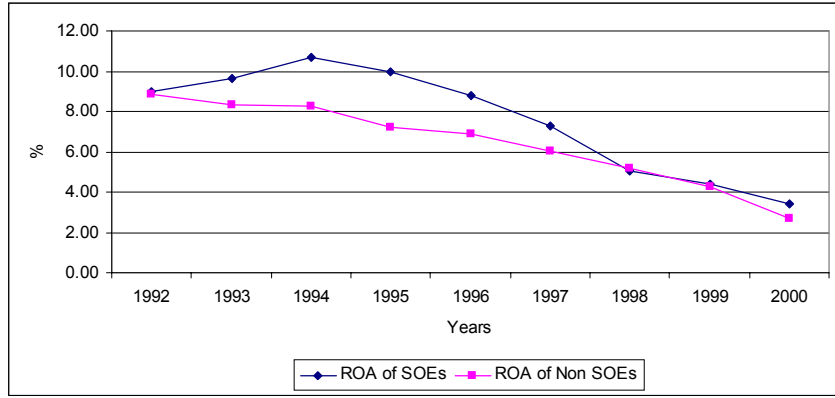


Chart 5b. Returns on Equity (ROE) for SOEs and Non-SOEs, 1992-2000

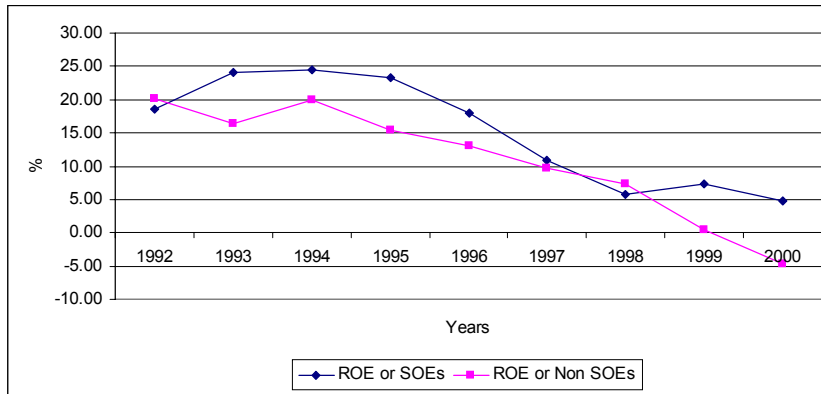


Chart 5c. Earnings Per Share (EPS) for SOEs and Non-SOEs, 1992-2000

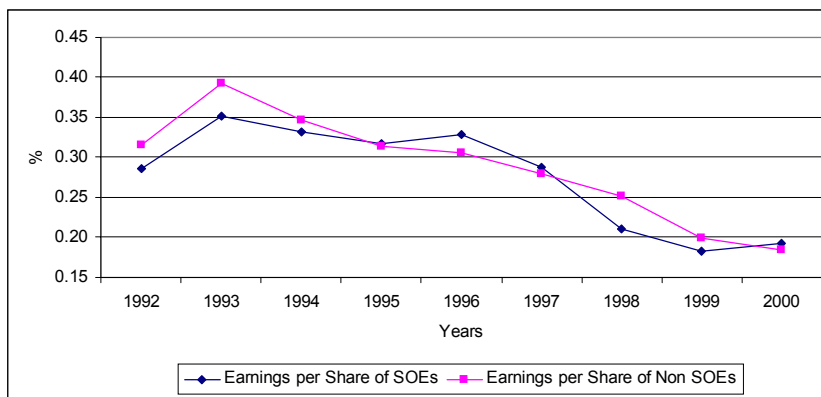


Chart 6a. State Ownership and Returns on Assets (ROA), 2000

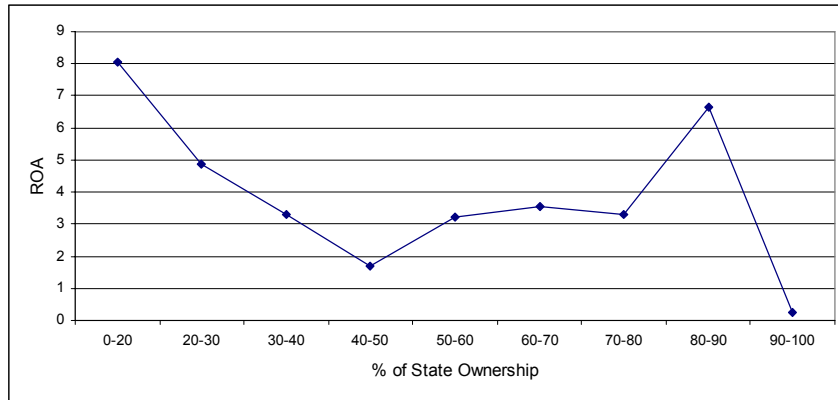


Chart 6b. State Ownership and Returns on Equity (ROE), 2000

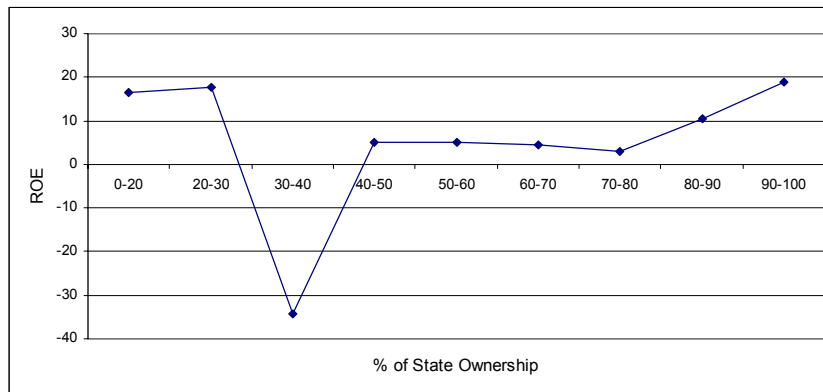
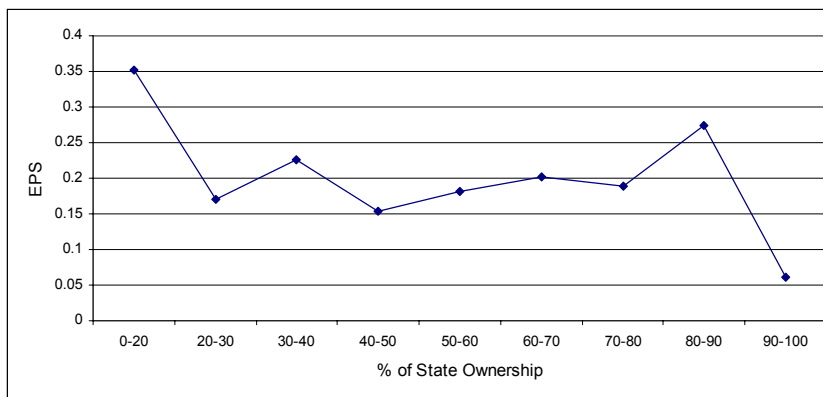


Chart 6c. State Ownership and Earnings Per Share (EPS), 2000



The classification of listed firms by State ownership shows that ROA for SOEs (defined as firms whose average State ownership in 2000 is above 50%) was greater than that for non-SOEs (defined as firms whose State ownership is below 50%) during 1992-2000, even though ROA for both types of firms declined steadily in 1992-2000 (Charts 5a-5c). Nevertheless, these differences in ROA disappeared for 1998-2000. In the case of ROE, SOEs performed better than non-SOEs in 1993-1996 and 1999-2000. Unlike ROA and ROE, there were no substantial differences in EPS between SOEs and non-SOEs. The overall superior performance of SOEs over non-SOEs appears to support the dominance of the indirect incentive. But this flies in the fact of experiences in other countries, where private or publicly-owned firms are generally more efficient and better performers than SOEs, since managers of SOEs are generally government employees and, thus, have little incentive to improve performance.

Moreover, Charts 6a-6c exhibit that State ownership and ROA, ROE, and EPS, respectively, formed more or less a V-shaped pattern (except in the 90-100% range of State ownership for ROA and EPS) in 2000. Therefore, this paper first introduces five dummy variables related to State ownership (STATE20, STATE40, STATE60, STATE80, and STATE100) for the full sample. STATE20 is equal to 1 if state ownership of a firm is in the 0-20% range; STATE40 in the 21-40% range, STATE60 in the 41-60% range, STATE80 in the 61-80% range, and STATE100 in the 81-100% range. The model excludes STATE100 as an intercept.⁴ This paper then divides the sample into non-SOEs (firms whose State ownership is below 50%) and SOEs (firms whose State ownership exceeds 50%) and tests whether a downward slope is observed for non-SOEs and an upward slope for SOEs.

Further, firms in protected sectors often receive relatively favorable treatment including access to the equity market. Since these sectors are largely monopolistic, managers may have less incentive to perform better to promote selection for listing (Tian, 2002). On the other hand, managers of firms in protected sectors may perform better if their monopolistic position enables them to maintain their profits easily, thus improving their chances of being selected for listing. Also, the Government directs managers to perform better in order to attract higher issuing prices. To assess which of these counteracting forces are stronger, PROTECTED is used as an explanatory variable. Also, PROPERTY, INDUSTRY, FINANCE, COMMERCE, UTILITY, and CONGLOMERATE defined in Section 3 are used.

To take into account riskiness of listed firms, the model adopts two indicators: the variance of ROA of the past two and current years (VARIANCE) and the ratio of long-term liabilities to total shares (LEVERAGE). The greater LEVERAGE may indicate that these firms have faced relatively soft-budget constraint due to greater dependence on the banking system and, thus, managers could have had lower incentives to improve performance. Moreover, the ratio of outstanding capital stock (the sum of

⁴ Tian (2002) finds that the relationship between Tobin's Q (and ROA) and State ownership follows a U-shaped pattern. However, he did not show whether the relationship between Tobin's Q (and ROA) and State ownership shows an upward slope at an increasing rate for firms with greater State ownership.

long-term assets and long-term investment) to current asset (CSTOCK) is adopted as a proxy for collateral. In addition, SHANGHAI, AGE, and ASSET adopted in Section 3 are used. Further, firms' asset growth (GASSET) and real GDP growth (RGDP) are used to take into account whether a decline in firms' performance reflects downturn trends of individual activities or economic recession. The time dummy variables (TIME) are also adopted for each year. Since VARIANCE uses 1992-1993 data, the observation period covers 1994-2000.

The OLS regression results are reported in Table 13 for the case of State ownership dummy variables; and in Table 14a for ROA, Table 14b for ROE, and Table 14c for EPS for the case of two samples. The results are summarized as follows:

Table 13. Regression Results for ROA, ROE, and EPS When State Ownership Dummy Variables are Included

Variable	ROA		ROE		EPS	
	Regression 1		Regression 2		Regression 3	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	22.47***	12.21	19.18	1.05	-0.10	-1.20
TIME95	-0.11	-0.27	1.19	1.15	-0.01	-0.61
TIME96	-0.05	-0.12	-1.09	-0.86	-0.03**	-1.96
TIME97	-1.15***	-2.93	-7.67***	-3.19	-0.11***	-6.06
TIME98	-2.30***	-5.35	-11.53***	-3.60	-0.16***	-8.47
TIME99	-2.74***	-6.13	-9.77***	-3.29	-0.18***	-8.80
TIME00	-3.79***	-8.49	-14.34***	-4.90	-0.20***	-10.09
BSHARE	-1.04***	-3.08	-3.45	-1.30	-0.07***	-4.29
HSHARE	-4.30***	-5.57	-4.06	-0.80	-0.24***	-8.30
SHANGHAI	0.00	0.02	-0.63	-0.39	-0.01	-0.73
AGE	-0.42***	-10.77	-0.87***	-2.53	-0.01***	-5.01
VARIANCE	-0.03***	-8.70	-0.03	-0.73	-0.00***	-4.01
LEVERAGE	-0.02***	-5.98	-0.21***	-2.65	-0.00***	-5.97
CSTOCK	0.01***	4.50	0.02	1.16	0.00	0.43
ASSET	-0.72***	-4.29	1.33	0.80	0.05***	6.62
GASSET	0.03***	9.58	0.09***	3.70	0.00***	12.05
STATE20	-1.93*	-1.80	-4.14	-0.99	-0.03	-0.61
STATE40	-2.90***	-5.40	-18.47*	-1.81	-0.04**	-1.94
STATE60	-4.26***	-11.52	-12.79***	-5.88	-0.09***	-6.52
STATE80	-3.70***	-11.25	-12.62***	-6.39	-0.06***	-5.52
PROTECTED	0.82***	3.70	3.71***	3.16	-0.00	-0.29
R-Squared	0.40		0.04		0.24	
F-Statistic	162.00		10.21		77.38	
N	4,798		4,801		4,799	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14a(i) Regression Results for Return on Assets (ROA) for SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	12.27***	5.54	11.39***	4.72	7.39***	2.97	6.45**	2.39
TIME95	0.01	0.02	-0.02	-0.05				
TIME96	0.18	0.41	0.11	0.24				
TIME97	-0.95**	-2.17	-1.04**	-2.38				
TIME98	-2.28***	-4.68	-2.38***	-4.91				
TIME99	-2.76***	-5.53	-2.87***	-5.76				
TIME00	-3.77***	-7.46	-3.87***	-7.64				
BSHARE	-0.85**	-2.13	-0.94**	-2.38				
HSHARE	-4.25***	-4.84	-4.08***	-4.74				
SHANGHAI	-0.09	-0.43	-0.15	-0.73	-0.05	-0.22	-0.12	-0.54
AGE	-0.39***	-9.12	-0.38***	-8.88	-0.46***	-10.46	-0.45***	-10.18
VARIANCE	-0.03***	-8.25	-0.03***	-8.08	-0.03***	-7.91	-0.03***	-7.75
LEVERAGE	-0.02***	-5.25	-0.02***	-5.37	-0.02***	-4.73	-0.02***	-4.88
CSTOCK	0.01***	4.60	0.01***	4.51	0.00***	3.04	0.00***	3.13
ASSET	-0.81***	-4.54	-0.79***	-4.27	-1.04***	-5.93	-1.03***	-5.68
GASSET	0.03***	8.28	0.03***	8.04				
STATE	0.12***	11.28	0.11***	11.19	0.13***	12.91	0.13***	12.85
RGDP					0.70***	8.25	0.72***	8.44
PROTECTED	0.73***	3.08			0.95***	3.80		
INDUSTRY			1.00**	2.04			0.98**	1.96
FINANCE			-1.30	-1.16			-0.47	-0.45
COMMERCE			0.51	0.91			0.50	0.88
UTILITY			2.55***	4.10			2.91***	4.66
CONGLOMERATE			-1.61*	-1.86			-1.89**	-2.03
R-Squared	0.37		0.38		0.32		0.33	
F-Statistic	137.29		114.08		208.69		149.49	
N	3,999		3,999		3,999		3,999	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14a(ii) Regression Results for Return on Assets (ROA) for Non-SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	11.41**	1.94	13.04**	1.99	12.37**	1.96	15.44**	2.31
TIME95	-0.86	-1.20	-0.86	-1.21				
TIME96	-1.89**	-2.24	-1.84**	-2.17				
TIME97	-2.31***	-2.61	-2.26***	-2.53				
TIME98	-2.21***	-2.63	-2.13***	-2.51				
TIME99	-2.22**	-2.39	-2.27**	-2.41				
TIME00	-3.52***	-3.81	-3.47***	-3.63				
BSHARE	-1.22*	-1.82	-1.70**	-2.28				
HSHARE	-4.11***	-3.43	-4.34***	-3.38				
SHANGHAI	0.85*	1.67	0.68	1.37	0.76	1.45	0.47	0.93
AGE	-0.40***	-4.10	-0.39***	-3.92	-0.43***	-4.71	-0.39***	-4.33
VARIANCE	-0.02***	-8.80	-0.02***	-8.98	-0.02***	-8.48	-0.02***	-8.61
LEVERAGE	-0.03***	-4.49	-0.03***	-3.77	-0.03***	-3.83	-0.03***	-3.40
CSTOCK	0.01	1.45	0.01	1.05	0.01**	1.95	0.01	1.36
ASSET	0.11	0.21	0.02	0.03	-0.33	-0.67	-0.54	-1.07
GASSET	0.04***	4.83	0.04***	4.73				
STATE	-0.08***	-3.54	-0.09***	-4.09	-0.10***	-4.68	-0.11***	-5.07
RGDP					0.44***	2.76	0.40***	2.60
PROTECTED	1.09*	1.87			1.32**	2.11		
INDUSTRY			0.61	0.77			0.34	0.41
FINANCE			1.19	0.77			2.73*	1.85
COMMERCE			0.16	0.17			0.53	0.56
UTILITY			2.83***	2.83			3.56***	3.36
CONGLOMERATE			-2.51**	-2.08			-2.46*	-1.88
R-Squared	0.54		0.55		0.49		0.50	
F-Statistic	53.65		44.92		83.92		60.57	
N	799		799		799		799	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14b(i) Regression Results for Return on Equity (ROE) for SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-2.35	-0.16	2.21	0.12	-24.38	-1.55	-20.37	-1.09
TIME95	1.11	1.28	1.07	1.22				
TIME96	-0.82	-0.69	-0.95	-0.79				
TIME97	-7.57***	-2.75	-7.86***	-2.76				
TIME98	-11.21***	-3.29	-11.56***	-3.32				
TIME99	-9.40***	-3.63	-9.70***	-3.62				
TIME00	-12.50***	-4.86	-12.70***	-4.75				
BSHARE	-3.56	-1.42	-3.98	-1.61				
HSHARE	-2.69	-0.46	-2.73	-0.47				
SHANGHAI	-1.34	-0.83	-1.31	-0.82	-1.23	-0.75	-1.21	-0.75
AGE	-0.98***	-2.82	-0.92***	-2.76	-1.06***	-3.07	-1.00***	-3.02
VARIANCE	-0.02	-0.72	-0.02	-0.72	-0.03	-0.77	-0.03	-0.77
LEVERAGE	-0.15*	-1.65	-0.15*	-1.67	-0.14	-1.56	-0.14	-1.58
CSTOCK	0.01	0.71	0.01	0.81	0.01	0.69	0.01	0.81
ASSET	0.63	0.39	0.33	0.19	-0.15	-0.11	-0.49	-0.32
GASSET	0.06***	3.43	0.06***	3.35				
STATE	0.29***	5.02	0.27***	4.62	0.32***	5.74	0.31***	5.34
RGDP					2.69***	5.43	2.73***	5.38
PROTECTED	2.33**	2.15			2.59**	2.39		
INDUSTRY			0.90	0.37			0.98	0.42
FINANCE			1.11	0.20			3.05	0.55
COMMERCE			-5.50	-1.08			-5.31	-1.06
UTILITY			4.11*	1.71			4.67**	1.96
CONGLOMERATE			-3.18	-0.81			-3.21	-0.78
R-Squared	0.04		0.04		0.03		0.04	
F-Statistic	9.85		8.48		15.32		11.42	
N	4,002		4,002		4,002		4,002	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14b(ii) Regression Results for Return on Equity (ROE) for Non-SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-60.29	-0.51	3.64	0.03	-74.18	-0.67	3.63	0.04
TIME95	1.13	0.27	3.18	0.74				
TIME96	-2.63	-0.58	0.99	0.20				
TIME97	-8.61**	-2.05	-3.45	-0.75				
TIME98	-15.56**	-2.33	-9.46	-1.51				
TIME99	-14.53**	-2.42	-7.90	-1.33				
TIME00	-25.90*	-1.75	-18.69	-1.25				
BSHARE	-4.78	-0.74	-3.68	-0.49				
HSHARE	-12.38*	-1.80	-13.54	-1.55				
SHANGHAI	9.64	1.22	9.08	1.27	9.09	1.23	8.00	1.27
AGE	-0.37	-0.45	-0.37	-0.40	-0.50	-0.56	-0.50	-0.45
VARIANCE	-0.03	-0.39	-0.02	-0.39	-0.03	-0.46	-0.03	-0.45
LEVERAGE	-0.56***	-3.91	-0.66***	-4.95	-0.55***	-3.73	-0.65***	-4.65
CSTOCK	0.15*	1.91	0.18**	2.23	0.16**	1.93	0.18**	2.19
ASSET	6.19	0.68	0.66	0.07	4.02	0.51	-1.23	-0.17
GASSET	0.22**	2.16	0.22**	2.30				
STATE	-0.09	-0.36	-0.20	-1.39	-0.22	-0.97	-0.34**	-2.43
RGDP					4.32***	3.19	3.05***	2.78
PROTECTED	12.63	1.56			13.34*	1.66		
INDUSTRY			5.24	0.64			4.84	0.65
FINANCE			84.01***	3.15			90.17***	3.42
COMMERCE			-0.65	-0.06			1.69	0.16
UTILITY			-1.25	-0.17			4.19	0.61
CONGLOMERATE			-28.25	-0.99			-27.93	-0.99
R-Squared	0.06		0.07		0.05		0.06	
F-Statistic	2.99		2.94		4.32		3.85	
N	799		799		799		799	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14c(i) Regression Results for Earnings Per Share (EPS) for SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-0.32***	-3.21	-0.33***	-2.99	-0.63***	-5.62	-0.65***	-5.23
TIME95	-0.01	-0.57	-0.01	-0.63				
TIME96	-0.03	-1.58	-0.03*	-1.74				
TIME97	-0.10***	-5.21	-0.11***	-5.39				
TIME98	-0.16***	-7.72	-0.17***	-7.87				
TIME99	-0.17***	-7.91	-0.18***	-8.06				
TIME00	-0.19***	-9.21	-0.20***	-9.35				
BSHARE	-0.06***	-3.76	-0.07***	-3.93				
HSHARE	-0.25***	-7.61	-0.24***	-7.79				
SHANGHAI	-0.01	-1.09	-0.01	-1.33	-0.01	-0.73	-0.01	-1.01
AGE	-0.00***	-2.97	-0.00***	-2.64	-0.01***	-5.21	-0.01***	-4.87
VARIANCE	-0.00***	-4.77	-0.00***	-4.62	-0.00***	-4.92	-0.00***	-4.78
LEVERAGE	-0.00***	-5.63	-0.00***	-5.86	-0.00***	-4.33	-0.00***	-4.59
CSTOCK	0.00	0.53	-0.00	-0.03	-0.00***	-2.67	-0.00***	-2.89
ASSET	0.05***	6.00	0.05***	5.79	0.04***	4.85	0.04***	4.62
GASSET	0.00***	10.63	0.00***	10.54				
STATE	0.00***	6.69	0.00***	6.31	0.00***	7.85	0.00***	7.45
RGDP					0.04***	11.11	0.04***	11.20
PROTECTED	-0.01	-0.93			0.00	0.50		
INDUSTRY			0.03	1.25			0.03	1.15
FINANCE			-0.03	-0.50			0.01	0.12
COMMERCE			0.02	0.65			0.02	0.66
UTILITY			0.05**	2.26			0.07***	3.04
CONGLOMERATE			-0.10**	-2.35			-0.11**	-2.43
R-Squared	0.23		0.24		0.14		0.15	
F-Statistic	70.97		59.28		74.46		55.02	
N	4,000		4,000		4,000		4,000	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 14c(ii) Regression Results for Earnings Per Share (EPS) for Non-SOEs

Variable	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-0.36	-1.13	-0.24	-0.64	-0.45	-1.45	-0.29	-0.82
TIME95	-0.02	-0.60	-0.02	-0.52				
TIME96	-0.07*	-1.78	-0.07*	-1.63				
TIME97	-0.14***	-3.65	-0.13***	-3.39				
TIME98	-0.17***	-3.91	-0.16***	-3.72				
TIME99	-0.19***	-4.65	-0.18***	-4.42				
TIME00	-0.21***	-4.79	-0.19***	-4.18				
BSHARE	-0.08**	-2.41	-0.08**	-2.29				
HSHARE	-0.25***	-3.70	-0.24***	-3.51				
SHANGHAI	0.03	0.98	0.02	0.80	0.02	0.72	0.01	0.29
AGE	-0.02***	-3.99	-0.02***	-3.75	-0.02***	-4.14	-0.02***	-3.83
VARIANCE	-0.00***	-2.46	-0.00***	-2.45	-0.00***	-2.54	-0.00***	-2.52
LEVERAGE	-0.00***	-3.28	-0.00***	-3.77	-0.00***	-2.51	-0.00***	-3.19
CSTOCK	0.00	1.07	0.00	0.80	0.00	1.30	0.00	0.94
ASSET	0.08***	2.96	0.07**	2.28	0.05**	2.18	0.04*	1.63
GASSET	0.00***	6.26	0.00***	6.14				
STATE	-0.00**	-2.30	-0.00***	-2.89	-0.00***	-3.37	-0.00***	-4.01
RGDP					0.04***	5.51	0.04***	5.55
PROTECTED	0.03	1.40			0.05*	1.73		
INDUSTRY			0.03	0.53			0.01	0.21
FINANCE			0.26***	2.57			0.33***	2.95
COMMERCE			0.01	0.15			0.03	0.47
UTILITY			0.12**	2.12			0.16***	2.74
CONGLOMERATE			-0.05	-1.00			-0.05	-0.85
R-Squared	0.31		0.32		0.22		0.24	
F-Statistic	20.91		17.64		25.05		18.87	
N	799		799		799		799	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

First, the ROA, ROE, and EPS tables (Table 13) indicates that the coefficients of STATE60 were lowest relative to STATE100 in the case of the ROA and EPS tables, while the coefficient of STATE40 was lowest in the case of the ROE table. These results indicate that the ROA was greatest at STATE100, followed by STATE20, and lowest at STATE60; ROE was greatest at STATE100 (and STATE20 since the coefficient was statistically insignificant) and lowest at STATE40; and EPS was greatest at STATE 100 (and STATE20) and lowest at STATE60. These results support the view that the relationship between ROA (ROE and EPS) and State ownership forms a V-shaped pattern. This may reflect that when firms are controlled largely by the State, direct government controls are stronger so that conflicts of interest between managers and shareholders are small. Moreover, Tian (2000) points out that firms with greater State ownership attract preferential treatment, including loans, which enables them to achieve superior performance. On the other hand, when public ownership is below 20-30% (but only accounting for 26 firms according to Table 8), conflicts of interest between managers (and inside shareholders) and outside shareholders are so large that the public has an incentive to impose discipline on the firms it invests in. Meanwhile, firms whose state ownership lies between these two may suffer from asset stripping performed by managers of SOEs. Ding (1999) points out that the diversion of the assets and profits of SOEs in to the hands of the managers and officials in charge of them has been occurring on a truly massive scale.

Second, the coefficients of STATE were statistically significant and negative for ROA, ROE, and EPS tables in the case of non-SOEs, while those were statistically significant and positive for three tables in the case of SOEs (Tables 14a-14c). These results indicate that firms' performance tended to rise as State ownership declines among firms whose proportion of State ownership is below 50%. However, this relationship is reversed for firms whose proportion of State ownership is above 50%. These results also support the view that the relationship between ROA (ROE and EPS) and State ownership forms a V-shaped pattern.

Third, the coefficients of PROTECTED were statistically significant and positive in the ROA (and ROE and EPS in some cases), supporting the view that firms in protected industries are able to earn greater profits than firms in other industries, thanks to the lack of competition and exploitation of scale economies. The results are consistent with Charts 7a-7c. With respect to sector classification, the coefficients of INDUSTRY and UTILITY in the ROA table were statistically significant and positive especially for the case of SOEs. The coefficient of UTILITY was also statistically significant and positive for SOE firms in the EPS table. The coefficient of FINANCE was statistically significant and positive for non-SOEs in the ROE and EPS tables (and ROA table for some cases). On the other hand, the coefficients of CONGLOMERATE were statistically significant and negative in the ROA table and EPS table for SOEs. Since the utility sector is largely protected and requires a large fixed cost, its profitability tends to be high.

Chart 7a. Returns on Assets (ROA) for Protected and Unprotected Firms, 1992-2000

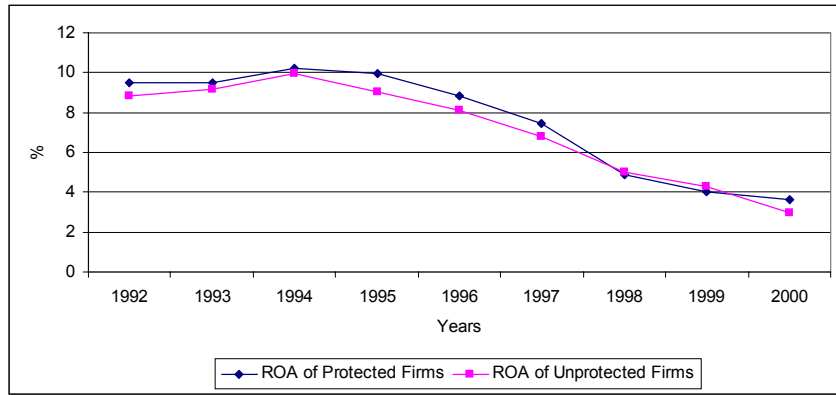


Chart 7b. Returns on Equity (ROE) for Protected and Unprotected Firms, 1992-2000

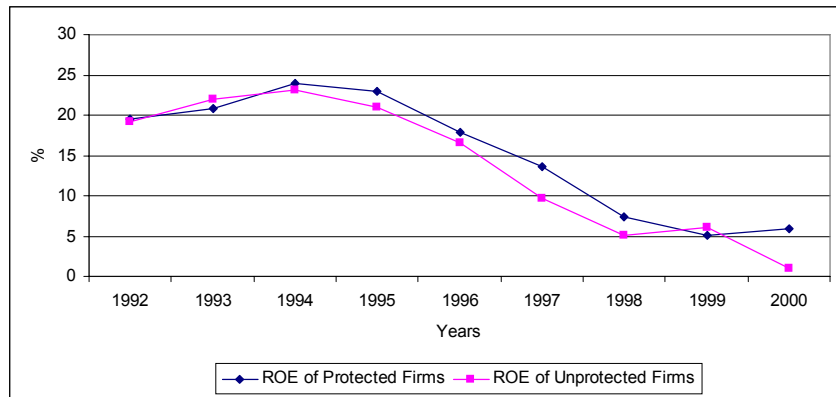


Chart 7c. Earnings Per Share (EPS) for Protected and Unprotected Firms, 1992-2000

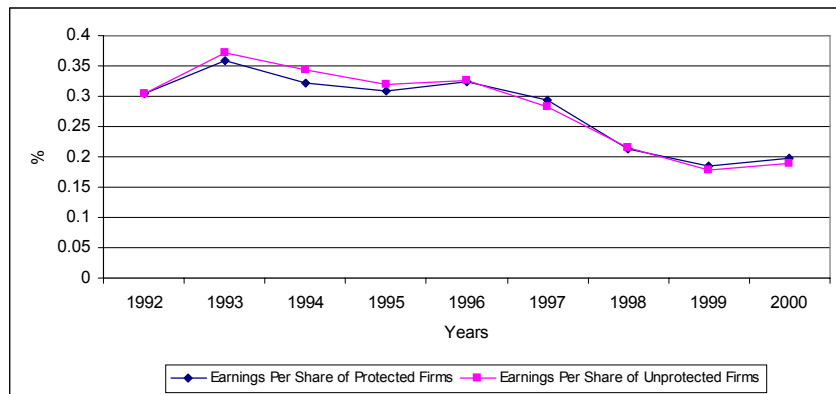


Chart 8a. Returns on Assets (ROA) for Firms issuing A-Shares and Others, 1992-2000

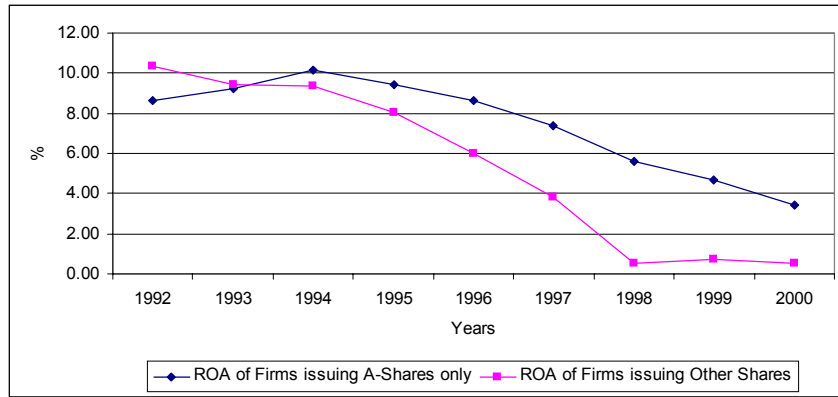


Chart 8b. Returns on Equity (ROE) for Firms issuing A-Shares and Others, 1992-2000

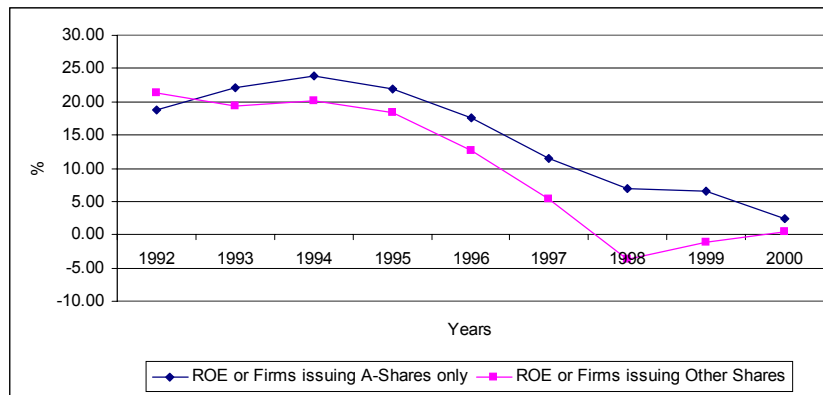
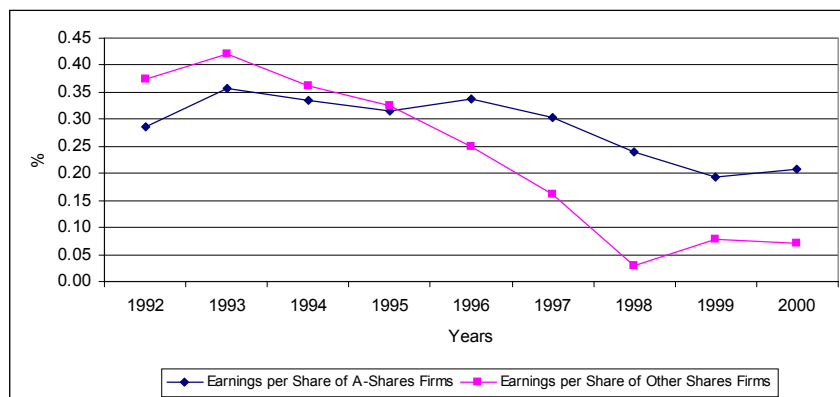


Chart 8c. Earnings Per Share (EPS) for Firms issuing A-Shares and Others, 1992-2000



Fourth, the coefficients of BSHARE and HSHARE were statistically significant and negative in the ROA and EPS tables (as for ROE, the coefficients were negative but statistically insignificant). The results are consistent with Charts 8a-8c. The charts show that firms that issue only A-shares have produced better performance than those that issue only B-shares, both A- and B-shares, or both A- and H-shares. These results are puzzling since more stringent accounting and other requirements are applied to the issuance of foreign shares. Also, foreign investors can choose to invest in assets of other countries and, thus, expect higher performance. These results could reflect that, in practice, the number of listed firms approved to issue only A-shares is so large, so it includes a correspondingly greater proportion of relatively profitable firms. Alternatively, firms that issue only A-shares may manipulate their books to show a profit more easily, since accounting and auditing standards are less stringent than those applied to issuances for foreign investors. Such manipulation may be more likely when there is an incentive for managers to exaggerate profitability, so as to gain higher issuing prices. In addition, firms issuing A-shares get higher stock prices so that they can raise funds more cheaply. Further, the results suggest that foreign investors have not been effective in monitoring. This reflects not only that the State remains the largest shareholder, but also that minority shareholders' rights are not yet well-established.

Fifth, the coefficient of ASSET was statistically significant and negative in the ROA table (especially for SOEs), indicating that smaller firms have performed better. By contrast, the coefficient of ASSET was statistically insignificant in the ROE table and positive in the EPS table. Thus, the impact of firms' size on performance is inconclusive. Sixth, the coefficients of AGE were statistically significant and negative in the ROA, ROE, and EPS tables, supporting the view that newly corporatized or established firms are the better performers. Charts 9a-9c also support the view that ROA and ROE for new firms (defined as firms that were corporatized or established after 1990) have been greater than those for old firms (defined as firms that were corporatized or established before 1990). This could reflect greater efforts to improve corporate governance of SOEs since 1992, as corporatization has induced the Government to apply relatively objective and stringent criteria for selecting SOEs. Given that large numbers of SOEs are awaiting corporatization and the regulatory authorities have introduced additional regulations, the stringent criteria could be intended to ensure that more favorable firms are selected.

Seventh, the coefficients of VARIANCE and LEVERAGE turned out to be statistically significant and negative in the ROA, ROE, and EPS tables, suggesting that relatively risky firms proxied by volatile ROA and greater leverage have performed worse than those with more stable ROA and lower leverage. Charts 10a-10c show that the performance of low-risk firms (defined as those whose variance of ROA in 1998-2000 is above the average of all firms) has been superior to that of high-risk firms (defined as firms whose variance of ROA is below the average of all firms) according to ROA, ROE, and EPS. In addition, their differences have widened in recent years because of a sharp deterioration in the performance of high-risk firms. Similarly, Charts 11a-11c show that low-leveraged firms (defined as those whose average leverage in 1998-2000 is below the average of all firms) have greater ROA and EPS than high-leveraged firms (defined as those whose leverage is above the average of all firms). In terms of ROE, low-leverage

firms performed better than high-leveraged firms in 1994-1996 and 1998-2000. This is consistent with the view that the banking system has not necessarily played a role in improving firms' corporate governance and, hence, their performance.

Chart 9a. Returns on Assets (ROA) for New and Old Firms, 1992-2000

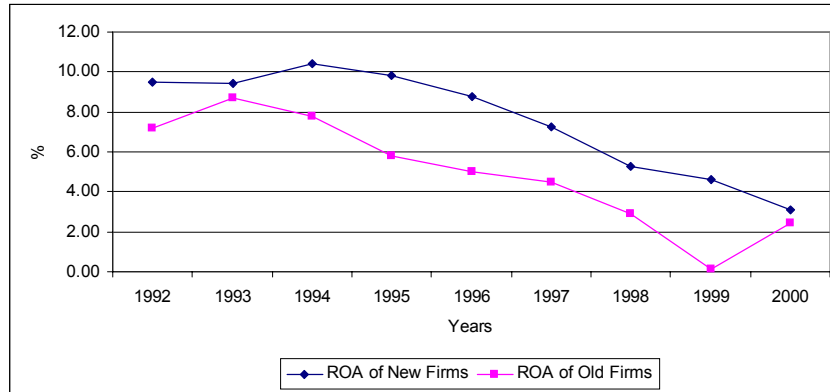


Chart 9b. Returns on Equity (ROE) for New and Old Firms, 1992-2000

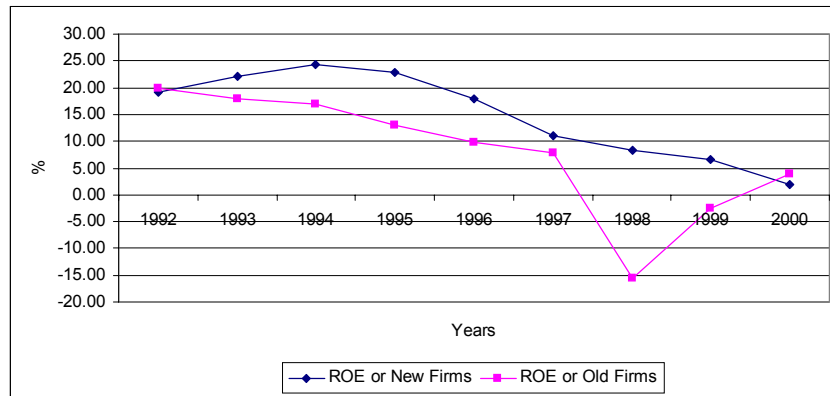


Chart 9c. Earnings Per Share (EPS) for New and Old Firms, 1992-2000

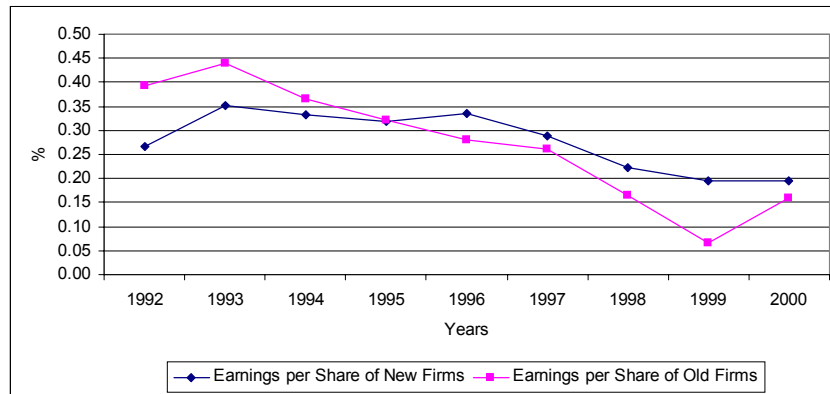


Chart 10a. Returns on Assets (ROA) for High-Risk and Low-Risk Firms, 1992-2000

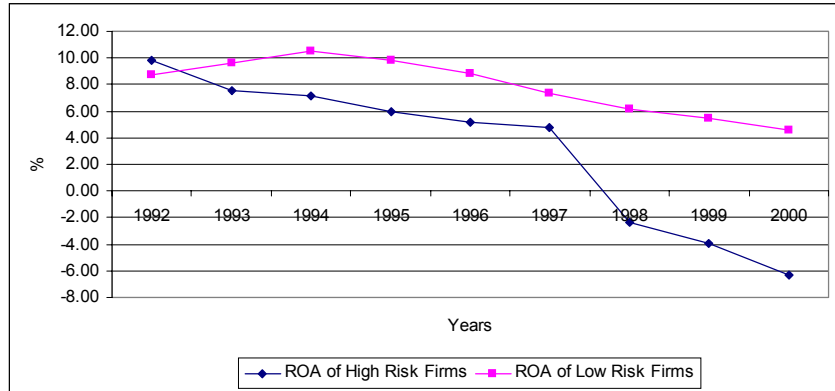


Chart 10b. Returns on Equity (ROE) for High-Risk and Low-Risk Firms, 1992-2000

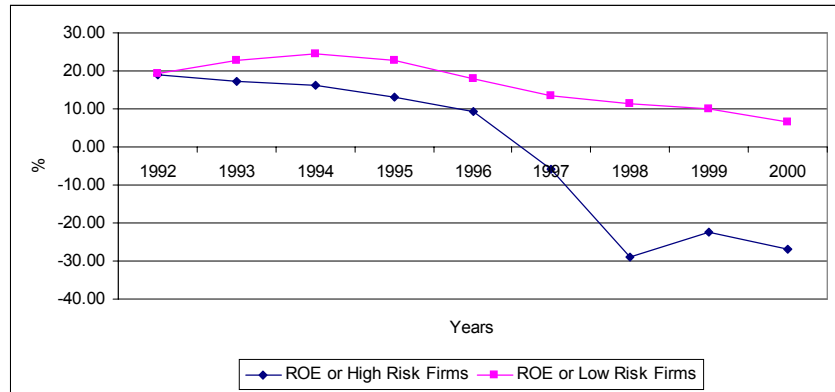


Chart 10c. Earnings Per Share (EPS) for High-Risk and Low-Risk Firms, 1992-2000

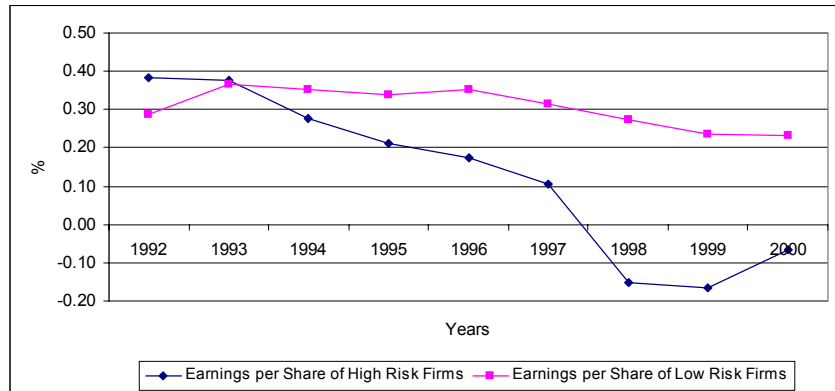


Chart 11a. Returns on Assets (ROA) for High- and Low-Leverage Firms, 1992-2000

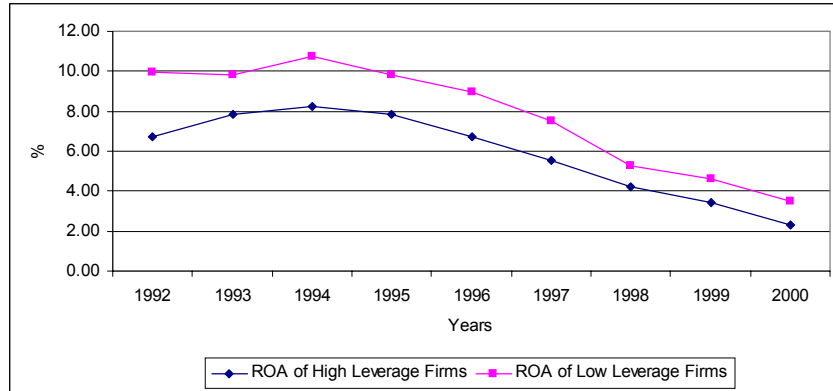


Chart 11b. Returns on Equity (ROE) for High- and Low-Leverage Firms, 1992-2000

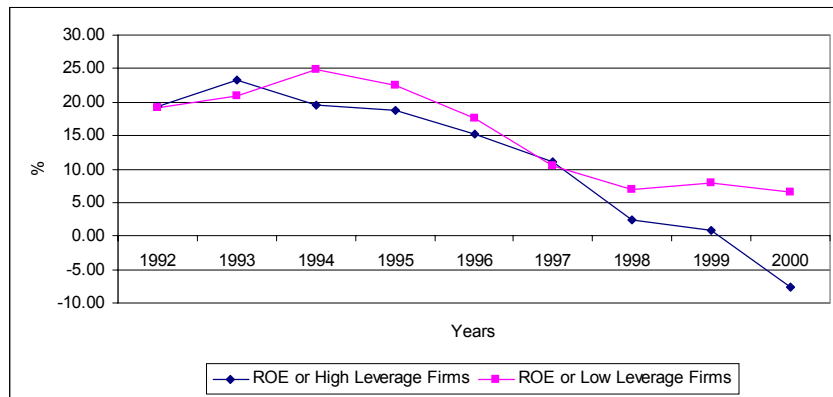
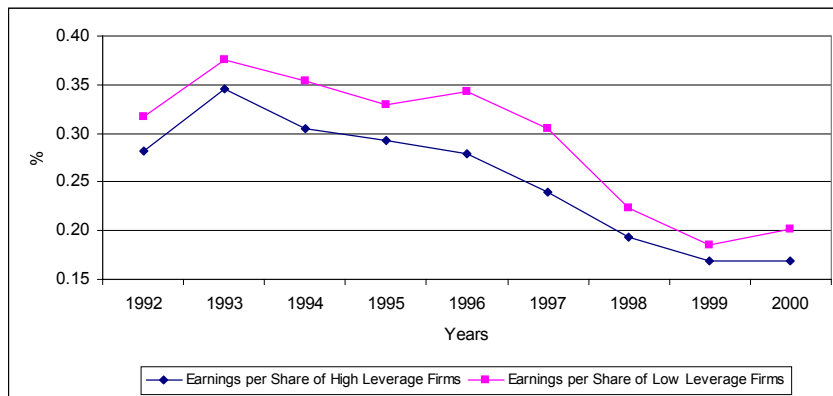


Chart 11c. Earnings Per Share (EPS) for High- and Low-Leverage Firms, 1992-2000



Eight, the coefficients of CSTOCK were statistically significant and positive in the ROA and ROE tables in many regressions, indicating that firms with greater fixed assets have performed better than those with greater liquid assets. By contrast, the sign was opposite for SOEs in the EPS table. Thus, the impact of fixed assets on the performance is inconclusive. Finally, the coefficients of GASSET and RGDP were statistically significant and positive in the ROA, ROE, and EPS tables, suggesting that the deterioration in firms' performance could be explained partly by their sluggish business activities and economic downturns.

As a next step, this section examines whether listed firms have improved their performance since they placed IPOs on the A- and B-share markets. The sample is divided into two groups of firms: one for those that issue A-shares (including firms that issue only A-shares, both A- and B-shares, or both A- and H-shares) and the other for those that issue B-shares (including firms that issue only B-shares or both A- and B-shares). Since data on timing on H-share IPOs are not available, the analysis is conducted only on two groups of firms. To assess the impact of IPOs and continued listing on firms' performance, new dummy variables (AIPO and BIPO) are introduced. AIPO (BIPO) equals 1 when and after a firm places IPOs on A-shares (B-shares) and 0 otherwise. Other variables are the same as those used above. It would be expected that listings might help to improve firms' corporate governance and, thus, their performance through the introduction of explicit listing and de-listing criteria, diversification of ownerships, and imposition of accounting, auditing, and disclosure requirements.

The estimation results are reported in Table 15a for ROA, Table 15b for ROE, and Table 15c for EPS in the case of firms issuing A-shares and B-shares, separately. The case of firms issuing B-shares for non-SOEs are not reported in Table 15a(ii), Table 15b(ii), and Table 15c(ii) since a limited number of those firms makes it impossible to perform regression. The results indicate that the coefficients of both AIPO and BIPO were statistically significant and negative in the ROA, ROE, and EPS, contrary to the expectation.⁵ These results suggest that firms' performance has deteriorated not only in the year of A-share IPOs but also subsequently. The same could be said of B-share IPOs, even though higher performance might be expected, given that foreign investors can choose from a diverse set of portfolios.

⁵ The coefficients of AIPO and BIPO (for ROA, ROE, and EPS) were statistically significant and negative when both SOEs and non-SOEs are included.

**Table 15a(i) Regression Results for Returns on Assets (ROA) of SOEs
by Types of Shares**

Variable	Firms Issuing A-Shares						Firms Issuing B-Shares	
	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	15.71***	6.56	12.74***	4.65	11.25***	3.81	17.76***	2.54
TIME95	-0.65	-1.42					-1.21	-0.99
TIME96	0.09	0.20					-4.29***	-3.53
TIME97	-0.47	-1.05					-4.64***	-4.00
TIME98	-1.52***	-3.10					-6.63***	-4.60
TIME99	-1.95***	-3.88					-5.59***	-4.17
TIME00	-2.89***	-5.81					-4.97***	-3.31
SHANGHAI	0.04	0.19	0.14	0.68	0.11	0.54	-0.94	-1.60
AGE	-0.33***	-7.77	-0.41***	-9.49	-0.40***	-9.21	-0.61***	-3.51
VARIANCE	-0.03***	-5.97	-0.03***	-5.56	-0.03***	-5.44	-0.03***	-4.66
LEVERAGE	-0.03***	-6.11	-0.03***	-6.01	-0.03***	-6.04	-0.04***	-3.51
CSTOCK	0.01***	3.51	0.01***	3.38	0.01***	3.25	0.00	0.49
ASSET	-0.59***	-2.95	-0.68***	-3.38	-0.63***	-3.09	0.22	0.39
GASSET	0.03***	8.08					0.07***	4.36
STATE	0.06***	5.66	0.06***	5.27	0.06***	5.17	0.02	0.53
AIPO	-4.12***	-12.14	-4.20***	-12.62	-4.23***	-12.73		
BIPO							-8.83***	-4.00
RGDP			0.52***	6.01	0.54***	6.19		
PROTECTED	0.62***	2.53	0.71***	2.79			0.59	0.98
INDUSTRY					1.13**	2.25		
FINANCE					0.35	0.34		
COMMERCE					0.49	0.86		
UTILITY					2.63***	4.10		
CONGLOMERATE					-1.16	-1.29		
R-Squared	0.33		0.29		0.30		0.60	
F-Statistic	117.26		154.78		113.96		32.57	
N	3,785		3,785		3,785		360	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 15a(ii) Regression Results for Returns on Assets (ROA) of Non-SOEs Issuing A-Shares

Variable	Firms Issuing A-Shares					
	Regression 1		Regression 2		Regression 3	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	14.98***	2.59	12.68**	1.97	15.15**	2.21
TIME95	-0.79	-1.10				
TIME96	-1.62*	-1.90				
TIME97	-1.98**	-2.20				
TIME98	-1.79**	-2.11				
TIME99	-1.64*	-1.80				
TIME00	-2.76***	-3.13				
SHANGHAI	0.97*	1.86	1.11**	2.06	0.86*	1.67
AGE	-0.37***	-3.80	-0.44***	-4.83	-0.41***	-4.40
VARIANCE	-0.02***	-9.02	-0.02***	-8.80	-0.02***	-8.96
LEVERAGE	-0.03***	-4.30	-0.03***	-3.90	-0.03***	-3.40
CSTOCK	0.01	1.37	0.01*	1.87	0.01	1.20
ASSET	-0.13	-0.25	-0.11	-0.20	-0.30	-0.55
GASSET	0.04***	4.77				
STATE	-0.07***	-3.40	-0.09***	-4.24	-0.11***	-4.71
AIPO	-2.00*	-1.71	-2.95***	-3.38	-2.73***	-2.79
RGDP			0.41***	2.51	0.38**	2.36
PROTECTED	1.01*	1.71	1.16*	1.85		
INDUSTRY					0.59	0.72
FINANCE					2.59*	1.73
COMMERCE					0.56	0.58
UTILITY					3.38***	3.16
CONGLOMERATE					-2.35*	-1.82
R-Squared	0.54		0.50		0.51	
F-Statistic	54.65		75.51		56.15	
N	771		771		771	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 15b(i) Regression Results for Returns on Equity (ROE) of SOEs by Types of Shares

Variable	Firms Issuing A-Shares						Firms Issuing B-Shares	
	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	10.37	0.61	-4.91	-0.21	-8.21	-0.43	1.28	0.06
TIME95	-1.41	-1.58					-1.99	-0.59
TIME96	-1.69	-1.35					-7.89**	-2.24
TIME97	-6.55**	-2.37					-9.58***	-2.76
TIME98	-9.36***	-2.64					-13.45***	-3.34
TIME99	-7.79***	-3.40					-7.83*	-1.90
TIME00	-10.28***	-4.59					-12.17**	-2.26
SHANGHAI	-1.31	-0.84	-1.00	-0.65	-1.10	-0.71	-1.10	-0.68
AGE	-0.80**	-2.31	-0.88***	-2.66	-0.95***	-2.76	-1.04***	-2.49
VARIANCE	-0.02	-0.45	-0.02	-0.43	-0.02	-0.44	-0.12***	-10.64
LEVERAGE	-0.17*	-1.74	-0.17*	-1.71	-0.17*	-1.69	-0.09***	-2.54
CSTOCK	0.01	0.62	0.01	0.66	0.01	0.63	-0.02*	-1.72
ASSET	2.06	1.20	1.57	0.88	1.83	1.11	3.37**	2.00
GASSET	0.06***	3.29					0.20***	4.89
STATE	0.04	0.57	0.01	0.19	0.03	0.40	0.08	0.70
AIPO	-16.65***	-6.57	-17.42***	-6.47	-17.27***	-6.49		
BIPO							-22.73***	-3.91
RGDP			2.19***	4.58	2.14***	4.62		
PROTECTED	2.32**	2.18			2.46**	2.26	1.57	1.17
INDUSTRY			1.32	0.51				
FINANCE			6.52	1.14				
COMMERCE			-5.70	-1.07				
UTILITY			4.36*	1.75				
CONGLOMERATE			-2.36	-0.72				
R-Squared	0.05		0.04		0.04		0.71	
F-Statistic	11.57		12.66		16.50		52.37	
N	3,787		3,787		3,787		360	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 15b(ii) Regression Results for Returns on Equity (ROE) of Non-SOEs Issuing A-Shares

Variable	Firms Issuing A-Shares					
	Regression 1		Regression 2		Regression 3	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-41.91	-0.36	11.12	0.11	-66.34	-0.59
TIME95	1.12	0.27				
TIME96	-1.79	-0.40				
TIME97	-7.36*	-1.76				
TIME98	-14.86**	-2.07				
TIME99	-13.14**	-2.38				
TIME00	-23.97	-1.61				
SHANGHAI	9.49	1.15	8.78	1.27	9.71	1.24
AGE	-0.25	-0.30	-0.53	-0.48	-0.55	-0.63
VARIANCE	-0.03	-0.39	-0.03	-0.44	-0.03	-0.44
LEVERAGE	-0.57***	-3.92	-0.66***	-4.75	-0.56***	-3.83
CSTOCK	0.17**	1.94	0.20**	2.16	0.17**	1.98
ASSET	5.33	0.57	-0.45	-0.06	4.81	0.56
GASSET	0.22**	2.18				
STATE	-0.10	-0.37	-0.33**	-2.21	-0.20	-0.86
AIPO	-12.12	-1.37	-18.03**	-1.92	-18.00**	-1.94
RGDP			3.03***	2.70	4.35***	3.18
PROTECTED	12.67	1.57			13.18*	1.62
INDUSTRY			5.71	0.72		
FINANCE			89.38***	3.41		
COMMERCE			2.16	0.20		
UTILITY			2.75	0.39		
CONGLOMERATE			-27.35	-0.98		
R-Squared	0.06		0.06		0.05	
F-Statistic	3.06		3.53		3.86	
N	771		771		771	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 15c(i) Regression Results for Earnings Per Share (EPS) of SOEs by Types of Shares

Variable	Firms Issuing A-Shares						Firms Issuing B-Shares	
	Regression 1		Regression 2		Regression 3		Regression 4	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-0.27***	-2.46	-0.59***	-4.20	-0.54***	-4.22	-0.05	-0.17
TIME95	-0.03	-1.32					-0.04	-0.64
TIME96	-0.03	-1.52					-0.21***	-4.00
TIME97	-0.08***	-4.14					-0.23***	-4.47
TIME98	-0.13***	-6.11					-0.31***	-4.96
TIME99	-0.15***	-6.33					-0.25***	-4.68
TIME00	-0.16***	-7.53					-0.23***	-4.33
SHANGHAI	-0.01	-1.11	-0.00	-0.47	-0.00	-0.40	-0.05**	-2.11
AGE	-0.00	-1.40	-0.01***	-4.05	-0.01***	-4.40	-0.01	-0.75
VARIANCE	-0.00***	-4.22	-0.00***	-3.95	-0.00***	-4.07	-0.00**	-2.06
LEVERAGE	-0.00***	-6.45	-0.00***	-5.86	-0.00***	-5.70	-0.00***	-3.22
CSTOCK	0.00	0.21	-0.00	-0.45	0.00	0.11	-0.00**	-2.07
ASSET	0.06***	6.33	0.06***	5.78	0.05***	5.78	0.08***	3.56
GASSET	0.00***	10.62					0.00***	4.21
STATE	0.00***	3.06	0.00*	1.84	0.00**	2.05	-0.00	-1.16
AIPO	-0.12***	-8.76	-0.12***	-9.08	-0.12***	-9.07		
BIPO							-0.34***	-3.63
RGDP			0.04***	9.67	0.04***	9.63		
PROTECTED	-0.01	-0.74			-0.00	-0.12	0.01	0.57
INDUSTRY			0.03	1.49				
FINANCE			0.03	0.38				
COMMERCE			0.02	0.64				
UTILITY			0.07***	2.86				
CONGLOMERATE			-0.05	-1.18				
R-Squared	0.22		0.15		0.15		0.41	
F-Statistic	66.20		48.96		66.36		14.84	
N	3,786		3,786		3,786		360	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 15c(ii) Regression Results for Earnings Per Share (EPS) of Non-SOEs Issuing A-Shares

Variable	Firms Issuing A-Shares					
	Regression 1		Regression 2		Regression 3	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-0.17	-0.56	-0.37	-1.01	-0.50	-1.57
TIME95	-0.02	-0.43				
TIME96	-0.06	-1.40				
TIME97	-0.12***	-3.15				
TIME98	-0.15***	-3.37				
TIME99	-0.17***	-3.91				
TIME00	-0.17***	-4.01				
SHANGHAI	0.03	1.09	0.03	1.06	0.04	1.34
AGE	-0.02***	-3.68	-0.02***	-3.96	-0.02***	-4.41
VARIANCE	-0.00***	-2.49	-0.00***	-2.54	-0.00***	-2.57
LEVERAGE	-0.00***	-2.96	-0.00***	-3.33	-0.00***	-2.74
CSTOCK	0.00	1.11	0.00	0.98	0.00	1.39
ASSET	0.07***	2.45	0.06**	2.01	0.07***	2.56
GASSET	0.00***	6.27				
STATE	-0.00**	-2.14	-0.00***	-3.55	-0.00***	-2.89
AIPO	-0.08	-1.48	-0.13***	-2.66	-0.13***	-2.99
RGDP			0.04***	5.38	0.04***	5.45
PROTECTED	0.03	1.37			0.04	1.53
INDUSTRY			0.03	0.54		
FINANCE			0.32***	2.83		
COMMERCE			0.03	0.51		
UTILITY			0.15***	2.55		
CONGLOMERATE			-0.04	-0.69		
R-Squared	0.30		0.25		0.23	
F-Statistic	20.51		17.84		23.33	
N	771		771		771	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

These unexpected results may be explained by several factors. First, as mentioned above, managers of SOEs may value listed status for its nonpecuniary benefits. Because earnings performance is a stated criterion for choosing IPO candidates, the managers may attempt to manipulate earnings ahead of the IPO to boost their firms' chances of being selected (Aharony, Lee, and Wong, 2000; and Tian, 2002). Also, the Government may instruct managers to generate profits to raise the offering price. Aharony, Lee, and Wong (2000) point out that the offering price is positively related to reported EPS in the year before and year of the IPO in their sample. Second, corporatization provides opportunities for managers of SOEs to boost earnings at the IPOs during the changeover in accounting practices from socialist fund accounting to Western principles, since the process requires considerable judgment. Third, SOEs can carve out temporarily profitable business units and corporatize these units for IPOs. These original SOEs become major shareholders of the corporatized and listed firms and retain unprofitable units within their companies. Then, as the controlling shareholders, these original SOEs may boost the earnings of their listed companies a few years before the IPOs and then siphon these profits back to their firms in later years (Aharony, Lee, and Wong, 2000).

Fourth, public shareholders generally do not intervene in management, since their cash flows/control rights are small and the controlling shareholders or the State account for much of the control of the firms. Thus, listed firms operate largely in the interests of insiders to the potential detriment of outsiders and other stakeholders (Lin, 2000). Also, public investors are often regarded as speculators expecting to free ride on firms' performance, generating a perception that there is no need to improve transparency or levels of disclosures for them. In addition, lawsuits are not only expensive for small shareholders, the latter are often ignorant of their legal rights and available recourse (Lin, 2000). Further, the local People's Courts are often reluctant to accept cases concerning a company's internal disputes (including disputes between shareholders, management, or employees) and prefer to deal with cases between companies or involving outside parties. Fifth, managers have little incentive to improve firms' performance since their incomes are not correlated to firms' profitability. While some board directors and CEOs are supervisory board members and hold shares in their firms, the amount of holdings tends to be too small to make shareholdings a powerful incentive device. Sixth, the role and effectiveness of internal audits are circumscribed by the excessive powers of CEOs, who have the authority and means to influence the reports of internal auditors and financial officers (Lin, 2000). CSRC has been attempting to tackle the problems of illegal share price manipulation and financial malpractices since 1998. However, accounting, auditing, and disclosure systems remain weak even today.

5. The Signaling Role of the Stock Prices

The third approach to examining the state of equity market development is to assess the information content of stock prices. If stock prices are highly volatile and such volatility cannot be justified by changes in firms' fundamentals, investors are likely to regard stocks as risky assets. This will depress their demand for stocks or induce them to hold stocks only for short-term capital gains. Since the equity market is highly

segmented in the PRC, high volatility of stock prices could raise the cost of capital and make it difficult for the equity market to provide stable sources of finance for firms' investment. Thus, stock price volatility is one of the most important indicators of the development stage of the equity market. Table 16 reports stock index average daily return and standard deviation for 13 countries for 1985-1991, 1991-1999, and 1985-1999. In the case of the PRC, the Shanghai composite stock price index is used. The results show that the standard deviation of emerging market economies and developing countries is generally greater than that of developed countries. In particular, the standard deviation of the PRC is the second largest after Indonesia among selected countries. This suggests that stock prices of listed companies in the PRC have been quite volatile, raising the cost of capital.⁶

Table 16. Stock Index Daily Return Average and Volatility, 1985-1999
(%)

Country	1985-1991		1991-1999		1985-1999	
	MEAN	STDEV	MEAN	STDEV	MEAN	STDEV
China	NA	NA	0.09	2.54	0.09	2.54
Singapore	0.05	1.64	0.03	1.49	0.04	1.56
Malaysia	0.04	1.68	0.00	2.27	0.01	2.03
Thailand	0.09	1.99	-0.04	2.18	0.00	2.12
Indonesia	NA	NA	-0.03	2.85	-0.03	2.85
Chile	NA	NA	0.01	1.00	0.01	1.00
India	0.07	2.02	0.04	1.97	0.05	1.99
USA	0.05	1.19	0.06	0.86	0.06	1.02
UK	0.08	1.39	0.04	0.98	0.06	1.16
France	0.02	1.46	0.04	1.22	0.04	1.30
Germany	0.05	1.50	0.05	1.26	0.05	1.34
Australia	0.04	1.51	0.02	1.03	0.03	1.26
Hong Kong	0.07	1.85	0.06	1.83	0.07	1.84

Source: Kar et al., 2000.

Another way to assess the status of the equity market development is to examine whether stock prices contain information about firms' fundamentals to a significant extent, or whether they signal information about firms' fundamentals to public investors. In this context, this section examines the co-movement of stock prices with industry stock price indices, stock composite prices, as well as firms' specific information reflecting firms' fundamentals. If stock prices have increasingly played a role in signaling firms' growth opportunities, such information should be reflected in their stock prices.

⁶ An alternative measure to estimate volatility is to use percentage change between high and low prices of each firm for each year. The volatility was greater in 1992-1996 (from 339% in 1992 to 199% in 1996) than in 1997-1999 (from 130% in 1997 to 103% in 1999), indicating that the role of stock prices in signaling firms' fundamentals has improved over the period.

Meanwhile, a lack of adequate, timely, and precise information about issuers may render stock prices less informative. This would spark herd behavior among public investors, since the lack of information induces them to react to the behavior of other investors. This view appears to be supported by the high correlation coefficient existing between composite stock price indices in the Shanghai and Shenzhen stock exchanges (0.98 for A-shares and 0.96 for B-shares during 1992-2002), even though no cross-listings are allowed between the two exchanges.

To assess how informative individual stock prices are, this section uses the same database adopted in Sections 3 and 4. The database includes stock price data for 1992-1999 only on A-shares. While the use of high-frequency data is more desirable for this study, annual data is used due to the lack of data. Dividing the data set between the two stock exchanges, the data are put into the following two sets: (1) firms that issue only A-shares, A-and B-shares, and A- and H-shares in the Shanghai stock exchange (ASA); and (2) those issuing the same in the Shenzhen stock exchange (ASE).

As a first step, an empirical analysis is performed to assess whether changes in firms' individual stock prices reflect aggregate stock prices and if so, whether the degree of co-movement has declined over the period, based on these four sample sets. As dependent variables, therefore, changes in stock prices of firms that issue A-shares on the Shanghai stock exchange (STPRICE_ASA) and Shenzhen stock exchange (STPRICE_ASE) are adopted in the respective sample set (Douthett, Jung, and Song, 2000). Then, changes in stock composite price indices for A-shares (SHANGHAIA) in the Shanghai stock exchange and those for A-shares (SHENZHEN A) in the Shenzhen stock exchange are adopted as an explanatory variable in the respective sample set. These stock composite price indices are capitalization-weighted indices of stocks listed on each stock exchange. To assess whether changes in a firm's stock price is also affected strongly by changes in the price index of the sector to which the firm belongs, the changes in stock price indices for six sectors classified by CSRC (property, industry, finance, commerce, utility, and conglomerate [SECPRICE]) are constructed by taking the weighted average of stock prices of firms belonging to each sector. In addition, STATE, PROTECTED, and GASSET adopted in Sections 3 and 4 are used in order to examine whether the size of State ownership and the presence of direct State protection affect firms' stock prices.

If the size of coefficient of changes in sector price index is stronger than that of changes in composite price index, stock prices are differentiated within a sector price index rather than within a more comprehensive stock price index. Also, if the size of the coefficient of changes in sector price index and/or composite price index declines from 1992-1997 to 1998-1999, this could be interpreted as a decline in the co-movement between firms' stock prices and aggregate prices. If herd behavior is present, the co-movement of STPRICE of each sample set with the sector price or composite stock price index is expected to remain high.

Once a decline in co-movement is observed, as a second step, this paper attempts to assess whether the decline reflects an improvement in accounting, auditing, and disclosure systems so that a larger amount of information is available to the public. If so,

the co-movement of STPRICE with EPS is expected to rise. In this case, the difference between STPRICE and SECPRICE is used as a dependent variable. Also, EPS is used as a proxy for firms' fundamentals and the difference between EPS and that averaged for each sector (SECEPS) is used as an explanatory variable. If the coefficient of EPS-SECEPS is positive and large, this indicates that there are some income-related factors other than sector-specific ones that have affected firms' stock prices strongly. In this circumstance, the degree of differentiation of each firm is high since their stocks show divergent movements. Also, if the size of the coefficient of EPS-SECEPS increases, the degree of differentiation increased. Regression analysis using OLS approach is conducted for the full sample period (1992-1999) and two separate periods (1992-1997 and 1998-1999) for firms issuing A-shares. The year 1998 was selected as a threshold year, since CSRC began to impose more severe punishments on firms undertaking illegal share price manipulation and financial malpractices from that year.

The estimation results reported in Tables 17a and 17b are summarized as follows. First, the coefficients of composite price index of A-shares were statistically significant and positive during 1992-1999 and 1992-1997 both for Shanghai and Shenzhen stock exchanges but turned out insignificant during 1998-1999, suggesting that the co-movement with aggregate stock prices have declined over the period. Second, the coefficients of sector price index for Shanghai A-share market were statistically insignificant for 1992-1999 and 1992-1997, but became statistically significant and positive for 1998-1999. By contrast, the opposite trend was observed in the case of Shenzhen A-share market. In any case, the size of the coefficient of changes in sector price index was greater than that of composite price index.

As sector price index appears to have a great impact on stock prices, the difference between STPRICE and SECPRICE for A-shares was regressed on the difference between EPS and SECEPS. The results are shown in Charts 12a for Shanghai and 12b for Shenzhen. The charts show a high degree of co-movement between firms' stock price difference and firms' earnings per share, indicating that firms' stock prices are differentiated from each other and responsive to firms' fundamentals. However, the charts indicate that the slope has flattened from 1992-1997 and 1998-1999 with a decline in the coefficient from 8.87 to 4.57 for Shanghai stock exchange and from 10.0 to 7.38 for Shenzhen stock exchange. These results suggest that the tighter regulations against accounting manipulations since 1998 have been ineffective so far.

The above results suggest that individual firms' stock prices reflect firms' fundamentals to a great extent. Thus, it can be concluded that firms' stock prices are differentiated, even though composite stock price indices are volatile and highly synchronized between the two stock exchanges. In other words, stock prices have been playing a role in signaling information about firms' fundamentals to public investors. The results also suggest that investors do purchase stocks based on firms' specific information or accounting information, rather than based on the behavior of other investors. Otherwise, firms' stock prices should have been highly correlated with the composite stock price indices. This finding appears to contradict the claim by Asian Development Bank (1999) that the goal of public investors is to obtain capital gains by purchasing stocks with low prices, rather than stocks with a low price-earnings ratio.

Chart 12a. Stock Price Differential and Earnings Differential for the Shanghai Stock Exchange

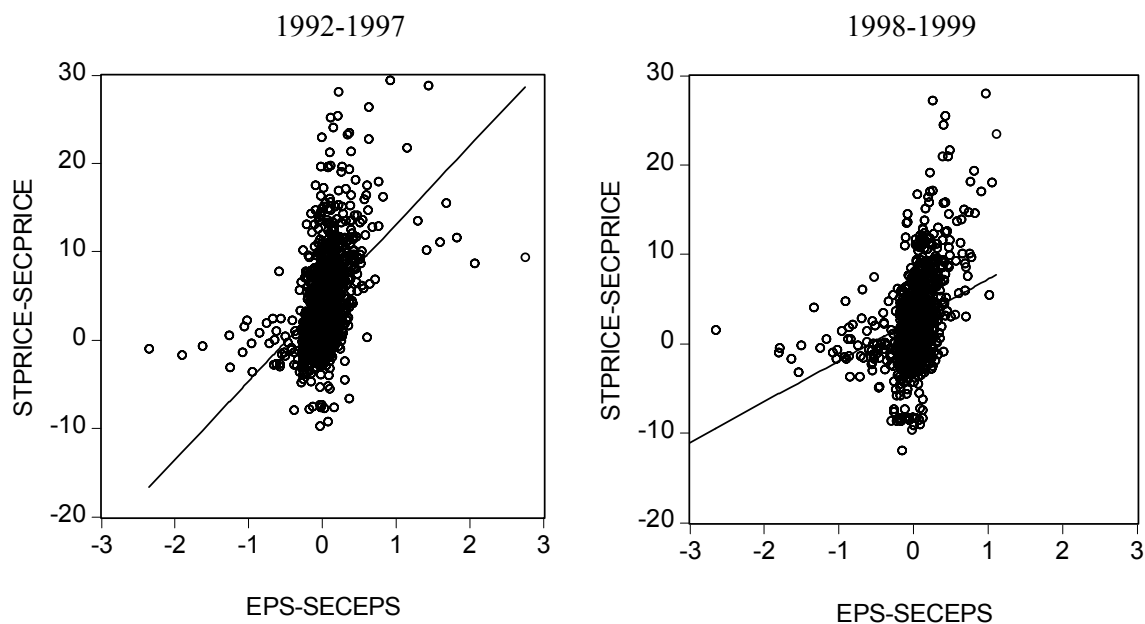


Chart 12b. Stock Price Differential and Earnings Differential for the Shenzhen Stock Exchange

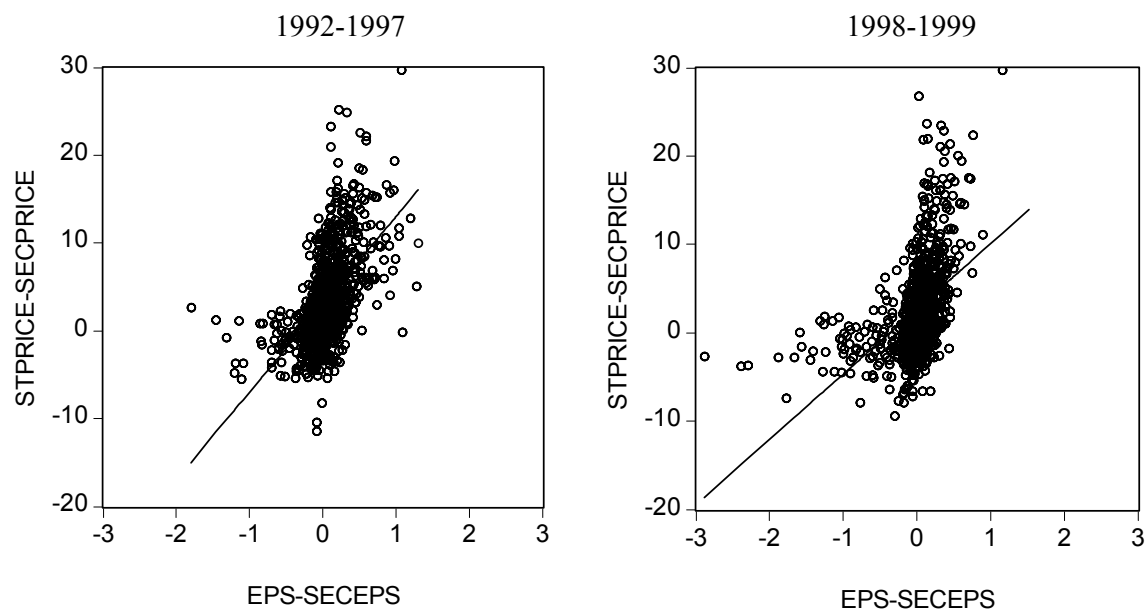


Table 17a Regression Results for Shanghai A-Share Stock Exchange

Dependent Variable: Δ STPRICE_ASA						
	1992-1999		1992-1997		1998-1999	
	A-Share		A-Share		A-Share	
Variable	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-1.37***	-3.39	-2.12***	-4.18	2.77	1.61
Δ SHANGHAIA	0.01***	11.94	0.01***	9.96	-0.02	-1.62
Δ SECRPRICE	-0.05	-0.67	-0.05	-0.44	0.33***	4.00
STATE	-0.00	-0.73	-0.00	-0.03	-0.01	-0.86
PROTECTED	-0.02	-0.08	0.01	0.03	-0.21	-0.74
GASSET	0.00	1.30	0.00	0.41	0.01**	1.94
R-Squared	0.21		0.37		0.02	
F-Statistic	80.19		87.95		3.56	
N	1,543		762		781	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Table 17b. Regression Results for Shenzhen A-Share Stock Exchange

Dependent Variable: Δ STPRICE_ASE						
	1992-1999		1992-1997		1998-1999	
	A-Share		A-Share		A-Share	
Variable	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
C	-1.26***	-2.84	-1.42**	-2.02	-1.29**	-2.30
Δ SHENZHENA	0.02***	7.42	0.01***	4.70	0.01	1.25
Δ SECTORPRICE	0.23***	2.71	0.46***	3.54	0.10	0.95
STATE	-0.00	-0.20	-0.01	-0.94	0.01	0.94
PROTECTED	-0.51***	-2.46	0.01	0.02	-0.93***	-3.71
GASSET	0.01*	1.73	0.01	1.27	0.01	1.28
R-Squared	0.21		0.38		0.02	
F-Statistic	70.25		70.59		3.23	
N	1,348		584		764	

Note: ***, **, * indicate significance at 1%, 5%, and 10% respectively.

Nevertheless, the high degree of co-movement between STPRICE and EPS does not necessarily imply that the informational, legal, and judicial infrastructures are adequate. Indeed, a high degree of co-movement may increase the frequency of accounting manipulations to boost stock prices and thus to lower the cost of funding from the market. The number of domestic institutional investors is limited in the PRC. Investors tend to comprise largely unsophisticated individuals with little knowledge or skills in making investment decisions based on risk and returns in share trading (Asian Development Bank, 1999). In addition, investors generally have no interest in improving the governance of the companies they invest in and merely seek short-term capital gains.

Thus, the Government must focus on improving the accounting, auditing, and disclosure standards, and establishing the necessary regulations with enforcement systems. These reforms must hand in hand with educating public investors in order to improve corporate governance and, thus, develop a sound equity market.

6. Conclusions

Since the Shanghai and Shenzhen stock exchanges were established in the early 1990s, the equity market has grown remarkably with the ratio of equity market capitalization to GDP rising from 4% in 1992 to 54% in 2000. However, one needs to be cautious about this figure, since 60% of shares are nontradable and owned by the central and local governments and unlisted SOEs (or ultimately the State Council). Once tradable shares are considered, the ratio of equity market capitalization to GDP shows a smaller increase from 3% in 1993 to 18% in 2000. Moreover, the law of one price does not hold between the stocks sold to domestic investors and those sold to foreign investors since these shares are not freely traded, leading to speculation and distortion in the market. In addition, the selection of listed companies and allocation of A-, B-, and H-shares appears to be subject to political considerations and do not necessarily reflect objective criteria (such as asset size, financial conditions, profitability) set by the Government. Also, most listed companies remain under State ownership and have not fundamentally reformed minority shareholders' rights.

This paper has then attempted to examine the state of equity market development according to its three major functions: (1) provision of stable financing sources for firms' investment, (2) improvement of firms' corporate governance and performance, and (3) signaling roles of stock prices. On the first agenda, this paper found that the equity market has certainly contributed to financing firms' investment, but the degree of contribution has declined in recent years—while the positive impact of loan finance on investment has strengthened. These results appear to reflect that the lack of adequate and precise information about issuers has encouraged public investors to hold stocks for only short-term gains, making stock prices volatile and equity an unstable source of external finance. Since listed firms face hard budget constraints nowadays under the banking sector reforms, it is crucial that the Government develops a sound equity market so that firms can secure stable sources of finance other than bank loans. To do so, it must build an informational, legal, and judicial infrastructure that can maintain the confidence of public investors and encourage them to impose discipline on invested firms.

On the second issue, the relationship between State ownership and firms' performance (measured by ROA, ROE, and EPS) turned out to be V-shaped. This suggests that when State ownership is greater, direct State controls are stronger so that conflicts of interest between managers and shareholders (or State) remain small. Moreover, these firms often receive a wide range of preferential treatment, which enables them to perform better than unprotected firms. By contrast, when State ownership is at least below 20%, conflicts of interest are likely to be large enough to encourage public investors to impose stricter discipline on invested firms. However, since there are few

firms with State ownership smaller than 20%, the situation where public investors show a strong interest in imposing discipline is rare in the PRC. Meanwhile, firms whose state ownership lies between these two suffer from asset stripping by managers or officials in charge of them. These results indicate that the Government urgently needs to introduce measures to cease such practices before promoting further privatization. Moreover, it needs to improve the infrastructure needed for developing a sound equity market if it wishes listed firms to raise more capital from the market and at the same time avoid a deterioration in firms' performance.

Moreover, this paper found that the performance of firms that issue B- and H-shares was inferior to that of firms that issue only A-shares, even though more stringent requirements for listing have been applied to the IPOs aimed at foreign investors. The results could reflect that, in practice, a large number of listed firms has been approved to issue only A-shares compared to the other shares. Alternatively, firms that issue only A-shares may manipulate their book more easily, since the accounting and auditing standards they face are less stringent for companies applying for issuance to foreign investors. It could also be in the interests of managers to exaggerate profitability in order to boost issuing prices. In addition, firms issuing A-shares get higher stock prices so that they can raise funding more cheaply. Further, the results suggest that foreign investors have not been effective so far in monitoring the firms. This reflects not only that the State remains the largest shareholder, but also that minority shareholders' rights are not yet well-established.

This paper also found that firms' performance deteriorated not only in the year of A-share IPOs but also afterwards. Also, the same results were obtained also in the case of B-share IPOs, even though more stringent criteria are applied. These results may be explained by the following three factors related to the pre-IPO performance: (1) there are nonpecuniary reasons for managers performing better—for instance, in order to be selected for listing and to meet the Government's requirement that profits should be generated in order to raise the offering price; (2) the corporatization process presents an opportunity to boost earnings when changing over from socialist fund accounting to Western principles; and (3) SOEs carve out temporarily profitable business units and then siphon the profits earned by the corporatized and listed units. In addition, the following three factors related to post-IPO performance might be affecting the results: (4) there is little incentive for public shareholders to impose discipline owing to their small cash flows/control rights; (5) stock options and rewards for producing better performance are rarely used; and (6) internal audits tend to be ineffective due to the excessive powers of CEOs.

On the third issue, this paper has found that firms' stock prices indeed reflect their fundamentals (proxied by earnings per share) to a significant extent. This suggests that stock prices have been playing a role in signaling information about issuers' fundamentals. These results are contrary to the expectation generated by the high correlation between stock composite price indices in the Shanghai and Shenzhen stock exchanges (even though no cross-listing is allowed) and highly volatile stock prices (both of which point to the presence of herd behavior). Nevertheless, the co-movement between stock prices and earnings per share has declined in recent years although it is still

present—notwithstanding that CSRC from 1998 tightened regulations against illegal share price manipulation and financial malpractices. These results may indicate that such regulations have been ineffective so far. Moreover, it is possible that a high degree of co-movement between stock prices and earnings per share has encouraged accounting manipulations to try to bump up stock prices (and lower costs of funding). Thus, the urgent task faced by the Government is to develop a sound equity market, through improvements in the informational, legal, and judicial infrastructure, and educating public investors.

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Regression Variables

AGE	: Number of years since corporatization of the company.
AIPO	: Equals 1 when and after a firm has placed an IPO on A-shares and 0 otherwise.
ASSET	: Natural logarithm of a firm's asset
BIPO	: Equals 1 after a firm has placed an IPO on B-shares and 0 otherwise.
BOND	: Changes in corporate bonds divided by fixed and intangible assets of the previous year.
BSHARE	: Equals 1 if a firm issues both A and B shares and only B shares and 0 otherwise.
COMMERCE	: Equals 1 if a firm belongs to the wholesale, retail, and distribution sectors and 0 otherwise.
CONGLOMERATE	: Equals 1 if a firm engages in a wide range of sectors and 0 otherwise.
CSTOCK	: Ratio of outstanding capital stock (sum of long-term assets and long-term investment) to current asset.
EPS	: Earnings per share.
EQUITY	: Changes in outstanding equity capital divided by fixed and intangible assets of the previous year.
FINANCE	: Equals 1 if a firm belongs to the finance sector and 0 otherwise.
GASSET	: Percentage change of assets.
HSHARE	: Equals 1 if a firm issues both A- and H-shares and 0 otherwise.
INDUSTRY	: Equals 1 if a firm belongs to the manufacturing and other industry sectors and 0 otherwise.
INV	: Ratio of changes in the sum of fixed assets, long-term investment, and intangible assets to the sum of outstanding fixed assets, long-term investment, and intangible assets of the previous year.
LEVERAGE	: Ratio of long-term liabilities to total shares.
LOAN	: Changes in outstanding short- and long-term liabilities plus long-term liabilities due within one year or less than a year divided by fixed and intangible assets of the previous year.
PROPERTY	: Equals 1 if a firm belongs to the real estate and property sectors and 0 otherwise.
PROTECTED	: Equals 1 if a firm belongs to protected industries (petrochemicals, utilities, and materials) and 0 otherwise.
RGDP	: Real GDP growth.
ROA	: Returns on assets.
ROE	: Returns on equity.
SECEPS	: Earnings per share averaged for each sector.
SECPRICE	: Stock price indices for six sectors (property, industry, finance, commerce, utility, and conglomerate).
SHANGHAI	: Equal to 1 if a firm is listed on the Shanghai stock exchange and 0 otherwise.
STATE	: Shares owned by the Government divided by the total shares.
STATE20	: Equal 1 if State ownership of a firm is in the range of 0-20%.
STATE40	: Equal 1 if State ownership of a firm is in the range of 21-40%.
STATE60	: Equal 1 if State ownership of a firm is in the range of 41-60%.
STATE80	: Equal 1 if State ownership of a firm is in the range of 61-80%.

STATE100	: Equal 1 if State ownership of a firm is in the range of 81-100%.
STPRICE_ASA	: Stock prices of firms issuing A-shares on the Shanghai stock exchange.
STPRICE_ASE	: Stock prices of firms issuing A-shares on the Shenzhen stock exchange.
TIME	: Dummy variable for time.
UTILITY	: Equals 1 if a firm belongs to utility sectors and zero otherwise.
VARIANCE	: Variance of ROA of the past two and current years.
EPS	: Changes in earnings per share.
ROA	: Changes in returns on assets.
ROE	: Changes in returns on equity.
SALES	: Changes in incomes from main business divided by the sum of fixed assets, long-term investment, and intangible assets of the previous year.
SHANGHAIA	: Changes in the stock composite price index for A-shares.
SHENZHENA	: Changes in the stock composite price index for A-shares.

Acronyms

ADB	Asian Development Bank
CEO	Chief Executive Officer
CSRC	China Securities Regulatory Commission
IPO	Initial Public Offering
NYSE	New York Stock Exchange
OLS	Ordinary Least Square
PRC	People's Republic of China
SCSC	State Council Securities Commission
SMEs	Small and Medium Enterprises
SOEs	State-Owned Enterprises
WTO	World Trade Organization

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Asian Development Bank Institute
Kasumigaseki Building 8F
3-2-5 Kasumigaseki, Chiyoda-ku,
Tokyo 100-6008 Japan

Tel: +81 (03) 3593-5500
Fax: +81 (03) 3593-5571
E-mail: info@adbi.org
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