

INDEPENDENT DIRECTORS AND CORPORATE PERFORMANCE: EVIDENCE FROM LISTED FIRMS IN CHINA

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Abstract

In 2001, the Chinese Securities Regulatory Commission (CSRC) issued Regulation No.102 stipulating a minimum number of independent directors on corporate boards. We investigate whether the regulation had its intended effect of protecting minority shareholders and enhancing firm performance. Using a large sample of 2646 firm-year observations from 2001 to 2003, we find that both state-owned and non-state-owned firms improved their board independence significantly from the pre to the post regulation period, and firm performance significantly increased in the post regulation period for both types of firms, with the increase being greater in the case of SOE firms.

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Introduction

The role and effectiveness of independent directors on corporate boards has attracted a great deal of attention from both the academic and business communities in recent years. While some studies conclude that outside independent directors on corporate boards enhance firm performance (Eisenberg 1976, Rosenstein and Wyatt 1990, Barnhart et al. 1994, etc.), other researchers have found inconclusive evidence on the relation between outside independent directors and firm performance (Hermalin and Weisbach 1991, etc.). Prior research, thus, still leaves open the question of whether independent directors add value towards an effective governance structure.

Ever since the recommendations of the Cadbury Committee on the codes of best practices were published in the U.K. in 1992, the push for better governance practices has received new impetus in the past two decades. One can argue that many factors, in addition to corporate boards, such as compensation and ownership structures, contribute to good governance. Additionally, firms will choose their board structures optimally to maximize firm value and any external push towards

a particular governance structure may actually adversely affect firm value. These arguments notwithstanding, many countries have introduced new regulations and codes of best practices since the mid 1990s.⁵⁸

A number of studies have examined the impact of these new regulations on firms' governance structures and financial performance. While there is a substantial body of knowledge on this topic for developed countries, such as U.S and U.K, research on governance and its relation to firm performance is beginning to grow for emerging markets as well. Emerging economies differ substantially from developed economies in terms of capital market maturity, ownership structure and corporate control mechanisms. Nevertheless, many emerging countries have followed the lead of developed countries and introduced their own set of laws to deal with governance issues, and in many instances these laws have been tailored similar to the laws enacted in the developed countries, such as the Sarbanes-Oxley Act (SOX) in the U.S.

⁵⁸ See Dahya, McConnell and Travlos (2002) for more details on the work of the Cadbury Committee in the U.K.

Rajagopalan and Zhang (2008) suggest that with globalization and the rapid pace at which previously state-owned enterprises are being privatized, issues of corporate governance are gaining center-stage in the major emerging economies of the world such as China and India. The authors, however, contend that these nations will evolve slowly towards good corporate governance practices due to the presence of a number of obstacles such as the presence of a dominant shareholder, underdeveloped external capital market governance mechanisms, lack of incentives and the shortage of truly independent directors.

In this study, we investigate the role of board structures; in particular the role of independent directors on corporate boards for listed Chinese firms following the adoption of Regulation No. 102 in 2001 by the Chinese Securities Regulatory Commission (CSRC). Despite the rapid growth of the Chinese capital market in the last two decades, listed Chinese firms continue to suffer from weak protection of minority shareholders and poor corporate governance in general (Allen et al. 2005).⁵⁹ With the market still dominated by state-owned enterprises (SOEs) (90 percent of the listed firms are state owned), the conflicts of interests between large dominant shareholders (State and legal person) who hold non-tradable shares and the public shareholders, who hold the tradable shares, are substantial. Since the mid-1990s, however, the proportion of non-SOE firms, the truly private entrepreneurial firms with no State ownership listed on the two major stock exchanges has steadily increased. With no state ownership, the non-SOE firms are truly comparable to public firms in any capital market and face the same issues pertaining to governance as any public firm. Since these firms are more closely aligned with the objective of shareholder wealth maximization, the conflict of interest between large and minority shareholders are likely to be less severe compared to SOEs.

The new CSRC Regulation No. 102 was introduced on August 16 2001. The major objective of this regulation that applied to all listed firms was to improve the quality of corporate governance and protect the interests of minority public shareholders. A listed firm was required to have at least two independent directors on its board of directors by June 30, 2002, and by June 30, 2003, at least one third of the board members were required to be independent directors. The CSRC also required that independent directors serve as one-half numbers of the compensation, auditing, and nomination committees. Unlike many countries, such as Australia and Canada, where

codes of best practices have been introduced but compliance is voluntary since a “one size fits all” approach was not considered optimal, compliance with the new regulation is mandatory for all listed firms in China.⁶⁰

Researchers have started to look at corporate governance issues in listed firms in China. Lai (2011) specifically examines the impact of the CSRC Regulation in constraining earnings management and finds that board independence lowers the incidence of earnings management when board independence is adopted voluntarily but the effect does not increase if the adoption is made mandatory. Young, Tsai and Hsieh (2008) study listed firms in the Taiwan market and document a positive relation between voluntary appointment of independent directors and firm performance. They further find that independent boards are more effective in mitigating the agency problems in firms with weak governance structures. Kato and Long (2006) examine the relation between CEO turnover and performance in China and find that the CEO turnover-performance link is stronger when there is a controlling shareholder and there are independent directors on the board while this association is weaker for firms where the state is the major shareholder. They also find that performance improves following the dismissal of a CEO dismissal in non-state owned firms for performance related reasons. Wang (2010) also finds that it is the incentives of controlling shareholders rather than the governance mechanisms that are more effective in disciplining poorly performing executives. As these studies show, corporate governance issues remain front and center in this transition economy where the need for transparency and better investor protection remains. The CSRC regulation was specifically designed to address this need and push listed firms to adopt better governance standards.

In this research, we specifically address two questions: First, did compliance with the new regulation lead to an improvement in financial performance of the listed firms? If the regulation had its desired effect of optimizing a firm’s governance structure, assuming it was not already optimally determined, it should lead to a reduction in the agency costs, lower cost of capital and increase in firm value. Second, since the conflicts of interest between large and minority shareholders likely differ between SOEs and non-SOEs, did the regulation affect the two types of firms differentially? With its ownership of nearly two-thirds of all outstanding shares, the State continues to exert a significant influence on the strategic and operational decisions of SOEs. In developed countries, increased shareholder activism and new

⁵⁹ The Chinese capital market has emerged as the eighth largest in the world with around 1381 listed firms and a market capitalization of over \$463 billion by the end 2005 (CSRC website).

⁶⁰ Compliance with the Sarbanes-Oxley Act is, however, mandatory for U.S. firms.

codes of best practices have resulted in corporate boards becoming more independent and a reduction in agency conflicts. Given the overbearing influence of the State and the lack of transparency in the case of listed Chinese firms, the efficacy of similar measures to improve governance is, however, debatable. Nevertheless, the new regulation was introduced with the intent of minimizing such agency conflicts. While agency conflicts between dominant and minority shareholders are no doubt present in non-SOE firms as well, as in any public firm, such conflicts are likely to be less compared to those in SOEs. We, therefore, investigate if the effect on financial performance was significantly different between the two groups.

Given that the CSRC regulation mandated a minimum number of independent directors on corporate boards and compliance with the regulation is not voluntary, both factors suggest that the new regulation may be considered as an external shock and the causality should run from board independence to firm performance. As such, ordinary least squares (OLS) regressions should capture the relation between board composition and firm performance. However, as noted earlier, since some rational firms may have chosen to voluntarily implement more independent board structures, it may be more appropriate to control for the potential endogeneity between firm performance and board independence by employing two-stage least squares (2SLS) regressions (Agrawal and Knoeber, 1996 and Borokhovich, Parino, and Trapani, 1996). We, therefore, employ both specifications in our analyses.

Using a large sample of 2646 firm-year observations of listed Chinese firms during the sample period from 2001 to 2003, we find that both SOE and non-SOE firms significantly increased the proportion of independent directors on their corporate boards after Regulation No. 102 came into effect in 2001.⁶¹ Our results show that firm performance significantly increased in the post regulation period compared to the pre regulation period for both groups, and that compliance with the new regulation resulted in a greater improvement in performance for SOE firms compared to non-SOE firms. We add to the broader debate on the relation between board independence and firm performance (Rosenstein and Wyatt 1990, Agrawal and Knoeber 1996 and Dahya and McConnell 2005, etc.) by extending the literature to a transition economy. Furthermore, many in the business world question whether regulations are effective in improving firm-level governance. In this research we directly test if this is the case and if

so, is the effect moderated by the type of ownership structure and the characteristic of the dominant shareholder.

The rest of the paper is organized as follows: First, we introduce and provide a brief review of the institutional background of the Chinese market by discussing the new regulation on the appointment of independent directors and the Chinese firms' specific ownership structure. Next, we briefly review the prior relevant literature on the relation between governance and firm performance and develop our hypotheses. This is followed by the presentation and discussion of the sample data and empirical methodology. We next present and discuss the empirical findings. Finally we summarize and conclude the study.

Institutional Background Regulation No.102 (2001) of the CSRC

On August 2001, the main regulator of the Chinese capital markets, the China Securities Regulatory Commission (CSRC) issued the "Guidelines for Establishing Independent Director System in Listed Firms". Like in most countries preceding it, the objective of introducing the new guidelines was to establish a system of best governance practices for listed firms.⁶² The new guidelines were timely, given that around that time there were large scale corporate failures in North America that could in part be linked to poor governance controls and the fact that there was an increase in the number of non state-owned enterprises being listed on the two Chinese stock exchanges.

The new regulation lays out the broad parameters of the governance of publicly traded listed firms. First, it defines the term and the requirements of independent directors. According to the guidelines to qualify as "independent", an individual is required to meet the following conditions: (a) neither the individual nor his or her relatives (including spouses, parents, children, siblings, parents-in-law, sons- and daughters-in-law, spouses of siblings and siblings of spouses) work for the listed firm or its subsidiaries, (b) the individual does not directly or indirectly own more than 1% of the stock of the listed firm, (c) neither the individual nor his or her close relatives (including spouses, parents and children) are among the largest 10 shareholders of the listed firm, (d) neither the individual nor his or her close relatives

⁶¹ Since our purpose is to study the impact of the new regulation, we concentrate on the three-year period surrounding the regulation only.

⁶² The Cadbury Committee in the U.K. was the first to publish guidelines on the financial aspects of corporate governance in 1992. Following the Cadbury Committee, several countries adopted similar, and in most cases voluntary, guidelines on the best practices in governance. For example, Australia (Bosch Report), Belgium (Cardon Report), Canada (Dey Report), France (Vienot Principles I and II) and The Netherlands (Peters Code), among others.

work for a company that owns more than 5% of the stock of the listed firm, and (e) neither the individual nor his or her close relatives work for one of the largest 5 shareholder companies. In addition, the guidelines require that at least one of the independent directors on the board should be an accounting professional (refers to personnel with senior professional title or certified public accountants). Furthermore, it was mandated that by June 30th 2002, at least two members of the board of directors shall be independent directors, and by June 30th 2003, at least one third of board shall be independent directors.

Second, the regulation specifies the conditions for the nomination, election and replacement of independent directors. Independent directors can be nominated, either by the board of directors, a supervisory board or by shareholders who independently or jointly hold more than 1% of the shares issued and outstanding. The independent directors can serve for a maximum period of six years.

Third, the regulation emphasizes the role of independent directors. The directors are required to serve on important committees, such as the remuneration, auditing and nomination committees, to approve major related party transactions before such transactions are considered by the board of directors, and can also propose a number of initiatives to the board of directors, such as the calling of an interim shareholders meeting, appointment or removal of the accounting firm, and calling a meeting of the board of directors.

Finally, the regulation deals with other major issues such as funds transfer, the appointment and remuneration of senior managers and directors, and events that the independent director consider to be detrimental to the interests of minority shareholders.

It is clear that the regulation has dealt with a broad array of issues and provides clear guidance on the requirements and responsibilities of independent directors. A summary of the major provisions contained in the regulation is included in Appendix 1.

Ownership structure of listed Chinese firms

China has unique ownership characteristics and governance structures (see Chen et al. 2005 and Bhabra et al. 2008). Due to historical reasons, nearly ninety percent of listed Chinese firms are state-owned enterprises (SOEs) with the state directly or indirectly (through legal person or state-controlled institutional investors) owning 65 percent of the equity. The basic paradigm in finance has been maximization of shareholder wealth. However, the state ownership of Chinese listed firms, held by both the central or local

governments, may not necessarily fit in with this value maximization objective. In addition, before mid-2005 listed firms issued both tradable and non-tradable shares (including SOE shares and legal person shares)⁶³ (Allen et. al 2005). The state shares of listed Chinese firms are non-tradable shares and any transfer of these stocks has to be approved by a number of government agencies. On the other hand, as the large dominant shareholders, the central or local governments frequently nominate top executives of listed SOEs. Therefore, concentration of both control and ownership by the State can dramatically increase the agency problem and information asymmetry, and in turn lead to poor governance of listed SOEs. Thus, even though the new regulation requires that one-third of the directors on the board be independent in listed SOEs, the effectiveness of these independent directors in improving governance practices is likely to be severely compromised by the overbearing presence of the State. In the case Chinese privately-owned listed firms (non-SOEs), management and larger shareholders are likely to have the same interests as other shareholders, which is to pursue the maximization of shareholders' wealth. The conflicts of interest between the dominant shareholders and minority shareholders, though still present, are expected to be less severe compared to SOEs. With fewer or no bureaucratic influences to deal with, independent directors are likely to be more effective in the case of non-SOEs.

Corporate Governance and Firm Performance

The major responsibility of a board is to monitor managerial behavior and to guide company activities. Consequently, the effectiveness of the board can have a significant impact on firm performance. Research on what constitutes an effective corporate governance model and the linkage between governance mechanisms and firm performance (measured by Tobin's *q*, accounting profits or stock returns) has grown phenomenally in the last two decades. However, a definitive answer to the relation between board composition and firm performance has remained elusive. For example, Baysinger and Butler (1985), Schellenger, Wood, and Tashakori (1989) and Panasian, Prevost and Bhabra (2008) find a positive relation, Agrawal and Knoeber (1996) find a negative relation while Hermalin and Weisbach (1991), Dalton, Daily, Ellstrand, and Johnson (1998) and Bhagat and Black (2002) find no relation between board composition and firm performance.

⁶³ Beginning at mid-2005, the CSRC exerted "share structure reform" permitting non-tradable shares (including SOE shares and Legal person shares trade in the public market gradually).

Early work by Eisenberg (1976) noted the important role of independent outsiders in improving the effectiveness of corporate boards. These independent directors monitor managerial activities, serving to alleviate the agency cost and information asymmetry problems. Fama (1980) and Fama and Jensen (1983) also suggested that agency problems in the firm could be mitigated by dividing the functions of corporate management into two distinct parts: decision management, conducted by inside directors, and control management, conducted by outside directors. Baysinger and Hoskisson (1990) suggest that the control function of the board could be undermined if the board is dominated by insider directors. Barnhart et al. (1994) suggest that independent directors provide other useful functions such as evaluating takeover proposals, controlling managerial consumption of perquisites, disclosing inside information and monitoring equity transactions.

As noted above, Hermalin and Weisbach (1991) investigated how board composition affects firm value and found no relation between firm value and the proportion of outside directors on the board. However, they find a negative association between predicted earnings and outside directors, but this negative relation becomes insignificant when lagged values of board composition are used, indicating that firms would like to add new outside directors after a period of bad performance rather than that adding new outside directors lead to worse performance. The authors interpret their results as inside directors and outside directors being equally bad in acting in the interest of shareholders, and this consequence is directly due to the top management control of the board selection process. However, Barnhart et al. (1994) find a significant curvilinear relation between board composition and firm performance by employing the market-to-book value ratio of common stocks instead of the traditional Tobin's q as a measure of firm performance.

Kenneth and Anju (1995) and Agrawal and Knoeber (1996) take a more holistic approach and examine the substitution ability among different governance mechanisms. Using data on U.S. bank holding companies, Kenneth and Anju (1995) find that there is significant substitution effect between monitoring by outsiders and monitoring by large shareholders. Agrawal and Knoeber (1996) find a significant negative relation between firm value and the proportion of outside directors and conjecture that their result may be due to the expansion of board with outsiders for political reasons rather than by the need to strike an optimal balance between outsiders and insiders.

Kesner and Johnson (1990) reason that the impact of independent directors on firm performance is not directly through operating activities but indirectly through actions like

evaluating CEOs and monitoring top management. They, therefore, use number of shareholders' lawsuits as proxy for firm performance and find that the lower the percentage of outside directors on the board, the greater the likelihood that the firm will be sued for failing to maintain directors' fiduciary responsibilities. Similarly, Dahya, McConnell and Travlos (2002) use CEO turnover as a performance measure when studying the impact of compliance with the Cadbury Committee recommendations in the U.K. They reason that if one of the principle functions of the board is to hire and fire managers, CEO turnover should be higher in poorly performing firms. They find results consistent with their hypothesis. Also, Dahya and McConnell (2003) find that firms that increased their board independence following the recommendations of the Cadbury Committee are more likely to hire an outsider as the CEO.

Ferdinand and Sidney (2004) examine the linkages between voluntary information disclosure and board composition in the Hong Kong market and find a negative association between proportion of non-executive directors and voluntary corporate disclosure. The authors reason that with more non-executive directors on the board, there is less need for the firm to rely on information disclosure to convey news and reduce the information gap.

Using the event study methodology to examine the impact of appointing an outside director to the firm's board, Rosenstein and Wyatt (1990) find that the marginal effect of adding one independent director is positive even though outsiders have already dominated the board before the appointment.

As noted earlier, research on governance characteristics and its link to firm performance is beginning to accumulate for listed firms in emerging markets (Lai, 2011, Young, Tsai and Hsieh (2008), Kato and Long (2006) and Wang, 2010). Research on the effect of board and ownership structures on the performance of listed firms in China continues to grow. Li, Wang and Deng (2008), show that firms with more independent directors are less likely to face financial distress. Hu, Tam and Tan (2010), on the other hand find that ownership concentration is negatively related to firm performance, and that the effectiveness of the board of directors is hindered by concentrated ownership. Bai *et al.* (2003) also find evidence consistent with a negative relation between ownership concentration, CEO-Chair duality and larger stock holdings by government, and firm performance. These authors also show that as the ownership of non-controlling shareholders and foreign shareholders increase, it positively affects firm valuation. Chen, Firth, Gao, and Rui (2006) investigate whether corporate ownership and the various corporate governance mechanisms have any influence on corporate fraud

in China. Their results show that firms with a large proportion of outside directors commit less fraud. In addition, both CEO tenure and the number of board meetings have a significant positive relation with fraud, while CEO-Chair duality and board size have no significant relationship to fraud.

In addition to China, what constitutes effective corporate governance has been studied for several other emerging markets as well. For example, many authors study the governance practices in India. Sarkar and Sarkar (2005) study the issue of multiple directorships for the Indian market. Contrary to evidence from developed markets, these authors document that independent directors serving on multiple corporate boards in India attend more board meetings and exert a positive influence on firm performance. Ghosh (2006) finds that larger boards are negatively related to performance, while Jaiswall and Firth (2009) find a positive relation between CEO compensation and firm performance. Finally, Klapper and Love (2004) examine 14 emerging markets.⁶⁴ Their results show that firms in countries with weaker legal system on average have weaker governance structures and that there is a positive association between corporate governance and firm performance.

The discussion of the prior literature clearly shows that a number of corporate governance characteristics are related to firm performance. Among them, board independence appears to be particularly important. The presence of large controlling shareholders can mitigate the effectiveness of an independent board. In the Chinese context, an important question to ask is if the concentrated non-liquid state ownership in the SOEs renders the role of independent directors less effective? Additionally, are independent directors equally effective in SOEs and non-SOEs? We undertake this investigation in this study.⁶⁵

Hypotheses

⁶⁴ The 14 countries are Brazil, Chile, Hong Kong, India, Indonesia, Malaysia, Pakistan, Phillipines, Singapore, South Africa, South Korea, Taiwan, Thailand and Turkey.

⁶⁵ Previous research also shows that the process of selection of independent directors, such as CEO involvement, can have a significant influence on board composition and firm performance (Hermalin and Weisbach 1998, Shivdasani and Yermack 1999 and Callahan, Millar and Schulman 2003). In addition, the background of directors and interlocking boards can also affect firm performance (Fich and White 2007). Our conjecture is that the State probably has a big role in the board selection process for the SOE firms. We, however, do not address these issues in our study both because we lack data on them in our sample as well as because our focus is mainly on the impact of the new regulation. These are, however, substantive and very important issues, and can form the basis of a separate detailed study on listed Chinese firms.

The CSRC regulation represents an exogenous shock, making it mandatory for corporate boards in China to add independent directors. The intent was to introduce better control and monitoring mechanisms and better protection of minority shareholders. If every listed firm had its governance structure optimally determined, the new regulation should have no impact on firm value. However, the need for introducing a new regulation to improve governance practices and protect minority shareholders, and make compliance mandatory suggests a significant proportion of firms may be operating with a sub-optimal governance structure. If the regulation has its intended effect, better control and monitoring by independent directors should lead to a reduction in the agency conflicts between dominant and minority shareholders resulting in improved firm performance. We, therefore, state our first hypothesis as follows:

H1: The appointment of independent directors on the board of directors as mandated by the CSRC regulation will have a positive impact on firm performance of listed Chinese firms.

Chang and Wong (2004) examine the impact of the involvement of the State in the decision making of China's listed firms on firm performance. Their results demonstrate that firm performance enhances as the overall level of the State's influent power reduces. Furthermore, Chen et al (2006) indicate that the interests of SOEs, ultimately owned and controlled by the State, may not necessarily be consistent with public shareholders. Shares owned by the State in SOEs are not tradable in the capital market and they, on average, constitute 65 percent of the outstanding A_shares.⁶⁶ Both the divergence in the interests of public shareholders and the State, and the concentration of control and ownership by the State, can dramatically increase the agency problem and information asymmetry, leading to poor governance of listed SOEs. In such an environment, the impact of introducing more independent directors on the board is difficult to assess. Nevertheless, with boards that are more independent, these firms should benefit from better monitoring and reduced agency problems compared to firms without independent directors on the board. Non-SOEs, on the other hand, are smaller entrepreneurial firms with greater growth potential, no non-tradable shares, and likely with high levels of information asymmetry. However, since the

⁶⁶ Typically, listed firms in China have two types of shares outstanding: A_shares denominated in Chinese currency (Renminbi) held by Chinese investors and B_shares denominated in US\$ held by foreign shareholders. On average, nearly 95 percent of the outstanding shares are A_shares.

interests of all shareholders converge towards wealth maximization, the conflicts of interests between majority and minority shareholders for these firms are likely to be lower, compared to SOEs. Having a greater number of independent directors on the board is likely to minimize the agency conflicts between the different shareholder groups. However, the overbearing presence of the State through their ownership of a majority of non-tradable shares in SOEs compared with the better interest alignment of the shareholders of non-SOEs suggests that the presence of independent directors will be more effective in the case of SOEs compared to non-SOEs. Thus, while we predict that both types of ownership structures (SOE and non-SOE) will influence the effectiveness of independent directors on the control and monitoring provided by the board, and will have a positive impact on firm performance, we hypothesize that the SOEs will benefit more compared to non-SOEs. Thus, we address our second hypothesis as follows:

H2: The appointment of independent directors on the board as mandated by the CSRC regulation will positively impact firm performance for both SOE and non-SOE listed Chinese firms and that the performance improvement will be significantly more for SOEs compared to non-SOEs.

Data and Sample

Corporate governance data of Chinese firms listed on Shanghai and Shenzhen Stock Exchanges are collected from the China Listed Corporate Governance Research Database, developed by the China Center for Economic Research at Peking University (CCER).⁶⁷ The accounting information data, stock market data, and non-SOE data, are from the other databases maintained by CCER.

Our initial sample consists of all listed firms in the Chinese capital market from 2001 to 2003. There were 1221 firms listed on the Shanghai and Shenzhen Stock Exchanges with 3580 firm-year observations. Based on the non-SOE database of CCER, we identified the SOE and non-SOE firms. Firms that were designated ST or PT (ST and PT refer to special treatment) and financial firms are excluded from the analysis since they are fundamentally different from firms in other industries. In addition, we exclude firms for which sufficient data needed to perform the analysis is not available. Our final sample consists of 929 firms for a total 2646 firm-year observations. The year 2001 is regarded as the pre-regulation period while 2002

and 2003 are designated as the post-regulation years.⁶⁸

Empirical Methodology

In prior research, Tobin's q has been widely used as the major indicator of firm performance. Hermalin and Weisbach (1991) state that "[A] divergence of q from one represents the value of the assets not included in the denominator of q , such as the value of the internal organization or the value of expected agency costs. A q above one indicates that the market views the firm's internal organization as exceptionally good or the expected agency costs as particularly small." Consistent with previous research, we use Tobin's q as a proxy to measure the extent to which firm performance and shareholders wealth changes with the appointment of independent directors after the new regulation came into effect. We use the approximate q -ratio proposed by Chung and Pruitt (1994). Their results illustrate that at least 96.6 percent of the variability in the theoretical q is explained by the approximate q .

Before mid-2005, Chinese listed firms issued both tradable and non-tradable A_shares (including State shares and legal person shares) and any transfer of these stocks had to be approved by a number of government agencies based on the book value of shareholders' equity. To value the non-tradable A_shares held by the State and legal person shareholders at the fair market price would overstate the market value of the firm. We, therefore, calculate the approximate q of Chinese listed firms as follows:

⁶⁷ We thank China Center for Economic Research at Peking University (CCER) for providing the data on Chinese listed firms.

⁶⁸ We focus on the years immediately surrounding the introduction of the new regulation since our objective is to isolate the impact of the new regulation alone.

$$\text{Approximate } q = (\text{Market value of tradable shares} + \text{Book value of non-tradable shares} + \text{Net value of total debt}) / \text{Total assets} \quad (1)$$

To control for the possibility of systematic movements in Tobin's q relative to industry-wide movements, we adjust each firm's q by the mean q for its industry. Using the 2646 firm-years data, for each year we obtain the mean q for the six industries identified by the Shanghai and Shenzhen Stock Exchanges to classify companies. The industry groups are industrial, real estate, service, energy, multi-industry, and agriculture and forestry. The resulting adjusted q for each firm in a given year (denoted *AdjustedQ* hereafter) is calculated as q minus the mean q for the industry for that year. *AdjustedQ* is used as the dependent variable in the cross-sectional regressions.

The main independent variables of interest are as follows: *INDAdoption*, a dummy variable for the adoption of independent directors, that takes on a value of 1 if the year is 2002 or 2003 and zero otherwise, fraction of independent directors (*FractionIND*) (Dahya et al. 2002) and a dummy variable to capture ownership structures (*SOE*) (Chen et al. 2006) where *SOE* takes on a value of 1 if the firm is an SOE firm and is zero otherwise. Hypothesis 1 predicts a positive relation between *AdjustedQ*, *INDAdoption* and *FractionIND* while hypothesis 2 predicts a significant relation between *AdjustedQ* and *SOE* since the presence of independent directors is likely to affect SOE and non-SOE firms differently.

Prior research (see for e.g., Agrawal and Knoeber (1996)) suggests that several other factors, in addition to the proportion of independent directors on the board, are likely to affect firm performance. We, therefore, include the following additional control variables in the cross-sectional regressions.

Prior firm performance (PROA): Profitable firms are likely to show better performance in subsequent years. *PROA* is included to control for the absolute level of firm profitability.

Change in firm performance over the previous year (CROA): To control for persistence in performance, we include *CROA* measured as the change in return on assets (*ROA*) between year t and $t-1$ divided by *ROA* for year t .

Leverage (Leverage): Monitoring provided by debt holders can substitute for the oversight provided by independent directors (Agrawal and Knoeber 1996). *Leverage* is measured as the ratio of total debt to total assets, where total liabilities is used as a proxy for total debt.⁶⁹

⁶⁹ We recognize that using total liabilities as a proxy for total debt will overstate the value of leverage as current liabilities include non-debt liabilities. Unfortunately, in our dataset current liabilities is not broken down into its debt and non-debt components.

Firm Size (Size): Larger firms, in general, have better control mechanisms in place compared to smaller firms since these firms are closely monitored by analysts and hence suffer from lower information asymmetry costs. As such, the value of the oversight provided by independent boards is likely to vary by firm size. We measure firm size by the natural logarithm of total assets.

Growth: Rapidly growing firms are characterized by greater levels of information asymmetry and agency problems compared to more mature firms. Monitoring by independent directors should be particularly useful for such firms that typically have a high proportion of intangible assets. We use two measures of growth based on sales (*SalesG*) and total assets (*TotalAG*).⁷⁰

Board Size (BoardSize): Lipton and Lorsch (1992) propose that a large board size will reduce management efficiency and will damage firm value. Jensen (1993) also criticizes the performance of large boards, reasoning that large board size will slow down the process of decision-making and impair overwhelmingly the effectiveness of the groups, which may cause agency problems. Prior research has found board size to have a negative relation with firm performance (Yermack 1996 and Eisenberg et al. 1998). We measure *BoardSize* by the total number of directors on the board.

CEO duality (Duality): CEO-chair duality is a problem derived from board composition issue. Rechner and Dalton (1991) find that non-duality firms that have independent leadership consistently outperform duality firms. *Duality* is equal to 1 if the chairman is also the CEO and is equal to 0 otherwise.

Unlike in many of the countries where compliance with the proposed new guidelines for best governance practices is voluntary, compliance with Regulation No. 102 (2001) of CSRC is not only mandatory but had to be completed within a specific time. On the one hand, if the new regulation is viewed as an external shock, an ordinary least squares (OLS) regression framework with the *FractionIND* as an independent variable should capture the relation between board structure and firm performance without any model misspecification issues. On the other hand, some

⁷⁰ While the rate of growth of sales and total assets have been extensively used, several alternate variables have been suggested and used to proxy for growth in the finance literature. For e.g., spending on research and development and the product of return on equity times the plowback ratio can serve as useful measures of firm growth. Unfortunately, lack of data, preclude us from exploring these alternate specifications of growth measures.

rational firms may have voluntarily established independent structures on their boards even before there was any discussion of this new regulation. Still others may have implemented more independent board structures before the new regulation came into effect since the knowledge of the impending regulation was most likely widely known well ahead of its enactment. In this case, *FractionIND* would be endogenously determined and the OLS specification would be incorrect.⁷¹ The simultaneous equations approach has been widely used to allow for the substitutability of alternate governance mechanisms (Agrawal and Knoeber, 1996). To allow for the possibility of voluntary implementation of board structures, we also use two-stage least squares (2SLS) regressions, with *FractionIND* as an endogenous variable instrumented on the other variables. The estimated cross-sectional relation is, thus, as follows:

⁷¹ Despite the regulation being an external shock, board composition may yet be determined endogenously since some firms may rationally have already have more independent boards as they are valuable or may have proactively moved to make the boards more independent before the regulation itself came into effect. In such a case, applying the 2SLS procedure is more appropriate.

$$\text{Adjusted}Q = f(\text{Dummy for adoption of independent directors, SOE dummy, Fraction of independent directors, prior performance, change in prior performance, firm size, growth, leverage, board size, CEO duality, industry}) \quad (2)$$

Alternate specifications of the model are estimated as well for the full sample and sub-samples of the data.

Empirical Results

Descriptive statistics

The distribution of the sample by year, ownership structure, industry and firm size, is as reported in Table 1. Panel A shows that the number of firms vary for each year since data on all firms is not available for all the years. Nearly 20 percent of the sample, on average, consists of the non-SOE firms. Noting that non-SOE firms listed on the Chinese capital markets for the first time in 1996, this represents a significant increase in the span of a few short years. The majority of firm-year observations is drawn from the industrial sector followed by transport (Panel B). Finally, it is reassuring to see from panel C that the sample is not biased towards large or small firms. The sample is about evenly split based on firm size.

[Insert Table 1 here]

Table 2 reports the descriptive statistics. It presents the mean, median, standard deviation, minimum and maximum for the variables used in this study. The mean of the *SOE* is 0.806, indicating that 80.6 percent of Chinese listed firms in the sample are state-owned firms. The average firm has total liabilities of 44.57% and a mean size, measured by the natural logarithm of total assets, of 21.154. The mean assets growth rate is 15.11% and the mean growth rate in sales is 30.66%. The listed firms in the Chinese market, therefore, are high growth firms as expected in a new and rapidly growing capital market. In terms of corporate governance, the mean of the fraction of the independent director is 0.21, which is dramatically lower than that reported for U.S. and U.K. firms. The typical Chinese board has about 9 to 10 members, and in the Chinese context, most Chinese firms have the CEO and Chairperson position held by the same individual, with the mean value of duality being 0.88. Finally, the mean value of Tobin's *q* is 0.833 while the mean of industry-adjusted *q* is only 0.00004.⁷² The mean and median values for most variables in Table 2 are close,

⁷² One possible reason for the overall *q* to be less than one in a rapidly growing market could be that the sample is mainly composed of SOE firms with a significant proportion of non-tradable shares. We value these non-tradable shares at book value. Valuing them at market value would grossly overstate their true worth.

suggesting that skewness in the data may not be a major concern. The test statistics reported later for the cross sectional analyses are corrected for heteroscedasticity.

[Insert Table 2 here]

Comparison of SOE and non-SOE firms

We first compare the descriptive variables between the SOE firms and non-SOE firms in Table 3 by testing the differences in the means and medians for the two groups. Next, in Table 4, for each of these two sub-samples we compare the differences in the means and medians for the variables between the pre- and post regulation periods.

The evidence presented in Table 3 shows that the two groups are significantly different from each other. Non-SOE firms are smaller, less profitable and display a higher growth rate (measured both by sales and by total assets) compared to SOE firms. They also have a higher mean (median) value of Tobin's *q* of 1.000 (0.814) compared to the corresponding figure of 0.793 (0.648) for the SOE firms. Except for *Leverage*, which is higher in the case of non-SOE firms, the statistics clearly suggest that the non-SOE firms are high growth entrepreneurial firms.⁷³ With respect to corporate governance characteristics, we find that non-SOE firms have proportionately more independent directors (21.6 percent), an average smaller board size (9 directors) and fewer firms with the CEO and Chair positions held by the same individual (84.8 percent) compared to the SOE firms with corresponding figures of 20.3 percent, 10 directors and 88.4 percent, respectively. The median values for the two groups are also significantly different.

[Insert Table 3 here]

The CSRC announced the policy change in August 2001. It is interesting to see how the governance characteristics, particularly the board composition variable (*FractionIND*), changed between 2001 (pre-regulation period) and 2002 and 2003 (post-regulation period).⁷⁴ These results are

⁷³ Financial theory and empirical evidence, however, suggest that growth firms generally have little or no long-term debt (Myers 1977 and Titman and Wessels 1988).

⁷⁴ The fiscal yearend for listed Chinese firms is December 31. It is quite possible that some rational firms could have increased their proportion of independent directors (*FractionIND*) in 2001 either before the policy change itself, since the new policy was likely public knowledge, or immediately after the policy change but

reported in Table 4. While the table reports the results for all variables, we focus our attention here on the governance characteristics mainly. For SOE firms in Panel A, we find that the mean *FractionIND* increased from 0.062 to 0.278 and the mean *BoardSize* increased from 9.634 directors to 10.144 directors between the pre- and post-regulation periods. Likewise, the *FractionIND* changed from 0.075 to 0.293 and *BoardSize* changed from 8.77 directors to 9.203 directors for non-SOE firms (Panel B). The medians for these variables also display significant differences. For both groups, however, there is no significant change in *Duality*. In addition, non-SOE firms have a greater proportion of independent directors and smaller board sizes both before and after the regulation, compared to the SOE firms.⁷⁵ These findings suggest that there was a clear need for regulators in China to address the issue of lack of proper governance controls in listed firms as measured by the commonly used measures of good governance structure. Firms responded to this exogenous shock by promptly complying with the requirements of the new law in a timely fashion.

The results in Table 4 also show that even though Tobin's q decreased between the pre- and post periods for both SOE and non-SOE firms, the adjusted q remained positive for the non-SOE firms while the adjusted q continued to be negative for SOE firms. The absolute values of Tobin's q both before and after the regulation (1.13 versus 0.928) are closer to one for the non-SOE firms compared to the corresponding figures for SOE firms (0.881 versus 0.745). If $q < 1$ suggests greater agency costs compared to $q > 1$ (Hermalin and Weisbach, 1991), then SOE firms with less independent and larger boards, likely face greater agency costs and stand to benefit more from complying with the new regulation compared to non-SOE firms that have smaller and more independent boards. We undertake this analysis in the next section.

[Insert Table 4 here]

Table 5 presents the Pearson correlation matrix. The *SOE* and *AdjustedQ* have a significant negative correlation at the 0.01% level, suggesting significant differences in firm performance between the SOE and non-SOE firms on the appointment of

independent directors on the board, supporting our second hypothesis. The correlation between *INDAdoption* and *FractionIND* is positive and significant at the 0.01% level. Interestingly, the correlation between *Duality* and *AdjustedQ* is negative and significant at the 5% level, which is consistent with prior research that duality negatively influences firms' performance (Rechner and Dalton 1991).

[Insert Table 5 here]

Results from cross-sectional regressions

We undertake cross-sectional regression analysis using both OLS and 2SLS. Preliminary results from Table 4 for both SOE and non-SOE firms show that firms increased their *FractionIND* significantly from the pre- to the post regulation period, in response to the regulation. *FractionIND*, thus, could be regarded as an exogenous variable. However, as noted previously, there is always the possibility that firms may proactively act to improve their board independence structures even before the regulation came into effect, in which case it may be more appropriate to treat *FractionIND* as an endogenous variable. We, therefore, use both OLS and 2SLS to robustly study for the impact of the regulation.

Table 6 presents the results of OLS regressions for the full sample. We construct four OLS models using adjusted Tobin's q as the dependent variable. In Panel A, models 1 and 2 are estimated with the *INDAdoption* dummy and use the sales growth rate (*SalesG*) and total asset growth (*TotalAG*) as the proxy for firm growth, respectively. Models 3 and 4 are estimated with the interaction term of *INDAdoption*FractionIND*. While the variables of interest are those related to board characteristics, a number of control variables are also included based on extant literature (see Agarwal and Knoeber 1996, among others). To control for the impact of change in earnings on our measure of firm performance, we include the change in return on assets over the previous year, *CROA*, in addition to the absolute measure of earnings, *PROA*.

[Insert Table 6 here]

In models 1 and 2, the coefficient on *INDAdoption* is positive and significant. *BoardSize* and *Duality* are not significant. Collectively, these results suggest that among governance characteristics, board independence is important and affects firm performance. In models 3 and 4, the interaction term is positive and significant, clearly indicating that the greater the proportion of independent directors on the board after the regulation came into effect in 2001, the better the firm performance. The significant coefficient on this variable shows that the regulation had its

before December 31, 2001. It is, however, difficult for us to determine from our data the actual timing of the compliance with the policy. While we do not rule out this possibility, our results in Table 4 suggest that this may have occurred in only very few cases, if at all.

⁷⁵ Higher information asymmetry and monitoring costs is generally associated with smaller and more independent boards (Linck, Netter and Yang 2007), and board size and board composition are related to a firm's business and information environment (Boone, Field, Karpoff and Raheja 2007).

intended effect of improving firm level governance of Chinese listed firms

Among the control variables, consistent with prior studies, leverage (*Leverage*) has a significant negative relation with adjusted Tobin's q at the 1% level. Both financial variables, *PROA* and *CROA*, have a significant relation to firm performance. While the positive sign on *PROA* is consistent with expectations, the negative sign on *CROA* is puzzling. Neither measure of firm growth (*SalesG* and *TotalAG*) is, however, significant. Interestingly, however, firm size (*Size*) has a significant negative relation with adjusted Tobin's q , which may be because most State-owned firms are large firms.

Panel B of Table 6 presents the results with the *SOE* dummy and the interaction terms *SOE*INDAdoption* and *SOE*FractionIND*. The significant negative coefficient on *SOE* in all models indicates that, while both types of firms benefited by changing the composition of their board, SOE firms benefited more compared to non-SOE firms. The interaction term *SOE*INDAdoption* is positive and significant in models 1 and 2, indicating that the performance of SOEs improved more in the post regulation period compared to the non-SOEs. In models 3 and 4, the interaction term *SOE*FractionIND* is also positive and significant. This clearly shows that the improvement in performance of SOEs after the regulation is not just a time effect but is clearly a result of the addition of more independent directors on the board. These results support both hypotheses 1 and 2.

The results for the other control variables in Panel B are similar to those reported in Panel A with the exception that *BoardSize* is positive and significant in Panel B, a result inconsistent with extant work (Lipton and Lorsch, 1992 and Jensen, 1993). All models also display a high adjusted R-square, suggesting that all models capture the cross-sectional variability in firm performance vis-à-vis governance and other factors fairly well.

We repeat the cross sectional analysis by estimating the models using 2SLS regressions. *FractionIND*, as an endogenous variable is instrumented on the other variables. These results are reported in Table 7.

[Insert Table 7 here]

Both models in Table 7 show strong support for both hypotheses. The coefficients on *INDAdoption* are positive and significant at the 1% level in both models while the coefficients on *SOE* are significant at the 1% and 5% levels in models 1 and 2, respectively. In addition, the positive coefficients on *CROA* and the negative coefficients on *BoardSize* are of the correct sign and significant at the 1% level. Consistent with previous work, our

results show that, smaller and more independent boards provide better governance in listed Chinese firms. Firm size is also positive and significant in both models. The coefficient on growth is positive and significant when *TotalAG* is included as proxy for growth in model 2, while *Leverage* is no longer significant in either model. The adjusted R-square in both models is twice as large as that reported in Table 6. The evidence in Table 7, thus, shows that even though most firms moved to improve the independence of their boards in response to a new regulation, changes in board composition are mostly endogenously determined. The 2SLS procedure correctly specifies the relation between board composition and firm performance.

Using Canadian data, Panasian, Prevost and Bhabra (2008) find that firms with higher levels of agency costs are more likely to benefit by increasing the proportion of independent directors on the board. In addition, as noted earlier, Hermalin and Weisbach (1991) suggest that firms with Tobin's $q < 1$ are likely to have higher levels of agency costs compared to firms with a Tobin's $q > 1$. Therefore, to perform additional robustness tests, we repeat the analyses on four sub-samples of the data as follows: Tobin's $q < 1$, Tobin's $q > 1$, SOE firms and non-SOE firms. These results are reported in Table 8. For brevity, results are reported only for *TotalAG* as a proxy for growth. Results when *SalesG* is included as a growth proxy are almost identical and are available upon request.

[Insert Tables 8 here]

For firms with $q < 1$ and $q > 1$, the coefficient on *INDAdoption* remains positive and significant at the 1% level, while *SOE* is only negative and significant for firms with $q < 1$. Recall from Table 3 that SOE firms have a lower mean Tobin's q of 0.793 compared to the non-SOE firms, which have a mean q of 1.00. The sub-sample of firms with $q < 1$ is largely composed of SOE firms. The significant negative coefficient on *SOE* shows that SOE firms had potentially greater agency problems to deal with and benefited the most by complying with the provisions of the new regulation. Results for the other control variables and *BoardSize* are consistent with those reported in Table 7. For firms with $q > 1$, *FractionIND* is positive and significant at the 1% level along with *INDAdoption*. Although this relation was expected more for firms with $q < 1$ that have higher levels of agency costs, it nevertheless suggests even better performing firms benefit in terms of firm performance by making their boards more independent.⁷⁶

⁷⁶ Firms with Tobin's $q > 1$ have also been regarded as firms with significant growth opportunities with the potential to over invest (Lang, Stulz and Walkling 1989). Furthermore, these firms are associated with high information asymmetry and no doubt stand to benefit

Models 3 and 4 show the results for SOE and non-SOE samples. For both SOE and non-SOE firms, the coefficient on *INDAdoption* is significantly positive and on *BoardSize* is significantly negative at the 1% level. Firm size and growth are again positive and significant in both models while *CROA* is significant only for the SOE firms. The evidence in Table 8 shows that complying with Regulation No. 102 by making their boards more independent benefited both the SOE and non-SOE firms.

Collectively, the results for the full sample in Table 7 and the sub-samples in Table 8 robustly document that the new CSRC regulation had a positive impact on firm performance. Each group of firms, firms with potentially high and low agency costs as well as firms with different ownership structures, benefited by implementing independent structures on their corporate boards.

Summary and Conclusions

In 2001, the main regulator of the Chinese capital markets, the CSRC, introduced Regulation No. 102 to improve governance practices of listed Chinese firms. A major focus of the regulation was board independence. Unlike the guidelines on better governance practices that have been introduced in many countries since the early 1990s, compliance with the new regulation within a specific time was mandatory for listed Chinese firms.

The introduction of the new regulation provides us with a unique opportunity to explore whether the appointment of independent directors had a significant effect on improving firm performance. In addition, given the unique composition of the Chinese capital market, where most firms are state-owned, it allows us to examine whether the ownership structure moderates the effects of the appointment of independent directors. Consistent with some of the prior research for developed markets, the results reported in this study indicate that smaller boards and the appointment of more independent directors on corporate boards is an effective means to improve the firm's governance structure, leading to better performance and increased shareholders' wealth. Listed firms displayed significant positive change in performance between the pre and post regulation periods. This result holds for firms with lower agency costs (Tobin's $q > 1$), firms with higher agency costs (Tobin's $q < 1$) as well as for SOE and non-SOE firms. We, however, find that complying with regulation by implementing more independent board structures had a greater positive impact for

SOE firms that potentially have higher levels of agency problems to contend with compared to non-SOE firms.

This study has implications for both the security regulators and the investors of the Chinese listed firms. The findings of this study provides useful evidence for the Chinese regulator, the CSRC, to evaluate the impact of their regulatory change as to whether the appointment of independent directors is an effective tool to enhance firm performance and whether the specific ownership structure of the Chinese listed firms influence the function of independent directors. In addition, these results are a meaningful guide for the Chinese investors to identify whether the appointment of independent directors can improve corporate governance and, in turn, provide them additional value. The Chinese securities regulators can further refine the best practice codes to benefit shareholders. Finally, this study extends the mainstream literature on board composition and its relation with corporate performance to a nascent but high growth market.

from the increased monitoring provided by more independent boards. The significant positive coefficient on *FractionIND* for these firms may reflect the benefits of increased monitoring and a reduction in over investment costs.

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Appendix 1

SUMMARY OF THE MAJOR PROVISIONS OF CSRC REGULATION NO. 102

Definition of independent director

Independent directors of the listed company refer to the directors who hold no posts in the company other than the position of director, and who maintain no relations with the listed company and its major shareholder that might prevent them from making objective judgment independently. In principle, independent directors can only hold concurrently the post of independent directors in five listed companies at maximum. They shall have enough time and energy to perform the duties of the independent directors effectively.

All domestically listed companies shall make necessary amendments to the articles of association in accordance with the requirements set in the Guidelines and appoint qualified persons to be independent directors. At least one of the independent directors should be an accounting professional (refers to personnel with senior professional title or certified public accountants). By June 30, 2002, at least two members of the board of directors shall be independent directors; and by June 30, 2003, at least one third of board shall be independent directors.

Listed companies shall grant the appropriate allowance to the independent director. The standard of the allowance shall be proposed by the board of directors' meeting, approved by the shareholders' meeting, and be disclosed in the company's annual report. The independent director shall not receive any extra non-disclosed interests and compensation from the listed company, its major shareholders, or other interested entities and individuals other than the above-mentioned allowance.

Nomination, election and replacement of independent directors

Board of directors, supervisory board and shareholders who independently or jointly hold more than 1% of the shares issued by the listed company may nominate independent directors, who will be voted at the shareholders' meeting;

The consent to the nomination shall be obtained from the nominee before the nomination. The nominee shall make a statement that he/she has no relationship with the listed company that may affect his/her independent objective judgment. Before convening the shareholders' meeting concerning the election of the independent director, the board of the directors shall make such statement public in accordance with relevant regulations.

The term of office of the independent director shall be the same as that of others directors in the listed company. Upon the expiry of their term, he or she may serve another term if re-elected. However, their consecutive term shall not exceed 6 years.

If the independent director fails to attend the board meeting in person for three consecutive times, the board of directors may request the shareholders' meeting to replace the director.

The independent director shall not be dismissed from the listed company without proper reason before the term of his/her office expires, except for the above-mentioned reason or in those circumstances that a person may not be qualified to hold the position of a director stipulated in the Company Law.

The role of independent directors

In order to make the independent director play an active role, the independent director shall have the following special powers other than those stipulated in the Company Law and other relevant laws and regulations:

- a) Major related party transactions (referring to transactions that the listed company intends to conclude with the related party and whose total value exceeds RMB three million or 5% of the company's net assets audited recently) should be approved by the independent director before being submitted to the board of directors for discussion; before the independent director makes his or her judgment. An intermediary agency can be employed to produce an independent financial advisory report, which will serve as the basis for his or her judgment.
- b) Independent directors can put forward the proposal to the board of directors relating to the appointment or removal of the accounting firm;
- c) Independent directors can propose to the board of directors to call an interim shareholders' meeting;
- d) Independent directors can propose to call a meeting of the board of directors;
- e) Independent directors can appoint the outside auditing or consulting organization independently;
- f) Independent directors can solicit the proxies before the convening of the shareholders' meeting.

Consent from over 1/2 of all the independent directors shall be obtained if an independent director desires to exercise the above-mentioned power.

If the above proposals are not adopted or the above power cannot be exercised, the listed company should disclose the related information.

A listed company shall have one-half or more independent directors in the subordinate committees of the board of directors in terms of remuneration, auditing or nomination committees, if such committees are set up.

Other major functions of the independent directors

The independent director shall provide the independent opinion on the following matters to the board of the directors or to the shareholders' meeting:

- a) Nomination, appointment or replacement of directors
- b) Appointment or dismissal of senior managers
- c) Remuneration for directors and senior managers
- d) Any existing or new loan borrowed from the listed company by or other funds transfer made by the company's shareholders, actual controllers or affiliated enterprises that exceeds RMB three million or 5% of the company's net assets audited recently, and whether the company has taken effective measures to collect the amount due
- e) Events that the independent director considers to be detrimental to the interests of minority shareholders
- f) Other matters stipulated by the articles of association

With respect to the above-mentioned matters the independent director shall provide one of the following kinds of opinions: a consent opinion, a reserved opinion, a negative opinion, or a non-comment opinion and the respective reasons for giving such opinions.

If matters need to be disclosed, the listed company shall publish the opinion provided by the independent director. If the independent directors disagree themselves and are not able to reach the consensus, the board of directors shall disclose the independent directors' respective opinions separately.

Appendix 2

VARIABLE DEFINITION

Variables	Definition
Tobin's q (<i>TobinsQ</i>)	Measured by the simple measure of q defined in Chung and Pruitt (1994), which is stated as the market value of equity plus net book value of debt divided by the book value of total assets
Adjusted Tobin's q (<i>AdjustedQ</i>)	Industry and year adjusted Tobin's q calculated as a firm's q in a given year minus mean q for the industry for that year.
Board independence (<i>FractionIND</i>)	Proportion of independent directors on the board
Independent directors (<i>IND</i>)	Number of independent directors on the board
Independent directors Adoption (<i>INDAdoption</i>)	Dummy variable that is equal to 1 when the observation is from years 2002 and 2003 (post-regulation period) and 0 when the observation is from 2001 (pre-regulation period)
Ownership structure (<i>SOE</i>)	Dummy variable that is equal to 1 if the listed firm is a SOE and 0 if the listed firm is a non-SOE
Prior performance (<i>PROA</i>)	One year prior return on assets
Change in performance (<i>CROA</i>)	Change in <i>ROA</i> between year t and $t-1$ divided by <i>ROA</i> in year $t-1$
Total assets growth rate (<i>TotalAG</i>)	Annual growth rate of a firm's total assets
Sales growth rate (<i>SalesG</i>)	Annual growth rate of sales
Leverage (<i>Leverage</i>)	Ratio of long-term debt/total assets
Size (<i>Size</i>)	Natural logarithm of a firm's total assets
Board size (<i>BoardSize</i>)	Number of directors on the board
CEO-Chairperson duality (<i>Duality</i>)	Dummy variable equal to 1 if the Chairperson is also the CEO of the firm, 0 otherwise

Table 1. Sample Distribution by Year, Ownership Structure, Industry and Firm Size

This table provides a distribution of the sample by year, ownership structure, industry membership and size. The sample contains all listed Chinese SOE and non-SOE trading on the Shanghai and Shenzhen Stock Exchanges for the period 2001 to 2003, for which data is available to conduct the analysis. Data are obtained from the China Listed Corporate Governance Research Database developed by China Center for Economic Research at Peking University (CCER). Panel A shows the number of firms by year and ownership structure while panels B and C show the distribution of firm-year observations by industry and firm size, respectively. Firm size is measured by the value of total assets (in Chinese currency).

Panel A: Distribution by year and ownership structure			
	2001	2002	2003
SOE	687	748	698
Non-SOE	172	181	160
Total	859	929	858

Panel B: Distribution by industry	
Industry	N
Industrial	1690
Real Estate	78
Transport	534
Power	110
Multi-Industry	164
Agriculture	70
Total	2646

Panel B: Distribution by firm size	
Firm size	N
Large firms (> Mean)	1207
Small firms (< Mean)	1439
Total	2646

Table 2. Sample Statistics

This table reports the summary statistics for the sample firms used in the study. The sample consists of 2646 firm-year observations for the period 2001 to 2003, and comprises of both SOE and non-SOE firms drawn from 6 major industry groups. Variable definitions appear in Appendix 2.

Variable	N	Mean	Median	Std Dev	Minimum	Maximum
SOE	2646	0.806	1	0.395	0	1
INDAdoption	2646	0.649	1	0.477	0	1
PROA	2646	0.030	0.029	0.042	-0.413	0.220
Size	2646	21.154	21.079	0.849	18.784	26.690
SalesG	2646	0.307	0.149	1.803	-0.973	77.811
Total AG	2646	0.151	0.094	0.269	-0.662	3.825
Leverage	2646	0.446	0.445	0.178	0.012	3.542
IND	2646	2	2	1.405	0	7
FractionIND	2646	0.205	0.222	0.139	0	0.667
BoardSize	2646	9.788	9	2.407	4	19
Duality	2646	0.877	1	0.329	0	1
TobinsQ	2646	0.833	0.682	0.657	0.002	6.123
AdjustedQ	2646	0.00004	-0.156	0.690	-0.847	5.349
Industry	2646	1.963	1	1.487	0	5

Table 3. Comparison of SOE and Non-SOE Firms

This table reports the mean and median values for the variables used in the study for the SOE and no-SOE sub-samples. Differences in means (medians) between the SOE and non-SOE sub-samples are tested using the t-statistic (z-statistic). Variable definitions appear in Appendix 2.

Variable	SOE			Non-SOE			Tests for differences in means and medians between the two groups	
	N	Mean	Median	N	Mean	Median	T-test (p-value)	Z-test (p-value)
PROA	2133	0.030	0.030	513	0.026	0.026	-2.58*** (0.010)	-2.61***(0.009)
Size	2133	21.239	21.149	513	20.802	20.781	-11.53*** (<0.001)	-10.18***(<0.001)
SalesG	2133	0.256	0.147	513	0.519	0.157	1.57 (0.117)	0.24 (0.812)
Total AG	2133	0.140	0.087	513	0.198	0.134	3.93*** (<0.001)	4.89***(<0.001)
Leverage	2133	0.437	0.434	513	0.481	0.505	5.26*** (<0.001)	5.63***(<0.001)
IND	2133	2.013	2	513	1.945	2	-1.00 (0.318)	-0.81 (0.419)
FractionIND	2133	0.203	0.222	513	0.216	0.250	1.84* (0.066)	2.14***(0.032)
BoardSize	2133	9.966	9	513	9.049	9	-8.51*** (<0.001)	-7.82***(<0.001)
Duality	2133	0.884	1	513	0.848	1	-2.07** (0.039)	-2.21** (0.027)
TobinsQ	2133	0.793	0.648	513	1.000	0.814	5.91*** (<0.001)	7.39***(<0.001)
AdjustedQ	2133	-0.037	-0.183	513	0.154	-0.040	5.50*** (<0.001)	6.96***(<0.001)

Note: *, **, *** indicate significance at the 10%, 5%, 1% levels, respectively, in two-tailed tests.

Table 4. Comparison of the Pre- and Post-regulation Periods for SOE and Non-SOE Firms

This table reports the mean and median values for the pre- and post-regulation periods for the variables used in the study. Panel A (B) reports the results for SOEs (non-SOEs). Differences in means (medians) between the pre- and post regulation period are tested using the t-statistic (z-statistic). Variable definitions appear in Appendix 2.

Panel A SOE firms								
Variable	Pre-regulation			Post-regulation			Tests for differences in means and medians between the two groups	
	N	Mean	Median	N	Mean	Median	T-test (p-value)	Z-test (p-value)
1. PROA	745	0.034	0.033	1388	0.029	0.027	2.74*** (0.006)	5.08***(<0.001)
2. Size	745	21.142	21.027	1388	21.292	21.200	-3.93*** (<0.001)	-4.16***(<0.001)
3. SalesG	745	0.250	0.114	1388	0.258	0.164	-0.22 (0.825)	-4.00*** (<0.001)
4. Total AG	745	0.135	0.078	1388	0.143	0.091	-0.64 (0.522)	-1.87*(0.061)
5. Leverage	745	0.424	0.416	1388	0.445	0.444	-2.38** (0.017)	-3.45***(0.000)
6. IND	745	0.620	0	1388	2.760	3	-46.71*** (<0.001)	-32.26***(<0.001)
7. FractionIND	745	0.062	0	1388	0.278	0.286	-48.61*** (<0.001)	-32.18***(<0.001)
8. BoardSize	745	9.634	9	1388	10.144	9	-4.48*** (<0.001)	-4.82***(<0.001)
9. Duality	745	0.895	1	1388	0.878	1	1.25 (0.213)	1.22 (0.222)
10. TobinsQ	745	0.881	0.788	1388	0.745	0.568	5.23*** (<0.001)	10.66***(<0.001)
11. AdjustedQ	745	-0.048	-0.127	1388	-0.031	-0.207	-0.68 (0.497)	2.74***(0.006)

Panel B Non-SOE firms								
Variable	Pre-regulation			Post-regulation			Tests for differences in means and medians between the two groups	
	N	Mean	Median	N	Mean	Median	T-test (p-value)	Z-test (p-value)
1. PROA	183	0.032	0.033	330	0.022	0.022	2.98*** (0.003)	4.45***(<0.001)
2. Size	183	20.653	20.637	330	20.884	20.871	-3.47*** (0.006)	-3.35***(0.001)
3. SalesG	183	0.185	0.102	330	0.705	0.193	-1.99** (0.047)	-3.35*** (0.001)
4. Total AG	183	0.193	0.090	330	0.200	0.151	-0.22 (0.825)	-2.16** (0.031)
5. Leverage	183	0.441	0.465	330	0.503	0.521	-4.03*** (<0.001)	-4.03***(<0.001)
6. IND	183	0.661	0	330	2.658	3	-20.97*** (<0.001)	-15.34*** (<0.001)
7. FractionIND	183	0.075	0	330	0.293	0.333	-21.20*** (<0.001)	-15.12*** (<0.001)
8. BoardSize	183	8.770	9	330	9.203	9	-2.16** (0.031)	-2.18** (0.029)
9. Duality	183	0.869	1	330	0.836	1	1.01 (0.315)	0.98(0.372)
10. TobinsQ	183	1.130	0.975	330	0.928	0.710	3.31*** (0.001)	6.12***(<0.001)
11. AdjustedQ	183	0.175	0.031	330	0.141	-0.062	0.57 (0.571)	2.56***(0.011)

Note: *, **, *** indicate significance at the 10%, 5%, 1% levels, respectively, in two-tailed tests.

Table 5. Pearson Correlation Matrix

This table reports the correlations between the variables used in the analysis. Variable definitions appear in Appendix 2.

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. ATQ	1.000	-.123** *	.004	-.006	-.481** *	.0006	-.066** *	-.185** *	-.032	-.008	-.073** *	-.045**	-.000
2. SOE		1.000	.005	.043**	-.204** *	-.058** *	-.084** *	-.096** *	.018	-.038**	.151** *	.043**	-.036*
3. IND			1.000	-.070** *	-.094** *	.028	.012** *	.076** *	.718** *	.740** *	.099** *	-.027	-.001
4. PROA				1.000	.128** *	.058** *	.170** *	-.275** *	.004	-.017	.050* *	.029	.003
5. Size					1.000	-.018	.132** *	.147** *	.171** *	.099** *	.215** *	.041**	-.013
6. SalesG						1.000	.223** *	.093** *	.025	.035*	-.020	-.004	.023
7. Total AG							1.000	.267** *	.052** *	.058** *	-.006	-.037**	.025
8. Leverage								1.000	.075** *	.069** *	.018	-.039**	.238
9. IND									1.000	.920** *	.283** *	-.016	.007
10. FractionIND										1.000	-.024	.051** *	-.007
11. BoardSize											1.000	.107** *	.062
12. Duality												1.000	.028
13. Industry													1.000

*, **, *** indicate significance at the 10%, 5%, 1% levels, respectively, in two-tailed tests.

Table 6. Ordinary Least Squares (OLS) Regressions for the Full Sample

This table reports the OLS regression results of the effects of independent directors on firm performance controlling for industry and year fixed effects. The dependent variable is adjusted Tobin's q . Panel A provides the results of the impact of the adoption of independent directors on Chinese listing firms' performance, while Panel B specifically shows the impact of the adoption of independent director on Chinese SOE firms' performance. The definitions of independent variables appear in Appendix 2. Coefficients estimates (p -values) are provided in the top (bottom) row where the test statistics are corrected for heteroscedasticity. *, **, *** indicate significance at the 10%, 5%, and 1% levels (2-tailed test), respectively.

Panel A					
	Predicted Sign	(1)	(2)	(3)	(4)
INDAdoption	+	.089*** (0.000)	.089*** (0.000)	.002 (0.970)	.003 (0.955)
INDAdoption *FractionIND	+			.309* (0.059)	.305* (0.063)
Control Variables					
PROA	+	.657** (0.019)	.608** (0.034)	.644** (0.021)	.598** (0.037)
CROA	+	-.302*** (0.000)	-.300*** (0.000)	-.313*** (0.000)	-.310*** (0.000)
Size	?	-.385*** (0.000)	-.386*** (0.000)	-.387*** (0.000)	-.388*** (0.000)
SalesG	+	.000 (0.987)		-.000 (0.987)	
Total AG	+		.031 (0.455)		.029 (0.496)
Leverage	-	-.445*** (0.000)	-.458*** (0.000)	-.450*** (0.000)	-.461*** (0.000)
BoardSize	-	.007 (0.125)	.007 (0.118)	.009* (0.052)	.009** (0.050)
Duality	-	-.047 (0.160)	-.046 (0.168)	-.045 (0.176)	-.044 (0.183)
Intercept	?	8.248*** (0.000)	8.263*** (0.000)	8.259*** (0.000)	8.273*** (0.000)
Adjusted R ²		28.95%	28.97%	29.05%	29.06%
No. of Observations		2564	2564	2564	2564
Industry-Fixed Effects		Yes	Yes	Yes	Yes
Year-Fixed Effects		Yes	Yes	Yes	Yes

Panel B					
	Predicted Sign	(1)	(2)	(3)	(4)
SOE	-	-.106*** (0.001)	-.105*** (0.001)	-.101*** (0.002)	-.099*** (0.003)
SOE * INDAoption	+	.089*** (0.000)	.089*** (0.000)		
SOE * FractionIND	+			.254*** (0.004)	.253*** (0.004)
<u>Control Variables</u>					
PROA	+	.622** (0.026)	.585** (0.041)	.575** (0.039)	.541* (0.058)
CROA	+	-.298*** (0.000)	-.296*** (0.000)	-.298*** (0.000)	-.296*** (0.000)
Size	?	-.380*** (0.000)	-.380*** (0.000)	-.380*** (0.000)	-.381*** (0.000)
SalesG	+	.000 (0.958)		.000 (0.948)	
Total AG	+		.025 (0.559)		.023 (0.589)
Leverage	-	-.455*** (0.000)	-.464*** (0.000)	-.456*** (0.000)	-.464*** (0.000)
BoardSize	-	.008* (0.077)	.008* (0.074)	.010** (0.031)	.010** (0.030)
Duality	-	-.047 (0.158)	-.047 (0.164)	-.046 (0.166)	-.046 (0.172)
Intercept	?	8.216*** (0.000)	8.231*** (0.000)	8.210*** (0.000)	8.223*** (0.000)
Adjusted R ²		28.97%	28.98%	28.86%	28.86%
No. of Observations		2564	2564	2564	2564
Industry-Fixed Effects		Yes	Yes	Yes	Yes
Year-Fixed Effects		Yes	Yes	Yes	Yes

Table 7. Two-Stage Least Squares (2SLS) Regressions for the Full Sample

This table reports the 2SLS regression results of the effects of firm and governance characteristics on firm performance to test the impact of CSRC Reg. No. 102. The dependent variable is adjusted Tobin's q . *FractionIND* is instrumented as an endogenous variable. The definitions of independent variables appear in Appendix 2. Regression 1 uses *SalesG* while regression 2 uses *TotalAG* as a proxy for firm growth. Second stage results are reported with coefficient estimates (p -values) reported in the top (bottom) row.

	Predicted Sign	(1)	(2)
INDAdoption	+	.215*** (0.000)	.215*** (0.000)
SOE	-	-.013*** (0.009)	-.012** (0.015)
PROA	+	.088* (0.065)	.063 (0.198)
CROA	+	.034*** (0.005)	.035*** (0.003)
Size	?	.009*** (0.000)	.008*** (0.000)
SalesG	+	.001 (0.535)	
Total AG	+		.018** (0.012)
Leverage	-	.009 (0.441)	.003 (0.819)
FractionIND	+	-.138 (0.258)	-.135 (0.268)
BoardSize	-	-.006*** (0.000)	-.006*** (0.000)
Duality	-	-.006 (0.290)	-.006 (0.329)
Intercept	+	-.057 (0.223)	-.045 (0.330)
No. of Observations		2564	2564
Adjusted R ²		55.96%	56.06%
Industry-Fixed Effects		Yes	Yes
Year-Fixed Effects		Yes	Yes

*, **, *** indicate significance at the 10%, 5%, and 1% levels (2-tailed test), respectively.

Table 8. Two-Stage Least Squares (2SLS) Regressions for Different Sub-Samples

This table reports the 2SLS regression results for firms with $q < 1$, firms with $q > 1$, SOE firms and Non-SOE firms for the effects of firm and governance characteristics on firm performance to test the impact of CSRC Reg. No. 102. The dependent variable is adjusted Tobin's q . *FractionIND* is instrumented as an endogenous variable. The definitions of independent variables appear in Appendix 2. Coefficients estimates (p -values) are provided in the top (bottom) row. Second stage regression results are reported with coefficient estimates (p -values) reported in the top (bottom) row.

	Predicted Sign	(1) Tobin's $q < 1$	(2) Tobin's $q > 1$	(3) SOE	(4) Non-SOE
INDAdoption	+	.208*** (0.000)	.233*** (0.000)	.214*** (0.000)	.218*** (0.000)
SOE	-	-.011* (0.065)	-.010 (0.200)		
PROA	+	.073 (0.238)	.082 (0.362)	.055 (0.284)	.109 (0.472)
CROA	+	.038*** (0.002)	-.017 (0.766)	.033*** (0.005)	.085 (0.277)
Size	?	.010*** (0.001)	.003 (0.611)	.008*** (0.001)	.011* (0.101)
Total AG	+	.015* (0.069)	.033** (0.025)	.014* (0.088)	.032** (0.047)
Leverage	-	-.010 (0.470)	.050** (0.028)	.003 (0.783)	-.011 (0.721)
FractionIND	?	-.082 (0.140)	1.968*** (0.000)	-.118 (0.369)	-.405 (0.183)
BoardSize	-	-.007*** (0.000)	-.004** (0.018)	-.006*** (0.000)	-.007*** (0.002)
Duality	-	-.009 (0.165)	.004 (0.672)	-.009 (0.143)	.005 (0.691)
Intercept	+	-.052 (0.393)	.001 (0.992)	-.047 (0.350)	-.107 (0.420)
No. of Observations		1886	678	2072	492
Adjusted R ²		52.41%	64.06%	56.82%	53.02%
Industry-Fixed Effects		Yes	Yes	Yes	Yes
Year-Fixed Effects		Yes	Yes	Yes	Yes

*, **, *** indicate significance at the 10%, 5%, and 1% levels (2-tailed test), respectively.