External regulation, independent director attendance, and governance effects

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ABSTRACT

In this study we examine how the regulation of director attendance disciplines directors' behavior, and consider the governance effect of such regulations. This examination exploits the differences between the requirements for director attendance at board meetings enacted by the Shanghai Stock Exchange (SHSE) and by the Shenzhen Stock Exchange (SZSE). Using a difference-in-differences model with a sample of A-share listed firms from 2006 to 2017, we document that the rate of meeting attendance by independent directors who serve with firms listed on the SHSE (SHIDs) has increased significantly since the exchange's enforcement of the regulation on attendance. This positive effect has been more pronounced for independent directors with legal backgrounds. Further investigations find that the regulation of attendance plays a corporate governance role through the mechanism of enhanced monitoring. The attendance regulation increases the SHIDs likelihood of casting dissenting votes, and it leads to both better accounting performance and higher firm value. In addition, SHIDs are more likely to depart from firms listed on the SHSE, and to transfer their directorships to firms listed on the SZSE, which has a less constraining attendance requirement. Our findings provide evidence of how external regulation shapes director attendance and voting behavior in emerging markets.

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1. Introduction

We investigate whether and how external regulation disciplines director behavior, and explore the effects of such regulation on corporate governance. Independent directors are vital monitors of firms (Fama and Jensen, 1983). Although independence is essential for these directors to effectively monitor firms, greater independence often means that a director has difficulty obtaining complete internal information on a firm. Theoretical research finds that the governance effect of independent directors relies on access to information (Guo and Jiang, 2003; Adams and Ferreira, 2007). Van Ees et al. (2008), Duchin et al. (2010), and Ye and Jermias (2016) provide empirical evidence showing that the functions of directors depend on their ability to acquire information. Diligent behavior helps independent directors to obtain information on listed firms, and attending board meetings in person is an essential way for them to access information, monitor the management team, and provide consultation or support in making decisions (Guo and Jiang, 2003; Malenko, 2013). However, the actual behavior of independent directors is often unsatisfying to investors. For example, independent directors with multiple directorships are frequently absent from board meetings. According to Yang and Huang (2015), a questionnaire survey on the behavior of independent directors in China finds that only one-fifth of the respondents attend all board meetings in person. Absence from board meetings may be one reason for the low effectiveness of monitoring by independent directors in China. To maintain the effectiveness of the independent director system, regulatory departments such as the China Securities Regulatory Commission (CSRC), the Shanghai Stock Exchange (SHSE), and the Shenzhen Stock Exchange (SZSE) have promulgated a number of regulations. However, it remains unclear if such external regulatory measures can effectively monitor the presence of independent directors at meetings.

China's unique institutional background provides a good opportunity for conducting this study. First, the SHSE and the SZSE have long maintained different regulations on director attendance. In 2009, the SHSE issued and implemented its *Guidelines on the Selection and Behavior of Directors of Listed Firms on the Shanghai Stock Exchange* (hereafter, the *Guidelines*). These *Guidelines* emphasize that independent directors who miss attending over half of the board meetings during a year are deemed ineligible to act as directors for at least the next three years. In contrast, the SZSE had no similar attendance requirements until 2017, when it revised its *Record Measures for the Independent Directors of Shenzhen Stock Exchange* (hereafter, the *Measures*). Therefore, between 2009 and 2017, the SHSE's requirements for board meeting attendance by directors who served listed firms were much stricter than those for directors who served with firms listed on the SZSE.

A second reason why China is a helpful setting for this study is that data on attendance by independent directors are mandatorily disclosed in China. According to the requirements of the *Listing Rules of the SZSE* and the *Listing Rules of the SHSE* (in 2004), it is mandatory for listed firms to disclose information on the attendance of each director in their board meeting announcements. Therefore, we can obtain the complete record on attendance at director-level board meetings in China. In other nations, the rates of meeting attendance by each director are rarely available. For example, in the US, according to the disclosure rules of the Securities and Exchange Commission (SEC), firms are required to report directors who miss more than 25% of the meetings in a year, instead of disclosing each director's actual meeting attendance.

In taking advantage of the difference in regulations on director meeting attendance between the SHSE and the SZSE, we examine whether external regulation can shape the behavior of independent directors, and how such influence works. Using a difference-in-differences model, we find that after the SHSE implemented its *Guidelines*, the personal attendance rate of independent directors[1] serving with SHSE firms (SHIDs) increases more rapidly than that of the independent directors serving with SZSE firms (SZIDs). This increase in attendance is more pronounced among independent directors with legal backgrounds. Further analysis finds that the implementation of the *Guidelines* increases the possibility of dissenting votes by SHIDs, and it leads to both better accounting performance and higher firm value. These findings indicate that regulation of attendance takes effect through the mechanism of monitoring by directors. In addition, our findings show that inde-

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[1] The personal attendance reported here includes remote attendance. In accordance with the *Guidelines*, when board meetings are held via e-mail, fax, telephone, or video, attending remotely is also considered personal attendance.

pendent directors are more likely to resign from SHSE firms and move to serving SZSE firms, which have a less constrained attendance requirement.

Our study makes three contributions. First, it adds to the growing literature on how external regulation influences the effectiveness of corporate governance. Past research examines the influence of supervision on the effectiveness of various corporate governance mechanisms, such as the director system (Armstrong et al., 2014; Liang and Zeng, 2016) and governance by shareholders (Liao et al., 2008; Wei et al., 2014). Other studies investigate how external regulation affects the identification and rectification of problems through corporate governance mechanisms (Ke and Zhang, 2019). We provide new evidence that regulation of director attendance contributes to more diligent behavior on the part of independent directors, which enables higher firm value. Therefore, we expand the literature on the behavior of independent directors. When investor protection is weak, the interests of small and medium investors are exposed to higher risk. In that case, the protection provided by independent directors is even more crucial. However, in situations with a low risk of litigation and in under-developed markets for independent directors, strengthening the external supervision of independent directors is an alternative way to improve the effectiveness of governance. As an emerging market with weak investor protection, China provides a typical example of how regulation can affect the attendance behavior of directors. We find that strengthening the regulation of board meeting attendance raises the rate of personal attendance, promotes monitoring by independent directors, and improves both accounting performance and firm value. Our results can offer guidance for other economies, especially emerging market countries, on how to improve the effectiveness of independent director governance through external regulation.

Furthermore, the evidence from previous studies focuses mainly on the regulatory authority of stock markets, such as the SEC and the CSRC (Ke and Zhang, 2019). We supplement these studies with evidence on the influence that external regulation has on the effectiveness of corporate governance at the stock exchange level. We provide evidence that front-line regulation by the stock exchange can improve the effectiveness of governance by independent directors. Our findings provide a reference to other countries seeking to enhance corporate governance and market efficiency by strengthening the regulation of stock exchange members. At the same time, our findings indicate that harsh measures may lead to evasion of the exchange's regulations. Therefore, a proper and balanced approach to regulation is essential for maintaining the intended effects.

The second contribution of our study is to extend the literature on meeting attendance by independent directors. Our findings contribute to research on the factors that influence board meeting attendance. Numerous studies show that various individual characteristics of directors, such as busyness (Jiraporn et al., 2009; Ferris et al., 2003; Quan and Chen, 2016), reputation (Masulis and Mobbs, 2014), gender (Adams and Ferreira, 2009), and background (Masulis et al., 2012; Chou et al., 2013; Min and Chizema, 2018) have effects on meeting attendance by independent directors. In addition, other studies find that board characteristics such as meeting fees (Adams and Ferreira, 2008) and meeting frequency (Gray and Nowland, 2018), or firm characteristics such as ownership by block shareholders (Chou et al., 2013) and liability insurance for directors and officers (Jia and Tang, 2018) are related to director attendance. We find that strengthening the external regulation of director behavior improves the rate of personal attendance by independent directors, and our study therefore enriches the literature on external regulation. Furthermore, our investigation expands research on the economic consequences of meeting attendance by independent directors. Various other studies provide empirical evidence that director attendance leads to the alleviation of tunneling (Liu et al., 2016), declines in corporate tax avoidance (Barros and Sarmento, 2019), improvements in accounting performance (Gray and Nowland, 2018), and increases in firm value (Chou et al., 2013; Min and Verhoeven, 2013). However, these findings are firm-level economic consequences of directors' attendance. Our results also show that after the implementation of the *Guidelines*, and with the increased rate of in-person meeting attendance by independent directors, the probability of dissent by independent directors increases significantly. Therefore, our study enriches the literature on the economic consequences of directors' attendance, and it does so from the perspective of individual voting behavior.

A third contribution of our study is that it solves the endogenous problem taking advantage of China's unique institutional environment. Other studies have various endogeneity problems, because the attendance of independent directors is endogenously determined. We take the implementation of the *Guidelines* as an

exogenous shock, and perform a difference-in-differences test involving firm and director fixed effects, thereby addressing the endogeneity problem.

The remainder of this study is organized as follows. Section 2 discusses the literature. Section 3 introduces the institutional background and develops the hypotheses. Section 4 explains the research design and the sample selection. Sections 5 and 6 describe the empirical findings, and Section 7 presents the conclusions.

2. Literature review

2.1. The effectiveness of independent director monitoring

According to Fama and Jensen (1983), a board of directors acts as a decision control system that maintains the separation of rights over decisions and control. Mace (1986) argues that most research on this topic focuses on what the directors should do instead of what they really do, and that there is a difference between the two. Research on the effectiveness of monitoring by independent directors considers factors such as the effects of board structure (Armstrong et al., 2014; Liang and Zeng, 2016), the directors' personal characteristics (Giannetti et al., 2015; Hu et al., 2020; Chen et al., 2019), board meeting minutes (Schwartz-Ziv and Weisbach, 2013), and the voting behavior of independent directors (Jiang et al., 2016; Ye et al., 2011). These studies find that board independence improves a firm's information environment (Armstrong et al., 2014; Liang and Zeng, 2016) and increases firm value (Liu et al., 2015). Dissent by independent directors also plays a positive role in corporate governance and market transparency (Jiang et al., 2016). Independent directors also tend to ''vote with their feet,'' which sends a signal of bad news that causes negative market returns (Fahlenbrach et al., 2017).

The early studies on the supervisory role of independent directors focus mainly on examining the degrees of board independence and the individual characteristics of directors. Further research investigates how director dissent improves corporate governance, and how director departure transmits a firm's private information. These studies make an implicit assumption that independent directors have full access to their firms' information. However, this assumption is not always accurate. Therefore, it remains to be empirically tested whether accessibility to firm information affects monitoring by independent directors.

2.2. Board meeting attendance by independent directors

The literature finds that the characteristics of directors, boards, and firms all have effects on the attendance of independent directors at board meetings. An independent director's number of directorships, his or her time, energy, and geographical distance from the firm, plus the factors of reputation, gender, professional experience, and background, all affect the director's meeting attendance. Specifically, Jiraporn et al. (2009) find that directors with multiple board seats are more likely to miss attending board meetings. Masulis and Zhang (2019) provide evidence that exogenous events that seriously distract the directors' attention can cause significant declines in the rates of board meeting attendance. However, Ferris et al. (2003) find no evidence that directors with multiple board memberships tend to shirk their responsibilities. Both Masulis and Mobbs (2014) and Quan and Chen (2016) show that directors are less likely to miss board meetings in their higher-ranked directorships. The attendance records of female directors are better than those of male directors (Adams and Ferreira, 2009). Highly qualified directors are more likely to attend board meetings in person (Chou et al., 2013). Foreign directors miss more board meetings (Masulis et al., 2012; Min and Chizema, 2018). Directors experiencing regulatory sanctions at other firms have higher rates of meeting attendance (Zhong et al., 2017). Rookie directors attend more meetings in person (Chen and Keefe, 2020).

Board characteristics also affect the attendance rates of independent directors, including the fees and frequencies of meetings, and the contagion effects among board fellows. Adams and Ferreira (2008, 2012) find that independent directors have fewer problems attending the meetings of firms that pay higher remuneration for attendance. Higher frequency of board meetings tends to reduce the rate of attendance (Gray and Nowland, 2018). Behavior related to meeting attendance is contagious among colleagues on the same boards, and among colleagues on other boards where the directors concurrently sit (Nowland and Simon, 2018).

Empirical evidence also shows that firm characteristics such as capital structure, financial distress, and liability insurance for directors and officers, all have an influence on the attendance rates of independent directors. For example, higher levels of ownership by the largest shareholder can increase the directors' attendance rates (Chou et al., 2013). Jia and Tang (2018) find that directors tend to miss board meetings in firms that have liability insurance for the directors and officers. Attendance by independent directors does not increase when the firm faces financial distress (Chou et al., 2010). In addition, the overview by Nowland (2019) shows that the attendance rates of independent directors are lower in emerging markets.

These various studies leave a number of questions unanswered, such as how external factors like regulations affect the meeting attendance of independent directors.

A few studies investigate the economic consequences of directors' board meeting attendance. Liu et al. (2016) find that higher rates of attendance by independent directors alleviate tunneling by large shareholders. Barros and Sarmento (2019) show that board meeting attendance is related to a firm's engagement in tax avoidance, especially in firms that practice less tax avoidance. Increasing the rate of board meeting attendance leads to better economic performance (Gray and Nowland, 2018) and higher firm value (Chou et al., 2013; Min and Verhoeven, 2013). However, although these studies show the consequences of independent directors' meeting attendance at the firm level, they offer little evidence on its consequences at the individual level.

2.3. External regulation and independent directors

External regulation plays an essential role in the governance of independent directors. The regulatory norms given in relevant provisions or documents affect the board independence and the process of nominating directors. For example, to establish an effective system for independent directors, the CSRC required that by June 30, 2003, at least one-third of the directors for all listed firms had to be independent directors. Similarly, the New York Stock Exchange (the NASDAQ Stock Exchange) required that all listed companies had to have at least 50% independent directors on their boards by August (October) 2002. Taking these regulatory requirements as an opportunity for research, Armstrong et al. (2014) and Liang and Zeng (2016) examine the effects of independent directors on the information environments of affected firms. For another example, Norway passed a law in 2003 requiring that at least 40% of all independent directors should be female. A study by Ahern and Dittmar (2012) examines how this gender quota shock affects firm value. In addition to these studies, both Hu et al. (2020) and Chen et al. (2019) use China's restrictions (in 2013 and 2015) on appointments of independent directors with political or academic backgrounds to test the relationship between the backgrounds of independent directors and firm value. These studies show significant findings on a range of these regulatory settings, but to date there is little research on how external regulation shapes the behavior of independent directors.

To fill this gap in the research, our study examines whether and how regulatory requirements for director behavior affect directors' board meeting attendance. Our study also analyzes the consequences of these requirements at both the director and firm levels. This research enriches studies on the influencing factors and consequences of meeting attendance by independent directors, and our work has policy implications for the practice of supervising corporate governance.

3. Institutional background and hypotheses development

The duty of diligence, which is known as the ''duty of care'' under common law, is one of the fiduciary responsibilities of a company board director. The 2005 revisions of China's Company Law gave a common law–style classification of the directors' duty of diligence, including requirements for the directors' allocations of time and energy and their attendance at board meetings. These duties of diligence impose restrictions on a manager's opportunistic behavior (Xu et al., 2013).

Attending board meetings in person is a legal responsibility, and such attendance is necessary for independent directors to perform their duty of diligence. First, attending board meetings in person is a way of acquiring information. For external directors, attending board meetings in person is an essential means to obtain knowledge about the firms' operational situation and to gain access to soft information. Van Ees et al. (2008), Duchin et al. (2010) and Ye and Jermias (2016) all find that directors' roles of monitoring or giving

advice depend on their access to relevant information. In the absence of sufficient information and communication, the asymmetry of information increases, which hinders the capacity of independent directors to monitor firms (Hart, 1995; Nowak and McCabe, 2003). Second, attending board meetings in person helps directors to discuss and reach a consensus on proposals, and thereby to make prudent decisions. Malenko (2013) finds that direct discussion among directors improves decision-making, especially when the directors have a diversity of opinions. Therefore, attending meetings in person is a valuable source of information for independent directors and an effective way for them to supervise listed firms.

However, being rational economic people, independent directors have their own opportunistic motives and patterns of behavior (Hart, 1995). How diligently an independent director performs, and specifically whether he or she attends board meetings in person, is partly determined by the costs and benefits of fulfilling the expected duties. These duties involve supervision costs, and dereliction of duty has a cost. The supervision costs are the energy and time that the independent director expends to access information and supervise managers. The dereliction cost can involve punishment and loss of reputation due to a failure in supervision. The benefits of directorship include reputation, relationships, and payment. The reputational value is accumulated through diligence and integrity, which in return can bring the director future career opportunities and increased income. The relationship value is embodied in the relation between the director and the controlling shareholder. The payment value is the remuneration, or the direct board meeting fee, that listed firms provide for an independent director's presence at a board meeting (Ning and Zhang, 2012). Any change in costs or benefits can influence a director's decisions. Increased external supervision leads to higher costs for dereliction of duty, which are expected to motivate independent directors to increase their efforts for meeting their obligations.

To restrain opportunistic behavior among independent directors, China's regulators have promulgated several guidelines, some of which are related to board meeting attendance by directors. On August 21, 2001, the CSRC issued its *Guidance Opinion on the Establishment of an Independent Director System in Listed Companies*. This policy statement mandated all listed firms to have at least two independent directors by June 30, 2002. The number of independent directors was required to reach one third of each board by June 30, 2003. The boards were also required to dismiss directors who missed three consecutive meetings in person. Directors were required to express their opinions on major events, including selections and appointments of the management teams, and decisions on managerial pay. The CSRC issued the *Code of Corporate Governance for Listed Companies in China* in January 2002, and requested directors to attend their board meetings and voice their opinions on proposals. When directors could not attend board meetings in person, they could designate other directors as their proxies for voting.

In 2004, both the SHSE and the SZSE revised the *Stock Listing Rules*. They jointly required that directors perform their duties of care, and noted that their primary obligation was to attend board meetings diligently. In addition, these exchanges indicated that listed firms should disclose the resolutions of board meetings concerning major events, and disclose the attendance and voting records of directors. After that, the SHSE and the SZSE issued separate guidelines to regulate the selection and behavior of directors.

In 2005 the SZSE issued the *Shenzhen Stock Exchange Independent Directors Filing Measures* (the *Measures*). This set of regulations (and those of the 2008 and 2011 revisions) noted that the SZSE would observe which independent directors were often absent from board meetings. However, the SHSE applied an even more rigorous regulation on August 25, 2009, issuing its *Guidelines on the Selection and Behavior of Directors of Listed Companies on the Shanghai Stock Exchange* (the *Guidelines*). According to these guidelines, a director who was absent for over half of all board meetings within one year was ineligible to serve as a director of any listed firm for at least three years. This regulation also held in future revisions of the *Guidelines*, and it was the most stringent quantified requirement yet made concerning the duty of diligence for independent directors. The *Guidelines* was much stricter than the *Measures* of the SZSE, because they explicitly warned that directors with a large proportion of absences were under the threat of losing directorships. It was not until the 2017 revision of the *Measures* that the SZSE made a similar explicit attendance requirement. Thus, between the implementation of the *Guidelines* by the SHSE in 2009 and the revision of the *Measures* by SZSE in 2017, SHIDs were required to be more diligent than SZIDs, because they faced a stricter attendance requirement. Therefore, we formulate the following hypothesis:

H1: The ratio of personal attendance at board meetings by independent directors tends to rise among SHSE-listed firms with the increase in pressure from external regulation.

4. Research design and the sample

4.1. Sample construction

We obtain our data on independent directors' meeting attendance and voting, and the accounting and market information on listed firms, from the China Stock Market and Accounting Research Database. The information on the backgrounds and networks of the independent directors come from the Chinese Research Data Services Platform. For the initial sample, we select all of the independent directors of firms that are publicly traded on the A-shares market in the SHSE or the SZSE from 2006 to 2017. Following the literature, we drop observations from the financial industry. We also exclude ChiNext listed firms, because the ChiNext Market has different requirements concerning size, profitability, and corporate governance than other firms on the SZSE.[2] We also delete observations with a leverage larger than one. We remove observations with missing data on director attendance or other variables included in the regression. We retain observations only when a director serves the firm for a whole fiscal year, to eliminate the influence of unusual behavior after a director gains a directorship in a new firm or before leaving an old firm.[3] The final sample consists of 43,266 firm-director-year observations, and 18,408 unique firm-year observations, which involve 9,247 unique independent directors. We winsorize the continuous variables at the 1st and 99th percentiles.

4.2. Models and variables

To examine the policy's effect on the board meeting attendance of independent directors, we design the following difference-in-differences model at the firm-director-year level:

$$AttendRate_{ijt} = \beta_0 + \beta_1 \text{Treat}_i \times \text{Post}_t + \gamma X_{jt} + \delta X_{it} + \tau_t + v_i + \mu_j + \varepsilon_{ijt} \tag{1}$$

where $AttendRate_{ijt}$ is the percentage of attendance for independent director j in firm i in year t. Following Jia and Tang (2018), we use this measure to denote the percentage of times that an independent director attends board meetings in person.[4] The measure equals the number of board meetings that an independent director ought to attend (N1), minus the number of board meetings that s/he entrusts others to attend or the number of absences, scaled by N1. $Treat_i$ is an indicator variable that equals one if the firm i is listed on the SHSE, and zero otherwise. $Post_t$ is an indicator variable that equals one if the year is 2010 or after 2010 (because the policy was enacted in late 2009), and zero otherwise.

X_{jt} is a set of control variables that represents director characteristics. Following Chou et al. (2013), Quan and Chen (2016), and Jia and Tang (2018), we include variables that potentially affect director attendance, including the age of each independent director (*Age*), the number of months that the director has served the firm (*Tenure*), the number of directorships that the director holds in all listed firms (*Seats*), the directorship of highest rank (*HighRank*), the annual pay that the director receives from the listed firm (*Allowance*), the director's governmental work experience (*GovExp*), the director's industrial expertise (*IndEpt*), the director's executive positions in another firms (*CmpExect*), whether the independent director works in the same province as the listed firm (*SamePlace*), and the network position of each independent director (*Network*). X_{it} is a vector of firm-level control variables that includes the size of the listed firm (*Size*), its financial leverage (*Leverage*), its

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[2] The listing standards of the main board and the small and medium-sized enterprise (SME) board are the same, but the requirements to list on the ChiNext Market are less strict. See http://www.szse.cn/English/listings/standards/index.html for more details. Therefore, the ChiNext Market listed firms are different from those of the main board and from the SME board listed firms in terms of size, profitability, and corporate governance structure. To ensure that these differences do not affect our results, we exclude observations from the ChiNext Market sample. However, if the ChiNext Market sample observations are retained, the regression results remain unchanged.

[3] The results remain robust if we do not drop observations of directors who serve their firms for less than a whole fiscal year.

[4] This measure is also consistent with the requirement of the *Guidelines*.

sales growth (*Growth*), the percentage of shares held by the largest shareholder (*Top1*), an indicator variable denoting when the firm CEO is also the Chairman of the board (*Dual*), the size of the board (*BoardSize*), the percentage of shares held by the management team (*MShare*), and an indicator variable for a state-owned enterprise (*SOE*). Table 1 provides the definitions of these variables.

We include year fixed effects in the model, which are indicated as τ_t. To capture the unchangeable features at the firm and director level, we add firm fixed effects, v_i and director fixed effects, μ_j. $Treat_i$ and $Post_t$ are excluded, because we include the year and firm fixed effects. ε_{ijt} is the residual. Standard errors are clustered at the firm level. β_1 captures the difference-in-differences effect that the policy has on independent director attendance. We expect this value to be significantly positive if the policy indeed motivates the independent directors to attend board meetings in person.

Table 1
Variable definitions.

Variable	Definition
Dependent Variables	
AttendRate	The rate (in percent) of attendance in person, which equals the number of board meetings an independent director should attend (N1), minus the number of board meetings that the director entrusts others to attend, minus the number of absences, scaled by N1.
EnAttend	The rate (in percent) of entrusted attendance by an independent director, which equals the number of meetings that a director entrusts others to attend, divided by N1.
Departure	An indicator that equals one if an independent director serves the firm for less than three years (one term), and zero otherwise.
Seats_SH	The number of directorships that an independent director holds in SHSE listed firms.
Seats_SZ	The number of directorships that an independent director holds in SZSE listed firms.
Dissent	A dummy variable equals one if an independent director casts at least one dissenting vote in a board meeting, and zero otherwise. A director dissent means that the director votes "against," "reservation," "abstention," or another opinion that does not support a board proposal.
ROA	Returns on assets, which equal the net income, scaled by the total assets.
TQ	Tobin's Q, which equals the market value of equity, plus the book value of liabilities, scaled by the total assets.
Variables of Interest	
Treat	An indicator that equals one if the firm is listed on the SHSE, and zero otherwise.
Post	An indicator denoting that the *Guidelines* are enacted, which takes a value of one if the year is 2010 or later, and zero otherwise.
Control variables for director characteristics	
Age	The age of an independent director. This variable enters regressions in logarithm form.
Tenure	The number of months that an independent director serves a firm. This variable enters regressions in logarithm form.
Seats	The number of directorships of listed Chinese firms that an independent director holds. This variable enters regressions in logarithm form.
HighRank	A dummy variable that takes a value of one for an independent director's board membership if that membership is in the highest-ranking firm (with the largest market value) of any firm for which that person serves as an independent director, and zero otherwise.
Allowance	The pay that an independent director gets from a listed firm, in Chinese yuan. This variable enters regressions in logarithm form.
GovExp	An indicator that equals one if an independent director has governmental work experience, and zero otherwise.
IndEpt	An indicator that equals one if an independent director has industrial expertise, and zero otherwise.
CmpExect	A dummy variable that equals one if an independent director serves other firms as a senior executive, (not counting any independent director position), and zero otherwise.
SamePlace	An indicator that equals one if the independent director works in the same province as the listed firm, and zero otherwise.
Network	The network position of an independent director, as calculated by Pajek.
Control variables of firm characteristics	
Size	The amount of total assets. This variable enters regressions in logarithm form.
Leverage	Total liability divided by total assets.
Growth	The rate of growth in sales.
Top1	The ownership stake of the largest shareholder.
Dual	A dummy variable that equals one if the chair of the board is also the CEO, and zero otherwise.
BoardSize	The total number of directors.
MShare	The fraction of shares held by the management group.
SOE	A dummy variable that equals one if the largest shareholder is the state government or its affiliates, and zero otherwise.

Table 2
Summary statistics.

Variables	Obs.	Mean	SD	Min.	Median	Max.
Panel A: Independent director characteristics (firm-director-year)						
AttendRate	43,266	97.053	6.928	66.667	100	100
Age	43,266	3.943	0.167	3.555	3.932	4.304
Tenure	43,266	3.216	0.747	0	3.332	4.357
Seats	43,266	0.553	0.593	0	0.693	1.792
HighRank	43,266	0.692	0.462	0	1	1
Allowance	43,266	10.734	1.687	0	11.002	12.206
GovExp	43,266	0.284	0.451	0	0	1
IndEpt	43,266	0.120	0.324	0	0	1
CmpExect	43,266	0.149	0.356	0	0	1
SamePlace	43,266	0.568	0.495	0	1	1
Network	43,266	18.947	13.041	5.000	14.000	59.000
EnAttend	43,266	2.728	6.625	0	0	33.333
Departure	41,165	0.097	0.296	0	0	1
Seats_SH	30,681	0.699	0.774	0	1	5
Seats_SZ	30,681	0.910	0.842	0	1	5
Dissent	43,266	0.015	0.120	0	0	1
Panel B: Firm characteristics (firm-year)						
Treat	18,408	0.455	0.498	0	0	1
Post	18,408	0.771	0.420	0	1	1
Size	18,408	21.995	1.270	19.302	21.850	25.742
Leverage	18,408	0.463	0.207	0.059	0.467	0.903
Growth	18,408	0.189	0.499	−0.591	0.099	3.347
Top1	18,408	35.737	15.245	8.680	33.840	75.720
Dual	18,408	0.215	0.411	0	0	1
BoardSize	18,408	8.948	1.786	5	9	15
MShare	18,408	0.085	0.173	0	0.000	0.680
SOE	18,408	0.481	0.500	0	0	1
ROA	18,408	0.038	0.053	−0.167	0.035	0.198
TQ	18,202	0.318	1.492	−4.414	−0.028	9.886
Panel C: Independent director attendance difference-in-differences test						

	SHIDs Mean (1)	SZIDs Mean (2)	Difference (1)-(2)
Before (year, <= 2009)	94.276	95.784	−1.508***
After (year, >2009)	97.235	97.997	−0.762***
Difference (After-Before)	2.960***	2.214***	0.746***

This table presents an overview of the main variables. Table 1 provides the definitions of the variables. The summary statistics for directors (at the firm-director-year level) are listed in Panel A. The summary statistics for firms (at the firm-year level) are given in Panel B. Panel C shows results of the difference-in-differences test of independent director attendance. The statistical significance for the differences in mean values between the treatment group and the control group is represented by *, **, and *** at the 10%, 5%, and 1% levels, respectively. The continuous variables are winsorized at the 1st and 99th percentiles.

5. Main results

5.1. Summary statistics

In Table 2, Panel A, we report the summary statistics for the independent directors' characteristics at the director-year level. The average rate of meeting attendance for independent directors during the sample period is 97.053%, and the standard deviation is 6.928%. This statistic is consistent with that of Jia and Tang (2018), who report that the mean personal attendance of independent directors is around 94%, and the standard deviation is 7%. Comparative evidence worldwide shows that the director attendance rate in China is 95.44%, and the rate for all emerging markets is 90.15% (Nowland, 2019). In general, this finding shows that most directors are diligent for participating in board meetings. Furthermore, the average age of an independent director

(*Age*) is 52,[5] and these directors gain an average of 6,570 USD (45,886 RMB) in allowance from each listed firm per year (*Allowance*). The average tenure of an independent director (*Tenure*) is 25 months, and the longest tenure in a particular firm is 78 months. The average and the largest numbers of directorships for the independent directors are 2 and 6, respectively (*Seats*). These statistics correlate with the requirements stated in the regulations.[6] These results are also consistent with the findings of Jiang et al. (2016). Among the directors in our sample, 28% have governmental working experience (*GovExp*), and 12% have industrial expertise (*IndEpt*). Fifteen percent of the directors work as senior executives in other listed firms (*CmpExect*). Fifty-seven percent of the directors live in the same province as the listed firms they serve (*SamePlace*).

The statistics given in Table 2, Panel B show that the average leverage of a listed firm (*Leverage*) is 46%, and the average rate of sales growth (*Growth*) is 19%. On average, the largest shareholder (*Top1*) holds 36% of the firm's shares, which confirms the perception that firms in Asian countries have concentrated ownership (La Porta et al., 1999). The board chair is also the CEO (*Dual*) for about 22% of the firms. The boards consist of nine members on average (*BoardSize*). The management team holds an average of 9% of the shares (*MShare*). Nearly half of the firms are state-owned enterprises (*SOE*).

Panel C in Table 2 presents the results for the difference-in-differences tests on the independent directors' personal meeting attendance. These results show that the personal attendance of SHIDs and SZIDs increases after the SHSE enacts the *Guidelines*, and SHIDs attend 0.746% more board meetings in person. These tests show that the policy works, and that it promotes board meeting participation by SHIDs.

5.2. The policy's effect on the board meeting attendance of independent directors

To test H1, we first estimate Model (1) and examine the policy's effect on the independent directors' board meeting attendance. The results given are in Table 3. The first two columns report the results without control variables. The director and firm characteristic control variables are included in Columns (3), (4), (5), and (6). We include firm, year, and director fixed effects in Columns (1), (3), and (5). We then add the interaction fixed effect of the stock exchange and independent director in Columns (2), (4), and (6). As some directors hold directorships on both stock exchanges, it is possible that their levels of board meeting attendance may vary between the two stock exchanges. To capture this stock-exchange-level behavioral difference for individual directors, the director × stock exchange fixed effect is added into the model.

As Table 3 shows, the interaction of *Treat* and *Post* shows that all of the regressions are significantly positive. The coefficient of *Treat* × *Post* is around 0.8 in all of the regressions, regardless of whether we exclude or include director and firm character control variables. This pattern indicates that the policy is exogenous. When the director × stock exchange fixed effect is added to the regression, as shown in Columns (2), (4), and (6), the coefficients remain significant, although they become slightly smaller. Specifically, the results are listed with all fixed effect and control variables in Column (6), and the interaction term is 0.794, which shows that after the *Guidelines* are enacted, the average personal attendance rate of SHIDs increases by 0.794% more than the attendance rate of SZIDs. Given that the average attendance rate of the sample is 97.053%, this increase of 0.794% is about 1% of the mean level. This finding indicates that SHIDs raise their attendance rate by 1% more, on average, than SZIDs after the policy enactment. Although this change seems trivial in magnitude, given that the average attendance level is 97%,[7] there is only 3% left to improve. In this sense, our evidence shows that external regulations on director behavior have a significant effect. In addition, compared with the univariate analysis result of 0.746% shown in Panel C, Table 2, the magnitude of the change becomes larger after controlling for the director and firm characteristics, and for the fixed effects. This evidence supports Hypothesis H1.

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[5] Exp (3.943) = 51.57. *Allowance*, *Tenure*, and *Seats* are calculated similarly.

[6] The CSRC enacted the *Guidance Opinion on the Establishment of an Independent Director System in Listed Companies* in 2001, and set the upper limit on tenure of an independent director in each firm at six years, with the maximum number of directorships at five.

[7] Observers may be concerned about the motivation for our study, as the attendance rate is already high. In response, we note first that high attendance is a worldwide phenomenon (Nowland, 2019), but it remains important to improve the attendance of directors. Second, the enactment of the *Guidelines* in China provides us with a quasi-natural experiment to shed light on how such regulation affects the behavior of directors and the effects of governance.

Table 3
Policy's effect on board meeting attendance by independent directors.

AttendRate	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	0.827***	0.809***	0.822***	0.806***	0.813***	0.794***
	(3.08)	(2.70)	(3.07)	(2.70)	(3.03)	(2.67)
Age			−4.605	−5.141	−4.878	−5.341
			(−1.06)	(−1.07)	(−1.13)	(−1.12)
Tenure			−0.051	−0.080	−0.047	−0.077
			(−0.88)	(−1.27)	(−0.80)	(−1.23)
Seats			−0.189	−0.234	−0.232	−0.265
			(−0.84)	(−0.97)	(−1.02)	(−1.10)
HighRank			0.077	0.041	−0.004	−0.032
			(0.64)	(0.32)	(−0.03)	(−0.25)
Allowance			0.036	0.032	0.032	0.030
			(1.07)	(0.89)	(0.96)	(0.81)
GovExp			0.420*	0.497**	0.422*	0.498**
			(1.94)	(2.17)	(1.94)	(2.18)
IndEpt			0.062	−0.485	0.050	−0.505
			(0.14)	(−0.98)	(0.11)	(−1.02)
CmpExect			−0.127	−0.036	−0.132	−0.038
			(−0.75)	(−0.20)	(−0.78)	(−0.21)
SamePlace			−0.394*	0.020	−0.367*	0.057
			(−1.85)	(0.08)	(−1.72)	(0.22)
Network			0.008	0.008	0.008	0.007
			(0.89)	(0.82)	(0.90)	(0.76)
Size					0.421***	0.469***
					(2.90)	(2.97)
Leverage					−0.951**	−0.488
					(−2.00)	(−0.96)
Growth					−0.105	−0.112
					(−1.37)	(−1.40)
Top1					−0.002	−0.006
					(−0.19)	(−0.60)
Dual					−0.072	−0.143
					(−0.46)	(−0.87)
BoardSize					−0.042	−0.024
					(−0.71)	(−0.39)
MShare					1.187	1.743**
					(1.54)	(2.09)
SOE					−0.191	−0.249
					(−0.48)	(−0.55)
Constant	96.784***	96.794***	114.743***	116.845***	107.564***	108.081***
	(1,098.85)	(989.88)	(6.74)	(6.16)	(6.27)	(5.69)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations[10]	41,165	40,664	41,165	40,664	41,165	40,664
R-squared	0.456	0.487	0.457	0.488	0.457	0.488

This table reports the effects of the policy on the board meeting attendance of independent directors at the firm-director-year level. The dependent variable is AttendRate. All of the variables are defined in Table 1. The analysis applies an OLS model. The t-statistics are given in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

[10] According to Correia (2015), when the high dimension fixed effect is included, 2,101 observations are dropped in the regressions for Columns (1), (3), and (5), and 2,602 observations are dropped in the regressions for Columns (2), (4), and (6).

The coefficients of the control variables show that governmental working experience (*GovExp*) is positively related to the personal meeting attendance by independent directors, and that firm size (*Size*) is significantly and positively related to the *AttendRate*. These findings are consistent with those in the literature (Quan and Chen, 2016; Jia and Tang, 2018).

5.3. Parallel trend test of the policy's effects

We next perform a parallel trend test to examine whether the attendance patterns of SHIDs and SZIDs had a common trend before the SHSE enacted the *Guidelines*. First, we generate year dummy variables including *Year2007*, *Year2008*, *Year2009*, *Year2010*, *Year2011*, and *Year2012after*, which represent the years 2007, 2008, 2009, 2010, 2011, and the years after 2012 (2012 included), respectively. We then interact these year dummy variables with *Treat*, and replace the *Treat × Post* of Model (1) with the year dummy and *Treat* interaction terms. We run the regressions, and show the results in Table 4. The control variables and fixed effects in the regressions of each column correspond to the columns in Table 3. Table 4 shows that in all of the regressions, the coefficients of *Treat × Year2007*, *Treat × Year2008*, and *Treat × Year2009* are not significantly different from zero. In contrast, after the *Guidelines* are enacted, the coefficients of the interaction terms *Treat × Year2010*, *Treat × Year2011*, and *Treat × Year2012after* are larger and more pronounced below the 10% statistical significance level. Taking the regression with all of the control variables and fixed effects as an example, as listed in Column (6), the interaction terms start to be positively significant from 2010. This pattern shows that before the enactment of the policy, there was no significant difference in the patterns of director attendance between SHIDs and SZIDs. This set of findings further confirms that the observed effect is indeed caused by the *Guidelines* enacted by the SHSE.

5.4. The effect of director legal background

Independent directors with legal backgrounds tend to show greater compliance with policies and regulations, due to their rich accumulations of legal sense and literacy (Litov et al., 2014). Therefore, we expect the *Guidelines* to have a more significant effect on the behavior of independent directors who have legal backgrounds. To test this expectation, we first generate a dummy variable, *LawBack*, to denote a director with a legal background. *LawBack* takes a value of one if the director has a law degree, a legal professional qualification certificate, has teaching experience in a law school, or has experience working in the juridical system, and zero otherwise. Second, we interact *LawBack* with *Treat × Post*. Specifically, we add together *LawBack*, *Treat × LawBack*, *Post × LawBack*, and *Treat × Post × LawBack* in Model (1). All of the other variables and fixed effects included are the same as those used in Model (1). The standard errors are clustered by firm. The regression results are given in Table 5. In Columns (1), (3), and (5), the interaction term *Treat × Post × LawBack* is positive and statistically pronounced at the 5% level. In Columns (2), (4), and (6), we include the director × stock exchange fixed effect, and the results still hold consistently. This evidence indicates that legal background plays a role in binding the directors to better comply with the policy.

5.5. Robustness tests

In this section, we perform the following checks to ensure that our results are robust.

5.5.1. The policy's effect on independent director board meeting attendance in matched samples

In the main results, we provide evidence with the full sample. As the listing rules for firms listed on the main board (or SME board) are the same for both the SHSE and SZSE (as discussed in Section 4.1), there are no large differences between the treatment firms (SHSE listed firms) and the control firms (SZSE listed firms). In addition, we include the firm, year, and director × stock exchange fixed effects to alleviate the omitted variable

Table 4
Parallel trend test of the policy's effect.

AttendRate	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Year2007	0.805	0.811	0.806	0.815	0.783	0.792
	(1.45)	(1.42)	(1.45)	(1.43)	(1.41)	(1.39)
Treat × Year2008	0.947	1.017	0.943	1.007	0.919	0.984
	(1.56)	(1.59)	(1.55)	(1.57)	(1.51)	(1.54)
Treat × Year2009	0.739	0.837	0.712	0.795	0.682	0.760
	(1.18)	(1.25)	(1.13)	(1.19)	(1.08)	(1.13)
Treat × Year2010	1.053*	1.191*	1.052*	1.185*	1.048*	1.169*
	(1.71)	(1.80)	(1.71)	(1.79)	(1.71)	(1.77)
Treat × Year2011	1.800***	1.932***	1.788***	1.912***	1.757***	1.874***
	(3.01)	(2.94)	(2.99)	(2.91)	(2.94)	(2.86)
Treat × Year2012after	1.620***	1.675***	1.595***	1.635**	1.551***	1.584**
	(2.81)	(2.60)	(2.77)	(2.54)	(2.70)	(2.47)
Age			−4.558	−5.104	−4.836	−5.310
			(−1.05)	(−1.06)	(−1.12)	(−1.11)
Tenure			−0.047	−0.076	−0.043	−0.074
			(−0.80)	(−1.21)	(−0.74)	(−1.17)
Seats			−0.185	−0.226	−0.227	−0.256
			(−0.82)	(−0.94)	(−1.00)	(−1.06)
HighRank			0.075	0.039	−0.004	−0.034
			(0.63)	(0.30)	(−0.04)	(−0.26)
Allowance			0.035	0.032	0.032	0.029
			(1.04)	(0.87)	(0.93)	(0.80)
GovExp			0.416*	0.494**	0.418*	0.496**
			(1.92)	(2.16)	(1.93)	(2.17)
IndEpt			0.064	−0.491	0.052	−0.510
			(0.14)	(−0.99)	(0.12)	(−1.03)
CmpExect			−0.128	−0.037	−0.133	−0.038
			(−0.76)	(−0.21)	(−0.79)	(−0.22)
SamePlace			−0.395*	0.014	−0.369*	0.050
			(−1.86)	(0.05)	(−1.73)	(0.20)
Network			0.007	0.007	0.007	0.007
			(0.85)	(0.76)	(0.86)	(0.70)
Size					0.414***	0.461***
					(2.85)	(2.93)
Leverage					−0.926*	−0.470
					(−1.95)	(−0.93)
Growth					−0.100	−0.108
					(−1.30)	(−1.35)
Top1					−0.002	−0.006
					(−0.20)	(−0.59)
Dual					−0.073	−0.141
					(−0.46)	(−0.86)
BoardSize					−0.039	−0.020
					(−0.65)	(−0.32)
MShare					1.147	1.728**
					(1.48)	(2.07)
SOE					−0.200	−0.251
					(−0.51)	(−0.56)
Constant	96.465***	96.441***	114.251***	116.363***	107.226***	107.774***
	(423.70)	(385.54)	(6.71)	(6.15)	(6.25)	(5.68)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations	41,165	40,664	41,165	40,664	41,165	40,664
R-squared	0.457	0.488	0.457	0.488	0.457	0.488

This table reports the parallel trend test of the board meeting attendance behavior of independent directors before the policy at the firm-director-year level. The dependent variable is AttendRate. All of the variables are defined in Table 1. The analysis applies an OLS model. The t-statistics are given in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 5
Effects of the policy on directors with legal backgrounds.

AttendRate	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post × LawBack	1.302**	1.253*	1.351**	1.303*	1.348**	1.315*
	(2.19)	(1.84)	(2.28)	(1.92)	(2.26)	(1.93)
Treat × Post	0.590**	0.585*	0.575*	0.571*	0.567*	0.558*
	(2.00)	(1.79)	(1.96)	(1.75)	(1.93)	(1.71)
Treat × LawBack	−1.219**	−5.581	−1.251**	−5.998	−1.248**	−6.717
	(−2.06)	(−1.16)	(−2.11)	(−1.25)	(−2.11)	(−1.38)
Post × LawBack	−0.156	−0.126	−0.241	−0.223	−0.233	−0.221
	(−0.41)	(−0.31)	(−0.62)	(−0.54)	(−0.60)	(−0.53)
LawBack	−3.255	−5.409	−3.092	−5.186	−3.181	−5.030
	(−1.61)	(−1.23)	(−1.50)	(−1.19)	(−1.53)	(−1.15)
Age			−5.124	−5.717	−5.409	−5.933
			(−1.17)	(−1.17)	(−1.24)	(−1.22)
Tenure			−0.051	−0.080	−0.046	−0.077
			(−0.86)	(−1.28)	(−0.79)	(−1.23)
Seats			−0.214	−0.257	−0.257	−0.288
			(−0.95)	(−1.06)	(−1.13)	(−1.19)
HighRank			0.074	0.038	−0.007	−0.037
			(0.62)	(0.29)	(−0.06)	(−0.28)
Allowance			0.036	0.032	0.032	0.029
			(1.06)	(0.86)	(0.95)	(0.79)
GovExp			0.380*	0.468**	0.380*	0.469**
			(1.74)	(2.03)	(1.74)	(2.03)
IndEpt			0.073	−0.438	0.062	−0.455
			(0.16)	(−0.88)	(0.14)	(−0.92)
CmpExect			−0.127	−0.029	−0.132	−0.030
			(−0.75)	(−0.16)	(−0.78)	(−0.17)
SamePlace			−0.389*	0.028	−0.363*	0.064
			(−1.83)	(0.11)	(−1.70)	(0.26)
Network			0.009	0.008	0.009	0.008
			(0.98)	(0.91)	(1.00)	(0.85)
Size					0.426***	0.475***
					(2.93)	(3.01)
Leverage					−0.934**	−0.451
					(−1.96)	(−0.89)
Growth					−0.107	−0.114
					(−1.40)	(−1.42)
Top1					−0.002	−0.006
					(−0.23)	(−0.64)
Dual					−0.071	−0.142
					(−0.45)	(−0.86)
BoardSize					−0.042	−0.023
					(−0.69)	(−0.37)
MShare					1.166	1.767**
					(1.51)	(2.12)
SOE					−0.193	−0.240
					(−0.49)	(−0.53)
Constant	97.564***	98.377***	117.563***	120.709***	110.341***	111.886***
	(234.77)	(179.36)	(6.84)	(6.28)	(6.37)	(5.82)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations	41,165	40,664	41,165	40,664	41,165	40,664
R-squared	0.457	0.488	0.457	0.488	0.457	0.488

This table reports how a director's legal background influences the policy's effect at the firm-director-year level. The dependent variable is *AttendRate*. *LawBack* is a dummy variable that takes a value of one if the director has a law degree, a legal professional qualification certificate, has teaching experience in a law school, or has working experience in the juridical system, and zero otherwise. The other variables are defined in Table 1. The analysis applies an OLS model. The *t*-statistics are in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

problem. In this section, we make a further attempt to reduce endogeneity by making robust analyses using a matched sample.

As the policy was enacted in 2009, we choose the firm level characteristics in 2008[8] to perform a one-to-one nearest neighbor propensity score match. We run the logit regression of the dependent variable *Treat* on all of the firm characteristic variables including firm size (*Size*), leverage (*Leverage*), sales growth (*Growth*), the ownership stake of the largest shareholder (*Top1*), an indicator variable that equals one if the Chairman of board is also the CEO (*Dual*), the total number of directors (*BoardSize*), the percentage of shares held by the management group (*MShare*), and the indicator variable for a state-owned enterprise (*SOE*). The firms that are listed on the SHSE are matched with firms that are listed on the SZSE, according to the nearest propensity scores.[9]

The *t*-tests of the matched sample in Panel A, Table 6, show that there are no significant differences in the firm characteristics of the SHSE firms and SZSE firms. We estimate Model (1) again using the matched sample, and present the results in Panel B. These results are consistent with those for the full sample as given in Table 3. The coefficients of *Treat × Post* are significantly positive when controlling for the year, firm, and director fixed effects, as shown in Columns (1), (3), and (5). These coefficients are also significantly positive after adding the director × stock exchange fixed effects in Columns (2), (4), and (6). The results show that the enactment of the *Guidelines* increases the personal attendance rate of SHIDs, and further confirm the main results discussed above.

5.5.2. Subsample examinations of independent directors concurrently serving on firms in the SHSE and SZSE

In the main results, we include the director × stock exchange fixed effects in the regression model to eliminate the self-selection problem. We further conduct a robustness check with a subsample of independent directors who are serving concurrently in firms listed on the SHSE and the SZSE, to determine whether the directors behave differently in firms listed on the different stock exchanges. We run the OLS regression of *AttendRate* on *Treat × Post*, and present the results in Table 7. The coefficients of the *Treat × Post* results are significantly positive in all of the columns, as is consistent with our main evidence shown in Table 3.

5.5.3. Entrusted board meeting attendance of independent directors

In the main regression, we measure director attendance in terms of in-person board meeting participation. However, we also follow Quan and Chen (2016) and Jia and Tang (2018) and examine the rate at which independent directors entrust board meeting attendance to others as proxies (*EnAttend*). *EnAttend* equals the number of meetings that a director entrusts others to attend, divided by the number of board meetings that s/he should attend, plus 100. We regress *EnAttend* on the interaction of *Treat* and *Post*, and list the results in Table 8. In each regression, the *Treat × Post* interaction is significantly negative, which shows that the policy contributes to a decrease in entrusted board meeting attendance. The coefficient in Column (6) is −0.626, and the economic consequence shows that after the *Guidelines* are enacted, the SHIDs reduce their rate of entrusted board meeting attendance by 0.626% more than the SZIDs. This percentage equals 23% of the mean level of the change in *EnAttend* (2.728, as seen in Table 2). This evidence reveals that the policy improves the diligence of the independent directors by decreasing their rate of entrusting board meeting attendance to proxies, and increasing their rate of personal attendance, thereby further confirming our main findings.

6. Corporate governance effect analyses

6.1. Policy's effect on firm value

According to the previous tests, we find that after the *Guidelines* are enacted, SHIDs attend more board meetings in person (than SZIDs), rather than entrusting others to attend the meetings. The evidence we find indicates that the stringent regulation on board meeting attendance shapes directors' behavior. However, it

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[8] This starting date helps to identify the effects of the *Guidelines* on corporate characteristics in 2009.
[9] We keep the estimated difference in propensity scores to within 0.005, to control for the difference between the treatment and control groups.

Table 6
Policy's effect using the propensity score matched sample.

Panel A: *t*-test after propensity score match

Variable	Control Firm Mean	Treat Firm Mean	*t*-statistics
Size	21.548	21.515	0.461
Leverage	0.501	0.501	0.007
Growth	0.177	0.181	−0.11
Top1	35.945	35.493	0.454
Dual	0.12	0.139	−0.884
BoardSize	9.307	9.18	1.026
MShare	0.017	0.015	0.299
SOE	0.659	0.63	0.895

Panel B: Policy's effect with matched sample

AttendRate	(1)	(2)	(3)	(4)	(5)	(6)
Treat×Post	0.939***	0.862**	0.959***	0.896**	0.929***	0.867**
	(2.62)	(2.23)	(2.69)	(2.33)	(2.62)	(2.26)
Age			−3.193	3.437	−3.356	3.336
			(−0.45)	(0.43)	(−0.47)	(0.42)
Tenure			−0.009	−0.013	0.001	−0.003
			(−0.10)	(−0.13)	(0.01)	(−0.03)
Seats			−0.412	−0.437	−0.489	−0.483
			(−1.14)	(−1.13)	(−1.35)	(−1.26)
HighRank			0.030	0.012	−0.075	−0.082
			(0.15)	(0.05)	(−0.37)	(−0.37)
Allowance			0.042	0.045	0.039	0.041
			(0.82)	(0.83)	(0.77)	(0.76)
GovExp			0.635**	0.658**	0.627**	0.639**
			(2.20)	(2.17)	(2.18)	(2.12)
IndEpt			0.055	−1.614	0.078	−1.476
			(0.06)	(−1.41)	(0.08)	(−1.28)
CmpExect			−0.385	−0.283	−0.381	−0.276
			(−1.47)	(−1.04)	(−1.45)	(−1.01)
SamePlace			−0.480	0.142	−0.403	0.211
			(−1.13)	(0.25)	(−0.95)	(0.38)
Network			0.015	0.018	0.017	0.018
			(1.09)	(1.22)	(1.20)	(1.24)
Size					0.518**	0.515**
					(2.32)	(2.17)
Leverage					−0.756	−0.367
					(−1.00)	(−0.46)
Growth					−0.129	−0.118
					(−1.20)	(−1.06)
Top1					0.014	0.025
					(0.92)	(1.53)
Dual					−0.235	−0.235
					(−0.96)	(−0.95)
BoardSize					−0.069	−0.033
					(−0.76)	(−0.35)
MShare					3.638	4.156
					(1.16)	(1.13)
SOE					−0.343	−0.491
					(−0.63)	(−0.79)
Constant	96.315***	96.351***	108.536***	82.190***	98.570***	71.219**
	(851.98)	(790.55)	(3.86)	(2.64)	(3.47)	(2.28)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director×Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations	20,757	20,616	20,757	20,616	20,757	20,616
R-squared	0.477	0.501	0.478	0.502	0.478	0.502

This table reports the policy's effect on the board meeting attendance of independent directors at the firm-director-year level, using the matched sample. The dependent variable is *AttendRate*. All of the variables are defined in Table 1. The analysis applies the OLS model. The *t*-statistics are in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 7
Policy's effect using a subsample of independent directors serving concurrently in firms on the SHSE and the SZSE.

AttendRate	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	1.024*	1.128**	1.060*	1.160**	1.051*	1.144**
	(1.78)	(2.08)	(1.83)	(2.12)	(1.80)	(2.07)
Age			2.396***	−27.861**	2.323***	−28.758**
			(2.96)	(−2.47)	(2.88)	(−2.54)
Tenure			0.059	0.029	0.066	0.025
			(0.53)	(0.24)	(0.58)	(0.21)
Seats			0.648	−0.228	0.538	−0.274
			(1.17)	(−0.29)	(0.98)	(−0.36)
HighRank			0.340	0.148	0.274	0.082
			(1.51)	(0.64)	(1.19)	(0.34)
Allowance			0.084	0.045	0.080	0.044
			(1.43)	(0.57)	(1.37)	(0.56)
GovExp			−0.045	−0.009	−0.041	−0.010
			(−0.20)	(−0.01)	(−0.18)	(−0.02)
IndEpt			−0.851	0.556	−0.890*	0.485
			(−1.59)	(0.52)	(−1.68)	(0.46)
CmpExect			−0.006	0.132	−0.016	0.119
			(−0.02)	(0.32)	(−0.05)	(0.29)
SamePlace			−1.207***	−0.020	−1.166***	0.045
			(−3.63)	(−0.05)	(−3.47)	(0.11)
Network			−0.009	0.013	−0.006	0.015
			(−0.62)	(0.69)	(−0.39)	(0.81)
Size					0.352	0.336
					(1.29)	(0.99)
Leverage					−0.802	−1.113
					(−0.83)	(−1.12)
Growth					−0.165	−0.092
					(−1.01)	(−0.54)
Top1					0.017	0.007
					(1.01)	(0.37)
Dual					−0.383	−0.208
					(−1.20)	(−0.59)
BoardSize					−0.175	−0.163
					(−1.49)	(−1.35)
MShare					−0.817	−2.491
					(−0.55)	(−1.47)
SOE					−0.202	0.442
					(−0.25)	(0.44)
Constant	96.745***	96.705***	86.280***	205.928***	80.452***	203.830***
	(430.37)	(456.24)	(27.02)	(4.64)	(12.55)	(4.53)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	No	Yes	No	Yes	No	Yes
Observations	8,243	8,091	8,243	8,091	8,243	8,091
R-squared	0.352	0.520	0.356	0.521	0.358	0.521

This table reports the policy's effect on the board meeting attendance of independent directors at the firm-director-year level, and as it appears in a subsample. This subsample is composed of independent directors who concurrently hold directorships of firms listed on both the SHSE and SZSE. The dependent variable is *AttendRate*. All of the variables are defined in Table 1. The analysis applies the OLS model. The *t*-statistics are in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

remains to be determined whether higher board meeting attendance contributes to firm value. Therefore, we further examine the relationship between board meeting attendance by directors and firm performance.

Following Ye et al. (2011), we measure accounting performance by using the firms' returns on assets (*ROA*), and measure the firm value by the industry-adjusted Tobin's Q (*TQ*). *ROA* equals net income scaled by total assets, and *TQ* equals the market value of equity plus the book value of liabilities, scaled by total assets. All of the other variables are the same with those used in Model (1). The first (last) three columns

Table 8
Effects of the policy on entrusted board meeting attendance.

EnAttend	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	−0.741***	−0.638**	−0.737***	−0.634**	−0.730***	−0.626**
	(−2.86)	(−2.19)	(−2.85)	(−2.19)	(−2.82)	(−2.16)
Age			4.251	4.567	4.477	4.724
			(1.05)	(1.01)	(1.11)	(1.05)
Tenure			0.028	0.056	0.024	0.053
			(0.50)	(0.91)	(0.42)	(0.87)
Seats			0.171	0.214	0.198	0.233
			(0.79)	(0.93)	(0.91)	(1.01)
HighRank			−0.093	−0.083	−0.019	−0.014
			(−0.81)	(−0.68)	(−0.16)	(−0.11)
Allowance			−0.001	0.004	0.003	0.007
			(−0.03)	(0.12)	(0.09)	(0.20)
GovExp			−0.350*	−0.448**	−0.350*	−0.448**
			(−1.66)	(−2.01)	(−1.66)	(−2.01)
IndEpt			−0.068	0.431	−0.057	0.450
			(−0.16)	(0.88)	(−0.13)	(0.92)
CmpExect			0.166	0.062	0.169	0.063
			(1.03)	(0.36)	(1.05)	(0.37)
SamePlace			0.465**	−0.066	0.442**	−0.097
			(2.23)	(−0.27)	(2.11)	(−0.40)
Network			−0.007	−0.007	−0.006	−0.006
			(−0.83)	(−0.74)	(−0.77)	(−0.63)
Size					−0.392***	−0.445***
					(−2.75)	(−2.90)
Leverage					0.795*	0.376
					(1.74)	(0.77)
Growth					0.118	0.127*
					(1.61)	(1.66)
Top1					−0.000	0.004
					(−0.04)	(0.42)
Dual					0.074	0.139
					(0.48)	(0.86)
BoardSize					0.003	−0.009
					(0.05)	(−0.15)
MShare					−0.959	−1.377*
					(−1.38)	(−1.86)
SOE					0.120	0.170
					(0.32)	(0.40)
Constant	2.981***	2.945***	−13.945	−15.120	−6.708	−6.278
	(35.08)	(30.98)	(−0.87)	(−0.85)	(−0.41)	(−0.35)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations	41,165	40,664	41,165	40,664	41,165	40,664
R-squared	0.450	0.482	0.450	0.482	0.450	0.482

This table reports the policy's effect on the rate at which independent directors entrust their board meeting attendance to proxies at the firm-director-year level. The dependent variable is *EnAttend*, which equals the number of meetings that a director entrusts others, divided by the number of board meetings s/he should attend, plus 100. All of the variables are defined in Table 1. The analysis applies the OLS model. The *t*-statistics are given in parentheses, and the coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

of Table 9 present the estimates from the regression of *ROA* (*TQ*) on *Treat × Post*. The coefficient of the interaction term in each regression is positively associated with the firm value variables, and is significantly below the 5% level. Taking Columns (3) and (6) as examples, we show that after the *Guidelines* are enforced, the *ROA* (*TQ*) of firms listed on the SHSE increases by 0.005 (0.102) more than that of the SZSE listed firms. This con-

Table 9
Policy's effect on firm value.

Dependent Var.	ROA			TQ		
	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	0.007***	0.007***	0.005**	0.196***	0.192***	0.102**
	(3.02)	(3.01)	(2.52)	(3.42)	(3.37)	(2.03)
Age		−0.001	−0.001		−0.020	0.041
		(−0.43)	(−0.92)		(−0.47)	(1.09)
Tenure		−0.001***	−0.001**		−0.024**	−0.023**
		(−2.84)	(−2.29)		(−2.20)	(−2.36)
Seats		0.004***	0.003***		0.052**	0.111***
		(3.57)	(2.99)		(1.99)	(4.86)
HighRank		0.007***	0.004***		0.140***	0.260***
		(8.14)	(5.44)		(7.20)	(15.11)
Allowance		0.001**	0.000**		−0.001	0.005
		(2.48)	(1.97)		(−0.25)	(0.92)
GovExp		−0.001	−0.001		−0.024*	−0.014
		(−1.48)	(−1.10)		(−1.75)	(−1.15)
IndEpt		0.001	0.001		−0.016	0.002
		(1.00)	(1.14)		(−0.86)	(0.13)
CmpExect		−0.002**	−0.001		−0.011	−0.011
		(−2.06)	(−1.29)		(−0.52)	(−0.56)
SamePlace		−0.001	−0.001		0.014	−0.012
		(−1.15)	(−1.21)		(0.83)	(−0.82)
Network		−0.000	−0.000		−0.000	0.001
		(−0.44)	(−1.14)		(−0.17)	(0.98)
Size			0.005***			−0.844***
			(3.27)			(−24.12)
Leverage			−0.119***			−0.446***
			(−21.69)			(−3.86)
Growth			0.019***			0.128***
			(20.99)			(6.37)
Top1			0.000***			0.009***
			(4.43)			(4.03)
Dual			0.001			0.007
			(0.49)			(0.21)
BoardSize			−0.000			0.004
			(−0.35)			(0.34)
MShare			0.048***			0.330
			(4.85)			(1.43)
SOE			−0.011***			−0.262***
			(−2.59)			(−2.66)
Constant	0.036***	0.031***	−0.024	0.189***	0.240	18.400***
	(43.74)	(4.40)	(−0.75)	(9.90)	(1.36)	(23.51)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	43,222	43,222	43,222	42,467	42,467	42,467
R-squared	0.479	0.481	0.557	0.585	0.586	0.652

This table reports the effects of the policy on firm performance. The dependent variables are *ROA* and *TQ*. All of the variables are defined in Table 1. The analysis applies an OLS model. The *t*-statistics are in parentheses, and the coefficients are based on standard errors, clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

sistent evidence indicates that the increase in the directors' personal board meeting attendance improves the performance and the value of the firms.

6.2. Monitoring mechanism

As the evidence given in Table 9 shows that regulation of director attendance improves accounting performance and firm value, we further examine the potential mechanism of this change. Independent directors play

Table 10
Monitoring mechanism tests.

Dissent	(1)	(2)	(3)	(4)
Treat × Post	0.629***	0.631***	0.031***	0.026***
	(5.26)	(5.29)	(5.40)	(4.75)
Treat	−0.580***	−0.601***		
	(−6.41)	(−6.36)		
Age	−0.143	−0.138	−0.101	−0.133*
	(−1.18)	(−1.16)	(−1.38)	(−1.78)
Tenure	0.046	0.045	−0.002	−0.002
	(1.17)	(1.16)	(−0.92)	(−1.19)
Seats	−0.110	−0.119	0.007	0.007
	(−1.04)	(−1.12)	(1.59)	(1.45)
HighRank	0.092	0.102	0.003	0.002
	(1.42)	(1.59)	(1.38)	(0.95)
Allowance	0.009	0.009	−0.000	−0.000
	(0.47)	(0.50)	(−0.20)	(−0.49)
GovExp	−0.017	−0.024	0.002	0.003
	(−0.30)	(−0.43)	(0.64)	(0.78)
IndEpt	−0.062	−0.072	−0.005	−0.001
	(−1.03)	(−1.20)	(−0.75)	(−0.09)
CmpExect	0.131*	0.122*	0.000	−0.000
	(1.89)	(1.74)	(0.18)	(−0.04)
SamePlace	0.095**	0.126***	0.003	−0.002
	(1.98)	(2.68)	(0.77)	(−0.44)
Network	0.006	0.007	−0.000	−0.000
	(1.33)	(1.47)	(−0.38)	(−0.57)
Size	−0.054*	−0.056*	0.002	0.003
	(−1.69)	(−1.80)	(0.47)	(0.96)
Leverage	0.200	0.228	−0.008	−0.009
	(1.09)	(1.26)	(−0.70)	(−0.75)
Growth	0.010	0.014	−0.001	−0.001
	(0.24)	(0.33)	(−0.55)	(−0.64)
Top1	−0.004**	−0.005**	0.000	0.000
	(−2.12)	(−2.31)	(0.17)	(0.05)
Dual	−0.109	−0.126	0.000	−0.001
	(−1.35)	(−1.55)	(0.05)	(−0.33)
BoardSize	−0.030	−0.035*	−0.002	−0.001
	(−1.57)	(−1.89)	(−1.35)	(−0.77)
MShare	−0.411*	−0.429*	−0.013	0.002
	(−1.91)	(−1.95)	(−0.79)	(0.11)
SOE	−0.080	−0.055	−0.012	−0.006
	(−1.12)	(−0.77)	(−0.91)	(−0.39)
Constant	0.513	0.797	0.395	0.483
	(0.62)	(0.96)	(1.34)	(1.59)
Firm FE	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	No
Province FE	No	Yes	No	No
Director FE	No	No	Yes	No
Director × Stock Exchange FE	No	No	No	Yes
Model	Probit	Probit	LPM	LPM
Observations[11]	43,083	42,809	41,165	40,664
Pseudo R-squared/R-squared	0.258	0.270	0.362	0.393

This table reports the results of tests on the monitoring mechanism. The dependent variable is *Dissent*, which is an indicator that equals one if the independent director casts at least one dissenting vote, and zero otherwise. The other variables are defined in Table 1. A probit model is performed, and the results are presented in Columns (1) and (2), with the *z*-statistics given in parentheses. An LPM model is run in Columns (3) and (4), to better control for the director × stock exchange fixed effect, and the *t*-statistics are given in parentheses. The standard errors are estimated as clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

[11] When the high dimension fixed effect is included, there are 183, 457, 2,101, and 2,602 observations dropped in the regressions of Columns (1), (2), (3), and (4), respectively.

Table 11
Advisory mechanism tests.

Dependent Var. Complexity Level	ROA Diversification		TQ		ROA Scale		TQ	
	High (1)	Low (2)	High (3)	Low (4)	Large (5)	Small (6)	Large (7)	Small (8)
Treat × Post	0.004	0.003	0.057	0.077	0.002	0.007**	0.071	0.068
	(1.56)	(0.96)	(0.91)	(0.89)	(0.62)	(2.09)	(1.09)	(0.88)
Age	−0.001	0.000	0.028	0.076	−0.002	−0.001	0.026	0.023
	(−0.36)	(0.09)	(0.73)	(1.37)	(−1.45)	(−0.39)	(0.85)	(0.45)
Tenure	−0.001**	−0.001*	−0.007	−0.024	−0.000	−0.001*	−0.018	−0.028*
	(−2.16)	(−1.83)	(−0.66)	(−1.39)	(−0.51)	(−1.69)	(−1.58)	(−1.94)
Seats	0.002*	0.004***	0.084***	0.106***	0.002**	0.003	0.023	0.191***
	(1.65)	(2.72)	(3.31)	(2.92)	(2.34)	(1.51)	(1.11)	(4.63)
HighRank	0.004***	0.004***	0.222***	0.261***	0.005***	0.003**	0.147***	0.328***
	(4.63)	(3.75)	(12.43)	(8.63)	(6.28)	(2.06)	(9.25)	(12.57)
Allowance	0.000**	0.000	0.002	0.003	0.000*	0.000	0.004	−0.001
	(2.05)	(1.34)	(0.43)	(0.38)	(1.77)	(1.04)	(0.95)	(−0.15)
GovExp	−0.000	−0.000	−0.010	−0.002	−0.000	−0.001	−0.008	0.011
	(−0.24)	(−0.59)	(−0.70)	(−0.14)	(−0.42)	(−0.67)	(−0.68)	(0.58)
IndEpt	0.000	0.001	0.002	0.006	0.001	−0.000	−0.008	−0.003
	(0.37)	(1.30)	(0.12)	(0.25)	(0.84)	(−0.10)	(−0.51)	(−0.11)
CmpExect	−0.001	0.000	−0.017	0.023	−0.001	−0.000	−0.030*	0.003
	(−0.92)	(0.35)	(−0.85)	(0.73)	(−1.53)	(−0.26)	(−1.81)	(0.09)
SamePlace	−0.001	0.000	−0.009	−0.005	0.000	−0.001	−0.001	−0.007
	(−1.40)	(0.54)	(−0.54)	(−0.22)	(0.07)	(−0.80)	(−0.05)	(−0.30)
Network	−0.000	−0.000	0.001	0.001	−0.000	−0.000	0.002**	−0.000
	(−0.69)	(−0.68)	(0.90)	(0.66)	(−0.46)	(−1.06)	(2.14)	(−0.08)
Size	0.006***	0.004	−0.780***	−1.036***	0.003	0.002	−0.477***	−1.347***
	(3.22)	(1.62)	(−17.25)	(−15.72)	(1.45)	(0.64)	(−10.98)	(−23.45)
Leverage	−0.122***	−0.125***	−0.488***	−0.271	−0.147***	−0.112***	−0.623***	−0.266*
	(−16.71)	(−13.06)	(−3.17)	(−1.37)	(−16.86)	(−15.02)	(−4.79)	(−1.72)
Growth	0.017***	0.023***	0.084***	0.165***	0.015***	0.020***	0.074***	0.104***
	(15.75)	(12.89)	(3.45)	(4.66)	(11.82)	(15.34)	(3.75)	(3.53)
Top1	0.000***	0.000**	0.009***	0.003	0.000***	0.001***	0.005**	0.004
	(3.22)	(2.38)	(3.26)	(0.82)	(2.67)	(3.84)	(2.36)	(1.00)
Dual	−0.001	0.002	−0.018	0.017	0.000	0.001	0.079**	−0.006
	(−0.55)	(0.70)	(−0.42)	(0.27)	(0.18)	(0.41)	(2.02)	(−0.11)
BoardSize	−0.001	0.001	0.004	−0.001	−0.001	0.000	0.002	−0.007
	(−0.92)	(0.75)	(0.33)	(−0.06)	(−1.24)	(0.50)	(0.20)	(−0.39)
MShare	0.043***	0.061***	0.171	0.941***	0.031**	0.052***	0.945***	0.625**
	(2.86)	(4.97)	(0.50)	(2.78)	(1.97)	(4.03)	(3.13)	(2.15)
SOE	−0.006	−0.017***	−0.234**	−0.278	−0.005	−0.010**	−0.188*	−0.133
	(−1.01)	(−2.71)	(−2.22)	(−1.33)	(−0.67)	(−2.09)	(−1.86)	(−0.97)
Constant	−0.055	−0.024	17.106***	22.492***	0.048	0.019	10.636***	28.945***
	(−1.27)	(−0.43)	(17.44)	(14.91)	(1.02)	(0.37)	(10.40)	(22.50)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	25,888	17,239	25,532	16,842	21,577	21,572	21,519	20,875
R-squared	0.567	0.665	0.676	0.719	0.673	0.562	0.719	0.679
Z test	$Z = 0.177, P = 0.859$		$Z = -0.182, P = 0.855$		$Z = -1.087, P = 0.277$		$Z = 0.032, P = 0.975$	

This table reports the tests of the advisory mechanism. The dependent variables are ROA and TQ. All of the variables are defined in Table 1. The analysis applies an OLS model. The t-statistics are in parentheses, and the coefficients are based on standard errors, clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

supervisory and advisory roles, among which director dissent is a form of monitoring. Previous studies find that dissent is an important way for directors to oversee and guide the management team (Schwartz-Ziv and Weisbach, 2013; Jiang et al., 2016). Therefore, we attempt to examine whether the attendance regulation

plays a governance role by motivating independent directors to dissent. We test whether independent directors are more likely to dissent when they attend more board meetings in person. Other studies find that when independent directors attend board meetings in person, it can improve the efficiency of communication, decrease information opacity, and lead to better supervision (Hiltz et al., 1986). Tang et al. (2013) and Jiang et al. (2016) provide evidence that director dissension improves corporate governance.

To examine whether the *Guidelines* have an influence on director dissent via attendance, we generate the variable *Dissent*, which has a value of one if an independent director dissents at least once in a board meeting, and zero otherwise. A director dissent means that the director votes ''against,'' ''reservation,'' ''abstention,'' or gives some other opinion that does not support a proposal to the board. We regress *Dissent* on *Treat × Post* and the control variables in Model (1), which involves a probit model. The results are given in Table 10.

In Columns (1) and (2), the interaction term for *Treat* and *Post* is significantly positive at the 1% level. In Column (2), the coefficient of the interaction term is positive and significantly different from zero at the 1% level. The marginal effect shows that after the policy is enacted, the probability of dissent by SHIDs becomes 2.4% higher than that by SZIDs. This increase is 1.5 times as much as the average probability of dissent by an independent director. To control for the director fixed effect, we also run a linear probability model (LPM) regression, and present the results in Columns (3) and (4). The results remain significantly positive. This evidence shows that strengthening the attendance regulation not only encourages independent directors to attend more meetings in person, but also enhances the probability of dissent by those directors. The results also indicate that regulation of director attendance improves accounting performance and firm value through the mechanism of improved monitoring.

6.3. Advisory mechanism

The tests described in Section 6.2 show that the mechanism of director monitoring is an important channel by which the regulation of director attendance takes effect. However, it remains to be further tested whether the regulation of director attendance improves accounting performance and firm value via the directors' advisory role. Although it is difficult to directly measure director advisory behavior, Coles et al. (2008) find that complex firms have a greater need for advisors. We try to examine the advisory mechanism by testing the cross-sectional differences in the effects of regulating attendance among firms with different levels of complexity. Following Coles et al. (2008), we measure firm complexity by the degree of diversification and by firm size. A higher level of diversity or a larger size indicates that a firm has a higher level of complexity, and a greater need for directors to play advisory roles. If the advisory mechanism works, it can be expected that in firms of high complexity, the effect that regulating the directors' meeting attendance has on accounting performance and firm value should be more significant.

To conduct this test, we obtain data on firm diversification from the WIND database. Then we measure the firms' levels of diversification by the numbers of industries that each firm operates (*Segment*), and measure the firms' sizes by the natural logarithm of their operating incomes (*Scale*). We divide the sample into two groups, namely, a high complexity group (high diversity, large scale) and a low complexity group (low diversity, small size), according to whether they rank above or below the median measures of *Segment* or *Scale*. We run regressions with each group. The results given in Table 11 show that in high complexity firms, the coefficients of *Treat × Post* are not consistently larger than the coefficients in low complexity firms. The z-tests show that there is no significant difference between the *Treat × Post* coefficients of the high complexity group and the low complexity group.

This evidence shows that the effectiveness of the regulation on attendance is almost the same in firms with differing board advisory requirements. Therefore, we cannot conclude that the positive effects of the regulation on accounting performance and firm value are achieved through the advisory mechanism.

6.4. Policy's effect on the career outcomes of independent directors

The enforcement of the *Guidelines* causes a regulatory difference regarding board meeting attendance between the SHSE listed firms and the SZSE listed firms. A director working in an SHSE listed firm has to be more diligent in attending board meetings in person. Otherwise s/he is more likely to be punished by

Table 12
Policy's effect on the career outcomes of independent directors.

Panel A: Test for the possibility of director departure

Departure	(1)	(2)	(3)	(4)
Treat × Post	0.304***	0.310***	0.017**	0.017***
	(4.22)	(4.32)	(2.18)	(2.90)
Treat	−0.213***	−0.227***		
	(−3.09)	(−3.31)		
Age	−0.175**	−0.180**	0.325*	0.147
	(−2.06)	(−2.13)	(1.93)	(1.08)
Tenure	−0.314***	−0.316***	−0.020***	−0.011***
	(−19.84)	(−20.14)	(−11.70)	(−8.13)
Seats	−0.106*	−0.107**	0.027***	0.006
	(−1.94)	(−1.98)	(3.81)	(1.11)
HighRank	−0.075**	−0.075**	−0.006	−0.004
	(−2.09)	(−2.14)	(−1.46)	(−1.05)
Allowance	−0.032***	−0.033***	−0.003***	−0.001**
	(−5.12)	(−5.32)	(−3.26)	(−1.99)
GovExp	0.048	0.044	0.003	0.008
	(1.56)	(1.45)	(0.50)	(1.42)
IndEpt	0.102**	0.093**	−0.031	0.054
	(2.46)	(2.25)	(−1.00)	(1.42)
CmpExect	0.239***	0.240***	0.001	0.001
	(6.61)	(6.65)	(0.29)	(0.36)
SamePlace	0.064**	0.089***	0.007	0.019
	(2.06)	(2.77)	(0.54)	(1.04)
Network	0.000	−0.000	−0.001***	−0.000
	(0.03)	(−0.09)	(−2.82)	(−0.78)
Size	−0.072***	−0.068***	−0.014***	−0.011***
	(−3.84)	(−3.68)	(−2.91)	(−2.81)
Leverage	−0.074	−0.075	0.017	0.011
	(−0.82)	(−0.83)	(1.16)	(0.97)
Growth	0.017	0.021	0.002	0.002*
	(0.81)	(1.00)	(1.18)	(1.68)
Top1	0.001	0.001	−0.000*	−0.001**
	(1.06)	(1.14)	(−1.70)	(−2.32)
Dual	0.016	0.021	−0.006	−0.004
	(0.40)	(0.53)	(−1.21)	(−0.95)
BoardSize	0.014	0.017	0.003	0.001
	(1.34)	(1.59)	(1.54)	(0.88)
MShare	0.433***	0.453***	0.083**	0.026
	(4.13)	(4.35)	(2.42)	(0.94)
SOE	−0.071*	−0.074*	0.035**	0.033***
	(−1.84)	(−1.86)	(2.03)	(2.74)
Constant	2.099***	2.049***	−0.843	−0.253
	(4.33)	(4.15)	(−1.27)	(−0.47)
Firm FE	No	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	No	No
Province FE	No	Yes	No	No
Director FE	No	No	Yes	No
Director × Stock Exchange FE	No	No	No	Yes
Model	Probit	Probit	LPM	LPM
Observations[12]	41,165	41,165	39,158	38,682
Pseudo R-squared/R-squared	0.061	0.068	0.775	0.872

[12] The regressions in Panel A use the full sample. The observations decrease to 41,165 because of the missing values for *Departure*. Furthermore, when the high dimension fixed effect is included, 2,007 and 2,483 observations are dropped in the regressions for Columns (3) and (4).

Panel B: Directorships with SHSE listed firms

$Seats\_SH_{t+1}$	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	−0.108***	−0.111***	−0.103***	−0.106***	−0.102***	−0.105***
	(−4.96)	(−4.51)	(−4.83)	(−4.42)	(−4.78)	(−4.39)
Age			−0.225	−0.258	−0.234	−0.263
			(−0.46)	(−0.48)	(−0.47)	(−0.49)
Tenure			−0.033***	−0.031***	−0.033***	−0.032***
			(−6.61)	(−6.33)	(−6.63)	(−6.34)
Seats			0.338***	0.339***	0.336***	0.338***
			(11.86)	(11.39)	(11.78)	(11.32)
HighRank			−0.036***	−0.034**	−0.037***	−0.035**
			(−2.67)	(−2.33)	(−2.67)	(−2.39)
Allowance			0.005	0.003	0.005	0.003
			(1.61)	(1.04)	(1.60)	(1.04)
GovExp			−0.012	−0.015	−0.012	−0.015
			(−0.56)	(−0.67)	(−0.56)	(−0.67)
IndEpt			0.003	0.027	0.002	0.027
			(0.07)	(0.59)	(0.05)	(0.58)
CmpExect			−0.089***	−0.083***	−0.090***	−0.083***
			(−4.29)	(−3.84)	(−4.32)	(−3.85)
SamePlace			−0.016	0.022	−0.015	0.022
			(−0.70)	(0.80)	(−0.68)	(0.81)
Network			0.002	0.001	0.002	0.001
			(1.48)	(0.70)	(1.53)	(0.73)
Size					0.008	0.012
					(0.62)	(0.85)
Leverage					−0.021	0.003
					(−0.46)	(0.07)
Growth					−0.005	−0.005
					(−0.73)	(−0.60)
Top1					−0.000	−0.001
					(−0.53)	(−0.63)
Dual					0.009	−0.007
					(0.51)	(−0.43)
BoardSize					−0.002	−0.003
					(−0.51)	(−0.53)
MShare					−0.053	−0.028
					(−0.61)	(−0.30)
SOE					0.015	0.003
					(0.39)	(0.07)
Constant	0.742***	0.742***	1.471	1.607	1.375	1.411
	(110.14)	(98.06)	(0.76)	(0.76)	(0.70)	(0.67)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations[13]	28,744	28,333	28,744	28,333	28,744	28,333
R-squared	0.767	0.791	0.780	0.802	0.780	0.802

[13] The regressions in Panels B and C use the full sample. The observations decrease to 30,681 because of the missing values for $Seats\_SH_{t+1}$ and $Seats\_SZ_{t+1}$. Furthermore, when the high dimension fixed effect is included, 1,937 observations are dropped in the regressions for Columns (1), (3), and (5), and 2,348 observations are dropped in the regressions for Columns (2), (4), and (6).

Panel C: Directorship on SZSE listed firms

$Seats\_SZ_{t+1}$	(1)	(2)	(3)	(4)	(5)	(6)
$Treat \times Post$	0.114***	0.139***	0.122***	0.146***	0.120***	0.143***
	(4.78)	(5.23)	(5.55)	(5.99)	(5.45)	(5.86)
Age			0.001	0.259	0.031	0.279
			(0.00)	(0.47)	(0.06)	(0.51)
Tenure			−0.039***	−0.038***	−0.039***	−0.037***
			(−7.49)	(−7.11)	(−7.45)	(−7.02)
Seats			0.572***	0.569***	0.575***	0.573***
			(17.72)	(16.71)	(17.79)	(16.81)
HighRank			−0.006	−0.004	−0.004	−0.003
			(−0.38)	(−0.23)	(−0.25)	(−0.17)
Allowance			0.009***	0.010***	0.009***	0.010***
			(3.20)	(3.38)	(3.19)	(3.33)
GovExp			−0.021	−0.018	−0.020	−0.018
			(−0.95)	(−0.79)	(−0.92)	(−0.79)
IndEpt			0.064	0.063	0.067	0.068
			(1.51)	(1.12)	(1.56)	(1.22)
CmpExect			−0.201***	−0.206***	−0.201***	−0.206***
			(−9.46)	(−9.35)	(−9.45)	(−9.35)
SamePlace			−0.001	−0.017	−0.003	−0.019
			(−0.03)	(−0.52)	(−0.12)	(−0.59)
Network			−0.002*	−0.002*	−0.002*	−0.002*
			(−1.69)	(−1.68)	(−1.80)	(−1.81)
Size					−0.013	−0.011
					(−0.92)	(−0.71)
Leverage					−0.041	−0.091*
					(−0.81)	(−1.66)
Growth					−0.002	−0.006
					(−0.27)	(−0.76)
Top1					0.000	0.001
					(0.01)	(0.76)
Dual					0.004	0.018
					(0.19)	(0.88)
BoardSize					0.007	0.009
					(1.37)	(1.60)
MShare					0.144	0.194
					(1.31)	(1.59)
SOE					−0.026	0.013
					(−0.65)	(0.27)
Constant	0.900***	0.894***	0.627	−0.398	0.747	−0.330
	(121.60)	(109.13)	(0.32)	(−0.18)	(0.38)	(−0.15)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Director FE	Yes	No	Yes	No	Yes	No
Director × Stock Exchange FE	No	Yes	No	Yes	No	Yes
Observations	28,744	28,333	28,744	28,333	28,744	28,333
R-squared	0.764	0.786	0.785	0.805	0.785	0.805

This table reports the policy's effects on the career choices of independent directors at the firm-director-year level. *Departure* is an indicator that equals one if an independent director serves the firm less than three years (one term), and zero otherwise. *Seats_SH* indicates the directorships of independent directors with the SHSE listed firms. *Seats_SZ* indicates the directorships of independent directors in the SZSE listed firms. The other variables are defined in Table 1. The analysis applies a probit model in Panel A, Columns (1) and (2), with the *z*-statistics given in parentheses. We run LPM regressions in Panels B and C, and the *t*-statistics are shown in parentheses. The coefficients are based on standard errors clustered at the firm level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

the SHSE. This difference in regulations may further influence the decisions that directors take, if all other conditions are unchanged. Specifically, when the SHSE tightens the requirement for meeting attendance by directors, they have several potential responses. Independent directors may increase their personal attendance at board meetings immediately after the *Guidelines* are enacted. However, it is also possible that they may seek various ways to avoid pressure from the regulation, such as switching their directorships from SHSE listed firms to SZSE listed firms. To test whether this kind of evasion of the regulation occurs, we first conduct a regression on departures from boards to examine whether the policy has an effect of stimulating departures.

Following the measure used by Jiang et al. (2016), we generate the variable *Departure*, which takes a value of one if a director resigns from a firm before his or her term ends, and zero otherwise. All of the other variables are the same as those in Model (1). The results are given in Panel A, Table 12. We show the results of probit regressions in Columns (1) and (2), and find that the coefficient of *Treat $\times$ Post* is significantly and consistently positive. To better control for the director $\times$ stock exchange fixed effect, we then regress *Departure* on *Treat $\times$ Post* and all of the control variables with an LPM model, and the results are reported in Columns (3) and (4). In Column (4) for example, SHIDs are 1.7% more likely to resign from their current positions before their terms end after the SHSE enacts the *Guidelines*.

To provide further insight into the adjustments of the independent directors, we investigate the changes in directorship on each stock exchange. We split the total seats that a director holds into his or her seats with the SHSE listed firms (*Seat_SH*) and the seats with the SZSE listed firms (*Seat_SZ*). We run the OLS regression of *Seat_SH* on *Treat $\times$ Post*, with all of the control variables and the firm, year, and director fixed effects. The results are given in Panel B. The interaction term is found to be negative and significant at the 1% level. Similarly, the results of the regression of *Seat_SZ* on *Treat $\times$ Post* are given in Panel C. The coefficients are consistently positive and significant at the 1% level. In Column (6), Panels B and C, the results reveal that after the policy is enacted, SHIDs depart from 0.105 more seats with firms listed on the SHSE, and they add 0.143 more seats with firms listed on the SZSE. SHIDs show a tendency to resign from the SHSE listed firms, and to prefer serving with the SZSE listed firms as a means to avoid pressure when the SHSE tightens its director attendance requirement.

7. Conclusion

Independent directors are vital monitors of management teams. To accomplish their duties, their diligence and active participation are essential. Although a number of other studies investigate the monitoring roles of independent directors, little research is available on how the regulation of directors affects their meeting attendance, or how such regulation affects corporate governance and firm performance. In 2009, the SHSE of China enacted guidelines to require that directors must personally attend at least half of all board meetings each year, but the SZSE did not enact any such regulation. Therefore, starting in 2009, the SHIDs and SZIDs faced different requirements concerning their attendance at board meetings.

We take advantage of this quasi-natural experiment to examine whether the SHSE's tightening of the board meeting attendance requirements leads to more diligent attendance and monitoring by independent directors. We find that after the SHSE's *Guidelines* imposed a stricter attendance requirement, the SHIDs attended more board meetings in person than the SZIDs. The results are more significant for directors who have a legal background. Further evidence shows that the attendance regulation improves the performance and market value of SHSE firms, due to the mechanism of better monitoring by independent directors. Specifically, after the *Guidelines* were enacted, the SHIDs were more likely to cast dissenting votes on proposals in their board meetings. This finding shows that the attendance regulation prompts the directors to more closely monitor those firms. However, this restriction on independent directors also affects the directors' career choices. We find that independent directors are more likely to resign from SHSE listed firms and seek directorships with SZSE listed firms to avoid pressure from the regulation.

China is a typical emerging market with weak investor protection. Our study fills a gap in the research on the governance of Chinese firms by using Chinese data to provide insight on the effects of a regulation on board meeting attendance by directors. Our evidence shows that this regulation is effective, and that it is helpful for enhancing the quality of supervision by directors as a means to improve firm value. Furthermore, our findings imply that much stricter regulation is likely to cause passive evasion in the long run. Therefore, it may

be important to strike a balance between disciplining and encouraging independent directors. Our findings provide policy implications for improving the effectiveness of corporate governance in an economy with weak investor protection and an under-developed market for independent directors. The findings also show that strengthening systems for the external regulation of independent directors is an important means of achieving such improvement.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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