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Does high-speed rail stimulate shareholder activism by small investors in China?

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ABSTRACT

This study investigates the effects of high-speed rail (HSR) introduction in China on small investors' on-site participation in shareholders' general meetings, which is used to measure the 'inverse distance–participation syndrome'. We find that HSR introduction has a significantly positive effect on small investors' on-site attendance. The poorer the transportation infrastructure connecting other cities before HSR introduction, the shorter the distance between HSR station and the firm's headquarters after HSR introduction, and the more nonlocal investors the firm has, the higher the attendance rate. Small shareholder activism that arises with HSR introduction results in a higher likelihood of proposal rejection, fewer tunnelling by large shareholders, and less earnings manipulation. Overall, our results show that HSR introduction reduces monitoring costs for small shareholders and increases their on-site participation. Our findings provide important implications for policymakers on encouraging small shareholder activism.

KEYWORDS

High-speed rail; monitoring cost; shareholder meeting; small shareholder activism

1. Introduction

Shareholder activism is vital in corporate governance (Daily et al., 2003; Denes et al., 2017). Less participation by shareholders creates problems, such as 'free-riding' and 'voting by feet' (Grossman & Hart, 1980; Shleifer & Vishny, 1986, 1997). The mechanisms for shareholder activism include information acquisition, interpersonal communication, and organising and achieving persuasion among themselves (Amao & Amaeshi, 2008; Levit, 2019; McNeil, 2005). A large body of theoretical models and empirical studies examine shareholder activism by large investors and institutional investors (Admati et al., 1994; Brav et al., 2008; Maug, 1998). However, very few studies focus on shareholder activism by small investors in China or elsewhere.

A shareholder's incentives to actively monitor corporate activities are determined by the trade-off between the private costs of monitoring and the public benefits of monitoring (Grossman & Hart, 1980; Shleifer & Vishny, 1986). The theoretical literature emphasises the importance of monitoring costs in determining this incentive trade-off. A natural

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question that arises is whether reducing monitoring costs stimulates small investors' shareholder activism. Research suggests that active participation among minority shareholders in firm-level decision-making alleviates agency problems between controlling shareholders and minority shareholders and improves firm governance and performance (Bebchuk, 2005; Gao et al., 2020; La Porta et al., 2002). Therefore, answering this question will help us evaluate the importance of cost in small activists' decision-making behaviour and find potential channels to improve minority shareholders' protection by facilitating their engagement in corporate governance. However, empirical researchers thus far have faced challenges in measuring the cost to an activist shareholder from both an appropriate institutional setting and sufficient empirical data (Gantchev, 2013). This study examines whether reducing monitoring costs encourages small shareholder activism and its effect on corporate governance, using the introduction of high-speed rail (HSR) as an exogenous shock to the monitoring costs reduction among small investors in China.

China is a suitable setting for studying monitoring costs' effect on small shareholder activism and its impact on the pervasive agency problem. First, given the concentrated ownership in China, controlling shareholders are more likely to expropriate minority shareholders, leading to severe agency problems (Djankov et al., 2008). Furthermore, individual investors represent a large proportion of China's stock market and thus significantly impact security pricing and future stock liquidity (Cheng et al., 2021; Yao et al., 2019). Therefore, China's listed firms comprise an essential sample for studying minority shareholder activism. Moreover, HSR introduction – as a staggered exogenous shock to private monitoring costs – provides an ideal natural experiment to study the influence of monitoring costs on minority shareholder activism.

Second, our proprietary dataset regarding minority shareholders' on-site attendance of listed firms in China allows us to gauge small shareholder activism properly. Minority shareholders in China have few private channels to engage in firm-level decision-making and take action against insider misconduct (Jiang et al., 2010). As the highest authority of firms in China, on-site shareholders' meetings offer various traditional functions, including informing, communicating, and voting (D. Zetsche, 2008), which facilitate small investors' participation in corporate governance and engender changes. By making their opinions heard through communication, voting, or simply asking questions at general meetings, minority shareholders can block the approval of projects that could otherwise harm firm value or their interests (Z. Chen et al., 2013; Li & Yermack, 2016); alternatively, at these meetings, they can persuade the board or other shareholders to implement new ideas that are beneficial to the firm (Levit, 2019). Therefore, the on-site attendance of small investors at general meetings is a suitable and effective measure of small shareholder activism.

We identify HSR introduction as an exogenous shock that reduces the monitoring costs for small investors to attend on-site general meetings. We perform a staggered difference-in-difference (DID) analysis to examine the impact of reduced monitoring costs on minority shareholder activism. Our main findings are as follows. First, HSR introduction in the city where the firm is headquartered has a statistically and economically significant and positive influence on small investors' on-site attendance. We also use the instrumental variable (IV) method, propensity score matching (PSM) method, and a placebo test to address potential endogeneity problems. The findings with these methods align with our earlier results. Second, we conduct cross-sectional tests. The results show that the

increase in attendance is significantly larger for firms whose headquarters are located in cities with inadequate transportation infrastructure connecting other cities before HSR introduction, whose office has a shorter distance to its closest HSR station after HSR introduction, and that have a wider range of nonlocal investors. Third, increased small shareholder activism resulting from HSR introduction helps improve corporate governance. Specifically, it leads to a higher likelihood of a proposal being vetoed – especially proposals that will likely result in the expropriation of small shareholders – and reduce tunnelling by controlling shareholders and earnings manipulation overall. Finally, we conduct various robustness tests and the main results are valid.

This study contributes to the literature in three respects. First, it extends the literature on shareholder activism, from large investors and institutional investors to small investors; it also provides direct empirical evidence of the effect of monitoring costs on small shareholder activism. Under the trade-off theory of shareholder activism incentives (Grossman & Hart, 1980; Shleifer & Vishny, 1986), small shareholders have an extremely low stake in the firms in absorbing the costs of monitoring insiders. However, the question of whether reducing monitoring costs encourages small shareholder activism remained unanswered. This study fills this gap with solid empirical evidence.

Second, this study provides new evidence of the positive influence of minority shareholder participation on corporate governance. The literature offers mixed opinions on the effects of minority shareholder participation on firm-level decision-making (Bainbridge, 2005; Z. Chen et al., 2013; Kong, 2019; La Porta et al., 2002). In the study, we find that minority shareholder participation in on-site meetings improves listed firms' governance performance.

Third, this study contributes to the literature that focuses on the corporate governance role of geographical proximity. The literature mainly documents information advantages arising from geographical proximity, we provide new evidence on the corporate governance role of geographical proximity from the perspective of minority shareholders. Specifically, it provides new evidence that, in emerging markets, transportation infrastructure helps reduce free-riding among minority shareholders and improve investor protection. Therefore, the study inspires how to motivate minority shareholders to partake in corporate governance and has important policy implications for regulatory departments and listed firms.

The remainder of this paper proceeds as follows. [Section 2](#) details the institutional background and our hypotheses development. [Section 3](#) outlines our research design. [Section 4](#) presents the empirical results and discusses the robustness tests. [Section 5](#) presents our conclusions and offers policy implications.

2. Institutional background and hypothesis development

2.1. General meetings of shareholders

Shareholder meetings have played an indispensable role in corporate governance for hundreds of years (Li & Yermack, 2016). These meetings provide a venue for companies to conduct formal business, such as electing directors, adopting charter amendments, and approving major transactions. They also fulfill traditional information dissemination, communication, and voting functions for shareholders (D. Zetsche, 2008). In particular,

shareholder meetings provide a channel through which small investors can exercise ownership rights by preparing and/or voting on shareholder proposals or by entering into dialogue with firms directly on an issue (D. Zetzsche, 2008); for retail investors, it may be the only opportunity to interact with senior management and directors (Schwartz-Ziv, 2020). Thus, small investors' participation in general meetings indicates their activism in firms (Poulsen et al., 2010).

It is worth noting that, to protect shareholder interests and strengthen corporate governance, the CSRC published the 'Guidelines on Online Voting at the Shareholders Meeting of Listed Companies' on 29 November 2004. The guidelines encourage listed companies to facilitate shareholder voting by providing online means to vote for those who cannot attend the shareholder meeting physically. According to the guidelines, all shareholders have the right to vote online if the company initiates online voting in the GM; but they can only choose one of the following voting methods: on-site voting or online voting. Shareholder meetings in the context of a digital environment merely fulfill voting and information dissemination purposes, while communications and reviews are generally not replicated (D. A. Zetzsche, 2005; Mittleman et al., 2000); online-only shareholder meetings may be designed in ways that further limit shareholders' voices and their ability to interact with and challenge management (Boros, 2003). Thus, critics of online-only general meetings assert that the online participation of shareholders is a poor substitute for 'looking management in the eye' (Gao et al., 2020). In contrast, on-site general meetings pose no communication challenges for the shareholders and promote a higher level of interaction with insiders, despite the higher attendance costs. Thus, on-site attendance in general meetings provides a better channel through which small active investors can engage in corporate governance.

In addition to voting on proposals, anecdotal cases show that on-site meetings provide unique opportunities for small shareholders to communicate with and even persuade insiders. In the first provisional general meeting (PGM) of Chongqing Dongyuan Steel Co. Ltd. (000656) in 2002, for example, the three large shareholders (Jinjiang Hesheng Investment Co. Ltd., Chongqing Steel Group, and Fanhua Engineering Co. Ltd.) were in heavy debate. They showed a strong tendency to disagree with each other on the vote to amend the firm's articles and re-elect the board of directors and supervisors. In this meeting, small shareholders spoke actively and enthusiastically, some of them advised the large shareholders to 'make peace', lest they 'kill' each other and lose everything; they proposed a precise reconciliation plan. After repeated negotiations among the three large shareholders, they unanimously agreed to amend the firm's articles and the proposal concerning directors and supervisors as proposed by the small shareholders. Ultimately, the firm's revised articles objectively reflected its shareholder structure, and the proportion of seats of large shareholders in the newly elected board tended to be reasonable and balanced.¹ Similarly, Ezzamel et al. (2020) show that in the case of a Chinese bank, small shareholders protected their interests from large shareholders' expropriation by forming an alliance and taking collective action on-site in an interim shareholder meeting, to block a convertible bond issuance by attacking the bank's proposal and undertaking exceptional communications with the managers.

¹See <http://finance.sina.com.cn/yched/20020306/177302.html>.

Finally, small shareholders can influence a firm's decision-making through voting. In a PGM of Yaxing Chemical Co. Ltd. (600,319) in 2016, all eight proposals regarding the issuance of shares to raise funds and purchase assets were vetoed; 37.5% of the 'no' votes came from small shareholders. After reducing the number of shares issued from the original 330 million shares to 283 million shares, the proposal was once again rejected by the small shareholders in the next PGM.² Such anecdotal evidence indicates that on-site attendance at general meetings benefits small shareholders, especially in voting on proposals and communicating with and even persuading insiders.

2.2. The HSR network

The Ministry of Railway announced its HSR plan in November 2006, which was initially implemented in 2008. The first HSR line (the Beijing–Tianjin intercity HSR) opened on 1 August 2008, with a maximum speed of 300–350 km/h, and China's HSR network has shown dramatic changes over the last 10 years. HSR introduction drastically facilitated travel across cities for at least four reasons. First, it substantially reduced travel times. For example, Cao et al. (2013) find that HSR reduces travel times by over 60% for 49 major cities in the HSR network. Second, compared to a flight, HSR reduces travel uncertainty – including those incurred by weather events or operational delays – and improves connections to inner-city transportation systems. Third, HSR operates more frequently between cities than flights and provides travellers with greater flexibility, which is confirmed by the results of a survey conducted by D. Chen et al. (2021). An additional benefit is that passengers can use the internet and mobile phones on HSR, which are generally not available on flights. Thus, HSR introduction is expected to reduce the costs of shareholder activism.

2.3. Hypothesis development

A small shareholder's incentive to actively participate in on-site general meetings is determined by assessing the trade-off between the expected benefit from activism and the expected engagement cost. On the one hand, on-site shareholder meetings empower minority shareholders with opportunities to engage in firm-level decision-making and take action against insider misconduct. Their participation in corporate governance can mitigate the agency problem between controlling and minority shareholders by enhancing the monitoring over insiders and motivating them to pursue long-term interests that are beneficial to all shareholders (Z. Chen et al., 2013; Gao et al., 2020). On the other hand, small shareholders bear the costs of indulging in activism by attending on-site meetings. Gantchev (2013), using a sequential model, finds that subtracting the costs reduces the mean abnormal activist return by two-thirds; the suggestion here is that costs play a major role in an activist's decision-making behaviour. As an essential form of monitoring costs, geographical distance – resulting in higher travel costs – is a critical factor that can prevent small shareholders from participating in on-site general meetings (Birnhak, 2003; Katz, 2006). Since shareholders in China have highly dispersed residences, small

²See <http://finance.sina.com.cn/stock/t/2016-03-20/doc-ifxqnsk1023810.shtml>

shareholders must pay additional expenses – including transportation, food, and accommodation expenses – to attend the general meetings. Thus, the ‘inverse distance–participation syndrome’ is more common for small shareholders in China.

Further, it is generally believed that shareholder participation is a vital component of a successful annual meeting and overall effective governance (Easterbrook & Fischel, 1983; Pound, 1991). Policymakers in various countries have made efforts to improve shareholder attendance at general meetings, especially on-site meetings. For example, the Code of Corporate Governance was adopted in 2003 by the Nigerian Securities and Exchange Commission and the Corporate Affairs Commission, which made many recommendations to increase shareholder influence in the corporate decision-making process. To facilitate and improve shareholder attendance at a firm’s general meetings, section 10 (a) of the Code states explicitly that ‘venues for general meetings should be places that are possible and affordable – cost and distance-wise – for a majority of shareholders to attend and vote at annual general meetings’ (Amao & Amaeshi, 2008). The Chinese Securities Regulatory Commission (CSRC) in December 2004 issued rules to encourage firms to increase the participation rate of all shareholders.³ Further, in September 2018, the CSRC modified its rule on corporate governance by listed corporations, demanding that ‘firms shall ensure that the shareholders’ meetings are legal and effective, and provide convenience for shareholders to attend the meetings’.⁴ Such anecdotal evidence indicates that various countries have already emphasised that small shareholders’ transaction costs be reduced to stimulate their participation in corporate governance.

With more HSR stations being introduced in the cities where firms are headquartered, it is easier for investors all over China to reach a meeting site in a more timely and flexible fashion. Consequently, small investors are more likely to participate in shareholder meetings, as HSR use reduces their travel costs. Thus, we formulate the hypothesis H1.

H1: There is a significant increase in small investors’ on-site attendance at general meetings after an HSR station was introduced in the city where the firm is headquartered.

Minority shareholders constitute the main participant in China’s capital markets, and so their participation in firm-level decision-making could enhance the monitoring over management and controlling shareholders (Z. Chen et al., 2013; Hamdani & Yafeh, 2013), which will affect corporate decision-making. On the one hand, voting on a corporate proposal is the lowest-cost form of shareholder activism (Brochet et al., 2021). The presence of a larger number of small investors at on-site meetings increases the likelihood that proposals will be vetoed – especially those proposals that could harm firm value or the interests of minority shareholders (Bebchuk, 2005; Strickland et al., 1996). Studies have shown that voicing opposition to and/or outright vetoing proposals at shareholder meetings can protect the interests of outside shareholders in Chinese firms (Z. Chen et al., 2013; Gao et al., 2020). As HSR is expected to bring more small investors to shareholder meetings, there is a greater possibility that proposals will be rejected, especially if they would harm their interests. On the other hand, small investors play a corporate governance role (Z. Chen et al., 2013; Strickland et al., 1996). As the main ‘inferior’ party, small

³See http://www.csrc.gov.cn/pub/shenzhen/ztzl/ssgsjgxx/jfgf/sszl/201506/t20150612_278987.htm

⁴See http://www.csrc.gov.cn/shanghai/xxfw/gfxwj/201904/t20190418_354493.htm

shareholders are bound to question or make suggestions when participating in on-site general meetings and exercise their power conscientiously; in this way, they can increase monitoring and put more stress on insiders. For example, Ezzamel et al. (2020) find that small shareholders can protect their interests from expropriation by making their voices heard in meetings. Thus, we expect that more participation in shareholder meetings leads to reduced agency costs, and so we formulate our second hypothesis (H2) as follows.

H2: Increased attendance by small investors at shareholder meetings, resulting from HSR introduction, leads to a higher likelihood of proposal rejection and reduced agency costs, such as ‘tunneling’ and earnings manipulation.

3. Research design

3.1. Data

Our firm-level data are from the CSMAR database. City-level information was obtained from the Chinese State Bureau of Statistics. The timing of HSR introduction in each city is obtained from the Chinese Economic Development and Reform Commission, which is augmented by the China Railroad Corporation’s Train timetable⁵ and news reports on HSR trains. Longitude and latitude information for listed firms is obtained through the Baidu Map. The distance between a firm’s headquarters and its closest HSR station in the city is calculated using the ArcGIS 10.2 programme. The likelihood of an HSR (as the IV in the following section) is calculated using the ArcGIS 10.2 programme with Chinese geoenvironmental data.

We begin with a sample covering all the general meetings of shareholders in 2003–2014. Our data starts in 2003, as information about the general meetings in the CSMAR becomes complete in that year. Since the Shanghai Stock Exchange and Shenzhen Stock Exchange started mandatory online voting in 2015, we end our sample period at the end of 2014, as our novel data provide the overall attendance of small investors and we could not distinguish between on-site attendance and online attendance. We also exclude financial firms and firms with zero or negative assets or equity; we also remove observations with missing controls. Our final sample contains 42,159 general meeting observations involving 2,486 firms, with 17,442 AGMs and 24,717 PGMs. See Table 1 for the details of our sample selection procedure.

3.2. Methodology

We examine the effect of HSR introduction on small shareholder activism using the staggered DID model with general meetings-level data.

$$YATT_{i,t,c,m}/TATT_{i,t,c,m} = \alpha_i + \alpha_t + \alpha_c + \beta_1 \times HSR_{i,t,c} + \beta_2 \times Controls_{i,t,c} + \varepsilon_{i,t,c,m} \quad (1)$$

⁵See http://www.nra.gov.cn/ztl/hyjc/gstl/_zggsL/gtxl/.

Table 1. Sample selection.

	# of General Meeting	# of Firms	Annual General Meetings	Provisional General Meetings
Total A-Share Firms (2003–2014)	61,200	2,656	21,599	39,601
Excluding:				
Firms with online voting	14,542	23	2,369	12,173
Financial firms	1,141	64	504	637
Negative asset or equity	1,040	11	469	571
Missing control variables	2,318	72	815	1,503
Final sample	42,159	2,486	17,442	24,717

This table presents the sample selection procedure. The final sample consists of 42,159 firm-year-general meetings of 2,486 firms covering the period from 2003 to 2014, including 17,442 firm-year AGMs and 24,717 firm-year PGMs.

where i indexes firm, t indexes year, c indexes the city where the firm is headquartered, and m indexes each general meeting (AGM or PGM). $YATT$ and $TATT$ are the on-site attendance rates of small investors at AGMs and PGMs, respectively; α_i , α_t , and α_c are firm, year, and city fixed effects, respectively; HSR is a dummy variable that equals 1 if any HSR station has been introduced in the city c where the firm i is headquartered by year t , and zero otherwise; and $controls_{i,t,c}$ are control variables covering firm–year characteristics and city–year characteristics. A positive β_1 indicates an increase in the on-site attendance owing to the HSR effect. In all analyses, we control for the firm, city, and year fixed effects. To alleviate autocorrelation concerns, we cluster standard errors at the city level (Acharya et al., 2014). See Appendix A1 for detailed definitions of variables.

4. Empirical results

4.1. Descriptive statistical analysis

4.1.1. Summary statistics

We winsorize all continuous variables at the 1st and 99th percentiles. Table 2 presents the summary statistics for all variables.

Table 2 shows that the mean of HSR is 0.306. The average small shareholders' on-site attendance rate at AGMs and PGMs is 5% ($e^{1.606}$) and 4.55% ($e^{1.516}$), respectively, while the 99th percentile is 76.94% ($e^{4.343}$) and 100% ($e^{4.615}$), respectively; these findings suggest that some firms still experience high levels of small shareholder activism.

4.1.2. Univariate analysis

Firstly, we divide our sample into three groups and calculate the mean of on-site attendance for each group. Table 3 presents the results.

Table 3 shows that the average logarithmic value of small shareholders' on-site attendance in the PGMs of firms without an HSR station is 1.45. For firms with an HSR station, the value of that before HSR introduction is 1.47, which is insignificantly different from that of firms without an HSR station. The average logarithmic value of small shareholders' on-site attendance after HSR introduction, however, is 1.63, 0.16% higher than that before HSR

Table 2. Summary statistics.

Variable	# of Obs.	Mean	Median	S.D.	Quantile			
					1%	25%	75%	99%
YATT	17442	1.606	1.701	1.272	0.000	0.178	2.643	4.343
TATT	24717	1.516	1.525	1.325	0.000	0.052	2.619	4.615
HSR	42159	0.306	0.000	0.461	0.000	0.000	1.000	1.000
SIZE	42159	21.660	21.520	1.190	19.290	20.810	22.330	25.290
MTB	42159	3.571	2.551	3.460	0.691	1.685	4.130	23.620
LEV	42159	0.475	0.489	0.212	0.047	0.314	0.637	0.914
ROA	42159	0.035	0.034	0.058	-0.219	0.012	0.062	0.189
DIV	42159	0.615	1.000	0.487	0.000	0.000	1.000	1.000
MANEXP	42159	0.099	0.073	0.101	0.009	0.044	0.115	0.714
MANHLD	42159	0.079	0.000	0.175	0.000	0.000	0.009	0.685
DUAL	42159	0.182	0.000	0.386	0.000	0.000	0.000	1.000
IDRRATIO	42159	0.361	0.333	0.053	0.200	0.333	0.375	0.556
SHR1	42,159	37.260	35.280	15.570	9.229	24.830	49.140	75.000
SHRS	42,159	16.920	4.708	34.330	1.003	1.893	15.080	225.100
SHRZ	42159	20.630	19.010	13.450	1.228	9.046	30.200	53.940
INSTI	42159	4.224	2.060	5.630	0.000	0.230	6.361	22.850
Δ INSTI	42159	0.461	0.000	3.949	-10.930	-0.940	1.651	14.000
Δ ANA	42159	0.649	0.000	5.150	-13.000	-1.000	2.000	19.000
Δ MEDIA	42159	6.455	0.000	57.760	-201.000	-11.000	19.000	286.000
AIR	42159	0.756	1.000	0.429	0.000	1.000	1.000	1.000
PCGDP	42159	8.797	5.760	9.415	0.654	2.915	11.200	46.700
GDPGROW	42159	0.153	0.150	0.063	0.017	0.107	0.191	0.383
Δ GTRANSIT	42159	0.053	0.014	0.121	0.000	0.002	0.047	0.778
Δ RTRANSIT	42159	0.178	0.000	0.718	0.000	0.000	0.000	5.386

This table presents the summary statistics of the variables used in the main tests. All variables are defined in Appendix Table A1.

Table 3. Univariate analysis.

Mean (Obs.)	Pre HSR (1)	Post HSR (2)	Difference (2)-(1)
<i>Non-HSR</i>	1.45		
(a)	(4,566)		
<i>HSR</i>	1.47	1.63	0.16*
(b)	(12,302)	(7,849)	
Difference(b)-(a)	0.02	0.18**	

This table presents the univariate analysis of small shareholders' on-site attendance at PGMs between the Non-HSR sample and HSR sample in the Pre-HSR period and Post-HSR period. *, **, *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.

introduction and 0.18% higher than that of firms without an HSR station; both results are significant. These results suggest that HSR introduction stimulates small shareholder participation in on-site shareholder meetings⁶ and that these results are not driven by firm differences *ex-ante*.

⁶For brevity, we present the results of a univariate analysis of small shareholders' attendance at PGMs; the results hold for AGMs.

Table 4. Multivariate regression.

VARIABLES	(1)	(2)	(3)	(4)
	<i>YATT</i>	<i>TATT</i>	<i>YATT</i>	<i>TATT</i>
<i>HSR</i>	0.083** (2.29)	0.187*** (4.85)	0.085** (2.33)	0.170*** (4.40)
<i>SIZE</i>	0.083** (2.35)	0.099** (2.40)	0.063* (1.78)	0.097** (2.37)
<i>MTB</i>	0.008* (1.76)	0.013** (2.47)	0.007 (1.54)	0.012** (2.28)
<i>LEV</i>	-0.325*** (-2.66)	-0.550*** (-4.05)	-0.312** (-2.53)	-0.578*** (-4.25)
<i>ROA</i>	0.057 (0.25)	0.517** (1.97)	-0.037 (-0.16)	0.334 (1.30)
<i>DIV</i>	0.052** (2.13)	0.017 (0.57)	0.050** (2.04)	0.018 (0.63)
<i>MANEXP</i>	-0.071 (-0.47)	0.033 (0.18)	-0.111 (-0.74)	0.079 (0.44)
<i>MANHLD</i>	1.642*** (5.07)	1.503*** (4.45)	1.532*** (4.75)	1.411*** (4.31)
<i>DUAL</i>	-0.004 (-0.10)	0.017 (0.38)	-0.023 (-0.64)	-0.006 (-0.15)
<i>IDRRATIO</i>	-0.394* (-1.75)	-0.701** (-2.51)	-0.376 (-1.64)	-0.644** (-2.27)
<i>SHR1</i>	0.002 (0.96)	0.009*** (3.82)	0.002 (1.04)	0.009*** (3.75)
<i>SHRS</i>	-0.003*** (-10.04)	-0.003*** (-8.31)	-0.003*** (-9.57)	-0.003*** (-7.94)
<i>SHRZ</i>	0.003 (1.35)	0.010*** (3.95)	0.004* (1.80)	0.010*** (4.34)
<i>INSTI</i>	-0.004 (-1.22)	-0.003 (-0.91)	-0.004 (-1.29)	-0.003 (-0.85)
Δ <i>INSTI</i>	0.005* (1.75)	0.005 (1.58)	0.005* (1.72)	0.004 (1.39)
Δ <i>ANA</i>	0.010*** (6.33)	0.007*** (4.06)	0.011*** (6.47)	0.007*** (4.14)
Δ <i>MEDIA</i>	0.001*** (3.73)	0.001*** (3.12)	0.001*** (3.65)	0.001*** (3.12)
<i>AIR</i>	0.035 (0.46)	0.056 (0.49)	0.077 (0.90)	0.154 (1.16)
<i>PCGDP</i>	-0.012** (-2.21)	-0.014* (-1.96)	-0.012** (-2.01)	-0.009 (-1.08)
<i>GDPGROW</i>	-0.165 (-0.86)	-0.032 (-0.14)	-0.163 (-0.84)	-0.011 (-0.05)
Δ <i>GTRANSIT</i>	-0.170** (-2.00)	-0.214** (-2.08)	-0.179** (-2.09)	-0.214** (-2.11)
Δ <i>RTRANSIT</i>	0.012 (0.85)	-0.019 (-1.21)	0.013 (0.94)	-0.018 (-1.09)
<i>Constant</i>	0.116 (0.16)	-0.566 (-0.66)	0.654 (0.90)	-0.762 (-0.89)
Firm & Year FE	YES	YES	NO	NO
Firm & City & Year FE	NO	NO	YES	YES
Observations	17,442	24,717	17,442	24,717
Adj R^2	0.071	0.071	0.081	0.086

This table presents the main tests of hypothesis H1 to evaluate the effect of HSR introduction on shareholder activism by small investors. All variables are defined in Appendix A1. City-clustered t-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

4.2. Multivariate regression analysis

We use the staggered DID model in equation (1) to further test the effect of HSR introduction on small shareholders' on-site attendance. Table 4 presents the results based on model (1); columns (1)–(2) control for the firm and year fixed effects, and columns (3)–(4) control for the firm, city, and year fixed effects.

In columns (1)–(4), the coefficients on *HSR* are statistically positive at 5% or lower levels. The coefficients are also economically significant. For example, the coefficient on *HSR* in column (3) – 0.085 – indicates that treatment firms, relative to controls, increase the on-site attendance of small shareholders by 21.85% ($e^{0.085}/e^{1.606}$) following HSR introduction. The results indicate that the small shareholders of firms with HSR stations in their headquarter cities attend on-site shareholder meetings more frequently following HSR introduction.

4.3. Parallel trend test

The precondition for DID is the parallel trend test to ensure that the causality relationship can be attributed to the events. Thus, we introduce eight dummies $HSR_{i,t}$ ($t = -3, -2, -1, 0, 1, 2, 3, 4$) and use model (2) to further conduct parallel trend test:

$$\begin{aligned} YATT_{i,t,c,m}/TATT_{i,t,c,m} = & \alpha_i + \alpha_t + \alpha_c + \beta_1 \times HSR_{i,c,t-3} + \beta_2 \times HSR_{i,c,t-2} + \beta_3 \times HSR_{i,c,t-1} \\ & + \beta_4 \times HSR_{i,c,t} + \beta_5 \times HSR_{i,c,t+1} + \beta_6 \times HSR_{i,c,t+2} + \beta_7 \times HSR_{i,c,t+3} \\ & + \beta_8 \times HSR_{i,c,t+4} + \beta_9 \times Controls_{i,c,t} + \varepsilon_{i,t,c,m} \end{aligned} \quad (2)$$

where dummy $HSR_{i,c,t-3}$ is set to 1 for third year before HSR introduction and 0 otherwise; $HSR_{i,c,t}$ is set to 1 for the year in which the HSR opens and 0 otherwise; and same for the other dummies. We take four years before HSR introduction (and earlier) as the baseline year in the model. The other variables are the same as those in the model (1). Table 5 presents the parallel trend test results.

Columns (1)–(2) of Table 5 show that the coefficients of $HSR_{i,c,t-3} - HSR_{i,c,t}$ are insignificant, indicating that before HSR introduction, there is no significant difference between the small shareholders' on-site attendance of the meetings of treatment firms and control firms. Meanwhile, the coefficients of $HSR_{i,t+1} - HSR_{i,t+4}$ are all significantly positive, and remain stable each year. The results indicate that after HSR introduction, small shareholders of treatment firms attend on-site shareholder meetings more frequently than small shareholders of control firms. In other words, HSR introduction increases small shareholder activism.

4.4. Alleviating endogeneity problems

We further address these endogeneity problems by using IV, PSM, and placebo tests discussed below.

4.4.1. Instrumental variable test

According to Mid-term and Long-term Railroad Network Reform Plan requirements in 2004, 2008, and 2016, the primary purpose of introducing HSR is to meet the increasing demand for passenger transportation. Small shareholders' on-site attendance at general

Table 5. Parallel trend test.

	(1)	(2)
VARIABLES	<i>YATT</i>	<i>TATT</i>
<i>HSR</i> ₋₃	0.043 (1.37)	0.035 (0.99)
<i>HSR</i> ₋₂	0.010 (0.29)	0.049 (1.22)
<i>HSR</i> ₋₁	0.062 (1.51)	-0.021 (-0.46)
<i>HSR</i> ₀	0.041 (0.82)	-0.014 (-0.25)
<i>HSR</i> ₁	0.094* (1.65)	0.133** (2.10)
<i>HSR</i> ₂	0.154** (2.38)	0.195*** (2.76)
<i>HSR</i> ₃	0.150** (2.01)	0.211*** (2.59)
<i>HSR</i> ₄	0.176** (2.05)	0.180* (1.85)
Controls	YES	YES
Firm & City & Year FE	YES	YES
Observations	17,442	24,717
Adj <i>R</i> ²	0.071	0.071

This table presents the dynamic test of HSR Introduction and small shareholders' on-site attendance of AGMs and PGMs. *HSR*_{*N*} is the year dummy, represents *N* years compared to the HSR introduction year, for example, *HSR*₋₃ is the third year before HSR introduction. All variables are defined in Appendix A1. City-clustered *t*-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

meetings partly reflects population flows and attendant transportation requirements. We use an instrumental variable (*IV*) approach to instrument HSR introduction generated by minimum geographical development costs following Zhang et al. (2018). Table 6 reports the *IV* regression results.

Panel A shows that the coefficient of *IV* is statistically positive, which means that the *IV* we construct strongly relates to the possibility of HSR introduction and thus meets the relevance requirement. Panel B presents the results of the second-stage regression, and it shows that the coefficient of predicted HSR from the first stage (*HSRhat*) remains significantly positive. Overall, our results still hold under the *IV* approach.

4.4.2. Propensity score matching test

To alleviate the self-selection bias in HSR introduction, we use PSM as a robustness check. Specifically, we use city-level control variables to match a non-HSR city for each HSR city and repeat the regression of model (1). The test results are reported in Table 7. Panel A and Panel B present the difference between the treatment and control city before PSM and after PSM. Panel C presents the regression results using the PSM sample.

Panel A shows that the characteristics of the treatment group are significantly higher in magnitude than those of the control group, except *GDPGROW*, which is substantially higher in the control group. Panel B shows no difference between the treatment and control group, which indicates that PSM accurately generates matching cities with similar

Table 6. IV Analysis.

Panel A First-stage regression		
	(1)	
VARIABLES	<i>HSR</i>	
<i>IV</i>	0.861***	
	(10.30)	
Controls	YES	
Year FE	YES	
Observations	1,801	
Pseudo R^2	0.328	
Panel B Second-stage regression		
	(1)	(2)
VARIABLES	<i>YATT</i>	<i>TATT</i>
<i>HSRhat</i>	0.259**	0.189***
	(2.43)	(2.79)
Controls	YES	YES
Firm & City & Year FE	YES	YES
Observations	17,321	24,522
Adj R^2	0.088	0.089

This table presents the results of the IV test. Panel A and Panel B are the first and second stage regression results respectively. *IV* is a dummy variable of whether the city should introduce HSR generated by minimum geographic development cost in Arc-GIS10.2. All variables are defined in Appendix A1. City-clustered t-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

characteristics. Panel C shows that the coefficients of *HSR* are statistically positive, which is consistent with the main regression. Overall, our results are robust after controlling for the difference between the treatment and control sample.

4.4.3. Placebo test

We further perform a placebo test to rule out the probability that our results may be driven by some unobservable but yearly changing characteristics that lead to HSR introduction and simultaneously increase small investors' on-site attendance at general meetings. Since HSR station construction generally takes at least three years, we use pseudo-HSR introduction points in the third and fourth years before the actual year (*HSRpseudo*₋₃, *HSRpseudo*₋₄) and repeat the regression in the model (1). Table 8 presents the results.

Table 8 shows that the coefficients of *HSRpseudo*₋₃ and *HSRpseudo*₋₄ are not significant, which indicates that yearly unobservable characteristics do not drive our results.

4.5. Cross-sectional analysis

Further, we expect the positive effect to be more significant for firms when the located city is less accessible before HSR introduction, and it becomes more convenient to transfer from the HSR station to the firm office after HSR introduction.

Table 7. PSM analysis.

Panel A Sample comparison before PSM						
variable	<i>HSR = 1</i>		<i>HSR = 0</i>		Diff	
	mean	sd	mean	sd	T-test	
<i>PCGDP</i>	6.125	5.456	3.319	3.165	2.807***	
<i>GDPGROW</i>	0.122	0.062	0.154	0.074	-0.032***	
<i>DENSITY</i>	6.273	0.566	5.843	0.729	0.430***	
<i>RETAIL</i>	15.950	0.964	14.990	0.789	0.963***	
<i>RAIL</i>	6.662	1.275	5.683	1.099	0.980***	
<i>ROAD</i>	9.433	0.893	8.687	0.807	0.745***	
<i>OPEN</i>	50.020	33.550	34.540	32.620	15.480***	
N	378		1004			

Panel B Sample comparison after PSM						
variable	<i>HSR = 1</i>		<i>HSR = 0</i>		Diff	
	mean	sd	T-test	sd	T-test	
<i>PCGDP</i>	2.855	2.175	2.718	2.745	0.137	
<i>GDPGROW</i>	0.155	0.056	0.161	0.067	-0.007	
<i>DENSITY</i>	5.966	0.606	5.884	0.689	0.082	
<i>RETAIL</i>	15.030	0.662	15.080	0.790	-0.049	
<i>RAIL</i>	5.716	1.187	5.842	0.882	-0.126	
<i>ROAD</i>	8.774	0.627	8.861	0.806	-0.087	
<i>OPEN</i>	33.590	26.430	30.640	28.140	2.948	
N	88		82			

Panel C Regression of PSM sample		
	(1) YATT	(2) TATT
<i>HSR</i>	0.085** (2.29)	0.049* (1.67)
Controls	YES	YES
Firm & City & Year FE	YES	YES
Observations	7,887	11,206
Adj <i>R</i> ²	0.087	0.088

This table presents the results of the PSM test. Panel A and Panel B are the sample comparison before and after the PSM procedure respectively. Panel C is the regressions results of the PSM sample. All variables are defined in Appendix A1. City-clustered t-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

Table 8. Placebo test.

VARIABLES	(1)	(2)	(3)	(4)
	YATT	TATT	YATT	TATT
<i>HSRpseudo</i> ₋₃	-0.020 (-0.51)	-0.019 (-0.45)		
<i>HSRpseudo</i> ₋₄			-0.039 (-0.96)	-0.016 (-0.34)
Controls	YES	YES	YES	YES
Firm & City & Year FE	YES	YES	YES	YES
Observations	17,442	24,717	17,442	24,717
Adj <i>R</i> ²	0.081	0.084	0.081	0.084

This table presents the results of the Placebo test. *HSRpseudo*₋₃ and *HSRpseudo*₋₄ is the pseudo-*HSR* introduction point in the third and fourth years before the actual year. All variables are defined in Appendix A1. City-clustered t-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

4.5.1. Traffic inaccessibility alleviation

Inferior transportation infrastructure that connected other cities before HSR introduction made the city inaccessible; thus, we expect HSR introduction impact small shareholders' on-site attendance more. Specifically, we use the 'Basic Transportation Infrastructure Level Connecting Outside Regions' metric of Ni (2007) to measure traffic accessibility, where a

Table 9. Cross-sectional analysis.

Panel A Traffic inaccessibility alleviation				
	Low (1)	High (2)	Low (3)	High (4)
VARIABLES	YATT	YATT	TATT	TATT
<i>HSR</i>	-0.017 (-0.44)	0.135** (2.42)	0.015 (0.47)	0.120** (2.54)
Chow test	$p = 0.0998$		$p = 0.0268$	
Controls	YES	YES	YES	YES
Firm & City & Year FE	YES	YES	YES	YES
Observations	9,867	7,575	14,371	10,346
Adj R^2	0.087	0.082	0.089	0.080
Panel B Transportation convenience improvement				
	Low (1)	High (2)	Low (3)	High (4)
VARIABLES	YATT	YATT	TATT	TATT
<i>HSR</i>	-0.015 (-0.34)	0.087** (2.01)	-0.014 (-0.38)	0.103*** (2.86)
Chow test	$p = 0.0180$		$p = 0.0572$	
Controls	YES	YES	YES	YES
Firm & City & Year FE	YES	YES	YES	YES
Observations	9,335	8,107	12,929	11,788
Adj R^2	0.089	0.083	0.086	0.084
Panel C Number of nonlocal investors: number of nonlocal subsidiaries and branches				
	Low (1)	High (2)	Low (3)	High (4)
VARIABLES	YATT	YATT	TATT	TATT
<i>HSR</i>	0.004 (0.09)	0.070* (1.74)	0.040 (1.03)	0.111*** (3.14)
Chow test	$p = 0.2340$		$p = 0.0635$	
Controls	YES	YES	YES	YES
Firm & City & Year FE	YES	YES	YES	YES
Observations	7,750	9,692	11,791	12,926
Adj R^2	0.054	0.084	0.058	0.072

This table presents the results of the Mechanism Analysis. All variables are defined in Appendix A1. City-clustered t -statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

higher rank indicates greater traffic accessibility. We consider cities in the top 25 a subsample with low alleviation of traffic inaccessibility from HSR introduction; the remaining cities comprise a subsample with a high alleviation of traffic inaccessibility, and we subsequently compare the difference between the two groups. The results are reported in Panel A of Table 9.

Panel A shows that the coefficient of *HSR* is significantly positive at the 5% in the group of high inaccessibility alleviation; however, it is not significant in the low-alleviation group. In addition, the p -value of the Chow test between the two groups is significant

at the 10% (5%), which suggests that the positive impact is more pronounced when HSR allows more connectivity between the city where the firm is headquartered and other cities.

4.5.2. Transportation convenience improvement

The closer a firm's headquarters are to an HSR station, the more convenient it is for investors in the firm to reach the headquarters. We examine the impact of increased transport convenience on the relationship between HSR introduction and small shareholders' on-site attendance. We use the straight distance from the firm's headquarters to the nearest HSR station in the city to proxy the improvement to transportation convenience, use the median value to separate the sample into two groups, and subsequently compare the difference between the highest and lowest groups. The results are reported in Panel B of Table 9.

Panel B shows that the coefficient of *HSR* is significantly positive at the 5% (1%) in the group of high-level transportation convenience improvement. However, it is not significant in the low-level group. In addition, the *p*-value of the Chow test between the two groups is significant at the 5% (10%), which suggests that the positive impact of HSR introduction on small shareholder activism is more pronounced when it becomes more convenient for investors to reach the firm headquarters.

4.5.3. Number of nonlocal investors

The HSR will attract more nonlocal small shareholders participants if the firm has a broader nonlocal investors base. We examine the impact of the number of nonlocal investors on the relationship between HSR introduction and small shareholders' on-site attendance to meetings. Considering that firms with more nonlocal branches and subsidiaries are more likely to be known by nonlocal investors, thus have more nonlocal investors. We separate the sample into two groups by the median value of the number of nonlocal branches and subsidiaries of each firm, where the low group refers to firms with fewer nonlocal investors and the high group with more nonlocal investors, and subsequently compare the difference of the regression results between the low and high groups. The results are reported in Panel C of Table 9.

Panel C shows that the coefficient of *HSR* is significantly positive at the 10% (1%) in the group of high-level nonlocal branches and subsidiaries, namely the firms with more nonlocal investors. However, it is not significant in the low-level group. In addition, the *p*-value of the Chow test of the coefficients of *HSR* between the two groups is significant at the 10% level for *TATT*, while not significant for *YATT*. Overall, this evidence suggests that the positive impact of HSR introduction on small shareholder activism is more pronounced for firms that have a wide range of nonlocal investors.

4.6. Corporate governance effectiveness analysis

We further examine whether an increase in the on-site attendance of small shareholders resulting from HSR introduction helps improve corporate governance.

4.6.1. Proposal rejection

We a higher attendance rate of small shareholders at general meetings will lead to a higher likelihood of proposals being vetoed, especially for those proposals that may result in expropriation of the listed firm's minority shareholders. We divide all the proposals into 'proposals that are *a priori* likely to result in expropriation of the listed firm's minority shareholders' and 'other proposals'⁷ and conduct a mediation test on each sample.

We use the following recursive regression equations to test the mediation effect of a high attendance rate of small shareholders resulting from HSR introduction on proposal rejection.

$$Reject_{i,t,c,m,p} = \alpha_i + \alpha_t + \alpha_c + \beta_1 \times HSR_{i,t,c} + \beta_2 \times Controls_{i,t,c} + \varepsilon_{i,t,c,m,p} \quad (3)$$

$$ATT_{i,t,c,m} = \alpha_i + \alpha_t + \alpha_c + \delta_1 \times HSR_{i,t,c} + \delta_2 \times Controls_{i,t,c} + \varepsilon_{i,t,c,m} \quad (4)$$

$$Reject_{i,t,c,m,p} = \alpha_i + \alpha_t + \alpha_c + \varphi_1 \times HSR_{i,t,c} + \varphi_2 \times ATT_{i,t,c,m} + \varphi_3 \times Controls_{i,t,c} + \varepsilon_{i,t,c,m,p} \quad (5)$$

where i indexes firm, t indexes year, c indexes the city where the firm is headquartered, m indexes each general meeting (AGM or PGM), and p indexes proposals. α_i , α_t , and α_c are firm, year, and city fixed effects, respectively. The variables are defined in Appendix A1. The mediation test results are presented in Panel A of Table 10.

Columns (1) and (5) show that the coefficients of *HSR* are all significantly positive, while the coefficients in columns (4) and (8) are not significant; this means that HSR introduction increases the likelihood of proposal rejection for 'proposals that are *a priori* likely to result in expropriation of firm's minority shareholders,' but not for 'other proposals'. Furthermore, Column (2) and (3) show that the coefficients for *HSR* and *YATT* are significantly positive; the results are similar for proposals in PGMs presented in columns (6) and (7). In addition, Sobel, Goodman1, and Goodman2 tests are performed on the mediating effects, and all are significant. These results indicate that HSR introduction leads to higher on-site attendance among small shareholders; and the higher attendance increases the likelihood of a proposal being rejected at general meetings.

4.6.2. Large shareholder tunnelling

We expect that higher rates of small shareholders' on-site attendance helps constrain the tunnelling of large shareholders. Therefore, we use large shareholder borrowing (Jian & Wong, 2010) to measure tunnelling behaviours and examine the mediation effect of *YATT* with mediation effect model. The variables are defined in Appendix A1, and the results are presented in Panel B of Table 10.

⁷Specifically, we group proposals into 14 types: 'connected party transactions,' 'profits distribution,' 'rules and regulations,' 'personnel appointment and removal,' 'securities issuance and repurchase,' 'remuneration development,' 'asset restructuring,' 'stock split reform,' 'usage of funds raised,' 'equity incentives,' 'collaterals and guarantees,' 'investment,' 'debt repayment,' and 'others'; categorisation aligns with the nature of the proposal. Subsequently, we combine the proposals of 'connected party transactions,' 'profits distribution,' 'securities issuance and repurchase,' 'asset restructuring,' 'equity incentives,' and 'collaterals and guarantees' as the subsample of 'proposals that are *a priori* likely to result in expropriation of the listed firm's minority shareholders,' which we believe have a higher *a priori* likelihood to result in expropriation of the listed firm's minority shareholders. The remaining types are combined into the subsample of 'other proposals.'

Table 10. Corporate governance effectiveness analysis.

VARIABLES	AGMs				PGMs			
	Proposals likely result in expropriation of small shareholder		Other Proposals		Proposals likely result in expropriation of small shareholder		Other Proposals	
	(1) Reject	(2) YATT	(3) Reject	(4) Reject	(5) Reject	(6) TATT	(7) Reject	(8) Reject
HSR	0.002** (2.00)	0.065*** (2.64)	0.002* (1.96)	0.000 (0.88)	0.002* (1.90)	0.304*** (9.85)	0.002* (1.72)	0.000 (0.24)
YATT			0.001* (1.90)					
TATT							0.001* (1.69)	
Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm & City & Year FE	YES	YES	YES	YES	YES	YES	YES	YES
Observations	19,029	19,029	19,029	56,097	8,875	8,875	8,875	27,870
Adj R2	0.151	0.674	0.151	0.071	0.008	0.180	0.008	0.002
Sobel test		0.0001***(z = 2.118)				0.0002*(z = 1.699)		
Goodman test1		0.0001***(z = 2.091)				0.0002*(z = 1.691)		
Goodman test2		0.0001***(z = 2.146)				0.0002*(z = 1.708)		
Panel B Large Shareholder Borrowing								
VARIABLES	(1)		(2)		(3)			
	OAR	YATT	OAR	YATT	OAR	YATT	OAR	
HSR	-4.277* (-1.91)		-4.277* (-1.91)	0.085** (2.33)	-4.066* (-1.81)		-4.066* (-1.81)	
YATT					-1.966*** (-2.96)		-1.966*** (-2.96)	
Controls	YES	YES	YES	YES	YES	YES	YES	
Firm & City & Year FE	YES	YES	YES	YES	YES	YES	YES	
Observations	17,442	17,442	17,442	17,442	17,442	17,442	17,442	
Adj R2	0.294	0.081	0.294	0.081	0.294	0.081	0.294	
Sobel test		-0.1671***(z = -2.354)						
Goodman test1		-0.1671***(z = -2.305)						
Goodman test2		-0.1671***(z = -2.405)						

(Continued)



Table 10. (Continued).

Panel C Earnings Management			
VARIABLES	(1)	(2)	(3)
	ABSDA	YATT	ABSDA
HSR	-0.009*** (-4.91)	0.085** (2.33)	-0.009*** (-4.83)
YATT			-0.001*** (-2.80)
Controls	YES	YES	YES
Firm & City & Year FE	YES	YES	YES
Observations	15,783	15,783	15,783
Adj R2	0.075	0.088	0.075
Sobel test		-0.0001** (z = -2.201)	
Goodman test1		-0.0001** (z = -2.150)	
Goodman test2		-0.0001** (z = -2.257)	

This table presents the main tests of hypothesis H2 to evaluate the corporate governance consequences of the effect of HSR introduction on shareholder activism by small investors. All variables are defined in Appendix A1. City-clustered t-statistics are reported in parentheses. *, **, *** denote statistical significance at the 10%, 5%, and 1% confidence levels, respectively.

Column (1) shows that the coefficient of *HSR* is significantly negative; this indicates that HSR introduction reduces the magnitude of large shareholder borrowing. In addition, Column (2) shows that the coefficient of *HSR* is significantly positive, and column (3) shows that the coefficient of *YATT* is significantly negative. Moreover, the Sobel, Goodman1, and Goodman2 tests are performed on the mediating effects, and all are significant at the 5% level. The results indicate that higher small shareholders' on-site attendance resulting from HSR introduction reduces large shareholder borrowing.

4.6.3. Earnings manipulation

Studies find that managers manipulate accounting information and large shareholders tend to expropriate value from small shareholders through earnings management (Wong & Jian, 2003). Therefore, would higher rates of small shareholders' on-site attendance resulting from HSR introduction constrain accounting information manipulation by insiders? We use earnings management (*ABSDA*) to measure accounting information manipulation by insiders and use the mediation effect model to test it. The results are presented in Panel C of Table 10.

Column (1) shows that the coefficients of *HSR* are significantly negative in the whole sample. In addition, column (2) shows that the coefficient of *HSR* is significantly positive, and column (3) shows that the coefficient of *YATT* is significantly negative. Moreover, the results of Sobel, Goodman1, and Goodman2 tests of the mediating effects are significant at the 5%. The results indicate that HSR introduction increases small shareholders' on-site attendance at AGMs and thus leads to less earnings manipulation.

4.7. Robust analysis

Finally, we conduct a robust analysis using the following methods: (1) a dosage test by replacing the *HSR* dummy with measure of the number of HSR lines in the city; (2) a subsample test by requiring firms be established or go public three years previous to HSR introduction; (3) a subsample test with a short window [-3,3] around HSR introduction; (4) a subsample test without firms changing their headquarters during the sample period; (5) a subsample test without firms headquartered in major cities including first-tier cities, province-level municipalities and provincial capitals; and (6) alternative attendance measures calculated as the number of small investors attending the on-site meeting, and calculated as the percentage of shares held by small investors attending on-site meetings. All results hold following these tests.

5. Conclusion

We investigate how HSR introduction affects the participation of small investors in general shareholder meetings and shareholder activism in general. We find that firms see a significant increase in the on-site meeting attendance rate of small shareholders when an HSR station is introduced in the cities where they are headquartered, compared to the firms that do not have an HSR station. Further analyses show that firms located in a city with more inferior transportation infrastructure connecting it to other cities before HSR introduction, a shorter distance between an HSR station and the firm's headquarters after HSR introduction, and that have a wider range of nonlocal investors gain more positive

effects. We also find that a higher attendance rate by small investors leads to a higher likelihood of a proposal being vetoed at shareholder meetings, less tunnelling, and less earnings manipulation.

This study shows that HSR serves as a tool to alleviate the inverse distance–participation problem for small investors to conduct shareholder activism by reducing monitoring costs. Thus, this study has important implications for policymakers worldwide – especially in emerging markets with vast numbers of small investors – on how to encourage shareholder activism and thus improve corporate governance. For corporations, this study shows that their decisions regarding headquarters and shareholder meeting location are essential. Firms should site themselves in cities that feature modern transportation infrastructure, which offers more convenient and economical means for shareholders to participate in shareholder meetings.

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Appendix A1: Variables Definition

HSR Dummy Variable

HSR HSR introduction dummy, equal to 1 if any HSR station commute in the firm's headquartered city in the current year, and 0 otherwise.

Attendance Rate

YATT Small investors' attendance at the on-site AGMs, measured by the natural logarithm of the number of shares held by small investors attending on-site AGMs divided by the total number of shares held by all small investors and multiply by 100. Small investors are shareholders who own no less than 5% of firm shares.

TATT Small investors' attendance at the on-site PGMs, measured by the natural logarithm of the number of shares held by small investors attending on-site PGMs divided by the total number of shares held by all small investors and multiply by 100.

Dependent Variables

REJECT Proposal reject dummy, equals one if small investors vote against it and the proposal is rejected in the general meetings, and zero otherwise.

OAR Large shareholder borrowing, calculated by other receivables, loans, and other advanced payments to large shareholders (and its related shareholders, subsidiaries, associated companies, and others), scaled by the total sales, see Jian and Wong (2010).

ABSDA Absolute abnormal discretionary accrual, calculated by *ROA*-adjusted modified Jones model, see Kothari et al. (2005).

(Continued)

(Continued).

Control Variables

<i>SIZE</i>	Logarithm of assets.
<i>MTB</i>	Market to book ratio.
<i>LEV</i>	Total debt divided by total assets
<i>ROA</i>	Net income divided by total assets.
<i>DIV</i>	Cash dividend dummy, equals one if the cash dividend is paid and zero otherwise.
<i>MANEXP</i>	Total administrative expenses divided by total sales.
<i>MANHLD</i>	Shares held by management divided by total shares.
<i>DUAL</i>	Duality, equals one if the CEO is also chairman of the board and zero otherwise.
<i>IDRRATIO</i>	The ratio of independent directors out of the total number of members of the board.
<i>SHR1</i>	Ownership concentration index, equals the percentage of holdings by the largest shareholder.
<i>SHRS</i>	Ownership concentration index, equals the percentage of holdings by second to the tenth largest shareholders.
<i>SHRZ</i>	Ownership concentration index, equals the ratio of holdings by the largest shareholder and those of the second-largest shareholder.
<i>INSTI</i>	The percentage of holdings by institutional investors.
<i>ΔINSTI</i>	The increment of the institutional investor's shareholding ratio, calculated by the institutional investor's shareholding ratio in the current year minus the institutional investor's shareholding ratio in the previous year.
<i>ΔANA</i>	The increment of analyst following, calculated by the number of analysts following in the current year minus the number of analysts following in the previous year.
<i>ΔMEDIA</i>	The increment of media coverage, calculated by the number of media reports in the current year minus the number of media reports in the previous year.
<i>AIR</i>	Airport dummy, equals one if there is any airport in the firm's headquartered city and zero otherwise.
<i>PCGDP</i>	GDP per capita in the firm's headquartered city.
<i>GDPGROW</i>	GDP growth rate in the firm's headquartered city.
<i>ΔGTRANSIT</i>	Ground transit facility improvement, calculated by the ground transit road area divided by total city area in the firm's headquartered city, and minus the value in the previous year.
<i>ΔRTRANSIT</i>	Rail transit facility improvement, calculated by the length of rail lines divided by total city area in the firm's headquartered city, and minus the value in the previous year.
<i>DENSITY</i>	Population density, calculated by population per square metre.
<i>RETAIL</i>	Retail sales of social consumer goods, calculated by $\log(1 + \text{retail sales of social consumer goods in the firm's headquartered city})$.
<i>RAIL</i>	Rail passenger volume, calculated by $\log(1 + \text{rail passenger volume in the firm's headquartered city})$.
<i>ROAD</i>	Road passenger volume, calculated by $\log(1 + \text{road passenger volume in the firm's headquartered city})$.
<i>OPEN</i>	Foreign investment level, calculated by actual foreign investment amount scaled by actual GDP in the firm's headquartered city.
