

Can Online Annual General Meetings Increase Shareholders' Participation in Corporate Governance?

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Abstract: We find that annual shareholder meetings conducted online can significantly increase the participation of shareholders, especially minority shareholders. This finding is more evident when the cost of physically attending the annual meeting is higher, and when

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the firm's ownership is more dispersed. We further document significant positive stock returns when firms initiate annual online meetings. We also find that such online meetings help improve corporate governance. Overall, we provide evidence that online shareholder meetings provide shareholders a cost-effective way to participate in governance issues.

Keywords: online annual general meetings, shareholder participation, corporate governance

1. Introduction

Annual general meetings (AGMs) often serve as an opportunity for shareholders to receive updates on company developments, to ask management and directors questions, to consider corporate proposals, and to review the company's performance. It is generally believed that shareholder participation is a vital component of a successful annual meeting and overall governance (Easterbrook and Fischel (1983), and Pound (1991)). However, shareholder participation in annual meetings is extremely low among public firms due to a diffused ownership structure and the inconvenience of physically attending meetings. For example, in the U.S., 70% of shares held by minority shareholders were not voted on in annual meetings.¹ In China, as shown later in Table 2, more than 90% of shares held by minority shareholders were not voted on in annual meetings.

The number of debates regarding the practice of online AGMs has surged over the past decade; regardless, more firms are using online AGMs than ever before. One view suggests that online AGMs make annual meetings more accessible, transparent, and efficient to meet the corporate governance needs of shareholders. In contrast to traditional AGMs, which typically require shareholders to attend meetings on-site, online AGMs allow shareholders

¹ See Broadridge and PwC' 2013 Proxy Voting Trends (June 4, 2013), available at <http://www.broadridge.com/news-events/press-releases/Broadridge-and-PwC-Announce-New-Data-on-2013-Proxy-Voting-Trends.html>.

to attend and vote remotely, via an internet platform. Thus, when the cost of physically attending an AGM is high, an online AGM may facilitate shareholder participation.

Critics of online AGMs assert that such meetings are of limited value, because (1) online participation is a poor substitute for “looking management in the eye”; (2) large shareholders will most likely attend the meeting anyway, while minority shareholders may still lack incentive to participate due to their small stake in the firm; and (3) even if minority investors actively participate in online meetings, too much intervention of (unsophisticated) minority investors may be value-destroying (Jensen (1993), and Lipton and Rosenblum (1991)).

In this paper, we examine whether online AGMs² can increase shareholder participation in annual meetings based on data from China, since Chinese public firms have been conducting online AGMs as early as 2005 (and in 2017, all Chinese public firms had adopted online AGMs³). The relatively rich history and widespread adoption of online AGMs in China allow us to better examine the effects of online AGMs on shareholder participation in annual meetings.

We find that shareholder participation, especially minority investor participation, increases significantly after a firm adopts online AGMs. Specifically, firms with online AGMs see a 35% higher rate of ownership participation by minority investors than firms without online AGMs. The number of minority investors participating in AGMs in the former group is five times as large as that in the latter group. This effect is more pronounced when the cost

² Throughout the paper, online AGMs refer to the AGMs in which shareholders can attend meetings and cast a vote online (not just a webstream).

³ In 2009, INTEL became the first U.S. company to enable all its shareholders to attend, ask questions, and cast their votes live on the web in its AGM. Since then, more companies have followed suit, although the total number of firms using online AGMs is still very small in the U.S. (Lublin (2011)).

of physically attending AGMs is higher, suggesting that the cost of physically attending the meeting is an essential factor leading to low participation of shareholders who would otherwise like to attend. Furthermore, the impact of online AGMs on shareholder participation in AGMs is greater for firms with dispersed ownership, because minority shareholders are more likely to be influential when large stakeholders do not dominate firms.

Our main results may be subject to an omitted variable problem. For example, a firm's culture of shareholder democracy and a firm's information barriers to communicate with its shareholders may be some unobservable variables that are correlated with both online AGM voting and shareholder participation in AGMs. Such a problem could bias our results. We address this endogeneity concern by exploiting a quasi-natural experiment that examines the Shanghai and Shenzhen Stock Exchanges' 2014 policy requiring firms to adopt online AGMs. Based on a difference-in-differences approach, we show that such a policy change leads to a significant increase in shareholder participation in AGMs. This result suggests that our implication is unchanged after accounting for the possible endogeneity problem.

We also examine the valuation effects of online AGMs. Online AGMs likely increase shareholder value because active shareholder participation in AGMs 1) facilitates the communication between managers and shareholders; and 2) increases the function of corporate governance. Moreover, considering that the financial cost of convening a physical meeting with a large number of shareholders can be nontrivial, online AGMs provide an inexpensive and geographically unlimited means for more shareholders to participate in

such meetings. However, shareholders—especially minority shareholders—usually lack specific information about the firm, and their opinions may differ from those of managers with better information (Porter (1992)). Managers facing frequent shareholder interventions might be less likely to take the initiative (Aghion and Tirole (1997), and Burkart et al. (1997)), which decreases shareholder value. Supporting the first view, we find a positive abnormal return at the firm’s announcement of initiating online shareholder meetings.

Finally, we show that online AGM voting helps improve corporate governance. Specifically, online AGM voting is associated with a higher likelihood of a proposal being vetoed, a higher executive pay-performance sensitivity, fewer earnings manipulation, and less tunneling by controlling shareholders.

Our paper makes at least three significant contributions to the literature. First, to the best of our knowledge, our paper is the first to examine the effects of online AGMs on shareholder participation, and provides evidence that allowing shareholders to attend online AGMs increases participation and firm value.

Second, in line with the seminal work of Shleifer and Vishny (1986), the incentive for a shareholder to take an active role in corporate governance depends on the shareholder’s ownership and costs of monitoring. Shareholders are more likely to monitor a firm’s management decisions if they are large shareholders, and their cost of monitoring is low, or both. Empirical research on shareholder monitoring mainly focuses on the effect of large shareholding on enhancing the shareholders’ incentive to monitor (for example, Chen et al. (2007), Denis and Serrano (1996), Gillan and Starks (2000) and Hartzell and Starks (2003)).

However, the cost of monitoring is relatively less examined. Our research provides evidence that even minority shareholders can actively participate in corporate governance issues if their participation cost is reduced.

Finally, our study sheds more light on the role of information technology in corporate governance. Our results suggest that facilitating shareholder participation in governance issues through information technology can strengthen the corporate governance of publicly traded firms.

2. Background of Online AGMs in China

According to *The Rules of Listed Companies* issued by the China Securities Regulatory Commission (CSRC) in 1997, AGMs should be held within six months after the fiscal year end. Companies choose the venue of the AGM, which is usually held in their headquarters. For on-site AGMs, shareholders must register before a meeting, and then travel to the meeting location to exercise their voting rights. Such meetings are usually held on a weekday, which creates additional problems for shareholders to attend. All expenses associated with attending the meetings, such as airfare and accommodations, are borne by shareholders themselves.

To protect shareholder interests and strengthen corporate governance, the CSRC published *The Guidelines on Online Voting at the Shareholders Meeting of Listed Companies* on November 29, 2004. The guidelines encourage listed companies to facilitate shareholder voting by providing remote means to vote for those who cannot attend the shareholder meeting physically. On February 17, 2005, Celebrities Real Estate Development Group Ltd.

became the first public Chinese company to adopt online voting in its annual general meetings.

According to the guidelines, all shareholders listed on an AGM's registration date have the right to vote online if the company initiates online voting in the AGM; however, they can only choose one of the following voting methods: on-site voting, online voting, or other voting methods stipulated by the company.⁴ The registration date is typically one week before the AGM. Furthermore, if a company offers online voting access, it must specify in the AGM notice the time to vote online, voting procedures, and proposals on which to vote. The proposals submitted to the meeting include general proposals (which are issued by the board) and temporary proposals (which are issued by shareholders). Shareholders can issue a temporary proposal ten days before the AGM if they hold more than 3% of firm ownership. Before the AGM begins, the company must disclose the contents of its proposals and materials that are relevant for shareholders to evaluate. The voting method in the AGM must be via disclosed ballot, and each proposal must be voted on individually. Shareholders exercise their voting rights based on their holding shares, and each share represents one vote. For each proposal, shareholders must present the opinion of consent, objection, or abstention, and the company must jointly calculate the ballots of on-site and online voting. A proposal is passed if it receives the support of more than half of the votes cast in the AGM. When the proposal is related to issues such as a change in the company's by-law, mergers and acquisitions, split-up, etc., it must get the support of more than two-thirds of votes to pass in the AGM. Finally, the voting results must be announced during the AGM.

⁴ Though the CSRC encourages listed companies to initiate "other" methods to facilitate shareholders' voting in the AGMs, only on-site voting and online voting are provided.

There is an essential regulation in China that could make online voting particularly useful for minority shareholders. Effective as of December 7, 2004, the CSRC issued a regulation entitled *The Provisions on Strengthening the Protection of the Rights and Interests of General Public Shareholders*, commonly referred to as the segmented voting regulation. This regulation requires several major corporate decisions, such as equity offerings, convertible bond issuing, major corporate restructuring, etc., to be separately approved by more than 50% of the tradable shares that contribute to the voting.⁵ Minority shareholders typically hold tradable shares. Chen et al. (2013) study the consequence of this regulation and find that such a regulation deters managers from submitting value-decreasing equity-offering proposals.

It is worth noting that proxy voting is allowed in China. According to *Company Law of the People's Republic of China*, shareholders can appoint an agent to attend an AGM and cast votes on their behalf. When appointing an agent to vote in the AGM, the shareholder must sign an authorization letter, indicating the name of the agent, the indication of consent, objection or abstention for each proposal, the period of authorization, and whether the agent can vote based on his/her own will if the shareholder does not provide specific instructions. This procedure is similar to that in the U.S. However, relative to the U.S. (where ownership is more dispersed, and thus proxy voting can be an effective way for minority investors to have a voice), proxy voting in China (in which the ownership structure is more concentrated) is more likely to be used as a tool for large shareholders to fight with each other (Jiang (2015)).

⁵ See Footnote 7 for a more detailed discussion of tradable and non-tradable shares.

3. Sample and Descriptive Statistics

Our initial sample includes all firms listed on the Shanghai and Shenzhen Stock Exchanges from 2005 to 2017. The sample period begins in 2005—the year when firms first allowed shareholders to vote online in AGMs. In that year, only 16 firms (1.22% of public firms) adopted online voting in AGMs. As demonstrated in Table 1, the number of firms adopting online voting in AGMs has increased steadily since 2005. In 2014, the Shanghai and Shenzhen Stock exchanges required all public firms to allow their shareholders to vote in AGMs via an online platform. Table 1 shows that the percentage of firms with online AGM voting increased from less than 35% in 2013 to 100% in 2014. Since there is no variation in AGM online voting among sample companies after 2013, we use the sample period 2005 to 2013 to compare the difference in shareholder participation between firms with and without online AGMs. For our other analyses, we use the full sample period 2005 to 2017. During the period 2005 to 2013, we have 2,039 firm-year observations with online AGMs and 13,283 firm-year observations without online AGMs. During the period 2005 to 2017, we have 12,192 firm-year observations with online AGMs and 13,283 firm-year observations without online AGMs.

We obtain our AGM information from the WIND database⁶ and financial information from the China Stock Market Accounting Research (CSMAR) database. We construct two variables to capture shareholder participation in AGMs. The first is *Ownership representation*, which is the number of shares voting in the AGMs, normalized by total shares outstanding. The second is *Shareholder participation*, which is the number of shareholders voting in the AGMs, normalized by the total number of shareholders. Table 2 presents the

⁶ WIND is a Chinese corporate database similar to Compustat in the U.S.; it is regarded as one of the leading providers for financial information in China. This database is widely used in academic research (see, for example, Fang et al. (2017), Liu et al. (2019), and Bradshaw et al. (2019)).

descriptive statistics for firms with and without online AGMs. Variable definitions are provided in Appendix 1. For firms with online voting in AGMs, *Ownership representation* is 53.07% on average and 54.12% at the median. In contrast, in firms without such online voting in AGMs, the average (median) *Ownership representation* is 48.48% (48.95%). In terms of percentage increase, the average *Ownership representation* in firms with online AGMs is about 10% larger than that in firms without online AGMs, and these differences are significant at the 1% level. We further divide the shares voted in the AGMs into those owned by non-blockholders and blockholders. Blockholders are shareholders who own no less than 5% of firm shares. Statistics show that the difference of *Ownership representation* between online and non-online AGMs is mostly driven by non-blockholders. The average *Non-blockholder ownership representation* is 7.25% for firms with online AGMs, which is significantly larger than that of firms without online AGMs (4.80%). In terms of percentage increase, the former is about 51% higher than the latter. The average *Blockholder ownership representation* is quite similar in the two types of firms: 47.30% for firms with online AGMs and 46.87% for firms without online AGMs. Thus, compared to blockholders, the effect of online AGMs on attracting shareholders to participate is much stronger for non-blockholder shareholders, which is not surprising given that blockholders are likely to attend AGMs physically, whether the firm holds online AGMs or not.

The average (median) *Shareholder participation* in AGMs is 0.20% (0.11%) for firms with online AMGs, while the corresponding figure is 0.04% (0.02%) for firms without online AGMs. Both a *t*-test and a Wilcoxon test indicate that the difference in shareholder participation in AGMs between these two groups of firms is significant at the 1% level. The economic magnitude is also sizeable, considering that the former numbers are approximately 5-6 times as large as the latter numbers.

It is worth acknowledging that our study has the following caveat: although the difference in shareholder participation is sizeable in percentage terms, the difference is small in absolute terms. For example, in absolute terms, the difference in average *Shareholder participation* between the two groups of firms is only 0.16% (=0.20%—0.04%). Such a “small” difference is largely due to the fact that the unconditional shareholder participation in AGMs is extremely low (as discussed later in Section 5.3, while China has a large population and thus a large number of individual stock investors, many of these investors are short-term-oriented and do not participate in the governance issue).

Furthermore, relative to firms without online AGMs, those with online AGMs are generally larger and older, have better accounting performance, poorer stock returns and lower risk, and experience lower growth. Moreover, firms using online AGMs tend to have larger institutional ownership and insider ownership but smaller QFII ownership, and are more likely to finish the split share reform.

4. Empirical Results

4.1 Online AGMs and Shareholder Participation

Our main hypothesis is that the availability of online AGMs can increase the participation of shareholders in AGMs. To test this hypothesis, we construct the following model:

$$\begin{aligned}
 Participation_t = & a_0 + a_1 Online\ AGM\ voting_t + a_2 Size_t + a_3 ROA_t + a_4 Stock\ return_t \\
 & + a_5 Stock\ volatility_t + a_6 MB_t + a_7 Insitution\ ownership_t \\
 & + a_8 Inside\ ownership_t + a_9 Firm\ age_t + a_{10} Split\ reform_t \\
 & + a_{11} QFII\ ownership_t + Firm\ FE + Year\ FE + \varepsilon_t
 \end{aligned} \tag{1}$$

The dependent variable is the measure of shareholder participation in the AGMs, including the ownership and number of shareholders attending the AGMs. The key independent variable is the *Online AGM voting* indicator, which takes the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. We also add a set of control variables, including firm size, performance, risk, growth opportunity, firm age, institution ownership, and insider ownership. In April 2005, the Chinese government initiated a reform of the split share structure with the goal of converting all non-tradable shares into tradable shares.⁷ Considering that this reform may influence shareholder participation in AGMs, we also include the *Split reform* indicator, which takes the value of one if the firm has finished the split share reform by year t , and zero otherwise. The number of qualified foreign institutional investors permitted to invest directly in Chinese-listed firms has also increased over time. Considering that these are by law “large” investors in a given firm, we might expect them to exercise their voting rights in AGMs. Thus, we also control for *QFII ownership* in the regression, which is the percentage ownership by qualified foreign institutional investors.⁸ We include firm fixed effects to control for any time-invariant unobserved heterogeneity, and we also include year fixed effects to control for time variations. Following Petersen (2009), p -values are based on robust standard errors clustered at the firm level.

⁷ As summarized by Li et al. (2011), the Shanghai Stock Exchange and the Shenzhen Stock Exchange were characterized by a split share structure after their establishment in the 1990s. Two-thirds of the listed shares were not tradable; the remaining shares were tradable and were mainly held by domestic individual and institutional investors. Over the years, the Chinese government has recognized that the predominance of non-tradable shares in the stock market constituted a major problem for the market’s proper development and has thus decided to implement such reform. By the end of 2007, most of the Chinese-listed firms had completed the reform.

⁸ The Qualified Foreign Institutional Investor Program represents China’s effort to allow, on a selective basis, global institutional investors to invest in its RMB denominated capital market. Once licensed, foreign investors are permitted to buy RMB-denominated “A shares” in China’s mainland Shanghai and Shenzhen Stock Exchanges.

Table 3 reports the regression results of model (1). In Column (1), we use *Ownership representation* as the dependent variable. The coefficient on *Online AGM voting* is 2.653 and significant at the 1% level, implying that the participation of shareholders in AGMs is greatly increased when shareholders attend AGMs online.

Given that the effect of online AGMs on shareholder participation can be different between large shareholders and minority shareholders, we further divide the aggregate ownership attending the AGMs into ownerships by non-blockholders and blockholders, and employ them as the dependent variable in Columns (2) and (3), respectively. We find that the coefficient on *Online AGM voting* is 1.708 and significant at the 1% level in Column (2). This coefficient indicates that ownership participation by non-blockholders in firms using online AGMs is about 1.7 percentage points higher than that of firms not using online AGMs. Considering that the average non-blockholder's ownership participation is 4.8 percentage points in firms without online AGMs, this difference is economically important: *Non-blockholder ownership representation* is approximately 35% higher in firms with online AGMs than firms without online AGMs.

In Column (3), the coefficient on *Online AGM voting* is not significantly different from zero, indicating that online AGMs do not increase the participation of blockholders in the AGMs. This finding is unsurprising, because blockholders would usually attend on-site AGMs due to their greater interest in the firm. In the remainder of the paper, we focus our analysis on non-blockholder ownership in AGMs.

In Column (4), the dependent variable is *Shareholder participation* in AGMs (measured in percentage points). The coefficient on *Online AGM voting* is 0.182 and significant at the 1% level, indicating that online voting increases shareholder participation in AGMs. The

economic magnitude is also sizeable: the shareholder participation number in firms using online AGMs is 0.182 percentage points larger than that in firms not using online AGMs, relative to the sample average participation of 0.04 percentage points in firms without online AGMs (i.e., a difference of approximately five times).

The results of our control variables show that strong performance and high growth opportunities increase the incentives of shareholders to attend AGMs. Furthermore, firms with lower executive ownership and higher QFII ownership have higher shareholder participation in AGMs. Finally, shareholders are more likely to attend AGMs of firms completing the split share reform.

Overall, the results in Table 3 show that shareholders are more likely to participate in AGMs when they can attend the AGMs online. The boosted participation in AGMs is particularly pronounced for non-blockholders.

A natural question is whether participation jumps immediately when firms start introducing online AGMs, or if it takes time for the participation rate to increase after the introduction of online AGMs. We investigate this question in Table 4. The regression specification is similar to that in Table 3. We replace the *Online AGM voting* indicator with the following three indicator variables: *Online AGM voting_{t+1}*, *Online AGM voting_{t+2}*, and *Online AGM voting_{t+3 and after}*. These variables indicate years relative to the year of adoption of online AGM voting. *Online AGM voting_{t+1}* indicates the first year in which the firm initiated the online AGM voting; *Online AGM voting_{t+2}* indicates the second year in which the firm initiated the online AGM voting; *Online AGM voting_{t+3 and after}* indicates the third and subsequent years in which the firm initiated the online AGM voting. The coefficients on all three indicators are positive and significant at the 1% level. For example, the coefficient on

*Online AGM voting*_{*t*+1} is 1.870 (significant at the 1% level) when the dependent variable is *Non-blockholder ownership representation* and is 0.173 (significant the 1% level) when the dependent variable is *Shareholder participation*, respectively. The magnitudes of the coefficients are comparable to those reported in Table 3 (1.708 and 0.182, as reported in Column (2) and Column (4) of Table 3, respectively). These results indicate that participation jumps immediately after firms start introducing online voting in AGMs.

4.2 The Effect of Costs of Attending On-site AGMs

We expect that online AGMs are more beneficial to shareholders when they face higher costs of attending an on-site AGM. To test this prediction, we construct an indicator variable *Transportation center*, taking the value of one if the firm's headquarters are located in a transportation center, and zero otherwise. Considering that it is typically more convenient for shareholders to attend on-site AGMs when firms are located in transportation centers, we expect that the positive association between online AGMs and shareholder participation is weaker for firms located in a place that is easy to reach physically. To examine this implication, we add the variable of *Transportation center* and its interaction with *Online AGM voting* in model (1).

Table 5 reports the interaction regression results. In Column (1), the dependent variable is *Non-blockholder ownership representation*. The interaction term *Online AGM voting* × *Transportation center* has a negative and significant coefficient, indicating that the effects of online AGMs on shareholder participation in AGMs are weaker when firms are located in transportation centers. Specifically, the coefficient on *Online AGM voting* × *Transportation center* is -0.591 (significant at the 10% level), and the coefficient on *Online AGM voting* is 1.918 (significant at the 1% level). The economic magnitude is sizeable: Online AGMs

increase *Non-blockholder ownership representation* by about two percentage points for firms located outside transportation centers, but such an impact shrinks to about 1.3 percentage points ($=1.918-0.591$) for firms located in transportation centers. We obtain a similar inference when examining *Shareholder participation* in Column (2).

Overall, these results suggest that the positive effect of online AGMs on shareholder participation in AGMs is more evident when shareholders face higher costs of attending the AGMs on-site.

4.3 The Effect of Ownership Concentration

If a firm is heavily controlled by large shareholders, then minority shareholders will have little influence on corporate decisions, even if they actively participate in online AGMs. In contrast, minority shareholders are more likely to make a difference if the firm is widely held. For this reason, we expect the effect of online AGMs on shareholder participation to be stronger for firms with a more dispersed ownership structure. To examine this implication, we include the variable *Ownership of controlling shareholders* and its interaction with *Online AGM voting* in model (1). Controlling shareholders refers to the largest shareholder in a firm.

Table 6 reports the interaction regression results. In Column (1), the dependent variable is *Non-blockholder ownership representation*. The interaction term *Online AGM voting* \times *Ownership of controlling shareholders* has a negative and significant coefficient (at the 1% level), indicating that the effects of online AGMs on shareholder participation are weaker when a larger proportion of the firm's shares are in the hands of controlling shareholders. We find similar results when examining *Shareholder participation* in AGMs in Column (2). In summary, these results suggest that the positive relation between online AGMs and shareholder participation is more evident when the firm is more widely held.

4.4 Identification Strategy: Difference-in-Differences Approach Based on the Mandatory Requirement in 2014

Our main results may be subject to an omitted variable problem. That is, some variables omitted from the regression correlate with both online AGM voting and shareholder participation in AGMs. For example, a firm with a stronger culture of shareholder democracy may be more likely to adopt online AGM voting, and such a culture may attract more shareholder participation in AGMs. In this case, the corporate culture is unobservable but positively correlated with both online AGM voting and shareholder participation in AGMs, biasing our coefficient estimates of *Online AGM voting* upward. On the contrary, a firm facing severe barriers to communicate with shareholders may be more likely to adopt online AGMs to overcome those barriers, and such barriers could prevent shareholders from participating in AGMs. In this case, such unobservable communication barriers are positively correlated with online AGM voting but negatively correlated with shareholder participation in AGMs, biasing our coefficient estimates of *Online AGM voting* downward. In summary, the omitted variable problem could either bias our results upward or downward.

To address this problem, we exploit China's 2014 policy for online AGM voting, in which the Shanghai and Shenzhen Stock Exchanges required all public firms to provide online voting in addition to traditional on-site voting at AGMs. As shown in Table 1, the percentage of firms with online AGM voting increases from 34.2% in 2013 to 100% in 2014. We track shareholder participation from three years before 2014 to three years afterward (i.e., 2011-2013 vs. 2014-2016), and use a standard difference-in-differences approach as specified below.

$$\begin{aligned} Participation_t = & a_0 + a_1Treat \times Post + a_2Post \\ & + a_3Control\ variables + Firm\ FE + \varepsilon_t \end{aligned} \quad (2)$$

The *Treat* indicator takes the value of one for firms that had not adopted online AGM voting in 2013, and zero otherwise. Thus, the treated firms are those that were required to adopt online AGM voting in 2014, while the control firms are those that had already adopted online AGM voting before 2014. The *Post* indicator takes the value of one for the 2014–2016 period and the value of zero for the 2011–2013 period. We also include the list of control variables used in Table 3. The coefficient of interest in Equation (2) is a_1 , which captures the participation differences in treated firms before and after the mandatory requirement as opposed to similar before-after differences in control firms.⁹

Figure 1 plots the shareholder participation for the treatment firms (i.e., firms that had not adopted online AGM voting in 2013) and the control firms (i.e., firms that had adopted online AGM voting in 2013) before and after China’s 2014 mandatory requirement of online AGM voting. Figure 1A illustrates *Non-blockholder ownership representation*, and Figure 1B illustrates *Shareholder participation*. We find that the treatment and control firms share similar trends before the policy change, supporting the parallel trends assumption associated with DiD. Moreover, the figure also shows a sizeable increase in participation in AGMs after the mandatory requirement of online AGMs is in effect.

Table 7 reports the regression results. In Column (1), the dependent variable is *Non-blockholder ownership representation*. The coefficient on $Treat \times Post$ is 2.019 and significant at the 1% level, indicating that the mandatory online AGM adoption leads to an increase in *Non-blockholder ownership representation* by 2.019 percentage points in the treated firms as compared to the control firms. We obtain a similar inference when examining *Shareholder participation* in Column (2).

⁹ The variable *Treat* is not included in the regression because it is absorbed by firm fixed effects.

In summary, based on China's 2014 mandatory requirement for online AGM voting as a quasi-natural experiment, we provide evidence that online AGM voting has a positive causal effect on shareholder participation in AGMs.

4.5 Robustness Check

First, we employ a matching technique to examine the differences in shareholder participation in AGMs between firms using and not using online AGMs. The matching procedure controls for selection based on observable firm characteristics.

We first estimate the propensity scores from 2005 to 2013 using a probit model in which the dependent variable is the indicator *Online AGM voting*. The independent variables compose the full set of firm characteristics, as shown in Table 3. The probit model results are presented in Column (1) of Table IA1 Panel A of the Internet Appendix. We find that the specification captures some variation in the choice variables, as indicated by the significant coefficients on firm size, ROA, stock return, stock volatility, growth opportunity, executive ownership, firm age, and the split reform indicator. We then use the predicted probabilities (propensity scores) from Column (1) and perform a nearest-neighbor matching procedure to match each firm-year observation with online AGMs to the firm-year observation without online AGMs.

Since the validity of propensity score matching depends on finding closely matched firms, we conduct a diagnostic test. Specifically, we re-run the probit model restricted to the matched sample of treatment group firms and control group firms. The probit estimates are presented in Column (2) of Table IA1 Panel A. We find that no independent variables are statistically significant. The diagnostic test suggests that the propensity score matching has

removed meaningful observable differences between treatment group firms and control group firms (other than the difference in online AGMs).

Based on the matched sample, we then compare shareholder participation in AGMs between firms adopting online AGMs and their matched peers without online AGMs. The results are presented in Panel B of Table IA1. As shown in Column (1) for the nearest neighborhood matching, the average *Non-blockholder ownership* attending AGMs is higher in firms with online AGMs compared to firms without by 1.6 percentage points (or an increase of one-third, considering that the average *Non-blockholder ownership* of 4.8 percentage points is in the latter group). Furthermore, the average *Shareholder participation* is higher in firms with online AGMs than that without online AGMs by about 0.1 percentage points (or a difference of 2.5 times, considering that the average *Shareholder participation* of 0.04 percentage points is in the latter group).

As a robustness test, we employ two other matching techniques: the Gaussian kernel and local linear regression. The comparison results are presented in Columns (2) and (3) of Panel B, respectively. Similarly, firms using online AGMs have higher *Non-blockholder ownership representation* and *Shareholder participation* than firms not using online AGMs.

Overall, these results further support that the availability of online AGMs significantly increases shareholder participation in AGMs, particularly for minority shareholders.

Second, so far, we have only used the 5% cutoff to define blockholders. As a robustness test, we use various alternative cutoffs in this subsection. The regression in Table IA2 of the Internet Appendix is the same as that in Table 3, except that we use a different cutoff value for the blockholders. In Columns (1) and (2) of Table IA2, we re-define the blockholders using 3% as the cutoff, and we continue to find that online AGMs significantly increase

shareholders' participation in annual meetings, especially for minority shareholders. In Columns (3) and (4), we re-define the blockholders using 1% as the cutoff, and our inference is unchanged.

In Table IA3 of the Internet Appendix, we focus on firms with no institutional ownership and repeat the analysis in Table 3. Because these firms have no institutional ownership, we remove *Institution ownership* and *QFII ownership* from the regression. We continue to find that the coefficients on the *Online AGM voting* indicator are positive and significant when the dependent variables are *Non-blockholder ownership representation* and *Shareholder participation*. These results indicate that online AGMs significantly increase shareholders' participation in AGMs in the subsample of firms held by no institutional investors.

In Table IA4 of the Internet Appendix, we focus on the sample firms located in Beijing, Shanghai, and Shenzhen. These three cities are China's financial centers, and thus a large number of public firms are located in these cities. It would be interesting to know whether our results are similar or different when focusing on this sample of firms. The regression specification is the same as that in Table 3. Our inference is unchanged: allowing shareholders to vote online significantly increases shareholders' participation in AGMs, especially for minority shareholders. In summary, our main results are similar when focusing on firms in Beijing, Shanghai, and Shenzhen.

5. Effects of Online AGM Voting

5.1 The Market Reaction to the Announcements of Initiating Online AGMs

To shed light on the value implication of online AGMs, in this subsection, we examine the market's reaction to a firm's announcement of adopting online AGMs. If online AGMs

provide minority shareholders more opportunities to communicate with management, voice their concerns, and protect their interests in AGMs, we would expect a positive market reaction when a firm initiates the online AGM. On the other hand, if online AGMs lead to (inefficient) interventions of unsophisticated minority investors, or if the participation of minority investors in the AGM is economically unimportant, we would expect a negative or zero market reaction when a firm initiates the online AGM.

Following the standard methodology for event studies, we calculate the cumulative abnormal returns (CAR) around the announcement date when the firm initiates its online AGM. We exclude firm observations with confounding events during the online AGM announcement dates, such as M&A, debt restructuring, asset divestment, asset exchange, etc. We use the China market index, which is a market capitalization-weighted average of the Shanghai Stock Exchange Composite Index and the Shenzhen Stock Exchange Composite Index, as the market portfolio and estimate the parameters of the market model using stock returns over the 200-trading-day period from trading days -210 to -10 relative to the event date (day 0 is the announcement date of initiating online AGMs). The difference between the firm's daily return and the predicted daily return based on the market model is the firm's daily abnormal return. We calculate the cumulative abnormal returns (CAR) over the event window $[-1, +1]$, $[-3, +3]$ and $[-5, +5]$.

As reported in Table 8, the average CAR $[-1, +1]$, CAR $[-3, +3]$, and CAR $[-5, +5]$ are 0.90%, 2.29%, and 3.31%, respectively, all of which are significant at the 1% level. This indicates that online AGMs are positively received by the stock market. We also compute the dollar value of abnormal return by multiplying CAR with the firm's market capitalization in

the previous fiscal year end. Based on CAR $[-3, +3]$, for example, the average dollar value of the abnormal return is close to 13 million U.S. dollars.

Overall, Table 8 provides evidence that the stock market reacts positively when a firm initiates online AGMs. In other words, the easy access of shareholders to vote in AGMs via an online platform increases shareholder value.

5.2 Online AGMs and Corporate Governance

So far, we have shown that online AGMs increase minority investors' participation in AGMs. A natural question is: can online AGMs improve corporate governance? We investigate this question in Table 9 from various aspects. We first examine whether online AGMs are associated with a higher likelihood for proposals to be vetoed in AGMs. In Column (1), the dependent variable is *Proposal veto*, which takes the value of one if at least one proposal is rejected in the AGM, and zero otherwise. The key independent variable is the *Online AGM voting* indicator. We estimate a linear probability model with firm fixed effects and year fixed effects. The coefficient on the *Online AGM voting* indicator is 0.021 and significant at the 1% level, indicating that online AGMs are associated with a higher likelihood of proposals being rejected in annual meetings by about 2%. The economic magnitude is also meaningful, considering that the corresponding unconditional probability is 1.14%.

In Column (2), we examine the relation between online AGMs and executive compensation. The dependent variable is \ln (sum of the compensation of top executives), and the key variable of interest is *Online AGM voting* \times *ROA*. The coefficient on *Online AGM voting* \times *ROA* is positive and significant. This result indicates that online AGMs are associated with higher managerial pay-performance sensitivity.

In Column (3), we examine the relation between online AGM voting and earnings management. The dependent variable is the absolute value of discretionary accruals estimated by the Jones model (Jones (1991), and Dechow et al. (1995)). A larger value of discretionary accruals indicates more earnings manipulation or lower earnings quality. We find that the coefficient on *Online AGM voting* is negative and significant, indicating that online AGMs are associated with higher earnings quality.

In Column (4), we examine the relation between online AGM voting and tunneling. In many emerging markets, including China, tunneling is a severe problem for large shareholders to expropriate minority shareholders. For example, Jiang et al. (2010) indicate that controlling shareholders in China usually use intercorporate loans to siphon wealth from minority shareholders. Specifically, controlling shareholders or their affiliates “borrow” money from the public firms they control, and in most cases, neither the interests nor the principal of the loan is ever paid back. Such tunneling leads to worse operating performance and a higher likelihood of financial distress of public firms. Following Jiang et al. (2010), we use “other receivables” to measure the tunneling of controlling shareholders. The coefficient on *Online AGM voting* is negative and significant at the 5% level, indicating that online AGM voting is associated with fewer tunneling activities.

In summary, Table 9 provides evidence that online AGMs provide a platform for minority investors to actively participate in annual meetings and lead to an improvement in corporate governance.

5.3 Further Discussion

So far, we have shown that online AGMs have a significantly positive effect on shareholder participation in annual general meetings and in firms' corporate governance. But, outside China, what are the barriers preventing firms from adopting online AGMs?

Taking the U.S. for example, there is indeed an increasing trend of holding online AGMs among U.S. public firms. As shown in a report by Broadridge Financial Solutions, Inc., the number of U.S. firms that held virtual-only shareholder meetings increased from 19 (in the year 2010) to 236 (in the year 2017). However, the major barrier hindering further expansion of online AGMs in the U.S. appears to be state corporate laws. For example, Delaware, where more than half of U.S. public firms are incorporated, amended its Delaware General Corporation Law to allow online shareholder meetings as late as 2000. As of 2018, nine states, such as Georgia, Idaho, and New York, still preclude corporations incorporated in those states from hosting online AGM meetings and insist that AGMs be held in a physical setting only. Some states, while allowing online shareholder meetings, impose impractical restrictions. For instance, California requires unrevoked shareholder consent to hold virtual-only meetings.¹⁰ Moreover, given that online AGMs are a relatively new way to hold AGMs, it might take time and effort for a firm to establish the necessary technology and grow familiar with this form of meeting.

Another related question is why do so few Chinese shareholders vote, even after having access to online AGMs? There could be the following reasons. First, 80% of investors in China are individual investors. These investors trade very frequently and are highly short-term-oriented (Allen et al. (2005); Dong and Gou (2010); Ying et al. (2015)). Short-term

¹⁰ Please refer to the report "Principles and Best Practices for Virtual Annual Shareowner Meetings". See (https://www.broadridge.com/_assets/pdf/broadridge-vasm-guide.pdf) for details.

investors are usually less interested in participating in corporate governance issues. Second, large shareholders in China typically hold a dominating portion of the firm's shares (Gul et al. (2010); Chen et al. (2013)). Individual investors may still lack the incentive to vote in AGMs, considering that a large shareholder could dominate the meeting.

Moreover, it would be an interesting topic to examine in other countries how shareholders vote in AGMs after having online access. However, to our best knowledge, no such research exists, possibly because it is currently difficult to obtain data on shareholder participation in AGMs in other countries.

6. Conclusions

There is increasing debate about the potential benefits of allowing shareholders to participate in AGMs via an internet-based platform. On the one hand, advocates of online AGMs believe that it is a highly efficient way to enable shareholders to actively participate in shareholder meetings without incurring the expense and inconvenience of traveling to physical meeting sites, and thus it enhances shareholder participation in annual meetings. On the other hand, online AGMs could make little difference because large shareholders are likely to attend the physical meetings anyway and thus be unaffected. Moreover, minority shareholders may still lack the incentive to attend online meetings due to their small stake in the firm. Furthermore, even if minority investors actively participate in an online meeting, too much intervention by unsophisticated and inexperienced minority investors may hurt managerial initiatives and thus be value-destroying.

In this paper, we empirically examine whether allowing shareholders to attend annual meetings online can enhance shareholder participation in such meetings. We find that online AGMs can significantly increase the participation of shareholders, especially minority

shareholders. This result is more pronounced when the cost of attending the physical meeting is higher, and when the firm is more widely held and is robust when accounting for endogeneity concerns. Furthermore, we examine the real effects of conducting online AGMs. We document significant positive stock returns when firms initiate online AGMs, and we show that online AGMs are associated with an improvement in corporate governance, such as a higher likelihood of a proposal being vetoed, a higher executive pay-performance sensitivity, fewer earnings manipulations, and fewer tunneling activities by controlling shareholders.

Overall, our findings indicate that online AGMs are a cost-effective way for shareholders to participate in corporate governance. Our study has important implications for policymakers who aim to increase shareholder participation in governance issues.

Lastly, proxy voting can be another way for minority shareholders to participate in corporate governance issues. Thus, it is important to control for proxy voting in the empirical analysis. However, to our best knowledge, the data for proxy voting in China is not available. Considering that online AGM voting can be substituted by proxy voting, failing to control for proxy voting may work against us in discovering any significant impact of online AGMs. Nonetheless, readers should be aware of this possible limitation when deciding how our findings might be generalized.

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i. *Appendix 1. Variable Definition*

Variable	Definition
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Ownership representation	The number of shares owned by shareholders voting in AGMs divided by the total number of shares outstanding.
Shareholder participation	The number of shareholders voting in AGMs divided by the total number of shareholders.
Non-blockholder ownership representation	The number of shares owned by non-blockholders voting in AGMs divided by the total number of shares outstanding. Non-blockholders are the shareholders who own less than 5% ownership of the firm.
Blockholder ownership representation	The number of shares owned by blockholders voting in AGMs divided by the total number of shares outstanding. Blockholders are the shareholders who own no less than 5% ownership of the firm.
Online AGM voting	An indicatory variable, taking the value of one if the firm adopts online voting in the AGM, and zero otherwise.
Size	The natural logarithm of total assets.
ROA	Net income divided by total assets.
Stock return	The 12-month cumulative stock returns during the fiscal year.
Stock volatility	The standard deviation of monthly stock returns for 36 months before the end of fiscal year.
MB	The market-to-book ratio.
Institution ownership	The percentage of shares owned by institutional shareholders.
Insider ownership	The percentage of shares owned by executive managers.
Firm age	The number of years since the firm's incorporation.
Split reform	An indicatory variable, taking the value of one if the firm finishes the split share reform, and zero otherwise.
QFII ownership	The percentage of shares owned by qualified foreign institutional investors.
Transportation center	An indicatory variable, taking the value of one if the firm locates in one of China's transportation centers, including Beijing, Shanghai, Tianjin, Chongqing, Guangzhou, Xi'an, Zhengzhou, Wuhan, Xuzhou, Jinan, Hangzhou, Lanzhou, Hefei, Taiyuan, Xining, Shijiazhuang, Dalian, Shenyang, Wuhu, Lianyungang, Nanjing, Nanchang, Xiamen, and Haikou, and zero otherwise.
Ownership of controlling shareholders	The percentage of shares owned by controlling shareholders. Controlling shareholders refer to the ones holding the largest percentage of shares in the firms.
CAR	The cumulative abnormal returns around the announcement date of AGMs.
Proposal veto	An indicatory variable, taking the value of one if at least one proposal is rejected in the AGM, and zero otherwise.
Executive compensation	The natural logarithm of the total compensation of top executives.
Earnings management	The absolute value of discretionary accruals estimated by the Jones model.
Tunneling	Other receivables divided by total assets.

ii. *Figure 1. Shareholder Participation around the 2014 Mandatory Requirement of Online AGM Voting*

The figure presents the average shareholder participation for the treated group (i.e., firms that had not adopted online AGM voting in 2013) and the control group (i.e., firms that had adopted online AGM voting in 2013) before and after the 2014 mandatory requirement of online AGM voting.

Figure 1A. Non-blockholder Ownership Representation

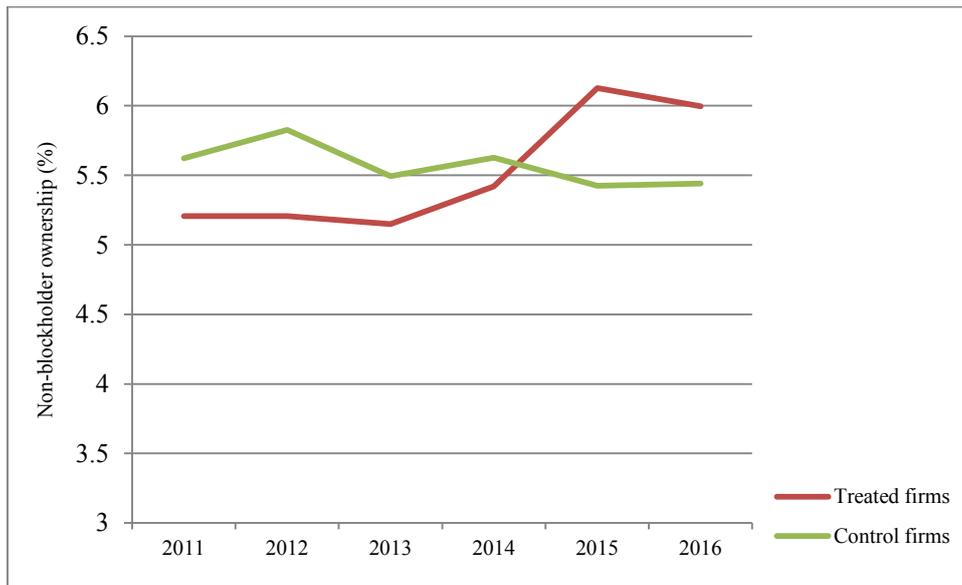
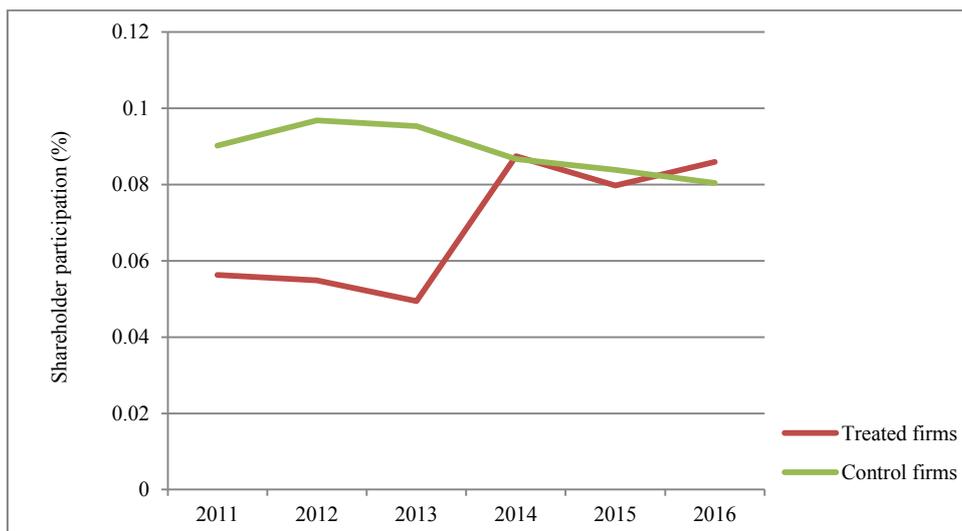


Figure 1B. Shareholder Participation



iii.

Table 1. Online Voting in Annual General Meetings Over Time

This table presents the number of firms with online AGM voting from 2005 to 2017. All the firms are listed in the Shanghai and Shenzhen Stock Exchanges.

Year	# of Firms	# of Firms with online AGM voting	Percentage of Firms with online AGM voting
2005	1,308	16	1.22%
2006	1,290	44	3.41%
2007	1,323	80	6.05%
2008	1,490	78	5.23%
2009	1,569	100	6.37%
2010	1,644	139	8.45%
2011	1,991	191	9.59%
2012	2,288	564	24.65%
2013	2,419	827	34.19%
2014	2,341	2,341	100.00%
2015	2,423	2,423	100.00%
2016	2,670	2,670	100.00%
2017	2,719	2,719	100.00%
In Total	25,475	12,192	47.86%

iv.

Table 2. Difference in Characteristics between Firms with and without Online AGMs

The table compares the characteristics of firms with and without online AGMs voting. Variable definitions are provided in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. The last two columns present the t statistics (z statistics) for the tests of differences in mean (median) between firms with and without online AGMs. Superscripts ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Firms with online	Firms without	Percentage Increase	Test of differences
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	AGM voting		online AGM voting		Mean (1)/(3) -1	Median (2)/(4) -1	t-test (1) - (3)	Wilcoxon test (2) - (4)
	Mean	Median	Mean	Median				
	(1)	(2)	(3)	(4)				
Ownership representation	53.068%	54.118%	48.477%	48.950%	9.469%	10.557%	11.904***	12.082***
Non-blockholder ownership representation	7.246%	4.320%	4.797%	1.750%	51.059%	146.857%	14.164***	16.892***
Blockholder ownership representation	47.297%	49.179%	46.868%	49.179%	0.914%	0.000%	1.406	1.329
Shareholder participation	0.198%	0.108%	0.043%	0.021%	359.963%	409.769%	62.116***	48.101***
Size	22.170	21.883	21.678	21.516	2.271%	1.706%	14.607***	13.967***
ROA	4.200%	3.779%	3.033%	3.199%	38.449%	18.128%	7.021***	6.007***
Stock return	27.419%	6.409%	36.526%	5.007%	-24.933%	28.010%	-4.147***	1.325
Stock volatility	13.661%	12.695%	14.847%	13.973%	-7.988%	-9.146%	-9.672***	-11.425***
MB	1.668	1.305	1.865	1.325	-10.540%	-1.496%	-4.663***	-3.044***
Institution ownership	30.626%	25.773%	23.446%	15.451%	30.624%	66.808%	12.968***	13.982***
Insider ownership	8.548%	0.000%	3.850%	0.000%	122.039%	0.000%	15.141***	17.109***
Firm age	13.993	14.000	13.575	13.000	3.078%	7.692%	3.683***	3.816***
Split reform	0.962	1.000	0.862	1.000	11.638%	0.000%	12.832***	12.764***
QFII ownership	0.155%	0.000%	0.187%	0.000%	-17.121%	0.000%	-1.779*	-0.766

Table 3. Online AGM Voting and Shareholder Participation

This table reports the results of how online AGMs influence shareholder participation in AGMs. *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Ownership representation (1)	Non-blockholder ownership representation (2)	Blockholder ownership representation (3)	Shareholder participation (4)
Online AGM voting	2.653*** (0.000)	1.708*** (0.000)	-0.262 (0.285)	0.182*** (0.000)
Size	5.628*** (0.000)	1.898*** (0.000)	2.766*** (0.000)	-0.008*** (0.000)
ROA	15.300*** (0.000)	7.078*** (0.000)	1.659 (0.189)	0.060*** (0.000)
Stock return	0.308** (0.021)	0.727*** (0.000)	-0.493*** (0.000)	0.008*** (0.000)
Stock volatility	0.659 (0.775)	-1.383 (0.424)	4.073* (0.084)	0.004 (0.880)
MB	0.432*** (0.000)	0.308*** (0.000)	0.281*** (0.000)	0.001 (0.148)
Institution ownership	-2.689*** (0.000)	-2.933*** (0.000)	1.676*** (0.000)	0.015*** (0.005)
Insider ownership	-5.839*** (0.001)	-2.645* (0.055)	-0.953 (0.612)	-0.035* (0.090)
Firm age	-0.481*** (0.000)	-0.108 (0.224)	-0.012 (0.920)	-0.001 (0.582)
Split reform	-0.868* (0.052)	0.518 (0.122)	0.124 (0.786)	0.009* (0.065)
QFII ownership	-0.959 (0.925)	24.605*** (0.001)	-40.527*** (0.000)	0.196* (0.090)
Constant	-59.414*** (0.000)	-33.646*** (0.000)	-6.813* (0.092)	0.242*** (0.000)
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	15,322	15,322	15,322	15,322
R-squared	0.815	0.482	0.687	0.540

Table 4. The Timing of the Effect of Online AGM Voting

This table examines the timing of the effect of online AGM voting on shareholder participation. The dependent variables are *Non-blockholder ownership representation* and *Shareholder participation*, respectively. *Online AGM voting*_{t+1} indicates the first year when the firm initiated online AGM voting; *Online AGM voting*_{t+2} indicates the second year when the firm initiated online AGM voting; *Online AGM voting*_{t+3 and after} indicates the third and subsequent years when the firm initiated online AGM voting. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Online AGM voting _{t+1}	1.870*** (0.000)	0.173*** (0.000)
Online AGM voting _{t+2}	1.481*** (0.000)	0.156*** (0.000)
Online AGM voting _{t+3 and after}	1.079*** (0.001)	0.162*** (0.000)
Size	1.643*** (0.000)	-0.005*** (0.006)
ROA	6.586*** (0.000)	0.083*** (0.000)
Stock return	0.726*** (0.000)	0.010*** (0.000)
Stock volatility	-1.974 (0.113)	-0.085*** (0.001)
MB	0.339*** (0.000)	0.002*** (0.002)
Institution ownership	-4.335*** (0.000)	0.011** (0.012)
Insider ownership	4.028*** (0.000)	0.095*** (0.000)
Firm age	-0.033 (0.654)	0.001 (0.377)
Split reform	0.470 (0.203)	0.011* (0.055)
QFII ownership	26.371*** (0.001)	0.237** (0.047)
Constant	-29.400*** (0.000)	0.148*** (0.000)
Firm fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	25,475	25,475
R-squared	0.397	0.417

Table 5. The Effect of Costs of Attending On-site AGMs

The table examines whether the relation between online AGMs and shareholder participation depends on the costs of attending AGMs on-site. The dependent variables are *Non-blockholder ownership representation* and *Shareholder participation*, respectively. *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. *Transportation center* is an indicator variable, taking the value of one if the firm is located in one of China's transportation centers, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Online AGM voting	1.918*** (0.000)	0.186*** (0.000)
Transportation	0.298 (0.397)	0.012** (0.023)
Online AGM voting × Transportation center	-0.591* (0.087)	-0.011** (0.035)
Size	1.902*** (0.000)	-0.008*** (0.000)
ROA	7.086*** (0.000)	0.060*** (0.000)
Stock return	0.728*** (0.000)	0.008*** (0.000)
Stock volatility	-1.435 (0.407)	0.003 (0.909)
MB	0.308*** (0.000)	0.001 (0.139)
Institution	-2.923*** (0.000)	0.015*** (0.004)
Insider ownership	-2.622* (0.058)	-0.034* (0.099)
Firm age	-0.110 (0.214)	-0.001 (0.567)
Split reform	0.522 (0.119)	0.009* (0.063)
QFII ownership	24.526*** (0.001)	0.193* (0.096)
Constant	-33.830*** (0.000)	0.235*** (0.000)
Firm fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	15,322	15,322
R-squared	0.482	0.541

Table 6. The Effect of Ownership Concentration

This table examines whether the relation between online AGMs and shareholder participation depends on the firm's ownership concentration. The dependent variables are *Non-blockholder ownership representation* and *Shareholder participation*, respectively. *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. *Ownership of controlling shareholders* is the number of shares owned by the controlling shareholder normalized by total shares outstanding. Controlling shareholder is the largest shareholder in a firm. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Online AGM voting	4.558*** (0.000)	0.219*** (0.000)
Ownership of controlling	15.466*** (0.000)	0.047*** (0.003)
Online AGM voting × Ownership of controlling shareholders	-7.825*** (0.000)	-0.103** (0.014)
Size	1.336*** (0.000)	-0.009*** (0.003)
ROA	5.475*** (0.000)	0.056*** (0.000)
Stock return	0.684*** (0.000)	0.008*** (0.000)
Stock volatility	-1.034 (0.691)	0.007 (0.904)
MB	0.258*** (0.002)	0.001 (0.327)
Institution ownership	-2.374*** (0.000)	0.018*** (0.007)
Insider ownership	-2.043 (0.296)	-0.035 (0.233)
Firm age	-0.097 (0.367)	-0.001 (0.738)
Split reform	0.992** (0.014)	0.011* (0.074)
QFII ownership	24.563*** (0.010)	0.189 (0.225)
Constant	-28.317*** (0.000)	0.245*** (0.000)
Firm fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	15,322	15,322
R-squared	0.496	0.542

Table 7. Difference-in-differences Approach Based on the 2014 Mandatory Requirement of Online AGM Voting

This table reports difference-in-differences tests that examine the effect of the 2014 mandatory requirement of online AGM voting on shareholder participation in AGMs. The dependent variables are *Non-blockholder ownership representation* and *Shareholder participation*, respectively. The *Treat* indicator takes the value of one for firms that had not adopted online AGM voting in 2013, and zero otherwise. The *Post* indicator takes the value of one for the 2014–2016 period, and the value of zero for the 2011–2013 period. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Treat × Post	2.019*** (0.001)	0.071*** (0.000)
Post	-2.543*** (0.000)	-0.018** (0.042)
Size	2.181*** (0.000)	-0.012*** (0.000)
ROA	4.874*** (0.003)	0.063*** (0.006)
Stock return	0.713*** (0.000)	0.008*** (0.000)
Stock volatility	-1.664 (0.382)	-0.173*** (0.000)
MB	0.250*** (0.000)	-0.001 (0.399)
Institution ownership	-4.349*** (0.000)	-0.004 (0.625)
Insider ownership	8.327*** (0.000)	0.127*** (0.000)
Firm age	-0.142* (0.056)	-0.003*** (0.006)
QFII ownership	5.335 (0.788)	0.205 (0.469)
Constant	-39.825*** (0.000)	0.362*** (0.000)
Firm fixed effect	Yes	Yes
Observations	8,746	8,746
R-squared	0.504	0.488

Table 8. The Analysis of CAR on the Announcement Date of Initiating Online AGMs

This table reports the announcement returns when a firm initiates its online AGM. The sample consists of 2,267 announcements from 2005–2017. The dollar value of cumulative abnormal returns is computed as cumulative abnormal returns multiplied by the values of market capitalization at the previous fiscal year end. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Average cumulative abnormal return	Average dollar value of cumulative abnormal return (USD million)
Day -1 to +1	0.903%***	7.064***
Day -3 to +3	2.289%***	12.648***
Day -5 to +5	3.314%***	18.691***

Table 9. Online AGM Voting and Corporate Governance

This table reports the regression results of how online AGMs influence corporate governance. In Column (1), we focus on the veto of proposals in AGMs. The dependent variable is an indicator variable taking the value of one if at least one proposal is rejected in the AGM, and zero otherwise. In Column (2), we focus on manager pay-performance sensitivity. The dependent variable is the natural logarithm of the total compensation of top executives. In Column (3), we focus on earnings management. The dependent variable is the absolute value of discretionary accruals estimated by the Jones (1991) model. In Column (4), we focus on tunneling. The dependent variable is other receivables normalized by total assets. The variable *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Proposal veto (1)	Executive compensation (2)	Earnings management (3)	Tunneling (4)
Online AGM voting	0.021*** (0.000)	0.004 (0.733)	-0.007* (0.055)	-0.002** (0.041)
Online AGM voting \times ROA		0.318* (0.082)		
Size	0.003 (0.233)	0.320*** (0.000)	0.004 (0.160)	0.001 (0.133)
ROA	-0.052*** (0.004)	0.759*** (0.000)	-0.052*** (0.005)	-0.014** (0.014)
Stock return	-0.001 (0.600)	-0.039*** (0.000)	0.006*** (0.002)	0.003*** (0.000)
Stock volatility	-0.052 (0.119)	-0.230** (0.025)	0.111*** (0.001)	0.037*** (0.000)
MB	0.000 (0.790)	0.027*** (0.000)	0.007*** (0.000)	-0.002*** (0.000)
Institution ownership	0.001 (0.862)	0.114*** (0.000)	-0.026*** (0.000)	-0.002 (0.317)
Insider ownership	-0.015 (0.585)	0.117 (0.157)	-0.067** (0.011)	-0.001 (0.862)
Firm age	-0.000 (0.835)	-0.009* (0.086)	-0.003* (0.057)	0.000 (0.686)
Split reform	0.013* (0.054)	0.096*** (0.002)	0.021** (0.041)	-0.056*** (0.000)
QFII ownership	0.031 (0.834)	1.464*** (0.003)	0.340** (0.036)	-0.122*** (0.009)
Constant	-0.030 (0.609)	7.991*** (0.000)	0.032 (0.636)	0.046** (0.020)

Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	15,322	15,115	14,885	15,143
R-squared	0.163	0.878	0.347	0.524

Internet Appendix for “Can Online Annual General Meetings Increase Shareholders’ Participation in Corporate Governance?”

Table IA1. Propensity Score Matching

This table compares shareholder participation in AGMs between firms with and without online voting under the propensity score matching. In the first step, we run a probit regression, in which the dependent variable is the *Online AGM voting* indicator variable and the independent variables are the firm characteristics used in Table 3. In the second step, we use the predicted probabilities (propensity scores) from the probit regression to match each firm-year observation with online AGM voting to the firm-year observation without online AGMs, which minimizes the absolute value of differences between the propensity scores. Panel A presents parameter estimates from the first-step probit model. The ‘Pre-Match’ column contains the parameter estimates of the probit model estimated using the sample prior to matching. The ‘Post-Match’ column contains the parameter estimates of the probit model estimated using the subsample of matched treatment-control pairs after matching. Panel B reports the difference of shareholder participation in AGMs between firms with and without online voting under three matching criteria: nearest neighborhood, Gaussian kernel, and local linear regression. Variable definitions are provided in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A. Pre-match Propensity Score Regression and Post-match Diagnostic Regression

	Pre-Match (1)	Post-Match (2)
Size	0.020*** (0.000)	0.002 (0.825)
ROA	0.096*** (0.002)	-0.190 (0.291)
Stock return	0.008* (0.083)	-0.009 (0.625)
Stock volatility	0.208*** (0.006)	0.022 (0.903)
MB	-0.003* (0.067)	0.000 (0.974)
Institution ownership	-0.010 (0.535)	0.006 (0.874)
Insider ownership	0.073** (0.016)	-0.053 (0.355)
Firm age	-0.002*** (0.001)	-0.002 (0.319)
Split reform	0.021** (0.013)	0.001 (0.979)
QFII ownership	0.025 (0.938)	0.973 (0.441)
Constant	-0.417*** (0.000)	0.470** (0.018)
Industry fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	15,322	4,078
R-squared	0.124	0.005

Panel B. Difference in Shareholder Participation between Firms with and without Online AGM Voting

	Nearest neighborhood (1)	Gaussian kernel (2)	Local linear regression (3)
Non-blockholder ownership representation	0.016*** (0.000)	0.017*** (0.000)	0.013*** (0.000)
Shareholder participation	0.001*** (0.000)	0.002*** (0.000)	0.002*** (0.000)

Table IA2. Online AGM Voting and Shareholder Participation, Alternative Cutoffs for Blockholders

This table reports the results of how online AGMs influence shareholder participation in AGMs, based on alternative cutoffs for blockholders. The regression specification is the same as that in Table 3. In Columns (1) and (2), we use 3% as the cutoff value to define blockholders. In Columns (3) and (4), we use 1% as the cutoff value to define blockholders. The variable *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	3% cutoff		1% cutoff	
	Non-blockholder ownership representation	Blockholder ownership representation	Non-blockholder ownership representation	Blockholder ownership representation
	(1)	(2)	(3)	(4)
Online AGM voting	1.292*** (0.000)	-0.103 (0.661)	0.775*** (0.000)	0.136 (0.464)
Size	2.123*** (0.000)	2.273*** (0.000)	2.627*** (0.000)	1.013*** (0.000)
ROA	7.257*** (0.000)	0.588 (0.627)	9.349*** (0.000)	-0.769 (0.421)
Stock return	0.612*** (0.000)	-0.534*** (0.000)	0.210** (0.025)	-0.225** (0.029)
Stock volatility	-1.765 (0.295)	6.244*** (0.006)	0.415 (0.798)	1.749 (0.327)
MB	0.313*** (0.000)	0.353*** (0.000)	0.345*** (0.000)	0.224*** (0.000)
Institution ownership	-3.482*** (0.000)	2.524*** (0.000)	-3.617*** (0.000)	0.845** (0.019)
Insider ownership	-2.182 (0.105)	-1.215 (0.500)	-4.161*** (0.001)	-0.204 (0.886)
Firm age	-0.039 (0.648)	-0.040 (0.727)	-0.055 (0.509)	-0.058 (0.527)
Split reform	1.082*** (0.001)	-0.816* (0.062)	0.871*** (0.005)	-1.454*** (0.000)
QFII ownership	15.880** (0.033)	-25.436** (0.011)	12.667* (0.077)	-13.564* (0.086)
Constant	-39.283*** (0.000)	4.090 (0.292)	-49.019*** (0.000)	30.561*** (0.000)
Firm fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	15,322	15,322	15,322	15,322
R-squared	0.501	0.605	0.634	0.460

Table IA3. Online AGMs and Shareholder Participation, Subsample of Firms with No Institutional Investors

This table reports the results of how online AGMs influence shareholder participation in AGMs, based on the subsample of firms with no institutional investors. The regression specification is the same as that in Table 3. The variable *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Online AGM voting	1.058* (0.056)	0.171*** (0.000)
Size	3.535*** (0.000)	-0.002 (0.669)
ROA	4.888*** (0.002)	0.035* (0.099)
Stock return	0.274 (0.293)	0.008** (0.030)
Stock volatility	2.300 (0.584)	-0.041 (0.473)
MB	0.386*** (0.004)	-0.001 (0.562)
Insider ownership	-2.317 (0.474)	-0.046 (0.302)
Firm age	-1.044*** (0.000)	0.001 (0.810)
Split reform	-1.402** (0.049)	0.012 (0.213)
Constant	-58.367*** (0.000)	0.095 (0.406)
Firm fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	2,976	2,976
R-squared	0.669	0.663

Table IA4. Online AGMs and Shareholder Participation, Subsample of Firms in Beijing, Shanghai, and Shenzhen

The table reports the results of how online AGMs influence shareholder participation in AGMs, based on the subsample of firms in Beijing, Shanghai, and Shenzhen. The variable *Online AGM voting* is an indicator variable, taking the value of one if shareholders can vote in AGMs via an online platform, and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 1%. P-values based on robust standard errors clustered at the firm level are reported in parentheses. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Non-blockholder ownership representation (1)	Shareholder participation (2)
Online AGM voting	1.314** (0.013)	0.152*** (0.000)
Size	1.882*** (0.000)	-0.010 (0.192)
ROA	4.089 (0.132)	0.022 (0.429)
Stock return	0.784*** (0.010)	0.010*** (0.006)
Stock volatility	0.682 (0.898)	-0.007 (0.898)
MB	0.084 (0.605)	-0.001 (0.548)
Institution ownership	-0.964 (0.284)	0.020 (0.105)
Insider ownership	-4.690* (0.060)	-0.167** (0.026)
Firm age	19.603 (0.269)	0.630* (0.079)
Split reform	0.005 (0.973)	-0.001 (0.533)
QFII ownership	0.911 (0.292)	0.027** (0.021)
Constant	-33.650*** (0.001)	0.318* (0.055)
Firm fixed effect	Yes	Yes
Year fixed effect	Yes	Yes
Observations	3,975	3,975
R-squared	0.541	0.589