
Can Online Annual General Meeting Increase Shareholders' Participation in Corporate Governance? Evidence from China*

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Abstract: We find that allowing shareholders to attend the annual general meeting online can greatly increase the participation of shareholders in the meeting. This finding is more evident when the cost of physically attending the meeting is higher. We further document significant positive stock returns when firms first initiate online annual meeting. Finally, we find that retail shareholders indeed actively voice their concerns by voting against the proposals that potentially benefit large shareholders at the costs of retail shareholders. Overall, we provide evidence that online shareholder meeting, a new surging way of holding shareholder meeting, provides shareholders a low-cost effective way to participate in the governance issues.

Keywords: Online annual meeting; Shareholder participation; Corporate governance

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1. Introduction

From a governance perspective, annual general meeting (AGM) often serves as an opportunity for management to update shareholders on company developments, for shareholders to ask questions of management and directors, to consider corporate proposals and to review the company's performance. It is generally believed that shareholder participation is a key component of a successful annual meeting and overall governance mechanism. However, the shareholder participation in the annual meeting is extremely low in public firms due to diffused ownership structure and the inconvenience of attending the meeting physically.

In recent years, there has been surging debates regarding the practice of online AGM to enhance shareholder's participation in AGM. One view suggests that online AGM makes the annual meetings more accessible, transparent, efficient and better meet the corporate governance needs of shareholders. Different from the traditional AGM which typically requires shareholders to be physically on the meeting sites, online AGM allows shareholders to attend the meeting through an internet platform. Thus, when the cost of physically attending AGM is high, online AGM may facilitate shareholder participation in AGM.

Critics of online AGM, on the other hand, asserts that it is of limited value because (1) online participation is a poor substitute for "looking the management in the eye," (2) large shareholders will probably attend the physical meeting anyway and retail shareholders may still lack of incentive to even attend the online meeting due to their small stake in the firm, and (3) even if retail investors do actively participate the online meeting, too much intervene of (unsophisticated) retail investors may be value-destroying.

In this paper, we examine whether online AGM can increase shareholder participation in annual meeting based on the data from China. Unlike U.S., Chinese public firms started to adopt online AGM as early as in 2005, and by 2012 about 25% of Chinese public firms use online AGM.¹ The relatively rich history and wide-adoption of online AGM data in China allow us to better examine the effect of online AGM on shareholder participation in the annual meeting, and shed new insights to the on-going practice of adopting online AGM in the U.S. public firms.

We find that shareholder participation, especially the participation of retail investors, is greatly enhanced after the firm adopts online meeting. This effect is more pronounced when the cost of physically attending AGM is higher, suggesting that the cost of physically attending the meeting is an important factor leading to low participation of shareholders who would otherwise like to attend.

We take a multi-facet approach to account for the potential endogeneity problem. First, we use firm fixed effect to control for the time-invariant firm-specific factors. Second, we use propensity score matching to control for the observable difference between firms with online AGM and firms without. Third, we apply an instrumental variable approach based on the province-level availability of internet as the instrument. Our results are robust to these alternative specifications.

Lastly, we also examine the valuation effects of online AGM. On one hand, online AGM can increase shareholder value because an effective participation of shareholders in AGM facilitates the communication between managers and shareholders and increases the function of

¹ In 2009, INTEL becomes 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 follow the suite, although the total number of firms with online AGM is still very small in the U.S. (Lublin (2011)).

corporate governance. Moreover, considering that the financial cost to the corporation of convening a physical meeting with a large number of shareholders can be nontrivial, online AGM provides a low-cost and geographically unlimited means for many more shareholders to participate in the meeting. On the other hand, shareholders, especially retail shareholders, lack specific information about the firm and their opinions depart from superior choices that managers, with better information, might make on their own (Porter (1992)). Managers facing frequent shareholder intervene might be less likely to take initiatives (Aghion and Tiroles (1997) and Burkart et al. (1997)), which in turn decreases shareholder value. Supporting the first view, we find a positive abnormal return at the first announcement of online shareholder meeting. We also find that retail shareholders indeed actively voice their concerns by voting against the proposals that potentially benefit large shareholders at the costs of retail shareholders.

Our paper makes at least four major contributions to the literature. First of all, to best of our knowledge, our paper is the first one to examine the effect of online AGM (a surging new format of holding annual meeting) on shareholder participation in corporate governance practice. Our paper provides evidence that allowing shareholders to attend AGM online indeed increases the shareholder participation and firm value.

Second, starting from the seminal work of Shleifer and Vishny (1986), the incentive for a shareholder to take an active role in corporate governance depends on her ownership and costs of monitoring. The shareholder is more likely to monitor the management if she is a large shareholder and her cost of monitoring is small. Empirical research on shareholder monitoring mainly focuses on the effect of large shareholding on enhancing the shareholders' incentive to monitor (see, for example, Chen et al. (2007) and Hartzell and Starks (2003)). However, the role

of the costs of monitoring is relatively less examined. Our research provides evidence that even retail shareholders can actively participate in the corporate governance issue if their participation cost is reduced.

Third, our paper is also broadly related to the literature on shareholder activism. As noted in Gillian and Starks (2007), there is no conclusive evidence whether shareholder activism has a significant impact on firm performance. We document that online AGM does stimulate shareholder activism, which has a positive effect on countering back the expropriation of controlling shareholders and increasing firm value.

Finally, our study contributes to understanding the role of information technology in corporate governance. Our results suggest that facilitating shareholders' participation in governance issues through information technology can strengthen the corporate governance of publicly traded firms.

2. Background of online AGM in China

According to *the Rules of Listed Companies* issued by the China Securities Regulatory Commission (CSRC), Annual General Meeting (AGM) should be held within six months after the end of fiscal year. The venues of AGMs are chosen by the listed companies, and in the practice listed companies usually hold the AGMs in the places of headquarters. For onsite AGMs, shareholders have to register before the AGMs and go to the places of firms' headquarters to exercise voting rights on the AGM dates. However, all expenses should be paid by shareholders themselves. Moreover, AGMs are usually held in the working days, which further increases the shareholders' cost of attending the AGMs. It is also worth noting that proxy vote is not popular

in China due to the weak law support and the ownership concentration of Chinese listed companies (Li (2008)), which further prevents shareholders from voicing their opinions in the annual meeting.

To protect shareholder interest and strengthen corporate governance, the CSRC publishes *The Guideline on Online Voting at the Shareholders Meeting of Listed Companies (Trial Implementation)* on November 29, 2004. The guideline encourages listed companies to facilitate the exercise of voting rights by shareholders through online voting at the shareholders meeting besides traditional on-site voting. On February 17, 2005, Celebrities Real Estate Development Group Ltd. became the first Chinese company adopting online voting in the annual general meeting.

According to the guideline, all shareholders have the rights of voting on line if companies initiate the online voting in the AGMs, but they can only choose one of voting methods, on-site voting, online voting or other voting methods stipulated by companies. Further, if a listed company offers online voting access, the time to vote online, voting procedures and proposals to be voted should be specified in the notice of AGMs. For each proposal, the listed company should jointly calculate the ballots of on-site and online votings. Proxy vote is also available to online voting by shareholders.

All shareholders listed on the AGM registration dates can vote online when companies provide online voting in the AGMs. The registration date is usually one week before the AGM. Online shareholders can issue the proposals 10 days before the AGMs if she holds more than 3% firm ownership. Companies may also set up the online Q&A system, and online shareholders can ask questions to management during the AGMs.

3. Sample and Descriptive Statistics

Our sample includes all firms listed on the Shanghai and Shenzhen stock exchanges from 2005 to 2012. The sample period starts in 2005, the first year when some firms began to allow shareholders to participate in the AGMs online. As demonstrated in Table 1, the number of firms adopting online AGM has been increasing steadily since 2005. By the end of 2012, 564 firms have adopted online AGMs, accounting for 25% of all listed companies. Our final sample consists of 1,215 firm-year observations (968 unique firms) with online AGM and 11,710 firm-year observations (1,404 unique firms) without online AGM from 2005 to 2012.

We obtain AGM's information from WIND database and financial information from China Stock Market Accounting Research (CSMAR) database. We construct two variables to capture the shareholder participation in AGMs. The first one is the *Shareholder attendance*, which is the number of shareholders participating in AMGs normalized by the total number of shareholders. The second one is *Ownership attendance*, which is the number of shares owned by shareholders participating in AGMs normalized by total shares outstanding. Table 2 presents the descriptive statistics for firms with and without online AGM. Variable definitions are provided in the appendix 1. The average (median) *Shareholder attendance* in the AGMs is 0.30% (0.13%) for firms with online voting, while the corresponding figure is 0.04% (0.02%) for firms without online voting. Both *t*-test and Wilcoxon test indicate that the difference in the enthusiasm of shareholders attending the AGMs across the two groups of firms is significant at the 1% level. We see the same pattern when using *Ownership attendance* to measure shareholder participation in AGMs. For firms with online voting, *Ownership attendance* is 53.46% on average and 54.37%

at the median. In contrast, in firms without online voting the average (median) *Ownership attendance* is 48.32% (48.79%). We further divide the shares participating in the AGMs into those owned by non-blockholders and blockholders. The blockholders are defined as shareholders who own more than 5% firm shares. The statistics show that the difference of participating ownership between online and non-online AGMs is mostly driven by the part of non-blockholders. Thus, compared to blockholders, the effect of online AGM on attracting shareholders to participate in annual meeting is much stronger for retail shareholders. This is not surprising given that blockholders are likely to attend the AGMs physically regardless of whether or not the firm has online AGM.

Furthermore, in comparison to firms without online AGM, those with online AGM are generally bigger in size and older, present better accounting performance but poorer stock returns, have lower risk, and experience lower growth. Moreover, firms with online AGM tend to have large institutional ownership and higher insider ownership.

4. Empirical Results

4.1 Online AGM and Shareholder Participation

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

$$\begin{aligned}
 \text{Shareholder participation}_t = & \alpha_0 + \alpha_1 \text{Online AGM}_t + \alpha_2 \text{Size}_t + \alpha_3 \text{ROA}_t + \alpha_4 \text{Stock return}_t \\
 & + \alpha_5 \text{Stock volatility}_t + \alpha_6 \text{MB}_t + \alpha_7 \text{Institution ownership}_t \\
 & + \alpha_8 \text{Insider ownership}_t + \alpha_9 \text{Age}_t + \text{Industry FE} + \text{Year FE} + \varepsilon_t
 \end{aligned} \tag{1}$$

The dependent variable is the measure of shareholder participation in the AGMs, including the number and ownership of shareholders attending the AGMs. The key independent variable is the *Online AGM* indicator, which takes the value of one if shareholders can attend the AGMs online, and zero otherwise. We also add a set of control variables, including firm size, performance, risk, growth opportunity, firm age, institution ownership, and executive ownership. Industry fixed effects and year fixed effects are included to control for industry and time variations. Following Petersen (2009), *p*-values are based on robust standard errors clustered at the firm level.

Table 3 reports the regression results of model (1). In Column (1) of Panel A, the dependent variable is the percentage of shareholders participating in the AGMs (measured in percentage points). The coefficient on *Online AGM* is 0.275 and significant at the 1% level, indicating that online voting increases the enthusiasm of shareholders attending the AGMs. The economic magnitude is also sizeable: the shareholder participation number in firms with online AGM is 0.275 percentage points larger than that in firms without online AGMs, relative to the sample average participation of 0.04% in the firms without online AGMs.

In Column (2), we measure the shareholder participation as the ownership participation in the AGMs. The coefficient on *Online AGM* is 2.812 and significant at the 1% level, implying the increased participation of shareholders in the AGMs when shareholders can attend the AGMs online.

Given that the effect of online AGM on shareholder participation can be different between large shareholders and retail 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 Column (3) and (4), respectively. We find that the coefficient on *Online AGM* is 3.803 and significant at the 1% level in Column (3). This coefficient indicates that ownership participation in firms with online AGM by retail investors is 3.8 percentage points higher than that in firms without online AGM. This difference is economically important considering the average retail investor's ownership participation of 1.3 percentage points in firms without online AGM.

In Column (4), the coefficient on online AGM is not significant from zero, indicating that online voting does not increase the participation of blockholders in the AGMs. This finding is unsurprising because blockholders would usually attend the physical AGMs due to the greater interest in the firms. In the remainder of the paper we focus our analysis on the non-blockholder ownership in the AGMs.

The results of control variables show that good firm performance and high growth opportunity enhance the incentive of shareholders attending the AGMs. Further, shareholders prefer to participate in the AGMs held by firms with higher institution ownership and executive ownership.

To mitigate the concern that some time-invariant unobservable firm characteristics drive our results, we run the firm fixed effect regression in Panel B. Controlling for firm fixed effects also allows us to examine the within-firm effects of online AGM on shareholder participation in the AGMs. Column (1) and (2) report that the coefficients on *Online AGM* are significantly positive whether we employ the number or ownership of shareholders attending the AGMs as the dependent variable. Furthermore, after we divide the aggregate ownership in the AGMs by non-blockholder and blockholder ownerships, the positive effect of online voting on the participation

in the AGMs is only found for the non-blockholder ownership regression. Within the same firm, after the firm allows its shareholders to attend AGMs via an online platform, there is a significant increase in shareholder participation (especially the participation of retail shareholders) in the annual meeting.

Overall, the results in Table 3 show that shareholders are more likely to participate in the AGMs when the AGM can be attended online. The boosted enthusiasm of attending the AGMs is particularly pronounced for retail shareholders.

4.2 The Effect of Costs of Attending On-site AGMs

We expect that online voting in the AGMs is more beneficial to shareholders when they face higher costs of attending the on-site AGMs. To test this prediction, we construct an indicator variable *Transportation center*, taking the value of one if the firm's headquarters locates in a transportation center, including Beijing, Tianjin, Harbin, Changchun, Shenyang, Dalian, Shijiazhuang, Qinhuangdao, Tangshan, Qingdao, Jinan, Shanghai, Nanjing, Lianyungang, Xuzhou, Hefei, Hangzhou, Ningbo, Fuzhou, Xiamen, Guangzhou, Shenzhen, Zhanjiang, Haikou, Taiyuan, Datong, Zhengzhou, Wuhan, Changsha, Nanchang, Chongqing, Chengdu, Kunming, Guiyang, Nanning, Xi'an, Lanzhou, Ürümqi, Hohhot, Yinchuan, Xining, Lasa, and zero otherwise.² Considering that it is usually more convenient for shareholders to attend the on-site AGMs when firms locate in the places of transportation centers, we expect the positive association between online AGM and shareholder participation is weaker for firms located in a

² According to 'The Notice on the Transportation System Plan during the Twelfth Five-Year Plan' issued by China state council in 2012, these cities are classified as China transportation centers (<http://www.chinanews.com/gn/2013/04-01/4692205.shtml>).

place that is easy to reach physically. To examine this implication, we add the variable of *Transportation center* and its interaction with *Online AGM* in model (1).

Table 4 reports the interaction regression results. In Column (1), the dependent variable is the percentage of shareholders participating in the AGMs. The coefficient on *Transportation center* is positive and significant, indicating that shareholders have higher interest in attending the AMGs when the convenient transportation reduces the costs of participation. Further, the interaction term *Transportation center* \times *Online AGM* attracts a negative and significant coefficient, indicating that the effects of online AGMs on the shareholder participation in the AGMs are weaker when firms locate in the places of transportation centers. We find similar results when examining non-blockholder participation in the AGMs in Column (2). In Columns (3) and (4), we examine the within-firm effects by incorporating firm fixed effects in the regression. Because no firms relocate their headquarters in our sample, there is no within-firm variation in *Transportation center*. Thus, the coefficient on *Transportation center* itself is not reported. Nevertheless, we still find a negative and significant coefficient on the interaction *Transportation center* \times *Online AGM*.

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

4.3 Propensity Score Matching

As a further analysis, we employ a matching technique to examine differences of shareholder participation in the AGMs between firms with and without online voting. The matching procedure controls for selection based on the observable firm characteristics. Our data

are well suited to the matching approach given that we have a much larger pool of control group (firms without online AGM) compared with the treatment group (firms with online AGM), which increases the likelihood of finding close matches.

We first estimate the propensity scores using a probit model in which the dependent variable is the indicator *Online AGM*, taking the value of one if the firm has adopted an online AGM and zero otherwise. The independent variables are the full set of firm characteristics as shown in Table 3. We then use the predicted probabilities (propensity scores) from the probit regression to match each firm-year observation with online AGM to the firm-year observation without online AGM that minimizes the absolute value of the difference between the propensity scores. To find optimal matches, three different matching techniques are employed respectively: nearest neighborhood, Gaussian kernel, and local linear regression.

Table 5 presents the differences of shareholder participation in the AGMs between firms adopting online voting and their matched peers with only on-site voting under three different matching criteria. As shown in Row (1), the percentage of shareholders attending the AGMs is 0.3% higher in firms with online voting than in firms without online voting across three matching criteria. Further, the comparison of the non-blockholder ownership in the AGMs generates the same pattern. The non-blockholder ownership of AGMs with online voting is about 4% higher than that of AGMs without online voting.

Overall these results further support that the availability of online voting greatly increases the enthusiasm of shareholders attending the AGMs, particularly for minority shareholders.

4.4 Instrumental Variable Approach

To further address the possible endogeneity in the analysis, we implement the two-stage least squares (2SLS) regression in this subsection. In the first step, we estimate the propensity of a firm to adopt online voting in the AGMs. The instrumental variable is *Internet availability*, defined as the number of internet users divided by total population in a province. Considering that the regional availability of internet influences the local firms' possibility of implementing online voting in the AGMs, the instrument is likely to satisfy the relevance condition. Further, there are no obvious reasons to believe that the province-level availability of internet has a direct effect on the interest of shareholders in an individual firm to attend the AGMs, other than through the effect of online AGM. Thus, the instrument is also likely to satisfy the exogeneity condition. The other control variables used in the first-stage regression include the full set of variables in Table 3.

As shown in Column (1) of Table 6, we find that the coefficient on *Internet availability* is positive and significant at the 1% level. This means that firms in the regions with higher internet availability are more likely to adopt online AGMs. The F statistic on this instrumental variable is 107, suggesting that our IV is unlikely to be subject to the concern of weak instrument (Staiger and Stock (1997)).

In the second step, we obtain the predicted *Online AGM* indicator based on the first-step regression and employ it in the regression of shareholder participation in the AGMs. Column (2) reports the second-stage results using the percentage of shareholders attending the AGMs as the dependent variable. The coefficient on *Online AGM* is 0.194 and significant at the 5% level. Moreover, in Column (3) the regression of the non-blockholder ownership in the AGMs gets the

similar result. These analyses indicate that after controlling for self-selection bias, online voting is still associated with the higher shareholder participation in the AGMs.

5. Additional Investigation on the Consequences of Online AGM

5.1 The Market Reaction to the Announcements of Initiating Online AGM

To shed light on the value implication of online AGM, in this subsection we examine the market reaction to the announcement of online AGMs. If online voting provides retail shareholders more opportunities to communicate with management, to voice their concerns and to protect their interests in the AGMs, we would expect a positive market reaction when a firm initiates the online AGM. On the other hand, if online AGM may lead to (inefficient) intervenes of unsophisticated retail investors or if the participation of retail investors in the AGMs is simply 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 dates when the firm initiates its online AGM. First we exclude observations with multiple events in the announcement dates of online AGM. We use the China market index that is a market capitalization weighted average of Shanghai Stock Exchange Composite Index and 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 through -10 relative to the event date (day 0 is the AGM announcement date). 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 7, the average CAR $[-1, +1]$, CAR $[-3, +3]$, and CAR $[-5, +5]$ are 0.86%, 1.68%, and 2.70%, respectively; all of them are significant at the 1% level. This indicates that online AGM is 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 abnormal return is close to 5 million U.S. dollars at the announcement date of initiating online AGM.

Overall, Table 7 provides evidence that the stock market reacts positively when a firm initiates online AGM. In other words, the easy access of shareholders to attend AGM via an online platform increases shareholder value.

5.2 Do Shareholder Voice Their Opinions in the Online AGM?

So far, we have shown that online AGM lowers the costs for (retail) shareholders to attend the AGMs and increase their participation. A natural question is: do retail shareholders vote differently from blockholders who will attend the onsite meeting anyway? If retail shareholders always vote in the same way as blockholders, then retail shareholders' participation makes no difference. In this subsection, we examine this question by focusing on the proposal on related party transactions, which is usually referred to as the transactions of asset sales, goods trading, equity sales, cash lending, loan guarantee between listed companies and controlling shareholders. We focus on related party transactions because it is widely documented that controlling shareholders exploit retail shareholders via these related party transactions (see, for example,

Cheung et al. (2006), and Jiang et al. (2010)). Thus, if retail shareholders participate the online AGM to actively engage in the corporate decisions, we expect the voting outcome online is different from the outcome onsite.

Table 8 is based on a subsample of firms that have related party transaction proposals and reveal voting outcomes separately from online and onsite. Appendix 2 lists the details of these proposals. We find a remarkably different voting pattern. From the onsite, 99% of the shareholders support the proposal; but from online, only 65% of the shareholders support the proposal. This is understandable given that related party transactions are likely to benefit controlling shareholders at the expense of retail shareholders. Overall, this table provides evidence that retail shareholders indeed take advantage of the easy access to annual meeting via online platform to voice their concerns and protect their interests.

6. Conclusions

There is a surging debate about the potential benefits of allowing shareholders to participate AGMs via an internet-based platform. On one hand, advocates of online AGM believe that it is a highly efficient way to enable shareholders to actively participate in shareholder meeting without incurring the expense and inconvenience of travelling to the physical meeting site, and thus enhance shareholder participation in annual meeting. On the other hand, online AGM could make little difference because large shareholders are likely to attend the physical meeting anyway and thus be not affected. Moreover, retail shareholders may still lack of incentive to even attend the online meeting due to their small stake in the firm; even if retail investors do

actively participate the online meeting, too much intervene of unsophisticated and inexperienced retail investors may hurt managerial initiatives and thus be value-destroying.

In this paper, we empirically examine whether allowing shareholders to attend annual meeting online can enhance the participation in the meeting. We find that online AGM can greatly increase the participation of shareholders, especially retail shareholders. This result is more pronounced when the costs of attending the physical meeting is larger and is robust to accounting for endogeneity concerns.

Further, we examine the real consequence of allowing online AGM. We document significant positive stock returns when firms first initiate the online AGM. We provide evidence that retail shareholders indeed voice their (different) opinions via online AGM. Overall, our findings indicate that online AGM is a low-cost effective way for shareholders to participate in corporate governance. Our study has important implications for policy-makers who aim to enhance shareholders' participation in the governance issue.

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Appendix 1. Variable Definition

Variable	Definition
Shareholder attendance	The number of shareholders participating in the AGMs divided by the total number of shareholders.
Ownership attendance	The number of shares owned by shareholders participating in the AGMs divided by the total number of shares outstanding.
Non-blockholder ownership attendance	The number of shares owned by non-blockholders participating in the AGMs divided by the total number of shares outstanding. Non-blockholders are the shareholders who own less than 5% firm ownership.
Blockholder ownership attendance	The number of shares owned by blockholders participating in the AGMs divided by the total number of shares outstanding. Blockholders are the shareholders who own more than 5% firm ownership.
Online AGM	An indicatory variable, taking the value of one if the firm adopts online annual general meeting, and zero otherwise.
Size	The natural logarithm of total assets.
ROA	The income before extraordinary items divided by total assets.
Stock return	The 12-month cumulative stock return 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 rate at the end of fiscal year.
Institution ownership	The percentage of shares owned by institution shareholders.
Insider ownership	The percentage of shares owned by executive managers.
Firm age	The number of years since the firm's inception.
Transportation center	An indicatory variable, taking the value of one if the firm locates in Beijing, Tianjin, Harbin, Changchun, Shenyang, Dalian, Shijiazhuang, Qinhuangdao, Tangshan, Qingdao, Jinan, Shanghai, Nanjing, Lianyungang, Xuzhou, Hefei, Hangzhou, Ningbo, Fuzhou, Xiamen, Guangzhou, Shenzhen, Zhanjiang, Haikou, Taiyuan, Datong, Zhengzhou, Wuhan, Changsha, Nanchang, Chongqing, Chengdu, Kunming, Guiyang, Nanning, Xi'an, Lanzhou, Ürümqi, Hohhot, Yinchuan, Xining, and Lasa, and zero otherwise.
Internet availability	The number of internet users divided by total population in the province.
CAR	The cumulative abnormal returns around the announcement date of AGMs.

Appendix 2. List of Related Party Transaction Proposals

Company Name and Code	Year	Proposal
COFCO Property (Group) Co., Ltd (000031)	2006	Purchase 100% shares of Xiamen Pengyuan Real Estate Co., which is a subsidiary of the controlling shareholder COFCO Corporation
		Purchase 51% shares of Chengdu Tianquan Real Estate Co., which is a subsidiary of the controlling shareholder COFCO Corporation
	2011	Deposit in the COFCO Finance Co. Ltd., which is a subsidiary of the controlling shareholder COFCO Corporation
Weifu High-technology Co., Ltd (000581)	2009	The trade of goods and service with RBCD Co., which is a joint venture of the controlling shareholder Weifu High-tech Co. and the foreign investor Bosch Co.
	2010	The trade of goods and service with RBCD Co., which is a joint venture of the controlling shareholder Weifu High-tech Co. and the foreign investor Bosch Co.
	2011	The trade of goods and service with RBCD Co., which is a joint venture of the controlling shareholder Weifu High-tech Co. and the foreign investor Bosch Co.
	2012	The trade of goods and service with RBCD Co., which is a joint venture of the controlling shareholder Weifu High-tech Co. and the foreign investor Bosch Co.
Sichuan Youli Investment Holding Co., Ltd (000584)	2012	Purchase electricity, steam and desalted water from Thermo Electron Co., which is a subsidiary of the controlling shareholder Jiangsu Shuang Liang Technology Co.
Tianjin TEDA Co. Ttd. (000652)	2011	Vouch for the controlling shareholder Tianjin TEDA Group
Fujian Yongan Forestry (Group) Joint-stock Co., Ltd (000663)	2010	Operating lease, product purchase and sales with the subsidiaries Fujian Huian Woods Co. and Fujian Huiyang Woods Co.
	2011	Operating lease, product purchase and sales with the subsidiaries Fujian Huian Woods Co. and Fujian Huiyang Woods Co.
Milord Real Estate Development Group Co., Ltd (000667)	2009	Vouch for the controlling shareholder MingLiu Investment Co.
	2010	Vouch for the controlling shareholder MingLiu Investment Co.
	2011	Vouch for the controlling shareholder MingLiu Investment Co.
		Vouch for the controlling shareholder MingLiu Investment Co.
		Vouch for Zhonggong Construction Co., which is a subsidiary of the controlling shareholder MingLiu Investment Co.
2012	Transfer 100% shares of the subsidiary Zhongguo Construction Co. to the controlling shareholder Mingliu Investment Co.	
Tianjin Binhai Energy & Development Co., Ltd (000695)	2008	Purchase steam from Tianjin TEDA Tsinlien Heat & Power Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
		Purchase steam from Guohua Resource Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
	2009	Rent assets from the controlling shareholder Tianjin TEDA Group
		Rent assets from Tianjin TEDA Tsinlien Heat & Power Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
		Purchase steam from Tianjin TEDA Tsinlien Heat & Power Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
		Purchase steam from Guohua Resource Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
	2011	Rent assets from the controlling shareholder Tianjin TEDA Group
		Rent assets from Tianjin TEDA Tsinlien Heat & Power Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group

Company Name and Code	Year	Proposal
Tianjin Binhai Energy & Development Co., Ltd (000695)	2012	Rent assets from the controlling shareholder Tianjin TEDA Group
		Rent assets from Tianjin TEDA Tsinlien Heat & Power Co., which is a subsidiary of the controlling shareholder Tianjin TEDA Group
Suning Universal Co., Ltd. (000718)	2008	Purchase goods from Nanjing Suning Door & Window Co., which is a subsidiary of the controlling shareholder Suning Universal Co.
Sound Environmental Resources Co., Ltd. (000826)	2012	Purchase 90% shares of Liaomeng Recycle Co., which is a subsidiary of the controlling shareholder Sound Group
		Purchases 30% shares of the subsidiary Yichang Three Gorges Water Service Co.
		Take management on Beijing Guozhong Bio-tech Co. and Hubei Dangerous Waste Recycle Co., which are subsidiaries of the controlling shareholder Sound Group
Dongguan Development (Holdings) Co., Ltd. (000828)	2010	Purchase assets from Xinyuan Highway Co., which is a subsidiary of the controlling shareholder Dongguan Road Bridge Development and Construction Co.
United Mechanical & Electrical Co., Ltd. (000925)	2011	The trade of goods and service with the controlling shareholder Zheda Wangxin Co. and Insigma Technology Co., a subsidiary of Zheda Wangxin Co.
		Mutually vouch with Insigma Technology Co., which is a subsidiary of the controlling shareholder Zheda Wangxin Co.
	2012	The trade of goods and service with the controlling shareholder Zheda Wangxin Co. and Insigma Technology Co., a subsidiary of Zheda Wangxin Co.
Tianjin FAW Xiali Automobile Co., Ltd. (000927)	2011	The trade of goods and service with the controlling shareholder China FAW Group and the subsidiaries of China FAW Group
	2012	The trade of goods and service with the controlling shareholder China FAW Group and the subsidiaries of China FAW Group
Jiangsu Miracle Logistics System Engineering Co., Ltd. (002009)	2010	Sell 51% shares of a subsidiary Wuxi Tianqi Real Estate Co. to Jiangsu South Tianqi Investment Co. under the same controlling shareholder
		Purchase service from Jiangsu South Miracle Investment Co. under the same controlling shareholder
Zhejiang Dun'an Artificial Environment Co., Ltd. (002011)	2012	The trade of goods and service with the controlling shareholder Jiangsu Dun'an Industrial Group
Fujian Sansteel Minguang Co., Ltd. (002110)	2010	The trade of goods and service with the controlling shareholder Fujian Metallurgical Holdings Co. and the subsidiaries of Fujian Metallurgical Holdings Co.
		The trade of goods and service with the second largest shareholder Xiamen ITG Group
		The trade of goods and service with the subsidiaries of the listed company
Zhejiang Great Southeast Packaging Co., Ltd. (002263)	2012	Purchase material and products from Zhejiang Great Southeast Import & Export Co. which is a subsidiary of the controlling shareholder Zhejiang Great Southeast Group
Jiangsu Huachang Chemical Co., Ltd. (002274)	2011	The trade of goods and service with Jiangnan Boilers Co., which is a subsidiary of the controlling shareholder Huachang Group Co.
Guangdong Taientang Pharmaceutical Co., Ltd. (002433)	2011	Lease houses to the listed company's subsidiaries Shanghai Taientang Medicine Co. and Guangdong Pibao Medicine Co.
Chinese Universe Publishing and Media Co., Ltd. (600373)	2012	The trade of goods and service with the controlling shareholder Jiangxi Publishing Group

Company Name and Code	Year	Proposal
Zhejiang Haiyue Co., Ltd. (600387)	2011	Purchase material and rent houses from the subsidiary Zhuji Zhongyouhai Petrol Co.
Liuzhou Rion & Steel Co., Ltd. (601003)	2012	Sell goods to Liuzhou Pincheng Metal Materials Co., which is a subsidiary of the controlling shareholder Guangxi Liuzhou Iron and Steel Group
Company Name and Code	Year	Proposal
Lanpec Technologies Limited (601798)	2012	Provide service to China Machinery International Co., which is a subsidiary of the controlling shareholder China National Machinery Industry Corporation

Table 1. Online Voting in Annual General Meeting Over Time

The sample consists of 1,215 firm-year observations with online AGM and 11,710 firm-year observations without online AGM from 2005 to 2012. All the firms are listed in Shanghai and Shenzhen Stock Exchanges.

Year	# of Firms	# of Firms with online AGM	Percentage of Firms with online AGM
2005	1,310	17	1.30%
2006	1,292	44	3.41%
2007	1,325	80	6.04%
2008	1,493	78	5.22%
2009	1,572	101	6.42%
2010	1,646	140	8.51%
2011	1,994	191	9.58%
2012	2,293	564	24.60%
In Total	12,925	1,215	9.40%

Table 2. Summary Statistics

The table compares some characteristics of firms with and without online AGM. The sample consists of 1,215 firm-year observations with online AGM and 11,710 firm-year observations without online AGM from 2005 to 2012. Online AGM is an indicator variable, taking the value of one if the firm has adopted an online AGM and zero otherwise. Variable definitions are provided in Appendix 1. All continuous variables are winsorized at the top and bottom 0.5%. The last two columns present the *t* statistics (*z* statistics) for the tests of differences in mean (median) between firms with and without online AGM. Superscripts ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

	Firms with online AGM		Firms without online AGM		Test of differences	
	Mean	Median	Mean	Median	<i>t</i> -test	Wilcoxon test
	(1)	(2)	(3)	(4)	(1) – (3)	(2) – (4)
Shareholder attendance	0.30%	0.13%	0.04%	0.02%	46.2***	41.9***
Ownership attendance	53.46%	54.37%	48.32%	48.79%	10.5***	10.5***
Non-blockholder ownership attendance	5.44%	3.68%	1.31%	0.75%	17.3***	18.3***
Blockholder ownership attendance	48.01%	48.57%	47.04%	47.51%	1.31	1.23
Size	8.327	8.068	7.828	7.666	11.7***	11.6***
ROA	4.33%	3.93%	2.85%	3.22%	5.68***	5.72***
Stock return	27.39%	-0.47%	38.43%	1.78%	-3.63***	-1.04
Stock volatility	14.29%	13.20%	15.27%	14.44%	-5.76***	-7.18***
MB	1.628	1.280	1.888	1.317	-4.52***	-2.97***
Institution ownership	29.15%	23.01%	22.10%	13.94%	10.3***	11.6***
Insider ownership	6.81%	0.00%	3.14%	0.00%	10.3***	13.6***
Firm age	13.67	14.00	13.37	13.00	2.08**	2.32**

Table 3. Online AGM and Shareholder Participation

The table reports the results of how online AGMs influence the shareholder participation in the AGMs. Panel A and B present the OLS regression and the firm fixed effect regression, respectively. Online AGM is an indicator variable, taking the value of one if the firm has adopted an online AGM and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 0.5%. 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 OLS Regression (Between Firm Effect)

	Shareholder attendance (1)	Ownership attendance (2)	Non-blockholder ownership attendance (3)	Blockholder ownership attendance (4)
Online AGM	0.275*** (0.000)	2.812*** (0.000)	3.803*** (0.000)	-1.008 (0.109)
Size	-0.005** (0.010)	3.450*** (0.000)	-0.106 (0.530)	3.558*** (0.000)
ROA	0.099*** (0.000)	16.429*** (0.000)	7.678*** (0.000)	8.591*** (0.000)
Stock return	0.010** (0.011)	-0.493** (0.018)	0.603*** (0.000)	-1.095*** (0.000)
Stock volatility	-0.169*** (0.000)	22.969*** (0.000)	-1.160 (0.672)	24.393*** (0.000)
MB	0.006*** (0.000)	0.814*** (0.000)	-0.059 (0.478)	0.872*** (0.000)
Institution ownership	0.036*** (0.000)	2.377** (0.044)	0.285 (0.619)	2.232* (0.089)
Insider ownership	0.162*** (0.000)	16.413*** (0.000)	5.760*** (0.000)	10.712*** (0.000)
Firm age	0.000 (0.551)	-1.202*** (0.000)	-0.021 (0.523)	-1.183*** (0.000)
Constant	0.090*** (0.000)	28.051*** (0.000)	3.118* (0.056)	24.897*** (0.000)
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	12,925	12,925	12,925	12,925
R-squared	0.171	0.261	0.064	0.228

Panel B Firm Fixed Effect Regression (Within Firm Effect)

	Shareholder attendance (1)	Ownership attendance (2)	Non-blockholder ownership attendance (3)	Blockholder ownership attendance (4)
Online AGM	0.301*** (0.000)	3.421*** (0.000)	3.453*** (0.000)	-0.066 (0.799)
Size	-0.011** (0.020)	5.838*** (0.000)	-0.348** (0.014)	6.224*** (0.000)
ROA	0.022 (0.358)	8.159*** (0.000)	1.761** (0.019)	6.301*** (0.000)
Stock return	0.013*** (0.000)	0.537*** (0.000)	0.498*** (0.000)	0.032 (0.787)
Stock volatility	0.023 (0.675)	7.354*** (0.002)	4.933*** (0.004)	1.874 (0.370)
MB	-0.001 (0.674)	0.348*** (0.000)	-0.036 (0.518)	0.399*** (0.000)
Institution ownership	0.032*** (0.009)	-2.393*** (0.000)	0.138 (0.715)	-2.345*** (0.000)
Insider ownership	-0.084* (0.091)	-11.731*** (0.000)	-2.123 (0.173)	-9.594*** (0.000)
Firm age	-0.007 (0.671)	-0.950 (0.188)	-0.728 (0.166)	-0.210 (0.746)
Constant	0.180 (0.518)	12.496 (0.297)	15.269* (0.080)	-3.333 (0.757)
Year fixed effect	Yes	Yes	Yes	Yes
Observations	12,925	12,925	12,925	12,925
R-squared	0.387	0.827	0.621	0.869

Table 4. 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 the on-site AGMs. The dependent variables are shareholder attendance and non-blockholder ownership attendance, respectively. Online AGM is an indicator variable, taking the value of one if the firm has adopted an online AGM and zero otherwise. Transportation center is an indicator variable, taking the value of one if the firm locates in one of China's transportation center and zero otherwise. Other variables are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 0.5%. 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.

	OLS regression		Firm FE regression	
	Shareholder attendance	Non-blockholder ownership attendance	Shareholder attendance	Non-blockholder ownership attendance
	(1)	(2)	(3)	(4)
Online AGM	0.303*** (0.000)	4.239*** (0.000)	0.372*** (0.000)	3.894*** (0.000)
Transportation center	0.018*** (0.000)	-0.158 (0.564)		
Online AGM*Transportation center	-0.085*** (0.006)	-1.330** (0.038)	-0.118*** (0.000)	-0.725* (0.079)
Size	-0.005*** (0.004)	-0.096 (0.571)	-0.010** (0.032)	-0.342** (0.015)
ROA	0.098*** (0.000)	7.655*** (0.000)	0.022 (0.364)	1.759** (0.019)
Stock return	0.011*** (0.009)	0.595*** (0.000)	0.013*** (0.000)	0.496*** (0.000)
Stock volatility	-0.176*** (0.000)	-1.163 (0.671)	0.019 (0.725)	4.909*** (0.004)
MB	0.006*** (0.000)	-0.053 (0.525)	-0.001 (0.656)	-0.036 (0.515)
Institution ownership	0.037*** (0.000)	0.319 (0.577)	0.035*** (0.004)	0.155 (0.682)
Insider ownership	0.160*** (0.000)	5.746*** (0.000)	-0.083* (0.095)	-2.115 (0.175)
Firm age	0.000 (0.621)	-0.021 (0.533)	-0.010 (0.548)	-0.746 (0.155)
Constant	0.094*** (0.000)	3.050* (0.061)	0.242 (0.135)	8.569* (0.092)
Industry fixed effect	Yes	Yes	No	No
Year fixed effect	Yes	Yes	Yes	Yes
Observations	12,925	12,925	12,925	12,925
R-squared	0.175	0.065	0.391	0.621

Table 5 Propensity Score Matching

This table presents the differences of shareholder participation in the AGMs between firms with and without online voting under three different matching criteria: nearest neighborhood, Gaussian kernel and local linear regression. In the first step, we run a probit regression, in which the dependent variable is the online AGM 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 to the firm-year observation without online AGM that minimizes the absolute value of differences between the propensity scores. Variable definitions are provided in Appendix 1. P-values are reported in parentheses.

	Nearest neighborhood	Gaussian kernel	Local linear regression
Shareholder attendance	0.003*** (0.000)	0.003*** (0.000)	0.003*** (0.000)
Non-blockholder ownership attendance	0.041*** (0.000)	0.038*** (0.000)	0.036*** (0.000)

Table 6 Instrument Approach

The table reports the results of 2SLS regression. The dependent variable in the first stage is the online AGM indicator, taking the value of one if the firm has adopted an online AGM and zero otherwise. The dependent variables in the second stage are shareholder attendance and non-blockholder ownership attendance, respectively. Internet availability equals to the number of internet users divided by total population in the province. Other variable are defined in Appendix 1. All continuous variables are winsorized at the top and bottom 0.5%. 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.

	1st stage predicting	2nd stage on AGM participation	
	Online AGM indicator	Shareholder attendance	Non-blockholder ownership attendance
	(1)	(2)	(3)
Internet availability	0.166*** (0.000)		
Predicted Online AGM		0.194** (0.033)	0.612** (0.015)
Size	0.016*** (0.000)	-0.004 (0.177)	-0.114 (0.507)
ROA	0.040 (0.200)	0.103*** (0.000)	7.776*** (0.000)
Stock return	0.006* (0.052)	0.012*** (0.008)	0.630*** (0.000)
Stock volatility	-0.204*** (0.000)	-0.116** (0.024)	-0.323 (0.907)
MB	-0.003* (0.083)	0.006*** (0.000)	-0.056 (0.500)
Institution ownership	0.047*** (0.000)	0.027*** (0.005)	0.052 (0.931)
Insider ownership	0.192*** (0.000)	0.135*** (0.000)	5.374*** (0.000)
Firm age	0.001 (0.127)	-0.000 (0.401)	-0.033 (0.325)
Constant	-0.091*** (0.001)	0.084*** (0.001)	3.226** (0.050)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Observations	12,925	12,925	12,925
R-squared	0.040	0.024	0.047

Table 7 The Analysis of CAR on the AGM Announcement Date

The table reports the announcement returns when a firm first initiates its online AGM. The sample consists of 794 announcements from 2005-2012. Dollar value of accumulative abnormal return is computed as accumulative abnormal return multiplied by the value of market capitalization at the previous fiscal year end. Superscripts ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Average accumulative abnormal return	Average dollar value of accumulative abnormal return (USD million)
Day -1 to +1	0.86%***	4.47***
Day -3 to +3	1.68%***	4.92***
Day -5 to +5	2.70%***	9.76***

Table 8 The Voting Results of Related Party Transaction Proposals in the AGMs

This table presents the voting agreement of related party transaction proposals in the AGMs for firms disclosing the onsite and online voting results. Total agreement is defined as the shares supporting the proposal to total voting shares. Onsite agreement is defined as the shares supporting the proposal to total onsite voting shares. Online agreement is defined as the shares supporting the proposal to total online voting shares.

Variable	Obs.	Mean	Median	Std. Dev.	Min.	Max.
Total agreement	50	0.964	0.989	0.063	0.629	1.000
Onsite agreement	50	0.990	1.000	0.064	0.593	1.000
Online agreement	50	0.652	0.798	0.329	0.075	1.000