

## Research Article

# Managerial Ownership and Stock Price Volatility: The Moderating Role of Corporate Transparency in China

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This paper aims to investigate the impact of managerial ownership on the stock price volatility in China by considering corporate transparency as a mediator. By analyzing data from 558 Chinese listed companies between 2016 and 2020, empirical results from a multiple linear regression model show a positive correlation between managerial ownership and corporate transparency. The results also provide the evidence that the negative correlation between managerial ownership and stock volatility is more (less) pronounced in companies with less (more) transparency. Enterprises should cooperate with financial analysts to increase corporate transparency. Individual investors can analyze the market performance by examining the company's equity structure, the number of cooperative analysts, and the number of research reports so as to provide more reliable basis for investment.

## 1. Introduction

The impact of managerial ownership on the stock price volatility with the moderating role of corporate transparency in China is examined in this study. The information asymmetry between companies and investors promotes the stock price volatility. Managers delay the release of bad news to investors by examining the magnitude of stock price reactions to managers' voluntary disclosures of the news [1]. At the same time, insiders will sell (purchase) more stocks when they expect higher (lower) risk, and this positive relation will increase with higher information asymmetry. [2]. Companies often leak good news to the market, and executives can successfully hide much of the bad news. When the amount of information being withheld exceeds the market's tolerance, both companies and investors may face a sharp fall in share prices. Therefore, due to the management's restrictions on corporate transparency, the information asymmetry between companies and investors promotes the fluctuation of stock prices. Several studies show that managerial ownership makes executives and shareholders face the same risks and benefits, reduces agency problems, and improves the quality of corporate information disclosure [3–5]. Therefore, the influence of managerial ownership and

information transparency on stock volatility has become a popular research topic. We conduct whether there is a positive or negative relationship between managerial ownership and stock price volatility through the moderating role of transparency.

Compared with capital markets in developed countries such as the United Kingdom and the United States, China's stock market provides a special setting for the impact of managerial ownership and corporate transparency on stock price volatility. First of all, China's capital market has low market transparency and poor quality of disclosed information [6]. Secondly, the government still dominates the Chinese stock market, but the market structure is constantly being updated, and the proportion of equity is gradually diversified. For emerging economies like China, there are many deficiencies in the market system, such as excessive administrative intervention, ununified rules in similar markets, mutual confused legal systems in different markets, and lack of direct financing functions. Therefore, it is necessary to study the influence of managerial ownership and transparency on stock price volatility.

Starting from Jensen and Meckling [7], when managers' equity is more concentrated, their interests overlap closely with those of shareholders, and enterprises are more likely to

solve internal agency problems and improve corporate performance. Khajavi and Shokrollahi [8] showed a positive correlation between managerial ownership and corporate performance. Li et al. [9] found that the level of managerial ownership has a hump-shaped improvement on corporate performance, especially in companies with more serious agency problems or weak governance, using difference-in-difference empirical design. Zhao and Liu [10] pointed out that the average shareholding ratio of management in China is 18%, which has a positive correlation with corporate performance. However, some studies found that the influence of management shareholding is not always positive. Shan [11] found that the higher the shareholding ratio of senior executives, the worse the company's performance by using 9,302 Australian listed companies during 2005–2015. Saidu and Gidado [12] believed that managerial ownership has no significant impact on company financial performance or company value. Outstanding and stable corporate performance promotes investor confidence and reduces stock price volatility. Therefore, it can be inferred that ownership structure has an impact on stock price volatility.

Information transparency is an indicator of the company's public disclosure of information. Previous studies have pointed out that the presence of analysts can improve the corporate transparency, reduce the information asymmetry between investors and enterprises, and obtain more accurate information outside the market [13, 14]. Moreover, if companies communicate information to the market frequently, they will have less impact on the market when new information about their performance is released, which can also reduce stock price volatility [15]. Therefore, corporate transparency plays an important role in the capital market and has a non-negligible impact on stock price volatility. For low corporate transparency, the behavior of managers is more influenced by self-interest because the information asymmetry between managers and investors will be intensified [16]. When more corporate information is disclosed with corporate incentives for managerial ownership, the stock price volatility is influenced. Lee et al. [17] provided evidence that high corporate transparency and high quality of disclosed information reduce stock price volatility. Xi et al. [18] concluded that competent managers disclose high-quality information, which bring companies good reputation and easing idiosyncratic volatility of stock prices. The impact of corporate transparency and managerial ownership on stock price volatility in China is still open. Additionally, corporate transparency and corporate governance improve the recognition of investors and benefit the development of enterprises [19]. Investors make trading decisions on whether to buy, hold, or sell stocks based on information released, while more accurate information can reduce stock price volatility in the stock market. Jin and Myers [20] prove that stock return synchronization can be interpreted as a measure of corporate transparency. In China, the information disclosure varies greatly [21].

Prior literature concludes that impact of managerial ownership on stock price volatility is inclusive. The relationship between managerial ownership and stock price volatility still needs to be investigated. Corporate

transparency has become an important indicator in the field of corporate governance. However, there is research gap on the relationship between managerial ownership and stock price volatility by considering corporate transparency as a mediator. The theoretical results of stock price volatility in the field of corporate governance are enriched in this study. This can not only provide support for external investors to make decisions.

In this paper, it is found that corporate transparency and managerial ownership are correlated with stock price volatility. Previous studies usually focused on the impact of a single regulatory factor on stock returns, but in this study, the impact of managerial ownership on stock return volatility when corporate transparency exerts the mesomeric effect is proved. With the improvement of managerial ownership, the corporate transparency improves and reduces the stock price volatility. On the contrary, the reduction of corporate transparency and the lack of management incentive mechanism may lead to promote stock price volatility. Our results suggest that companies can mitigate stock price volatility by improving information disclosure policies and increasing incentives for managerial ownership.

The remainder of this paper proceeds as follows. In section 2, the main hypothesis is presented. In section 3, the sample and design the empirical model is described. Section 4 provides the empirical result. In section 5 and 6, results are discussed and summarized.

## 2. Hypotheses Development

*2.1. Research Hypothesis.* The information transparency of listed companies can provide relatively accurate market information for investors and reduce the information asymmetry between enterprises and investors [22]. Gajewski and Li [23] pointed out the influence of French Financial Authority on forcing companies to disclose financial information on the Internet, and the results showed that larger web-based disclosure enhances information transparency and reduces information asymmetry. Information asymmetry measures are positively related to the predicted value of reputation risk [24], which means that information symmetry is beneficial to corporate reputation and corporate efficiency and then enhances market confidence. Accounting information disclosure and transparency is significantly positively correlated with investors' confidence [25]. Moreover, the stock market volatility of countries with high trust is significantly lower [26]. Therefore, it can be concluded that corporate transparency can reduce stock price volatility.

However, retail investors such as individual investors are often far behind institution investors in terms of information acquisition and analysis ability. The protection of investors in capital markets is still inadequate, leading to uneven levels of market response. Securities analysts need to consider complex factors in the process of information disclosure, which are affected by the laws, policies, and social environment of China's financial market. Firstly, agency problems in corporate governance are mainly due to the

horizontal agency conflict between controlling shareholders and minority shareholders in China, while markets of developed countries are facing classical vertical agency problems [27]. Secondly, Jiang and Kim [28] believed that it is difficult for independent directors in China to actively supervise the internal personnel of the company, but the board of directors in Western countries is considered by some scholars to be able to effectively monitor the company [29]. Thirdly, China's controlling shareholders have full control rights, so their governance behavior can have a significant impact on the company. However, the ownership of companies in Western countries is fragmented, and controlling shareholders are often required to perform regulatory duties [30]. Conflicts of interest are more likely to destroy its independence, and the information obtained by the market may have hidden deviation [31]. Analysts may selectively disclose information for personal interests and lack constraints on honest behavior, resulting in inadequate or even biased market information. This will increase information asymmetry, and the company's stock price volatility will be higher.

Managerial ownership is an incentive strategy, which can generally improve management level and company performance [32]. Piosik and Genge [33] confirmed that the higher the managerial ownership, the higher the transparency. Uwuigbe [34] revealed that there is a significant relationship between institutional investors, managerial ownership, and quality of financial disclosure. Therefore, the first hypothesis is as follows:

H1: Managerial ownership is positively correlated with corporate transparency

Javed and Lefen [35] proved that interaction of the managerial ownership with corporate social responsibility has a significant positive relationship with firm performance. Agustia et al. [36] have shown that managerial ownership positively affects corporate social responsibility disclosure. Dixon et al. [37] considered managerial ownership as the primary governance attribute. When managerial ownership increases, executives' interest is closely linked to shareholders' interest, which decreases agency costs and maximizes shareholder-value. Moreover, Khafid and Arief [38] proved that managerial ownership has a positive and significant effect on market outcomes. Managerial ownership positively affects the financial performance [39]; therefore, the increase of management shareholding reduces the stock volatility. However, the incentive strategies of management sometimes produce different effects. Shleifer and Vishny [40] showed that when the concentration of ownership structure is highly concentrated, the major shareholders will damage the interests of the minor shareholders and the company, making the company less willing to disclose information. Byun et al. [41] drew the same conclusion with a large number of samples of Korean companies; that is, when the proportion of controlling shareholders is too large, the degree of information asymmetry increases with the increase of concentration. Eng and Mak [42] found that lower managerial ownership is associated with increased disclosure. Khlif et al. [43] also showed that managerial ownership

has a negative effect on voluntary disclosure. Therefore, the following hypothesis is proposed:

H2: The negative correlation between managerial ownership and stock volatility is more (less) pronounced in companies with less (more) transparency

Insider selling and insider purchase which are the nonpublic tradings in companies of stock or other securities are also considered in this study. As management becomes more powerful, managerial misconduct causes opportunistic insider trading [44, 45]. Management personnel take advantage of information deviation to conduct internal trading [2], which can result in the company's stock price volatility increase. However, although insider trading has a significant impact on crash risk [2], it is different from the impact on stock price volatility. Because the impact of insider trading on stock price volatility can only last for a short term, the stock price volatility studied in this paper is in the unit of year. Different from the accumulation of crash risk to crash, stock price volatility is equivalent to taking insider trading into consideration in a year and equalizing its results. Therefore, the influence of equalized insider trading on stock price volatility is less obvious than that of crash risk.

### 3. Data Sources

*3.1. Sample Collection.* The data are mainly from CSMAR databases (Chinese Securities Market and Accounting Research). In addition, the sample includes 558 A-share companies listed on China's SSE (Shanghai stock exchange) and SZSE (Shenzhen stock exchange) from 2016 to 2020. ST and \*ST companies, financial companies, and companies with the lack of financial information are excluded in this study.

*3.2. Measurement of the Dependent Variable.* Similar to Bae et al. [46] and Li et al.'s study [47], the dependent variable the companies' stock price volatility in 2016 and 2020 is calculated by using the standard deviation of monthly stock returns and taking a logarithmic transformation of the results for each company each year. Table 1 shows the distribution of firm-year stock volatility categorized by year. The calculation is as follows:

$$SD = \sqrt{\frac{1}{n-1} \sum_{t=1}^n (\text{return}_{i,t} - \text{mean}_{i,t})^2}, \quad (1)$$

where  $\text{return}_{i,t}$  is the monthly stock return rate,  $n$  is the number of trading month in one year, and  $\text{mean}_{i,t}$  is the annual average rate of stock return.

*3.3. Measurement of Explanatory Variables.* According to the relation between ownership and management defined by modern enterprise principal-agent theory, managers are the actual controllers within the enterprise [48]. Earnings management is related to the ownership of the enterprise, especially the equity proportion of the actual controller [49].

TABLE 1: Stock price volatility over the sample period from 2016 to 2020.

Year	Obs	Time trend of stock volatility			
		Mean	Median	Min	Max
2016	556	0.1277146	0.1274245	0	0.5604639
2017	557	0.0789653	0.0738041	0	0.3726585
2018	558	0.0877233	0.0826692	0	0.3576196
2019	558	0.0877233	0.0826692	0	0.3576196
2020	558	0.0970161	0.0830745	0	0.7017554
Total	2787				

In order to investigate the impact of managerial ownership on stock price volatility, equity proportion of actual controller is used to represent the ratio of managerial ownership (control proportion). Table 2 shows that the actual holding ratio without logarithm has been stable in the five-year period, and both mean and median have little fluctuations.

Cheung et al. [50] constructed the transparency index to measure the quality of corporate governance disclosure for Chinese listed companies. Therefore, company transparency (company opacity) refers to the degree of information disclosure. Corporate transparency is quantified as in order of 4, 3, 2, and 1 for A, B, C, and D.

**3.3.1. Control Variables.** Several variables that are considered to be determinants of stock return volatility are controlled in this study. State ownership (controlling) is the actual property right of listed companies. The actual controlling persons of state-owned enterprises, administrative organs, public institutions, central organs, and local organs were marked as 1, and other nonstate-owned enterprises were marked as 0. If there is more than one actual controller, as long as one of them is a state-owned enterprise, it is judged as 1. Bushman et al. [51] pointed out that state-owned listed companies have low transparency; Leuz and Oberholzer-Gee [52] pointed out that the strength of a company's political relationship is inversely proportional to its transparency. A study on the Chinese market shows that state-owned enterprises tend to cover up negative financial information more than private enterprises [53]. Size of listed company (size) is defined as follows: the total assets data of listed companies at the beginning of the year as the size of listed companies, and logarithms to eliminate heteroscedasticity. The size of listed companies is negatively correlated with volatility [46, 47]. Turnover rate (turnover) is the ratio of the number of A shares traded divided by the outstanding share capital of A shares, also taking the logarithm. Li et al. [47] believed that stock return volatility increased with the increase of turnover. Financial leverage (leverage) is proved by Li et al. [47] to be one of the key factors affecting volatility, and the two variables are positively correlated. Date of incorporation (age): the time of the first incorporation into the age of the company is converted and the logarithm is taken as one of the control variables. Big four audit (Big4) refers to whether the auditor is from one of the big four accounting firms. If yes, it is represented by 1, and if not, it is represented by 0. Logarithm of price-to-book ratio (PB), return on asset (ROA), and growth rate of total

TABLE 2: Managerial ownership from 2016 to 2020.

Year	Obs	Managerial ownership			
		Mean	Median	Min	Max
2016	556	0.3214333	0.29685	0.0071	0.8117
2017	557	0.3224605	0.2948	0.0023	0.8118
2018	558	0.3236335	0.29615	0.0071	0.8118
2019	558	0.319305	0.29375	0.0071	0.8119
2020	558	0.3161027	0.29165	0.0079	0.8341
Total	2787				

assets (growth rate) are widely used in relevant control variables of stock market theoretical analysis [54–56].

**3.3.2. Descriptive Statistics.** The sample range is from 2016 to 2020. The mean value and standard deviation of logarithm of volatility of information measure stock return are  $-2.2375$  and  $0.865$ , respectively. The logarithm of volatility varies widely from  $-9.7795$  (minimum) to  $0.1213$  (maximum). In the sample, the logarithmic average of the management shareholding ratio (control proportion) of Chinese listed companies is  $-1.2659$ , and the standard deviation is  $0.5621$ , indicating high dispersion. From the perspective of corporate transparency data (company opacity), the average transparency of the samples is  $2.0384$ , which is in the middle and low position among the scores from 1 to 4. In addition,  $25.08\%$  of the sample companies are state-owned, and  $6.42\%$  are audited by the big four accounting firms. Table 3 shows the summary statistics of all the above variables that are needed to be applied in multiple regression analysis.

**3.4. Empirical Model.** In order to empirically evaluate the relationship between managerial ownership and corporate transparency (H1), the regression model 1 is as follows:

$$\text{CompanyOpacity}_{it} = \beta_0 + \beta_1 \text{ControlProportion}_{it} + \beta_2 \text{Controls}_{it} + \eta_i + \varepsilon_{it}, \quad (2)$$

where  $\eta_i$  is the unobserved time-invariant firm effects, and  $\varepsilon_{it}$  is the random error term.

In model 1, corporate transparency (company opacity) is the dependent variable, which is measured by independent variables and managerial ownership (control proportion). In addition, the model also includes some of the control variables mentioned above.

TABLE 3: Descriptive statistics of the key variables.

Variable	Obs	Descriptive statistics			
		Mean	S.D.	Min	Max
Volatility	2,787	-2.2375	0.8650	-9.7795	0.1213
Control proportion	2,787	-1.2659	0.5621	-6.0748	-0.1814
Company opacity	2,787	2.0384	0.7158	1.0000	4.0000
Controlling	2,787	0.2508	0.4336	0.0000	1.0000
Size	2,787	4.2386	1.4476	-25.0661	9.7584
Turnover	2,787	0.8015	0.1952	0.5190	1.0933
Leverage	2787	0.5758	3.4273	0.0302	178.3455
Age	2787	3.1993	0.2732	0.0000	4.2627
Big4	2787	0.0642	0.2452	0.0000	1.0000
PB	2787	0.9723	0.9083	-1.1617	7.3629
ROA	2787	0.0126	0.1282	-4.5194	0.3145
Growth rate	2787	0.1844	3.9982	-0.5750	206.5993

In order to empirically evaluate how managerial ownership and corporate transparency impact stock price volatility (H2), the regression model 2 is given as follows:

$$\begin{aligned}
 \text{Volatility}_{it} = & \beta_0 + \beta_1 \text{ControlProportion}_{it} \\
 & + \beta_2 \text{CompanyOpacity}_{it} \\
 & + \beta_3 \text{ControlProportion}_{it} \\
 & \times \text{CompanyOpacity}_{it} \\
 & + \beta_k \text{Controls}_{it} + \eta_i + \varepsilon_{it},
 \end{aligned} \quad (3)$$

where  $\eta_i$  is the unobserved time-invariant firm effects, and  $\varepsilon_{it}$  is the random error term.

In model 2, stock volatility is the dependent variable, which is measured by two key independent variables: corporate transparency (company opacity) and management shareholding ratio (control proportion). It should be noted that the interaction between company opacity and control proportion is taken as the explanatory variable (X1) to unblock the mediating effect between company opacity and control proportion. In addition, the model also includes the control variables mentioned above.

#### 4. Empirical Results

tPiosik and Genge [33] have confirmed that managerial ownership positively relates to corporate transparency. Management equity incentive can make it consistent with shareholders' interests so as to reduce management's self-interest and increase information disclosure. As disclosure increases, corporate transparency and market confidence increase. Thus, managerial ownership increases transparency, which ultimately feeds through to reduce stock price volatility. In model 1, size, leverage, age and Big4 are used as control variables. The results of the regression presented in Table 4 indicate a significant positive coefficient ( $p < 0.01$ ) between managerial ownership and corporate transparency.

In model 2, we incorporate an integrated group of control variables. Managerial ownership in linear regression coefficient is negative, and  $P > |t| 0.047$ , which is less than

5%. This means that a company's share price fluctuates less when its management stake rises. Corporate transparency is tested to be statistically significant at 95% confidence level. Table 5 supports H2 that stock price volatility is negatively associated with managerial ownership, by considering corporate transparency as the mediator.

Results are achieved for two reasons. First, in order to motivate the management, the company adopts management incentive policies so that the management can create more benefits for the company. The improvement of corporate efficiency increases the willingness of the company to disclose financial information and reduces the stock volatility. The incentive mechanism of the management enables the executives and shareholders to share the same interests, so the CEO is more inclined to increase information disclosure. The impact of information disclosure decreases when corporate transparency increases. Increasing disclosure of negative or positive information does not have a drastic impact on the stock price if company has high transparency.

In addition, the negative correlation between managerial ownership and stock volatility has a strong effect on the control of turnover rate, corporate age, price-to-book ratio, and growth rate. Finally, ownership nature, company size, financial leverage, audit by the big four accounting firms, and return on asset are tested to be insignificant at 95% confidence level. Overall, our results confirm the main hypothesis.

#### 5. Robustness Checks

*5.1. Robustness Tests.* The variable substitution method and endogeneity test are used to check the robustness of our regression results. Substituting other variables in the multiple linear regression equation for some indicators are considered [57]. The proportion of managerial ownership to equity concentration indicator (OC) is changed. The equity concentration indicator represents the sum of the shareholding ratio of the top three shareholders. Second, the market value is used to represent the company. The interaction term becomes company

TABLE 4: Regression results (H1).

Variables	(1) Company opacity	(2) Company opacity
Control proportion	0.153*** (6.45)	0.223*** (9.49)
Controlling	0.097*** (3.19)	
Size	0.125*** (13.75)	
Turnover	0.044 (0.66)	
Leverage		-0.016*** (-4.17)
Age		-0.067 (-1.39)
Big4		0.382*** (7.10)
Constant	2.564*** (34.16)	3.444*** (21.98)
Observations	2,786	2,786
R-square	0.101	0.056

t-statistics in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

TABLE 5: Regression results (H2).

Variables	(1) Volatility	(2) Volatility
Control proportion	-0.013 (-0.42)	-0.222** (-2.33)
Company opacity		-0.222*** (-3.77)
X1		-0.107** (-2.48)
Controlling	0.027 (0.74)	0.038 (1.02)
Size	-0.041** (-2.36)	-0.026 (-1.43)
Turnover	0.479*** (6.03)	0.495*** (6.25)
Leverage	0.116 (1.48)	0.041 (0.50)
Age	-0.260*** (-3.35)	-0.268*** (-3.46)
Big4	0.012 (0.18)	0.033 (0.49)
PB	0.086*** (3.58)	0.089*** (3.75)
ROA	0.057 (0.17)	0.041 (0.12)
Growth rate	-0.040 (-0.48)	-0.023 (-0.28)
Constant	-1.769*** (-6.52)	-2.223*** (-7.47)
Observations	2,786	2,785
R-square	0.032	0.040

t-statistics in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

transparency multiplied by ownership concentration, denoted by X2. The formula is as follows:

TABLE 6: The robustness tests of our main hypothesis is using the multiple linear regression model.

Variables	(1) Volatility	(2) Volatility
OC	-0.029 (-0.58)	-0.276* (-1.89)
Company opacity		-0.203*** (-3.35)
X2		-0.129** (-1.99)
Controlling	0.012 (0.33)	0.025 (0.65)
Size	-0.028* (-1.96)	-0.019 (-1.32)
Turnover	0.488*** (5.86)	0.502*** (6.04)
Leverage	-0.002 (-0.42)	-0.004 (-0.77)
Age	-0.168*** (-2.82)	-0.175*** (-2.96)
Big4	0.009 (0.13)	0.038 (0.55)
PB	0.092*** (4.15)	0.092*** (4.17)
ROA	-0.044 (-0.35)	-0.052 (-0.41)
Growth rate	-0.009** (-2.16)	-0.009** (-2.14)
Constant	-2.086*** (-9.51)	-2.509*** (-9.94)
Observations	2,786	2,785
R-squared	0.029	0.036

<sup>1</sup>We also consider the hysteresis effect of managerial ownership and transparency, but the results using lag variables are insignificant. t-statistics in parentheses. \*\*\* $p < 0.01$ , \*\* $p < 0.05$ , and \* $p < 0.1$ .

$$\begin{aligned}
Volatility_{it} = & \beta_0 + \beta_1 OC_{it} + \beta_2 CompanyOpacity_{it} \\
& + \beta_3 OC_{it} \times CompanyOpacity_{it} \\
& + \beta_4 Controlling_{it} + \beta_5 Marketvalue_{it} \\
& + \beta_6 Turnover_{it} + \beta_7 Leverage_{it} \\
& + \beta_8 Age_{it} + \beta_9 Big4_{it} + \beta_{10} PB_{it} \\
& + \beta_{11} ROA_{it} + \beta_{12} Growthrate_{it} + \eta_i + \varepsilon_{it}.
\end{aligned} \tag{4}$$

The results in Panel A of Table 6 are consistent with our main findings and support our main hypothesis. The significant level of OC is equal to 0.05, which is in a significant range, and the coefficient is negative. Company opacity  $P > |t|$  (0.001) is very significant, and the interaction term X2 is also in the significant range,  $P > |t|$  0.047. After replacement, the control variables of turnover, age and growth rate were still very significant.

**5.2. The Endogeneity Issue.** Following Bhagat and Bolton [58], there is an endogenous relationship between corporate governance and ownership structure. To examine potential endogeneity problems [59], the basic model is modified. The age of the CEO (ageing) is substituted for managerial

TABLE 7: The endogeneity checks using Panel A and Panel B to show the results after replacing two explanatory variables, respectively. The cross term X1 becomes X3 and X4, respectively.

Panel A replaces control proportion to ageing		
Variables	(1) Volatility	(2) Volatility
Ageing	0.173** (1.97)	0.159* (1.81)
Company opacity		-0.043 (-1.47)
X3		-0.074*** (-2.74)
Controlling	0.005 (0.13)	0.014 (0.36)
Size	-0.030** (-2.13)	-0.023 (-1.59)
Turnover	0.488*** (5.87)	0.498*** (6.00)
Leverage	-0.002 (-0.48)	-0.003 (-0.58)
Age	-0.170*** (-2.86)	-0.166*** (-2.81)
Big4	-0.003 (-0.04)	0.015 (0.21)
PB	0.092*** (4.16)	0.096*** (4.32)
ROA	-0.048 (-0.38)	-0.052 (-0.41)
Growth rate	-0.009** (-2.17)	-0.009** (-2.17)
Constant	-2.709*** (-6.88)	-2.904*** (-7.36)
Observations	2,786	2,785
R-square	0.031	0.039
Panel B replaces company opacity to board size		
Variables	(1) Volatility	(2) Volatility
Control proportion	-0.019 (-0.65)	0.512* (1.72)
Board size		-0.461** (-2.43)
X4		-0.243* (-1.81)
Controlling	0.014 (0.36)	0.020 (0.53)
Size	-0.029** (-2.05)	-0.027* (-1.91)
Turnover	0.487*** (5.85)	0.485*** (5.83)
Leverage	-0.002 (-0.41)	-0.002 (-0.43)
Age	-0.167*** (-2.81)	-0.170*** (-2.87)
Big4	0.006 (0.08)	0.011 (0.15)
PB	0.091*** (4.12)	0.092*** (4.15)
ROA	-0.045 (-0.36)	-0.040 (-0.31)
Growth rate	-0.009** (-2.17)	-0.009** (-2.06)
Constant	-2.083*** (-6.88)	-1.081** (-3.85)

TABLE 7: Continued.

	(-9.59)	(-2.30)
Observations	2,786	2,786
R-square	0.029	0.032

t-statistics in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , and \*  $p < 0.1$ .

TABLE 8: The robust checks using fixed effect model to reduce the endogenous issue. Panel A and Panel B show the results for time fixed effects model and industry fixed effect model, respectively.

Panel A time fixed effects model		
Variables	(1) Volatility	(2) Volatility
Control proportion	-0.021 (-1.63)	-0.164** (-3.08)
Company opacity		-0.193*** (-5.00)
X1		-0.078** (-3.40)
Controlling	0.015 (0.26)	0.026 (0.45)
Size	-0.025* (-2.18)	-0.017 (-2.06)
o.Turnover	-	-
Leverage	-0.002 (-2.06)	-0.004*** (-7.14)
Age	-0.168 (-1.34)	-0.173 (-1.38)
Big4	0.003 (0.06)	0.019 (0.35)
PB	0.099*** (5.04)	0.099** (4.41)
ROA	-0.030 (-0.68)	-0.041 (-0.89)
Growth rate	-0.010*** (-11.43)	-0.010*** (-11.49)
2017°end date	-	-
2018°end date	-	-
2019°end date	-	-
2020°end date	-	-
Constant	-1.720** (-3.85)	-2.103*** (-5.01)
Observations	2,786	2,785
R-square	0.019	0.026
Number of end date	5	5
Panel B industry fixed effect model		
Variables	(1) Volatility	(2) Volatility
ControlProportion	-0.021 (-0.85)	-0.160** (-5.65)
CompanyOpacity		-0.190*** (-12.59)
X1		-0.076* (-3.28)
Controlling	0.015 (0.41)	0.026 (0.76)
Size	-0.024 (-1.37)	-0.017 (-1.25)
Turnover	-0.057 (-0.70)	-0.035 (-0.52)
Leverage	-0.002 (-2.89)	-0.004** (-6.07)

TABLE 8: Continued.

Age	-0.158 (-1.58)	-0.165 (-1.69)
Big4	0.002 (0.02)	0.018 (0.18)
PB	0.099*** (25.59)	0.098*** (30.46)
ROA	-0.031* (-3.42)	-0.042** (-6.22)
Growth rate	-0.010*** (-18.61)	-0.010*** (-13.23)
2017 end date	-0.393*** (-12.40)	-0.390*** (-12.56)
2018 end date	-0.209** (-6.13)	-0.206** (-5.78)
2019 end date	-0.069 (-2.15)	-0.073 (-2.39)
2020 end date	-	-
Constant	-1.573** (-5.37)	-1.961** (-6.31)
Observations	2,786	2,785
R-square	0.044	0.050
Number of industry	3	3

Robust t-statistics in parentheses. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , and \*  $p < 0.1$ .

ownership. Isidro and Gonçalves [60] found that due to differences in behavior habits and external reputation of CEOs of different ages, the quality and equity of two executives with different ages but the same tenure may be different. When the CEO was older and near the age of retirement, earnings management behavior increased. Therefore, CEO ownership here is measured by the logarithm of CEO age [61]. According to previous studies [62, 63], the number of board members (board size) is used as a governance tool to measure corporate transparency.

From Table 7, it can be seen that managerial ownership has a significant impact on stock price volatility. Corporate transparency acts as mediator in this relationship. It confirms that the empirical results in Table 5 are unlikely to be caused by endogeneity problems.

**5.3. Fixed Effect Model.** Controlling for the industry and time fixed effects is a common method to control for omitted variables in a panel data set [64]. The fixed effects model is time invariant, which accepts different constant between firms [65]. Xie et al. [66] addressed endogeneity concerns using firm fixed effects. According to Nazir et al. [67], the industry and time fixed effects are controlled to reduce endogeneity issue. Both Panel A and Panel B in Table 8 show that managerial ownership is significant at 95% confidence level, and corporate transparency has a mediation effect.

## 6. Conclusion

This paper studies the relationship between managerial ownership and stock price volatility in China by considering the moderating role of corporate transparency. The results support our conjecture that there is a positive correlation between managerial ownership and corporate transparency,

based on a sample of 558 Chinese listed companies from 2016 to 2020. Furthermore, the negative correlation between managerial ownership and stock price volatility is more (less) pronounced in companies with less (more) transparency. The results supplement corporate governance in the capital markets of emerging economies. Enterprises can implement management incentive policies to reward equity to management personnel with outstanding performance and reputation. They can also cooperate with more financial analysts to increase corporate transparency. Individual investors can analyze the company's market performance by examining the company's equity structure, the number of cooperative analysts, and the number of research reports, so as to provide more reliable basis for investment.

## Data Availability

All data used to support the findings of this study are included within the article.

## Conflicts of Interest

The author declares that there are no conflicts of interest.

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