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The Effects of Board Size On Financial Performance in China: A Two-Step System GMM Estimation

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Abstract

Purpose: This study aims to uncover the potential causal relationship between board size and financial performance in China and evaluate whether a sustained increase in the board size will improve the efficiency of corporate governance and therefore the financial performance of Chinese listed companies.

Design/methodology/approach: Adopting a quantitative approach rooted in agency theory, this study analyzes secondary data from annual reports of 4,535 firms listed on the Shanghai and Shenzhen stock exchanges from 2014 to 2022. Empirical testing utilizes Stata 17 software and employs System Generalised Method of Moments (GMM) dynamic panel estimation.

Findings: From the study's results, board size has been demonstrated to have a positive relationship with the financial performance of organizations. The research also shows that, as the size of the board of directors grows, the latter can strengthen oversight of the management of the company and enhance the quality of the decisions made, which can help the company in the future.

Research limitations/implications: This study primarily examines the effect of board size on financial performance but does not delve into possible mediating or moderating variables. Further research could explore the impact of other factors such as ESG, sustainability.

Originality/value: This is important for policy makers and business managers, to enhance their understanding on how to properly determine the best size of the board. This study will reveal the relationship between the board of directors' size and the Chinese listed companies' financial performance.

Keywords: Board Size, Financial Performance, GMM, China, Corporate Governance

Classification: Research paper

Introduction

Since the 2008 economic crisis, there have been frequent occurrences of corporate fraud globally, exemplified by cases such as Tyco, Health Southand and Madoff, severely damaging the interests of investors and stakeholders. These events not only undermined confidence in the entire economic market but also deepened scrutiny of weak corporate governance practices. Scholars and regulatory bodies widely view strengthening corporate governance as a crucial measure to prevent similar incidents in the future. They are committed to improving regulatory frameworks and enhancing market transparency to mitigate potentially fraudulent activities. In this context, the role of regulating and strengthening boards of directors is particularly critical, as effective boards play a pivotal role in overseeing corporate operations and safeguarding shareholder interests.

To avoid agency conflicts, reduce agency costs, and strengthen corporate governance, efforts also include promoting the implementation of board structures and facilitating efficient internal control mechanisms(Kismawadi, 2023).Nguyen et al. (2023)argue that an appropriate board size can effectively fulfill supervisory duties, engage in thorough discussions and decision-making, thus effectively preventing agency issues. Ridloah and Humaira (2024) indicates that larger boards of directors typically have a better ability to acquire and process information from internal and external sources. This informational advantage allows them to assess the company's strategic choices and risk management more accurately, thereby avoiding agency problems. Therefore, establishing a well-structured and functional board of directors, along with advancing effective internal control mechanisms, not only enhances transparency and accountability but also boosts investor confidence in the quality of corporate governance, thereby fostering sustainable long-term corporate development.

In China, the government has set up corresponding policies to supervise corporate governance including Company Law, Securities Law, and other legal provisions. Such policies are established and monitored by China governance agencies. For instance, the China Securities Regulatory Commission (CSRC) and the State Council published the "Guidelines for Corporate Governance of Listed Companies" in 2002. Based on these guidelines, it becomes apparent that the board of directors is a key component of the corporate governance structure, affecting many of the company's actions. The CSRC board of directors' roles and obligations have been carefully outlined in the rules(CSRC, 2018). The CSRC was published in 2018 and this was a new version but most of them were just certain new provisions regarding the board size. In the newer standards, it is stated that the board of directors must be adequately staffed, and the staff members who meet certain criteria in terms of their nature and qualifications, should efficiently control the appellant's operation and make effective decisions(CSRC, 2018).

Despite the implementation of numerous laws and regulations on corporate governance in China, instances of corporate fraud and financial misconduct persist. This indicates that improving corporate governance remains a significant concern for scholars, governments, and institutions. Previous studies have shown that weak boards of directors are a major factor leading to corporate fraud and financial misconduct (Aidoo et al., 2024). A weak board can harm the interests of investors, society, and the market, thereby undermining market confidence and impeding healthy economic development. Therefore, strengthening the function of the board of directors is not only

crucial for achieving corporate goals and enhancing overall performance but also for maintaining market order, protecting investors' rights, and promoting sustainable economic development.

In the latest research in corporate governance, most of the focus has been on exploring the relationship between board characteristics and financial performance. For instance, Alberty et al. (2023) suggests that board characteristics can be defined based on factors such as board member tenure, gender, educational background, and age. Previous studies have predominantly investigated whether board characteristics significantly impact company financial performance (Gambo et al., 2023; Ghafoor et al., 2022; Usman and Yahaya, 2023). Additionally, Others have also studied the impact of board characteristics. For example, board member backgrounds (Lee et al., 2024), education backgrounds of board members(Ramdani et al., 2023).

The literature review sections of prior research works are still mixed. In his factual analysis focusing on the developing nation's listed firms, Ridloah and Humaira (2024) opine that it is possible for larger boards of directors to get diverse talent and a wider view of the company. This assists in formulating better decisions, and thus a higher efficient financial performance. However, Almashhadani et al. (2022) found that increased board size of directors may decrease operational efficiency because it takes more time to have more discussions and delay in finalizing decisions but has no effect on the firms' financial performance Implications for Practice. Thus, to the knowledge of the researcher, there is still a lack of studies that provide a theoretical and methodological framework to examine the relationship between board's size and financial performance in China. Therefore, the purpose of this study is to bridge a research gap.

This study contributes to two aspects: consequently, we used a longer time period and a wide range of data of Chinese listed companies from the period 2014 to 2022. Not only did this extended period of time give us opportunity to detect long cycles of economic changes as well as changes in the field of the companies' industries, but it also gave us a wider perspective for researching the possible correlation between the board's size of directors and the company's financial performance. Second, the study focused on the problems of endogeneity of board size in the research on the corporate performance. We used data envelopment analysis and dynamic panel data techniques to critically examine the research question on the causality between the Board size and the performance of the firm, thus greatly improving the validity and the explanation of the results.

This research work is therefore divided into five major sections. The study's background is explained in the first section and purposes of the given investigation. The second part reviews relevant literature. The third part presents the research sample, models, variable definitions, and the construction of the economic model. The fourth part discusses the research findings, conducting in-depth analysis and discussion. The final part summarizes the main discoveries and conclusions of the study.

Literature Review

Agency Theory

Agency theory is a theory in the field of corporate governance that explains the probable problems related to interests and moral hazards that may arise when one person (principal) delegates authority to another person (agent) to represent and make decisions on their behalf. The theory was originally proposed by Jensen and Meckling (1976). It posits that agents may give priority to their own interests over those of the principals they represent. Therefore, it is necessary to establish appropriate incentive mechanisms and monitoring mechanisms to make sure that agents act in the best interests of principals, thereby reducing the moral hazards and conflicts of interest inherent in agency theory.

Agency theory is a theory that belongs to the corporate governance that addresses issues of self-interest and its consequences that may come to exist when an agent is assigned the duty of operating in a principal's greatest benefit. This theory of the firm was first advanced by Jensen and Meckling (1976). They presuppose that agents often act in their own self-interest and do not pay much attention to the principals' interests. For this reason, it is required to determine proper incentive regulation and manager observation of agents' behavior to minimize the moral risks and tension in the framework of agency theory.

Agents may largely manage business affairs in their own interests rather than those of their principals. This kind of conflict can cause the agent to make decisions or acts that are unfavorable to the principal, thus creating the problem of conflict of interest. Additionally, the costs associated with agency problems, such as monitoring costs and incentive costs incurred by principals to address agency issues, become critical factors. These costs involve designing and implementing effective monitoring measures, devising reasonable incentive schemes, and maintaining robust oversight mechanisms to ensure that agents faithfully execute the interests of the principals.

Regarding the agency theory problems concerning the corporate governance system, one of the essential parts is the board of directors. Serving as overseers, the board helps supervise the actions of agents and promptly identifies and corrects any misconduct or risks. This ensures that agents adhere to the company's objectives and interests, thereby mitigating the risk of conflicts of interest. Research, such as that by Nguyen et al. (2023), has demonstrated that board gender can significantly reduce situations where agents prioritize their own interests over those of the principals. These findings underscore the board's vital role in managing and minimizing agency problems, providing empirical support for corporate governance practices.

Previous studies have shown widespread support for agency theory across various fields. For instance, Kalbuana et al. (2023) investigated Indonesian publicly listed companies from 2017 to 2021.According to their study, corporate governance mechanisms, financial pressure, and the size of the company had an impact on the taxation behavior; thus, confirming the relevance of the agency theory. Similarly, Gyamera et al. (2023)studied SMEs the Registrar General's Department. Their research revealed how effective agreements between principals and agents (such as external auditors) aid in supervising management behavior and enhancing financial performance, thereby

reinforcing the importance of agency theory in practice. Therefore, this research will take the agency theory as the basic theory of this study.

Literature Review and Hypothesis Development

Financial Performance

Financial performance may then be described as the process of evaluating and quantifying critical markers in a company/organization's performance as per its set objectives and organizational status. Effective company performance management not only helps enhance internal management efficiency and operational standards but also strengthens the company's market competitiveness, sustainability, and overall recognition and support from shareholders and society. Previous studies have predominantly used return on Assets (ROA) as a measure of financial performance in different countries(Bui andKrajcsák, 2024; jajang et al., 2023; Putri and Setiawan, 2023). For example, Vietnam(Bui andKrajcsák, 2024), Indonesia(Jajang et al., 2023), China(Yan et al., 2023), Nigeria(IsmailaandTanko, 2023). ROA is a financial measure that shows how much profit a company or organization earns through its assets. ROA simply determines the extent to which any given company may be able to earn profit on the investments in its assets. Hence, this work employs ROA as a gauge for financial performance.

Board size and Financial Performance

Board size means a collection of people who are responsible for governing any organization and the board size is the number of individuals who are put in charge of this corporate body. This data represents the individuals responsible for overseeing the company's management, including those appointed or elected to represent shareholders and stakeholders(Pratiwi et al., 2023). A larger board size implies more members, each potentially bringing different experiences, backgrounds, and resources. However, this also introduces greater challenges in coordination and efficiency. Conversely, a smaller board size means fewer members, facilitating quicker decision-making. Additionally, smaller boards incur fewer management and operational costs, effectively reducing company expenses while maintaining financial health. Therefore, optimizing board size becomes a critical element in corporate governance mechanisms.

Based on agency theory, Fahlevi et al. (2023) argued that increasing the board size enhances its supervisory and oversight functions. With more directors, there is greater capacity to scrutinize management behavior, thereby reducing agency costs associated with potential opportunistic behavior. Boshnak et al. (2023) argued that larger board sizes may exacerbate agency issues due to potential free-riding, slower decision-making processes, and communication difficulties. This inefficiency could lead to decreased corporate performance, as larger boards may face challenges in effectively supervising and controlling management behavior. Barker et al. (2024) believes that a larger board may have access to more external resources, which can help in formulating more effective strategic decisions. A better decision-making process can reduce the risks and uncertainties at the execution level, thereby mitigating agency problems.

Past empirical studies have also produced mixed research findings on how board size affects financial performance. Yahaya et al. (2024) established that board size significantly positively affects financial performance. Gambo et al. (2023) studied 14 listed banks in Nigeria between the periods of 2018 and 2022 to establish how board size influences financial performance and established that the board size of up to nine members significantly affects financial performance positively. Therefore, according to Saha (2024)'s study on the top 100 listed companies in India, an increase in the number of board members helps to improve financial performance. Adil et al. (2023) results indicate that board size has a positive impact on financial performance (ROA, Tobin's Q), but a negative impact on ROE. Ebbini et al. (2024) examined data in Amman. The study showed that the more members on the board, the higher the company's financial performance.

However, Al-Absy and Hasan (2023) investigated the Bahrain Exchange listed companies for the period between 2019 to 2020, and the result from this study showed that it is insignificant to have a large board size for the listed company. In agreement with Victor Olufemi et al. (2023), the researcher reviews his opinion and rejects the hypothesis that the board size can increase the efficiency of operations of Nigerian banks. The study by Chen et al. (2024) stated that the number of board affected the two financial performances (ROA, ROE) in the organization. Oshim and Igwe (2024) shown that the number of people in the board size cannot have any impact on the performance of consumer goods companies in Nigeria. Islam (2024) examined data from pharmaceutical companies listed in Indonesia. It is found that the number of board members is not an important factor affecting corporate performance. Hypotheses for this study have been developed with the aid of literature review, theoretical discussion and previous empirical research:

H1:Board size has a significant positive influence on Financial Performance

Therefore, based on the above, the Figure 1 below displays the research framework of this study.

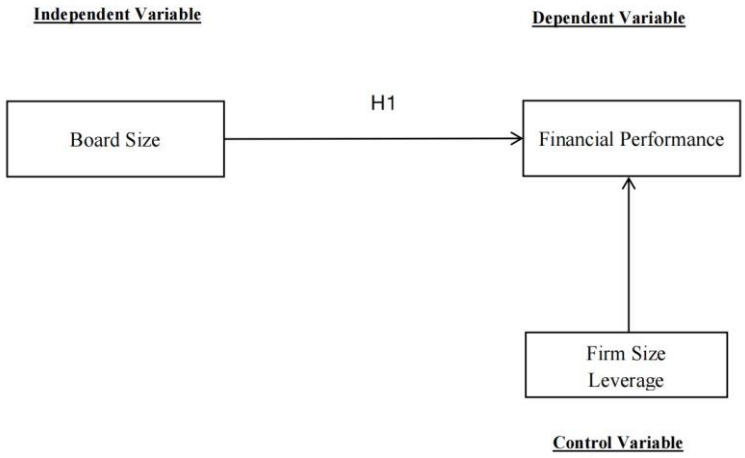

Figure 1: Research Framework

Methodology

Research Sample

This is quantitative research that is based on agency theory, and secondly, through sample analysis of secondary and unbalanced data drawn from annual reports of 4,535 Chinese listed companies on Shenzhen and Shanghai Stock Exchanges from 2014 up to 2022, drawn from the authoritative China Stock Market and Accounting Research (CSMAR) database. Eliminate the financial sector, *ST companies, and then screen and clean the data to ensure data integrity and accuracy—eventually retaining a sample size of 28,394. Board size as the independent variable, ROA as the dependent variable, while controlling for firm leverage, firm size, constructing corresponding research models, and conducting empirical analysis using Stata 17 software. To effectively address endogeneity issues and ensure the reliability of research results, this study employs System GMM dynamic panel analysis to analyze the data (Arellano and Bond, 1991).

ROA indicates how skilled a firm is at using its property in the generation of profit. It, therefore, projects the level of efficiency at which the firm can utilize its resources to gear income within a given duration. It is represented by the formula: net income divided by average total assets (Gutiérrez and Wibowo, 2023). The board size means the quantity of the individuals within the board of directors. The board is a part of the structure for corporate governance, overseeing the decisions and actions of management in ensuring the maximization of company interests. Board size can be measured by the log of the number of board members (AlmubarakandAljughaiman, 2024). Firm size generally refers to the overall magnitude and influence of a company in the market. It is often measured using the logarithm of total assets(Sunarsih and Augustine, 2024). Leverage describes the ability of a company or individual to increase their investment or business activities through borrowing funds. It is typically measured as the ratio of total liabilities to total assets (Sunarsih and Augustine, 2024). Table 1 summarizes the measurement methods for variables.

Table 1: Summary of Variables Measurement

Proxy/ Definition	Variables Name	Description	Units	Data Sources	Adopted sources
Return on Assets	ROA	Profit before interest and taxes by total assets	Ratio	CSMAR	Gutiérrez and Wibowo (2023)
Board Size	BS	The number of members on the board	Number	CSMAR	Almubarak and Aljughaiman (2024)
Firm Size	FS	The natural log of total assets	Number	CSMAR	Sunarsih and Augustine (2024)
Leverage	LEV	Total liabilities divided by total assets	Ratio	CSMAR	Sunarsih and Augustine (2024)

Note: Board size was analysed as lever number for descriptive analysis and correlation matrix, and natural logarithm number for static and dynamic panel regression analysis as suggested by Cheng (2008).

Economic model

In corporate governance research, an increasing number of scholars recognize the importance of addressing endogeneity issues (Ma et al., 2024). The endogeneity problem is mainly caused by missing variables, selection bias, measurement error and two-way causality (Yitayaw et al., 2023). To address endogeneity issues caused by omitted variable bias, this study will employ lagged one-period independent variables as instrumental variables for board size, consistent with the approach of Chatterjee and Bhattacharjee (2020).Additionally, to enhance data stability and ease of computation, board size will be logarithmically transformed in this study. The advantage of the GMM model is that it effectively separates the estimation bias caused by endogeneity, ensuring the accuracy and robustness of the research results. Therefore, to prove this study. We use the more sensitive and authoritative system GMM was adopted as a research tool.

Based on the previous studies done by Andoh et al. (2023), this paper has employed a sample size of 28,394 Chinese listed companies. The research utilizes the system GMM panel, the analysis method. Model 1 mainly focuses on the fact of board size, and it measures the effect of board size on financial performance with the other parameters which are size and leverage of the company also in consideration. The equation for this model 1 is presented in Equation(1):

$$ROA_{it} = \beta_0 + \delta_0 ROA_{it-1} + \delta_1 lnBS_{it} + \delta_2 FS_{it} + \delta_3 LEV_{it} + \varepsilon_{it} \quad \text{Equation(1)}$$

Where: ROA refers to the Return on Assets, lnBS is the natural log of Board Size, Control variables including Firm Size and Leverage. β_0 is taken to be constant overtime. δ_i contains the set of explanatory variables in the estimation model. *i* and *t* are indices for firm and time respectively. ε is the error term.

Results and Discussion

Descriptive analysis

Depending on Table 2, the maximum ROA is 25.9%, the minimum is -36.2%, and the average is 4.4%. Additionally, it can be observed from the BS that the maximum number of board members is 18, and the minimum is 3. The table also indicates that the average number of board members in Chinese non-financial listed companies is approximately 9. This also suggests that the diversity and composition of board members may have varying impacts on company performance.

Table 2: Descriptive statistics for the variables

Variable	Mean	Std.Dev.	Min	Max
ROA	0.044	0.067	-0.362	0.259
BS	8.4	1.636	3	18
FS	9.662	0.555	8.644	11.471
Lev	0.406	0.2	0.052	0.901

Source: Data Outputs from STATA 17

Correlations matrix

Table 3 provides the matrix of correlation which represents the dataset of BS and the FP variable ROA in Chinese non-financial listed companies. Additionally, Table 3 allows for an assessment of whether there is multicollinearity among the variables. Alin (2010) demonstrated that high correlation between multiple variables can lead to inaccurate model estimates or loss of model validity. Andoh et al. (2023) also indicated that when the correlation between two variables exceeds 70%, multicollinearity is present, rendering those variables unusable. From Table 3, it is observed that the correlation of BS with ROA is -1.5%. FS size correlates with ROA at -2.5%, while leverage ratio correlates at -36.6%. None of these correlation coefficients exceed 70%, which underscores the reliability and accuracy of the findings in this study.

Table 3: Matrix of correlations

Variables	(1)	(2)	(3)	(4)
(1) ROA	1.000			
(2) BS	-0.015	1.000		
(3) FS	-0.025	0.293	1.000	
(4) Lev	-0.366	0.152	0.517	1.000

Source: Data Outputs from STATA 17

Variance inflation test

Shah et al. (2024) explained that the Variance Inflation Factor (VIF) is used to detect the issue of multicollinearity in Pooled Ordinary Least Square (POLS) regression analysis. If the VIF value is greater than 10, it indicates severe multicollinearity; if the VIF value is less than 10, it suggests that multicollinearity is not severe. As shown in the research report from Table 4, the average VIF values for all variables are less than 10. Therefore, this indicates that the results of the VIF test support the conclusion of the correlation test, showing that there is no severe multicollinearity problem.

Table 4: Variance inflation test

	VIF	1/VIF
FS	1.443	0.693
Lev	1.364	0.733
lnBS	1.08	0.926
Mean_VIF	1.296	0.926

Source: Data Outputs from STATA 17

Static panel results

Mainly, the Pooled Ordinary Least Square (POLS), Fixed Effect (FE) models, and Random Effect (RE) models' results are given in Tables 5 and 6.To determine the most suitable model for our study, we utilized the Lagrange Multiplier (LM) Test and Hausman test. Initially, the LM test was used to decide between the POLS and RE. A p-value greater than 0.05 leads us to select the POLS model, whereas a lower p-value directs us to choose the RE. Subsequently, the Hausman test was

employed to choose between the RE and FE models. If the p-value exceeds 0.05, we opt for the RE; otherwise, we select the FE. Additionally, we performed heteroskedasticity and serial correlation tests to check for their presence in the model. A p-value greater than 0.05 in the heteroskedasticity test indicates the absence of heteroskedasticity; otherwise, heteroskedasticity is present, and robust standard errors are applied to address it. Similarly, a p-value above 0.05 in the serial correlation test signifies no serial correlation; otherwise, serial correlation is present.

Table 5 presents the regression results of the POLS model. According to the results, if we define a p–value as 0.468, it will not significantly affect financial performance. In contrast, control variables, firm size, and leverage are significant at 1%. Moreover, while checking for heterogeneity of the POLS model in this research work, we employed the LM test by comparing the POLS with the RE model, and the results came out in support of the RE model.

Table 5: Pooled Ordinary Least Square (POLS) regression results.

ROA	Coef.	St.Err	t-value	p-value	Sig.
lnBS	-0.003	0.004	-0.72	0.468	
lnFS	0.027	0.001	34.51	0.000	***
Lev	-0.162	0.002	-76.16	0.000	***
_cons	-0.150	0.007	-20.36	0.000	***

Mean dependent var	0.044	SD dependent var	0.067
R-squared	0.170	Number of obs	28394.000
F-test	1941.009	Prob > F	0.000
LM-test (p-value)	0.000	Bayesian crit. (BIC)	-78104.866
Akaike crit. (AIC)	-78137.882		

*** p<0.01, ** p<0.05, * p<0.1
Source: Data Outputs from STATA 17

Results from both models are presented in Table 6. The RE model yields the same inference as obtained in the POLS regression model: that board size is insignificant in impacting financial performance. Even the trends for the control variables show the same pattern as seen in the POLS regression result. However, in the FE model, the effect of board size becomes significant at 1%.

Therefore, for this model we performed a Hausman test that indicated that the FE model is more suitable in comparison to the RE model. With a p-value of 0.000 from the heteroskedasticity test, we confirmed the presence of heteroskedasticity; similarly, the serial correlation test's p-value of 0.000 indicated the presence of serial correlation. Thus, using cluster () is necessary to address these issues. However, to address potential endogeneity concerns, we will apply a dynamic system GMM model for further analysis.

Table 6: Fixed-effect and Random

Variables	Fixed Effect		Random Effects	
	Coef.	p-value	Coef.	p-value
lnBS	0.035	0.000***	0.009	0.222
lnFS	0.022	0.000***	0.025	0.000***
Lev	-0.196	0.000***	-0.178	0.000***
_cons	-0.119	0.000***	-0.135	0.000***
Mean dependent var	0.044		0.044	
R-squared	0.111		0.169	
F-test	992.053		1882.214	
SD dependent var	0.067		0.067	
Number of obs	28394.000		28394.000	
Hausman-test(p-value)	0.000		0.000	
Heteroskedasticity(p-value)	0.000		0.000	
Serial Correlation(p-value)	0.000		0.000	

*** p<0.01, ** p<0.05, * p<0.1
Source: Data Outputs from STATA 17

The two-step system GMM estimation result

Table 7 presents the results of the System GMM estimation model-variable: determinants of stability for listed companies in China. The present research checks model validity using Serial Correlation and Hansen J test. Serial Correlation is employed to detect whether disturbances exhibit autocorrelation. In this study, we set AR (2) greater than 0.1 as the threshold to accept the null hypothesis, indicating no autocorrelation among disturbances. Hansen J test, on the other hand, evaluates the validity of instrumental variables in the GMM estimation model. In this phase, we will set the null hypothesis so that the instrumental variables are legitimate, and if H0 is not rejected, then all instrumental variables are valid.

According to Table 7, we observe AR (1) = 0.000 and AR (2) = 0.151, supporting the acceptance of the null hypothesis that disturbances do not exhibit autocorrelation. Furthermore, the Hansen J test statistic is 0.160, which further supports the acceptance of H0, indicating that all instrumental variables are effective in the System GMM. Therefore, we conclude that the application of the System GMM estimation model in this study is effective.

The study findings show that the lagged dependent variable is statistically significant and exhibits a positive effect, further confirming the influence of historical ROA on current ROA. This indicates a direct and significant lagged effect of ROA on current ROA, affirming the stability of this impact and thereby bolstering our confidence in ROA as a valid instrumental variable. This finding is consistent with our expectations, as companies tend to maintain higher levels of performance from past to the next period.

The size of the board of directors has a significantly positive impact on ROA, indicating that expanding the board is advantageous for enhancing corporate financial performance. This finding aligns with our prior expectations and the studies by (Gambo et al., 2023; Saha, 2024; Yahaya et

al., 2024), all suggesting that larger board size contributes to improved company financial performance. However, the study by Al-Absy and Hasan (2023) presents a contrasting view, suggesting that larger boards may increase governance challenges and lead to higher costs, thereby potentially reducing financial performance. In conclusion, it can be seen from the research that there exists a positive relationship between the characteristics of the board size and financial performance.

Table 7: Two-Step system GMM estimation result

ROA	Coef.	St.Err.	t-value	p-value	[95% Conf	Interval]	Sig
L.ROA	0.235	0.049	4.83	0.000	0.14	0.33	***
lnBS	1.119	0.248	4.51	0.000	0.633	1.606	***
lnFS	-0.059	0.014	-4.35	0.000	-0.086	-0.033	***
Lev	0.042	0.065	0.65	0.514	-0.085	0.169	
Constant	-0.44	0.225	-1.95	0.051	-0.881	0.001	*
Arellano-Bond AR (1)	0.000						
Arellano-Bond AR (2)	0.151						
Hansen test	0.160						

Mean dependent var	0.040	SD dependent var	0.067
Number of obs	23524	Chi-square	614.254

**** p<.01, ** p<.05, * p<.1*

Source: Data Outputs from STATA 17

Discussion

In this research, the influence of board size on company performance was examined directly. From the study, it can be seen that board size has a positive impact on the supervision and the decision propriety that is need for enhancing the financial performance of firms. This result supports the findings of the studies conducted by (Adil et al., 2023; Ebbini et al., 2024; Gambo et al., 2023; Saha, 2024; Yahaya et al., 2024) that reveal when the board size increases it can improve the management supervision and the decision making quality and efficiency of the board is also useful to the development of the Thus, these research results offer valuable theoretical and practical recommendations for firms to build and enhance their boards of directors.

These findings are inconsistent with those past studies (Al-Absyand Hasan, 2023; Victor Olufemi et al., 2023), who argue that board size is not a significant determinant of financial performance. These studies suggest that financial performance is more influenced by factors such as corporate strategy, market conditions, and executive team capabilities, with the expansion of board size not significantly impacting financial performance. This is because the sizes of boards increase communication costs, and the complexity of decisions which in turn, dilutes the favorable impact of the board on the companies 'performance. However, this study used the system GMM as the method of research, observed endogeneity in the research, and dealt with it. This help in identifying

correlation between certain variables which helped in determining a clearer relation between the variables involved hence increasing the credibility of the study.

Conclusion and recommendations

The implications of this study are as follows: Only for Theoretical Consideration Firstly, this investigation provides the significant contribution to the extant literature on the board size and the firm's performance, especially in the samples of Chinese envisioned firms. By employing data envelopment analysis and dynamic panel data techniques, the research addresses the endogeneity problem in board size studies, thereby enhancing the validity and robustness of the findings. This framework provides a theoretical foundation for future studies investigating similar relationships in different contexts. In terms of practical implications, this study makes four main contributions. First, it provides valuable and effective guidance for the Chinese government and relevant departments, offering a solid basis for the stability of the financial market and the sustainable growth of enterprises. Second, this study helps financial institutions and institutional investors more accurately identify the challenges and pain points they face. Finally, the study assists investors in more accurately assessing and identifying potential risks of enterprises, thereby enhancing their market sensitivity and risk resistance.

However, this study still has some limitations that need to be considered. First, the sample of this study only includes Chinese listed companies, thus the generalizability of the results may be subject to geographical constraints. Future studies may want to include samples of multinational companies or other types of organizations to test the generalizability of the findings. The second limitation of the secondary data used in this study was taken from the yearly reports covering the years 2014 through 2022; this does not consider long-term trends or market changes that might affect the findings. Such future studies should be based on a longer time frame so that meaningful conclusions about the association of board size with financial performance can be derived. Additionally, although this study employed the System GMM dynamic panel analysis method to address endogeneity issues, it still cannot eliminate all potential endogeneity threats. Future research could attempt to use other methods or control variables to this issue. Finally, this present study solely estimated the effects of one dimension of board of directors, specifically the board size, on corporations' financial performance while not examining any mediating or moderating variables.

Further research can explore other factor, such as ownership structure, ownership concentration. In addition, the influence of other moderators such as ESG, sustainability and innovation can be explored in depth. This study has gone a long way in putting up a robust theoretical framework to understand the board size and financial performance relationship; it has underscored the very critical nature of this relationship. The findings exact a positive striking influence of board size on financial performance. Moreover, this study suggests that a moderate increase in board size can introduce a broader range of perspectives and expertise, thereby enriching the decision-making process with greater depth and comprehensiveness. This diversity within the boardroom enables better identification and mitigation of market risks, fosters innovation, and enhances overall corporate governance practices. As a result, these factors collectively contribute to bolstering the company's financial performance and fortifying its competitive edge in the market.

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