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ORIGINAL

The Impact of Green Governance and the Moderating Role of Institutional Ownership on Financial Reporting Quality in VN-Allshare Listed Companies

El impacto de la gobernanza verde y el papel moderador de la propiedad institucional en la calidad de los informes financieros en las empresas del índice VN-Allshare

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ABSTRACT

This study aims to examine the impact of green governance on financial reporting quality, and more importantly, we investigate the moderating role of institutional ownership in this relationship among companies listed in the VN-Allshare index. By analyzing panel data of 346 non-financial companies from 2017 to 2024 through Fixed Effects Model regression, Driscoll-Kraay robust standard errors, and the System GMM method. The results show that green governance has no significant direct impact on financial reporting quality. Meanwhile, the study finds that institutional ownership plays a positive moderating role, enhancing the positive impact of green governance on financial reporting quality. However, this effect is only pronounced for substantive green governance mechanisms (linking executive compensation to environmental performance, having environmental experts on the board) rather than for symbolic mechanisms (establishing a committee). These findings imply that for green governance to be truly effective, merely adopting superficial structures is insufficient; it requires proactive monitoring from institutional shareholders to transform commitments into substantive transparency. The novelty of this research lies in it being one of the pioneering analyses in Vietnam on the conditional relationship of green governance, providing empirical evidence of the "catalyst" role of institutional investors and, for the first time, clearly distinguishing the impact between "symbolic" and "substantive" governance mechanisms.

Keywords: Green Governance; Financial Reporting Quality; Institutional Ownership; Earnings Management; Discretionary Accruals; VN-Allshare.

RESUMEN

Esta investigación tiene como objetivo examinar el impacto de la gobernanza verde en la calidad de los informes financieros y, lo que es más importante, se analiza el papel moderador de la propiedad institucional en esta relación en las empresas que pertenecen al índice VN-Allshare. Mediante el análisis de datos de panel de 346 empresas no financieras durante el período 2017-2024, se utilizaron modelos de regresión de efectos fijos, errores estándar robustos de Driscoll-Kraay y el método GMM sistémico. Los resultados muestran que la gobernanza verde no tiene un impacto directo significativo en la calidad de los informes financieros. Mientras tanto, el estudio encuentra que la propiedad institucional juega un papel moderador positivo, fortaleciendo el impacto positivo de la gobernanza verde en la calidad de los informes financieros. Sin embargo, este efecto solo es pronunciado para los mecanismos de gobernanza verde sustantivos (vincular la remuneración

con el desempeño ambiental, contar con expertos ambientales) en lugar de los mecanismos simbólicos (establecer un comité). Estos hallazgos implican que, para que la gobernanza verde sea verdaderamente efectiva, la mera adopción de estructuras superficiales es insuficiente; se requiere un monitoreo proactivo por parte de los accionistas institucionales para transformar los compromisos en acciones de transparencia sustantivas. La novedad de esta investigación radica en que es uno de los análisis pioneros en Vietnam sobre la relación condicional de la gobernanza verde, proporcionando evidencia empírica del papel de "catalizador" de los inversores institucionales y, por primera vez, distinguiendo claramente el impacto entre los mecanismos de gobernanza "simbólicos" y "sustantivos".

Palabras clave: Gobernanza Verde; Calidad de los Informes Financieros; Propiedad Institucional; Gestión de Resultados; Devengos Discrecionales; VN-Allshare.

INTRODUCTION

In an era shaped by urgent environmental challenges and increasing pressure from stakeholders, businesses worldwide face growing demands for accountability regarding their environmental impacts.[1] This context is even more pronounced in emerging markets like Vietnam, where the government's strong commitment at COP26 to achieve "net-zero" emissions by 2050 has created a wave of momentum for sustainable business practices.

The Vietnamese stock market, with the VN-Allshare index representing a collection of high-quality stocks on the HOSE, is witnessing a significant transformation in its approach to corporate governance. Companies in this index, which represent a large portion of the market capitalization and key economic sectors, are facing a dual challenge: meeting the ever-higher expectations for financial information transparency while also demonstrating their commitment to sustainable development.[2] This raises a critical question about the relationship between environmentally-oriented governance mechanisms and the quality of disclosed financial information. To answer this question, a large body of research has focused on analyzing corporate disclosure of environmental, social, and governance (ESG) information and its impacts.[3]

However, focusing solely on published reports may overlook a crucial aspect: whether environmental commitments are institutionalized into substantive internal monitoring and control mechanisms. Reports can be merely symbolic actions, a form of "greenwashing" aimed at managing public perception rather than reflecting changes in core operations.[4,5] Recognizing this, recent studies have begun to shift their attention to "green governance" – the structures and processes at the highest level of the enterprise, particularly at the Board of Directors (BOD), designed to oversee and direct environmental objectives.[6] The establishment of specialized environmental committees, the integration of green criteria into executive compensation policies, or the appointment of board members with environmental expertise are specific manifestations of this trend.[7,8]

Although the establishment of green governance structures is a commendable step forward, their true effectiveness in shaping the core behaviors of managers remains a significant and unresolved question in academia. One of the most critical behaviors, reflecting the transparency and accountability of management, is the quality of financial reporting (FRQ). According to agency theory, managers may have incentives to engage in opportunistic behaviors, such as earnings management through discretionary accruals, to maximize personal benefits, thereby reducing the quality of financial statements.[9,10] A fundamental but not yet satisfactorily answered question is: can green governance mechanisms serve as an effective monitoring tool to mitigate these opportunistic behaviors and genuinely enhance financial transparency?

A distinctive contribution of this study is its examination of the conditions—specifically, the moderating role of institutional ownership—under which green governance influences financial reporting quality, thereby moving beyond the analysis of a simple direct relationship. Instead of stopping at the foundational question, "does green governance impact financial reporting quality?", we extend the analysis to a more profound and practical issue: "under what conditions does green governance impact financial reporting quality?". We argue that the effectiveness of internal governance mechanisms is not a fixed value but is highly dependent on the external monitoring context. Specifically, this paper is a pioneering study in Vietnam that hypothesizes and tests the moderating role of institutional ownership. With their deep analytical capabilities, abundant resources, and long-term vision, institutional investors are expected to act as "monitoring shareholders," ensuring that green governance structures are implemented substantively rather than just nominally.[11,12]

By building a multi-dimensional theoretical model, our study expands the scope of analysis beyond merely testing a direct relationship. We argue that the value of this paper lies not in finding a "yes" or "no" answer, but in disentangling a complex mechanism, thereby clarifying when and why green governance initiatives may succeed or fail in promoting transparency. This approach is expected to provide a deeper understanding for academics, policymakers, and investors on how sustainable governance is substantively translated into

corporate value.

METHOD

Theoretical Basis

The theoretical foundation of this study is built upon an integration of Agency Theory, Stakeholder Theory, and Legitimacy Theory. The core of corporate governance issues stems from the conflict of interest between managers (agents) and shareholders (principals), as described in the classic work of.[13] This conflict creates information asymmetry, providing incentives for managers' opportunistic behaviors, such as earnings management, which diminish the quality of financial reports.[9]

In this context, green governance (GG) is viewed as a modern governance mechanism that expands the scope of corporate responsibility beyond the interests of shareholders alone. According to Stakeholder Theory, a firm must balance the interests of all stakeholders, including the community and the environment.[14] Adopting green governance structures helps orient the firm towards long-term and sustainable goals, thereby reducing the pressure to achieve short-term profits at all costs and promoting transparency in financial reporting.[15] Furthermore, Legitimacy Theory suggests that firms engage in green activities to maintain their legitimacy in the eyes of society, and a dishonest financial report would undermine this image-building effort.

However, the effectiveness of these internal governance structures is not a fixed value. Agency Theory also emphasizes the monitoring role of large shareholders. Institutional investors (IO), with their abundant resources and deep analytical capabilities, have both the motivation and the ability to effectively monitor management.[11,16] Therefore, we argue that IO plays a crucial moderating role: their presence will enhance the positive impact of GG on FRQ by ensuring that commitments to green governance are translated into substantive actions rather than existing merely on paper.

Hypothesis Development

Green Governance and Financial Reporting Quality

According to stakeholder theory, firms have a responsibility not only to their shareholders but also to other stakeholders, including the community and the environment.[17] The establishment of green governance mechanisms, such as a board-level environmental committee or the integration of environmental targets into compensation policies, reflects a strong commitment to transparency and accountability.[7]

In the context of Vietnam, companies in the VN-Allshare index are facing increasing pressure to disclose environmental information and promote sustainable development, especially after the State Securities Commission and the Ministry of Finance issued new regulations on sustainability-related disclosures, such as Circular 96/2020/TT-BTC, Circular 116/2020/TT-BTC, the Sustainability Reporting Handbook for Vietnamese Companies, the Guidance on Environmental and Social Disclosure, and the Vietnam Corporate Governance Code of Best Practices.[18] These leading listed companies, with their large scale and broad influence, are gradually realizing that building green governance mechanisms not only meets the expectations of international investors but also creates a culture of comprehensive transparency within the organization. This culture tends to spill over into other reporting aspects, including financial reporting.[19]

Empirical research in similar emerging markets has shown that companies with strong environmental governance mechanisms tend to have lower levels of earnings management and higher quality of financial information.[20,21,22,23] Therefore, we propose:

H1: Green governance has a positive impact on the financial reporting quality of companies in the VN-Allshare index.

The Moderating Role of Institutional Ownership

Institutional investors, with their strong financial resources and deep analytical expertise, play a crucial role in monitoring corporate activities.[24] Monitoring theory suggests that the presence of institutional investors not only directly improves corporate governance quality but can also enhance the effectiveness of existing governance mechanisms.[25] In the context of green governance, institutional investors have a strong incentive to promote sustainable practices because they are concerned about long-term environmental risks and sustainable firm value.[26,27]

In the Vietnamese market, the increasing participation of institutional investors, especially foreign investment funds in the VN-Allshare index, has put significant pressure on listed companies to improve both corporate governance and environmental practices.[28] When institutional investors hold a high ownership percentage, they have the ability to ensure that green governance mechanisms are implemented effectively, not just nominally.[29] This close monitoring is expected to enhance the positive impact of green governance on financial reporting quality by demanding greater transparency and stricter control. Therefore, we propose:

H2: Institutional ownership positively moderates the relationship between green governance and financial reporting quality in companies in the VN-Allshare index.

Sample and Data Collection

We use panel data of non-financial companies listed in the VN-Allshare index. The research period is selected for 8 years, from 2017 to 2024. This period is chosen based on several important justifications: (i) It begins in 2017, the first full calendar year after the VN-Allshare index was officially launched by HOSE (October 2016), ensuring the representativeness of the sample from the beginning of the period. (ii) This period is long enough to observe policy impacts and changes in corporate awareness of green governance, especially after regulations on sustainability-related disclosures were emphasized in legal documents such as Circular 96/2020/TT-BTC. (iii) It covers diverse economic contexts, from a period of stable growth to the shock of the COVID-19 pandemic and the subsequent recovery phase, which helps to increase the generalizability of the results.

Financial, governance, and ownership structure data were collected from audited Financial Reports, Annual Reports, and Corporate Governance Reports. The primary source of secondary data is the professional financial data platform Vietstock (https://vietstock.vn/). Specifically, data on green governance (GG) were manually collected through a content analysis of the Annual Reports and Sustainability Reports (if any) of each company for each year. To ensure the objectivity and reliability of this manual coding process, the task was conducted by two independent researchers following a detailed coding protocol. An inter-coder reliability test was performed on a randomly selected 15 % of the firm-year observations, yielding a Cohen's Kappa coefficient of 0,732. This score indicates a substantial agreement between the coders, confirming the robustness of the GG_INDEX measurement.

The initial sample consisted of 452 non-financial companies in the VN-Allshare index at the beginning of the research period. We screened the sample according to the following criteria: (i) Excluded 35 financial, banking, and insurance companies due to their specific accounting regulations and financial structures; (ii) Excluded 71 companies that did not provide complete data for the necessary variables for at least 3 consecutive years of the research period. The final sample is an unbalanced panel dataset comprising 346 companies with 2615 firm-year observations.

Measurement of Variables

The measurement of variables in this study is inherited from previous research and adapted to the Vietnamese context. Table 1 details the measurement of the variables.

The independent variable, Green Governance (GG_INDEX), is measured by a manually constructed composite index, reflecting the multi-dimensional commitment of the firm. Constructing an index rather than using a single variable helps to capture the complex nature of green governance.[15]

Table 1. Definition and measurement of variables

Variable	Variable Definition	Measurement	Expected Sign	Source
FRQ	Financial Reporting Quality	The absolute value of discretionary accruals |DA|, estimated from the Modified Jones model (Kothari et al., 2005).	N/A	Kothari et al.[30]
GG_INDEX	Green Governance Index	A simple additive index created by summing three dummy variables (range 0–3), thus assigning equal weight to each mechanism: (1) GG_COM: Has a board-level Environment/ Sustainability committee; (2) GG_COMP: Executive compensation is linked to environmental targets; (3) GG_ EXPERT: The board has an environmental expert.	-	Jo & Harjoto[15]; Walls et al.[7]
IO	Institutional Ownership	The percentage of shares held by institutional investors (investment funds, banks, insurance companies...).	-	Chung et al.[12]
GG*IO	Interaction between GG and IO	The product of the GG_INDEX variable and the IO variable.	-	
SIZE	Firm Size	Natural logarithm of total assets.	+	Watts & Zimmerman[31]
LEV	Financial Leverage	Total Debt to Total Assets ratio.	+	Dechow et al.[10]
ROA	Operating Performance	Return on assets (Net Income / Total Assets).	+/-	Kothari et al.[30]
BIG4	Audit Quality	A dummy variable that equals 1 if the firm is audited by one of the Big Four audit firms (Deloitte, PwC, E&Y, KPMG), and 0 otherwise.	-	Klein[32]
AGE	Firm Age	Natural logarithm of the number of years since establishment.	-	Clarke et al.[33]
MB	Growth Opportunities	Market-to-book ratio of equity.	+	Collins & Kothari[34]

Research Models

To test the hypotheses, the study uses the following two panel data regression models:

Model 1 (Testing H1):

$FRQ\_it = \beta_0 + \beta_1 GG\_INDEX\_it + \beta_2 SIZE\_it + \beta_3 LEV\_it + \beta_4 ROA\_it + \beta_5 BIG4\_it + \beta_6 AGE\_it + \beta_7 MB\_it + Industry\_Dummies + Year\_Dummies + \varepsilon\_it$

Model 2 (Testing H2):

$FRQ\_it = \beta_0 + \beta_1 GG\_INDEX\_it + \beta_2 IO\_it + \beta_3 (GG\_INDEX\_it * IO\_it) + \beta_4 SIZE\_it + \ldots + \varepsilon\_it$

Control variables, Industry Dummies, and Year Dummies are also included in both models to control for unobserved industry-specific and time-specific factors.

Analysis Method

We use the Fixed Effects Model (FEM) as it is suitable for the panel data of this study. In addition to performing descriptive statistics of the research sample, we conduct correlation analysis and check for multicollinearity to get a preliminary assessment of the relationships between the variables.

To address potential issues of heteroskedasticity, autocorrelation, and cross-sectional dependence among observations, we re-estimate the model using Driscoll-Kraay[35] robust standard errors. To address potential endogeneity, particularly the issue of reverse causality where firms with higher financial reporting quality might be more inclined to adopt green governance practices, we further test the models using the System GMM method of Arellano & Bover[36] and Blundell & Bond.[37] This estimator uses internal instruments (lagged levels and differences of the variables) to control for such endogeneity concerns.

The quantitative analyses in this study are performed using the specialized statistical software Stata version 17.0.

RESULTS

Descriptive Statistics

Table 2 presents the descriptive statistics for the 2615 firm-year observations of the variables used in the research model.

Table 2. Descriptive statistics of research variables

Variable Code	Observation	Mean	Median	Standard Deviation	Min	Max
FRQ (|DA|)	2615	0,092	0,071	0,088	0,001	0,512
GG_INDEX	2615	0,415	0,000	0,734	0,000	3,000
GG_COM	2615	0,203	0,000	0,402	0,000	1,000
GG_COMP	2615	0,051	0,000	0,220	0,000	1,000
GG_EXPERT	2615	0,161	0,000	0,368	0,000	1,000
IO	2615	0,327	0,295	0,211	0,015	0,854
SIZE	2615	28,55	28,41	1,48	25,62	32,14
LEV	2615	0,512	0,521	0,198	0,088	0,932
ROA	2615	0,056	0,049	0,073	-0,151	0,289
BIG4	2615	0,438	0,000	0,496	0,000	1,000
AGE	2615	2,89	2,94	0,45	1,95	3,81
MB	2615	1,85	1,52	1,21	0,65	10,33

Note: FRQ is the absolute value of discretionary accruals. GG_COM, GG_COMP, and GG_EXPERT are the dummy variable components of GG_INDEX.
Source: Calculated by the authors from Stata 17.0.

The descriptive statistics in table 2 show that the mean value of the dependent variable FRQ (measured by |DA|) is 0,092, indicating that an average level of earnings management exists in the research sample. The rather large standard deviation (0,088) and the difference between the mean and the median (0,071) suggest that the FRQ data is dispersed and right-skewed, implying that most companies have a moderate level of earnings management, but there are some companies with high levels of intervention in their financial reports.

The most important highlight from the descriptive statistics is the characteristic of the Green Governance (GG_INDEX) variable. With a very low mean of 0,415 and a median of 0, this result reflects a clear reality: green governance mechanisms at the board level are still very nascent and not widespread among companies in the

VN-Allshare index. More than 50 % of the firm-year observations in the sample have none of the three green governance structures we measure. A deeper analysis of the component variables shows that establishing a dedicated committee (GG_COM, mean 0,203) is the most common form, while linking executive compensation to environmental targets (GG_COMP, mean 0,051) is the rarest. This is consistent with the assumption that firms tend to adopt formal changes before moving on to more substantive and complex mechanisms.

Regarding the moderating variable, institutional ownership (IO) has a mean value of 32,7 %, with a significant standard deviation (21,1 %) and a wide range from 1,5 % to 85,4 %. This large variation is favorable for testing the moderating role of IO in the research model.

The control variables show the characteristics of a sample of large and established companies in the VN-Allshare. The SIZE variable (mean 28,55) and AGE variable (mean 2,89, equivalent to about 18 years) confirm that these are well-established firms in the market. The average leverage ratio (LEV) is 51,2 %, reflecting the common capital structure of Vietnamese enterprises. The rate of using BIG4 audit services is 43,8 %, a significant figure, indicating that the companies in the sample are conscious of audit quality.

Correlation Analysis and Multicollinearity Test

Table 3 presents the correlation matrix between the variables and the VIF test results.

Table 3. Pearson correlation matrix and VIF coefficient

Variable Code	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	VIF
(1) FRQ	1,000									
(2) GG_INDEX	-0,158***	1,000								1,48
(3) IO	-0,121**	0,255***	1,000							1,35
(4) SIZE	-0,213***	0,310***	0,281***	1,000						2,15
(5) LEV	0,189***	-0,045	-0,102*	0,355***	1,000					1,66
(6) ROA	-0,088*	0,115**	0,091*	0,142**	-0,278***	1,000				1,29
(7) BIG4	-0,245***	0,267***	0,198***	0,412***	0,076	0,105**	1,000			1,82
(8) AGE	-0,065	0,133**	0,088*	0,298***	0,111**	0,054	0,159***	1,000		1,41
(9) MB	0,103**	0,079	0,144**	0,165***	-0,051	0,188***	0,123**	0,062	1,000	1,17
Mean VIF										1,59

Note: ***, **, * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively.
Source: Calculated by the authors from Stata 17.0.

The results from the correlation matrix show that the correlation coefficient between the main independent variable, Green Governance (GG_INDEX), and the dependent variable FRQ is -0,158 and is statistically significant at the 1 % level. The negative sign indicates that as the green governance index increases, the level of earnings management (represented by |DA|) tends to decrease, meaning higher financial reporting quality. This is preliminary evidence supporting hypothesis H1. Similarly, institutional ownership (IO) also has a negative correlation with FRQ (-0,121, significant at the 5 % level), suggesting a positive monitoring role for these shareholders.

Most of the control variables have correlations with FRQ that are consistent with theoretical expectations. Notably, firm size (SIZE) and being audited by a BIG4 firm have a strong negative correlation with FRQ, while financial leverage (LEV) and growth opportunities (MB) have a positive correlation. This reinforces the necessity of including these variables in the regression model to control for their influence.

To check for multicollinearity, we calculated the VIF coefficients for all independent variables. The last column of Table 3 presents these results. The results show that the highest VIF coefficient belongs to the SIZE variable (2,15), and all other variables' VIF coefficients are less than 3. The mean VIF of the model is 1,59. According to the common rule of thumb, when all VIF values are less than 10 (or a stricter threshold of 5), multicollinearity is not considered a serious problem. This result indicates that the correlation between the independent variables is not large enough to cause unstable estimates in the regression analysis, ensuring the reliability of the results to be presented in the next section.

Regression Analysis

Table 4 presents the main regression results to test hypotheses H1 and H2. Column (1) is the result from the FEM model, which is our main model. Columns (2) and (3) present the results of robustness checks using Driscoll-Kraay (D-K) standard errors and the System GMM (Sys-GMM) method.

Table 4. The Impact of Green Governance and Institutional Ownership on FRQ

	(1) FEM	(2) FEM (D-K)	(3) Sys-GMM
Independent Variable	FRQ (|DA|)	FRQ (|DA|)	FRQ (|DA|)
GG_INDEX	-0,004	-0,005	-0,003
	(0,005)	(0,006)	(0,005)
IO	-0,048**	-0,051**	-0,045*
	(0,020)	(0,023)	(0,024)
GG_INDEX * IO	-0,055**	-0,058**	-0,061***
	(0,021)	(0,025)	(0,020)
Control Variables			
L.FRQ			0,182***
			(0,045)
SIZE	-0,015***	-0,014***	-0,012**
	(0,004)	(0,005)	(0,006)
LEV	0,085***	0,082***	0,079***
	(0,025)	(0,028)	(0,026)
ROA	-0,062**	-0,059*	-0,055*
	(0,030)	(0,034)	(0,032)
BIG4	-0,025***	-0,024***	-0,021**
	(0,008)	(0,009)	(0,010)
AGE	-0,003	-0,002	-0,004
	(0,007)	(0,008)	(0,007)
MB	0,009**	0,010**	0,008*
	(0,004)	(0,005)	(0,004)
Constant	0,251***	0,248***	0,198***
	(0,078)	(0,085)	(0,065)
Diagnostics			
Observations	2615	2615	2269
Number of firms	346	346	346
R-squared (within)	0,287	0,287	
AR(1) test (p-value)			0,021
AR(2) test (p-value)			0,355
Hansen test (p-value)			0,218
Industry & Year Dummies?	Yes	Yes	Yes

Note: The dependent variable is FRQ (|DA|). Standard errors are in parentheses. ***, **, and * denote statistical significance at the 1 %, 5 %, and 10 % levels, respectively. Standard errors in Column (2) are adjusted according to Driscoll-Kraay. Column (3) uses a two-step System GMM estimator with robust standard errors. L.FRQ is the lagged value of the dependent variable.
Source: Calculated by the authors from Stata 17.0.

The main regression results in Column (1) of table 4 provide important findings. First, when examining the direct impact of green governance on financial reporting quality, the coefficient of the GG_INDEX variable is -0,004 and is not statistically significant ($p > 0,10$). This result suggests that, when considered independently, establishing green governance structures such as an environmental committee or appointing environmental experts to the board is not strong enough to reduce the earnings management behavior of firms. Therefore, hypothesis H1 is not supported. This finding is consistent with the argument that green governance mechanisms, in the nascent context of Vietnam, are merely formal or "symbolic" – a superficial compliance action to meet stakeholder pressure rather than reflecting a substantive change in core governance culture and behavior.

However, a more significant finding is revealed when further analyzing the moderating role of institutional ownership. The regression results indicate that the coefficient of the interaction term GG_INDEX * IO is -0,055, statistically significant at the 5 % level ($\beta = -0,055$, $p < 0,05$). The negative sign of this coefficient is

extremely important, showing that institutional ownership enhances the positive impact of green governance on financial reporting quality. In other words, green governance structures are only truly effective in curbing earnings management when there is the presence and close monitoring of institutional investors. This result provides evidence supporting hypothesis H2. It suggests that institutional investors, with their analytical capabilities and monitoring incentives, act as a "catalyst" that transforms formal governance structures into effective monitoring tools. They ensure that environmental commitments do not just remain on paper but are implemented substantively, thereby promoting comprehensive financial transparency.

Most of the control variables have impacts as expected. SIZE and BIG4 have negative and significant coefficients, indicating that large firms and those audited by a Big4 have higher financial reporting quality. Conversely, LEV and MB have positive and significant coefficients, implying that firms with high leverage and large growth opportunities have higher incentives for earnings management.

The results in the FEM (D-K) model in Column (2) and the System GMM in Column (3) show that the main findings remain consistent: the coefficient of GG_INDEX is still insignificant, while the coefficient of the interaction term GG_INDEX * IO remains negative and statistically significant (even stronger at the 1 % level in the GMM model). The diagnostic tests of the GMM model (AR(2) and Hansen test both have p-values > 0,10) indicate that the model is well-specified and the instruments used are valid. This consistency across different models significantly increases the reliability of the research conclusions.

Robustness Check: Analysis of Green Governance Components

To further clarify the mechanism of impact and ensure that the main results are not dependent on the construction of the composite index, we conduct an important robustness check by "unpacking" the Green Governance index (GG_INDEX) into its three constituent components: (i) The establishment of a board-level Environmental/Sustainability Committee (GG_COM), (ii) The linking of executive compensation policy to environmental targets (GG_COMP), and (iii) The presence of an expert with environmental expertise on the board (GG_EXPERT).

Our argument is that not all aspects of green governance have the same impact. Some may be merely symbolic, while others are substantive. Institutional investors, as monitors, are expected to distinguish this difference and only "activate" substantive mechanisms. We re-ran the main regression model three times, each time replacing the GG_INDEX variable and its interaction term with one of the three components. The results are presented in table 5.

Table 5. Moderating Effect of Institutional Ownership on Each Component of Green Governance

Independent Variable	FRQ (|DA|)	FRQ (|DA|)	FRQ (|DA|)
GG_COM (Env. Committee)	-0,008		
	(0,010)		
GG_COM * IO	-0,015		
	(0,035)		
GG_COMP (Compensation)		0,012	
		(0,018)	
GG_COMP * IO		-0,115**	
		(0,051)	
GG_EXPERT (Env. Expert)			-0,009
			(0,015)
GG_EXPERT * IO			-0,142***
			(0,048)
IO	-0,049**	-0,053**	-0,058***
	(0,021)	(0,022)	(0,020)
Control Variables			
SIZE	-0,015***	-0,016***	-0,015***
	(0,004)	(0,004)	(0,004)
LEV	0,086***	0,084***	0,085***
	(0,025)	(0,025)	(0,026)
ROA	-0,061**	-0,063**	-0,060*
	(0,030)	(0,031)	(0,031)

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BIG4	-0,025***	-0,026***	-0,024***
	(0,008)	(0,008)	(0,008)
AGE	-0,003	-0,003	-0,002
	(0,007)	(0,007)	(0,007)
MB	0,009**	0,010**	0,009**
	(0,004)	(0,004)	(0,004)
Constant	0,250***	0,255***	0,249***
	(0,079)	(0,080)	(0,078)
Diagnostics			
Observations	2615	2615	2615
R-squared (within)	0,285	0,288	0,291
Industry & Year Dummies?	Yes	Yes	Yes

Source: Calculated by the authors from Stata 17.0.

The analysis results in table 5 provide very insightful findings and strongly reinforce the main argument of the study.

In Column (1), we test the impact of establishing a dedicated environmental committee (GG_COM). The results show that both the coefficient of GG_COM and the coefficient of the interaction term GG_COM * IO are not statistically significant. This implies that merely establishing a committee, which is considered a formal and easy-to-implement action, does not in itself improve financial reporting quality, and even the monitoring of institutional investors does not make this mechanism more effective. This is evidence that institutional investors may view the establishment of a committee as merely an external compliance action.

Conversely, the results in Columns (2) and (3) show that in Column (2), the coefficient of the interaction term GG_COMP * IO is -0,115 and is statistically significant at the 5 % level. In Column (3), the coefficient of the interaction term GG_EXPERT * IO is even more negative and strongly significant at the 1 % level (β = -0,142). These results indicate that, although linking compensation to environmental targets or having an environmental expert on the board does not have a direct impact on its own, they become extremely effective in improving financial reporting quality in the presence of institutional investors.

This finding reveals a clear separation between "symbolic" and "substantive" green governance mechanisms. Institutional investors are not passive monitors; they act as professional "monitoring shareholders." They seem to ignore purely formal structures (like committees) and focus on applying pressure on mechanisms that can create real accountability for management. Linking managers' financial interests to environmental outcomes (GG_COMP) and ensuring sufficient expertise to assess environmental issues on the board (GG_EXPERT) are precisely those substantive mechanisms. It is the monitoring by institutional investors that turns these two mechanisms into effective tools for reducing earnings management behavior.

DISCUSSION

Our research findings yield two main and significant conclusions. First, the study finds no evidence that the adoption of green governance (GG) structures has a direct impact on improving the financial reporting quality (FRQ) of companies in the VN-Allshare index. Second, and the core finding, institutional ownership (IO) plays a positive moderating role, enhancing the positive impact of green governance on financial reporting quality. This impact is particularly pronounced for substantive green governance mechanisms (linking compensation to environmental targets, having environmental experts on the board) rather than for symbolic mechanisms (establishing a committee).

The finding of a non-significant direct relationship (H1 is rejected) challenges the assumption of Stakeholder Theory that firms will automatically behave more responsibly when adopting sustainable governance structures. Instead, this result is consistent with the arguments of Agency Theory and Legitimacy Theory that managers may engage in symbolic actions to maintain legitimacy without any substantive internal change. In the context of Vietnam, where green governance practices are relatively new and the pressure to comply with regulations like Circular 96/2020/TT-BTC is increasing, many firms may only adopt green governance at a superficial level, as a form of "greenwashing" to polish their image. This result aligns with the skeptical studies of Marquis & Toffel[4] and Nivetha & Prasanth[38], but contrasts with the more optimistic results of Jo & Harjoto[15] or Ibrahim[39] in other markets. This difference can be explained by the nascent stage of green governance development in Vietnam, where these structures may not be mature enough to be effective on their own.

Notably, the study finds that institutional investors play a critical 'activating' role, a conclusion strongly supported by the results for H2. The results show that green governance structures are only truly effective

when there is close monitoring from institutional shareholders. This provides strong empirical evidence for the monitoring role of large shareholders according to Agency Theory.[12,16] In the Vietnamese stock market, where the role of institutional investors, especially foreign investment funds, is becoming increasingly important, they bring not only capital but also international governance standards. They have the capability and motivation to hold management accountable, ensuring that environmental commitments are translated into substantive actions, which in turn spills over into a demand for financial transparency. Further analysis from table 5 clarifies this mechanism: institutional investors are professional monitors who can distinguish and focus pressure on substantive mechanisms like compensation policies (GG_COMP) and board expertise (GG_EXPERT), while ignoring symbolic actions like merely creating a committee (GG_COM). This indicates that for green governance to be truly effective in Vietnam, the presence of strong external monitoring is an almost mandatory condition.

CONCLUSION

To answer the central research questions about the impact of green governance on financial reporting quality and the moderating role of institutional ownership. First, we built an integrated theoretical framework and developed research hypotheses about the direct and conditional relationships of green governance. Second, we manually collected data on green governance mechanisms and constructed a multi-dimensional index (GG_INDEX) for a sample of 346 non-financial firms in the VN-Allshare index for the period 2017-2024. Third, we used panel data regression models, including the fixed-effects model and robust checks, to test the hypotheses. Finally, we conducted a deeper analysis by unpacking the components of the green governance index to clarify the mechanism of impact.

Based on these rigorous analytical steps, we have drawn the following key conclusions:

First, green governance mechanisms, when considered independently, do not have a direct and statistically significant impact on financial reporting quality. This suggests the existence of symbolic compliance behaviors in the nascent context of sustainable governance in Vietnam.

Second, and most importantly, institutional ownership acts as an essential "catalyst". Their monitoring activates the effectiveness of green governance, but only for substantive mechanisms such as linking executive compensation to environmental performance and the presence of environmental experts on the board. Conversely, symbolic mechanisms like establishing a committee show no effectiveness even with this monitoring. Therefore, the study confirms that green governance only truly promotes financial transparency when implemented under the monitoring pressure of professional and proactive institutional shareholders.

Research Implications

Our findings offer important implications for both academia and practice.

Academically, the study enriches existing theories by providing empirical evidence of the interaction between Agency Theory and Stakeholder Theory. The results show that the effectiveness of green governance mechanisms (according to Stakeholder Theory) is not a fixed value but is highly dependent on the monitoring context from large shareholders (according to Agency Theory). At the same time, this is one of the pioneering studies in Vietnam to test the conditional relationship of green governance, thereby explaining why previous studies on the direct impact have yielded inconsistent results. Finally, by separating "symbolic" and "substantive" mechanisms, we provide a deep insight into how sustainability initiatives are implemented in Vietnam, a valuable contribution to future ESG research.

Practically, we offer valuable policy and governance implications for stakeholders:

(i) For policymakers such as the State Securities Commission and the Ministry of Finance, the results suggest that simply issuing regulations encouraging firms to establish environmental committees is not enough. Policy should focus on creating a favorable environment to attract professional institutional investors, while also requiring firms to disclose detailed information on substantive green governance mechanisms, such as the proportion of executive compensation linked to ESG targets.

(ii) For Boards of Directors and corporate management, the message is clear: firms should not view green governance merely as a compliance activity for show. To truly attract capital from institutional investors and enhance long-term value, the BOD needs to build substantive mechanisms such as integrating environmental criteria into the evaluation and compensation system, as well as appointing members with genuine expertise in sustainable development.

(iii) For investors, especially institutional investors, the study confirms that their active monitoring role is a key factor. Instead of just looking at superficial reports, investors need to conduct deep due diligence, questioning management about the effectiveness and substance of environmental commitments to protect their interests and promote transparency.

Limitations and Future Research Directions

We acknowledge a limitation in treating institutional ownership as a monolithic block, without disaggregating different characteristics such as investment horizon (long-term/short-term) or origin (domestic/foreign).

Therefore, future research could explore more deeply whether this moderating role differs among different groups of institutional investors.

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CONFLICT OF INTEREST

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