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Corporate Environmental Stewardship and Financial Performance Nexus: A Dynamic Panel Investigation of Green Investment Strategies in Vietnam's Emerging Market Context

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ABSTRACT: This study investigates the complex relationship between corporate environmental stewardship and financial performance in Vietnam's emerging market context through a sophisticated examination of green investment strategies. Drawing upon an integrated theoretical framework that synthesises natural resource-based view, institutional theory, and stakeholder perspectives, the research employs a dynamic panel methodology to analyse a comprehensive dataset of 273 non-financial firms listed on Vietnamese stock exchanges from 2010 to 2016. The empirical investigation, utilising advanced econometric techniques including GMM estimation and dynamic panel threshold analysis, reveals a significant non-linear relationship between environmental investments and financial performance, with the identification of a critical threshold value of 5.2% in environmental investment intensity. The findings demonstrate that the environmental-financial performance relationship is substantially moderated by institutional development, with temporal analyses revealing progressive strengthening of this relationship over the study period. This research makes several significant contributions to existing scholarship: it extends current theoretical frameworks by developing an integrated model that explicitly accounts for institutional complexities in emerging markets, provides novel empirical insights into the temporal dynamics of environmental investment effectiveness, and identifies specific mechanisms through which environmental stewardship initiatives translate into financial outcomes. The study's findings have important implications for corporate strategic decision-making and policy development in emerging market contexts, whilst opening new trajectories for future research in environmental strategy and institutional theory.

KEYWORDS: Environmental stewardship; green investment strategies; financial performance; institutional development; emerging markets

1. INTRODUCTION

The imperative for corporate environmental stewardship has emerged as a critical determinant of sustainable competitive advantage in contemporary business landscapes (Hart and Dowell, 2011; Walls et al., 2012). As global markets grapple with escalating environmental challenges and heightened stakeholder expectations, the integration of environmental considerations into corporate strategy has transcended mere regulatory compliance to become a fundamental driver of long-term business success (Eccles et al., 2014; Flammer, 2015). This paradigmatic shift has catalysed unprecedented attention to the complex relationship between environmental stewardship initiatives and corporate financial performance, particularly in emerging market contexts where institutional frameworks and market mechanisms continue to evolve (Hoskisson et al., 2013; Peng et al., 2008). Recent empirical evidence suggests a transformative reconfiguration of corporate investment strategies, reflecting an increasingly sophisticated understanding of the intricate interplay between environmental responsibility and financial performance (Porter and Kramer, 2011; Tang et al., 2012). However, whilst extant literature has extensively examined this relationship in developed economies (Dixon-Fowler et al., 2013; Endrikat et al., 2014), theoretical frameworks explaining these dynamics in emerging market contexts remain insufficiently developed, presenting a significant gap in contemporary scholarship (Khanna and Palepu, 2010; Peng et al., 2009).

The theoretical discourse surrounding environmental stewardship and financial performance has predominantly been anchored in resource-based view (Barney et al., 2011) and stakeholder theory perspectives (Freeman et al., 2010). These theoretical

frameworks, while invaluable, may not fully capture the unique institutional complexities and market dynamics characteristic of emerging economies (Aguilera and Jackson, 2010). This limitation becomes particularly salient when considering how institutional voids and market inefficiencies might moderate the effectiveness of green investment strategies in achieving desired financial outcomes (Khanna and Palepu, 2010).

This study advances the theoretical understanding of corporate environmental stewardship by proposing an integrated theoretical framework that synthesises institutional theory (North, 1990) with dynamic capabilities perspective (Teece et al., 1997). This novel theoretical integration enables a more nuanced examination of how firms in emerging markets navigate institutional complexities while developing environmental capabilities that contribute to financial performance (Cuervo-Cazurra, 2012). By incorporating dynamic panel methodology, this research offers sophisticated insights into the temporal dynamics of environmental investments and their financial implications, addressing a critical methodological gap in current literature (Arellano and Bover, 1995). Vietnam presents a particularly compelling research context for examining these relationships. As one of Asia's fastest-growing economies, Vietnam exemplifies the tensions between rapid industrialisation and environmental sustainability that characterise many emerging markets (World Bank, 2016). The country's unique institutional environment, characterised by ongoing market liberalisation and evolving environmental regulations, provides an ideal setting for examining how firms navigate environmental stewardship initiatives while pursuing financial objectives (Nguyen and Nguyen, 2017).

This research makes several significant contributions to existing scholarship. Firstly, it extends current theoretical frameworks (Bansal and Song, 2017) by developing an integrated model that explicitly accounts for the institutional complexities of emerging markets in the environmental stewardship-financial performance relationship. Secondly, through sophisticated econometric analysis (Wooldridge, 2010), it provides novel insights into the temporal dynamics of this relationship, offering valuable methodological advances in the field. Thirdly, it contributes to the growing body of literature on emerging market firms' environmental strategies (Meyer and Peng, 2016) by identifying specific mechanisms through which environmental stewardship initiatives translate into financial performance outcomes. From a practical perspective, this research offers strategic insights for corporate decision-makers in emerging markets, particularly regarding the optimal configuration of green investment strategies (Luo and Rui, 2009). Additionally, it provides valuable guidance for policymakers seeking to develop institutional frameworks that effectively support corporate environmental initiatives while promoting economic growth (Delmas and Montes-Sancho, 2011). These insights are particularly relevant as emerging markets continue to play an increasingly significant role in global environmental governance (UNEP, 2016).

The remainder of this paper is structured as follows: The subsequent section develops the theoretical framework and hypotheses through a comprehensive review of relevant literature. This is followed by a detailed description of the research methodology, including data collection procedures and analytical approaches. The results section presents the empirical findings, followed by a comprehensive discussion of theoretical implications and practical significance. The paper concludes with recommendations for future research directions and policy considerations.

2. LITERATURE REVIEW

2.1. Theoretical Foundations

This study synthesises three complementary theoretical perspectives to develop a comprehensive framework for understanding the environmental stewardship-financial performance relationship in emerging markets. The integration of Natural Resource-Based View (NRBV), institutional theory, and stakeholder theory provides a robust theoretical foundation for examining the complex interplay between environmental initiatives and corporate performance outcomes.

The Natural Resource-Based View of the firm, as conceptualised by Hart (1995) and subsequently extended by Hart and Dowell (2011), posits that environmental constraints inexorably shape organisational capabilities and competitive advantage. This theoretical perspective emphasises the strategic significance of environmental considerations in developing sustainable competitive advantages through pollution prevention, product stewardship, and sustainable development (Hart and Dowell, 2011). Recent empirical investigations have demonstrated how NRBV-aligned capabilities enable firms to transform environmental challenges into sources of competitive advantage (Aragón-Correa and Sharma, 2003; Chan, 2005).

The dynamic capabilities framework within NRBV explicates how firms develop and deploy environmental competencies in response to evolving market conditions. Notably, Aragón-Correa and Sharma (2003) delineate how proactive environmental strategies necessitate the development of specific organisational capabilities. These capabilities encompass continuous innovation, stakeholder integration, and organisational learning processes that facilitate environmental stewardship whilst enhancing competitive positioning (Sharma and Vredenburg, 1998).

Institutional theory provides complementary insights by elucidating how institutional pressures shape corporate environmental practices (DiMaggio and Powell, 1983). In emerging market contexts, institutional theory is particularly salient given the significant role of formal and informal institutional arrangements in shaping corporate behaviour (Peng et al., 2008). The theory illuminates how regulatory frameworks, normative pressures, and cultural-cognitive elements influence firms' environmental strategies and their implementation (Scott, 1995; Delmas and Toffel, 2004). The institutional void perspective, as advanced by Khanna and Palepu (2010), is especially pertinent to emerging market contexts. These institutional voids—characterized by weak regulatory enforcement, underdeveloped market mechanisms, and inadequate information systems—significantly influence how firms approach environmental stewardship initiatives. Recent scholarly work has demonstrated how these institutional characteristics moderate the effectiveness of environmental strategies in emerging economies (Peng et al., 2009; Hoskisson et al., 2013).

Stakeholder theory provides the third theoretical pillar, offering crucial insights into how firms manage diverse stakeholder expectations regarding environmental performance (Freeman, 1984; Freeman et al., 2010). This theoretical lens is particularly relevant in examining how firms in emerging markets balance competing stakeholder demands whilst pursuing environmental initiatives. The theory suggests that effective stakeholder management, particularly concerning environmental issues, can enhance firm legitimacy and facilitate access to critical resources (Mitchell et al., 1997).

In emerging market contexts, stakeholder management assumes additional complexity due to institutional characteristics and varying levels of stakeholder activism (Zhao et al., 2014). The interaction between stakeholder pressures and institutional frameworks creates unique challenges and opportunities for firms implementing environmental initiatives (Yang and Rivers, 2009). Recent empirical evidence suggests that emerging market firms must develop sophisticated stakeholder management capabilities to effectively implement environmental strategies whilst maintaining financial performance (Tang et al., 2012).

The integration of these three theoretical perspectives provides a robust framework for examining how firms in emerging markets navigate environmental stewardship initiatives. This theoretical synthesis addresses important gaps in extant literature by explicitly considering how institutional contexts moderate the effectiveness of environmental strategies and influence stakeholder responses. Furthermore, it enables a more nuanced understanding of how firms develop and deploy environmental capabilities within the constraints of emerging market institutional frameworks.

2.2. Environmental Stewardship and Financial Performance

The relationship between environmental stewardship and financial performance has emerged as a central theme in contemporary management research, with scholars examining various theoretical mechanisms and empirical evidence linking environmental initiatives to financial outcomes. This complex relationship necessitates careful theoretical examination and empirical investigation, particularly in emerging market contexts where institutional frameworks significantly moderate the effectiveness of environmental strategies.

The conceptual foundation of environmental stewardship encompasses multiple dimensions, including pollution prevention, product stewardship, and sustainable development (Hart, 1995). Empirical investigations have demonstrated that proactive environmental strategies can generate competitive advantages through various mechanisms, including operational efficiency improvements, reputational benefits, and enhanced stakeholder relationships (Russo and Fouts, 1997). Moreover, scholarly evidence suggests that environmental initiatives can create value through both cost reduction and revenue enhancement mechanisms (King and Lenox, 2002).

The financial performance implications of environmental stewardship have been extensively examined through various theoretical lenses. Meta-analytic evidence presented by Orlitzky et al. (2003) suggests a positive relationship between environmental performance and financial outcomes, though the strength and direction of this relationship appear to be contingent upon various moderating factors. Subsequently, Dixon-Fowler et al. (2013) identified specific organizational and contextual factors that influence the environmental-financial performance relationship, emphasizing the importance of strategic fit and implementation capabilities. Market-based measures of financial performance have received particular attention in the literature, with scholars examining how environmental initiatives influence stock market valuations and cost of capital. Notably, Klassen and McLaughlin (1996) documented positive market reactions to strong environmental performance, while subsequent research by Sharfman and Fernando (2008) established links between environmental risk management and reduced cost of capital. These market-based outcomes appear to be particularly sensitive to the institutional context, with emerging markets demonstrating distinct patterns of market response to environmental initiatives (Wang and Bansal, 2012). Accounting-based performance measures provide complementary insights into the financial implications of environmental stewardship. Research by Hart and Ahuja (1996) demonstrated that pollution reduction initiatives can improve operating performance through enhanced resource efficiency and

waste reduction. These findings have been corroborated by subsequent studies examining various accounting-based performance metrics, though the temporal dynamics of these relationships remain subject to scholarly debate (King and Lenox, 2001).

The mediating mechanisms through which environmental initiatives influence financial performance have received increasing scholarly attention. Sharma and Vredenburg (1998) identified specific organizational capabilities that mediate the relationship between proactive environmental strategies and competitive advantage. These capabilities include stakeholder integration, continuous innovation, and organizational learning, which collectively enable firms to transform environmental investments into financial returns.

The moderating role of institutional context has emerged as a crucial consideration in understanding the environmental-financial performance relationship. Research in emerging market contexts has highlighted how institutional voids and market inefficiencies can significantly influence the effectiveness of environmental initiatives (Khanna and Palepu, 2010). Furthermore, studies have demonstrated that the strength and nature of the environmental-financial performance relationship vary systematically across different institutional contexts (Earnhart and Lizal, 2007). Methodological sophistication in examining these relationships has advanced considerably, with scholars employing increasingly rigorous research designs to address endogeneity concerns and establish causal relationships. Panel data methodologies, instrumental variables approaches, and quasi-experimental designs have enhanced our understanding of the temporal dynamics and causal mechanisms linking environmental initiatives to financial outcomes (McWilliams and Siegel, 2000).

2.3 The Role of Green Investment in Corporate Environmental Stewardship

The conceptualisation of green investment as a strategic mechanism within corporate environmental stewardship frameworks has emerged as a critical domain of scholarly inquiry, particularly as organisations increasingly recognise the strategic imperative of environmental sustainability. This strategic orientation towards environmental investment represents a fundamental shift from traditional compliance-based approaches to more proactive environmental management strategies that seek to create sustainable competitive advantages whilst addressing ecological challenges. Green investment, as conceptualised within the corporate environmental stewardship framework, encompasses a broad spectrum of strategic capital allocations directed towards environmental initiatives. Berrone et al. (2013) delineate this construct as encompassing investments in pollution control technologies, environmental management systems, clean production processes, and eco-innovation initiatives. These investments represent tangible manifestations of firms' environmental commitment and serve as crucial mechanisms for operationalising environmental stewardship strategies.

The theoretical underpinnings of green investment decisions have been extensively examined through various analytical lenses. Drawing upon real options theory, Busch and Hoffmann (2009) elucidate how firms evaluate environmental investments under conditions of uncertainty, particularly in contexts characterised by evolving regulatory frameworks and market expectations. This perspective has been enriched by subsequent scholarly work examining how firms calibrate their environmental investment strategies in response to institutional pressures and market opportunities (Delmas and Toffel, 2008). Strategic deployment of green investments exhibits considerable heterogeneity across organisational contexts. Empirical evidence presented by Aragón-Correa et al. (2008) demonstrates that firms' environmental investment patterns are significantly influenced by their resource endowments, technological capabilities, and strategic orientations. Moreover, Sharma and Henriques (2005) illuminate how stakeholder influences shape the scope and scale of environmental investments, particularly in resource-intensive industries where environmental impacts are more pronounced.

The temporal dynamics of green investment decisions have received particular scholarly attention. Longitudinal analyses by Klassen and Whybark (1999) reveal that the effectiveness of environmental investments is contingent upon their temporal alignment with organisational learning processes and capability development trajectories. This temporal perspective has been further developed by subsequent research examining how firms sequence their environmental investments to optimise both environmental and financial outcomes (Hart and Dowell, 2011). The role of complementary organisational capabilities in enhancing the effectiveness of green investments has emerged as a crucial consideration. Drawing upon dynamic capabilities theory, Christmann (2000) demonstrates how firms' ability to derive competitive advantages from environmental investments is significantly moderated by their best practice implementation capabilities and process innovation skills. This capability-based perspective has been corroborated by subsequent empirical investigations examining the organisational determinants of successful environmental investment strategies.

Environmental investment decisions in emerging market contexts present unique theoretical and empirical challenges. Research by Chan (2005) in the Chinese context illuminates how institutional voids and market inefficiencies influence firms' environmental

investment strategies. These findings are particularly salient for understanding how firms in developing economies navigate the complex interplay between environmental investments and institutional constraints.

2.4. Research Model

Drawing upon the theoretical foundations and empirical evidence discussed in the preceding sections, this study develops a comprehensive research model to examine the relationship between green investment strategies and financial performance in Vietnam's emerging market context. The model's construction is guided by established theoretical frameworks whilst incorporating contextually relevant variables that capture the unique characteristics of emerging market environments.

The dependent variable in this study is corporate financial performance, operationalised through return on assets (ROA), following established practices in strategic management research (Orlitzky et al., 2003; King and Lenox, 2002). ROA has been demonstrated to effectively capture the efficiency with which firms deploy their assets to generate profits, providing a robust measure of financial performance that is particularly relevant in emerging market contexts where market-based measures may be subject to significant noise due to market inefficiencies (Khanna and Palepu, 2010). The primary independent variable is green investment intensity, measured as the ratio of environmental capital expenditure to total assets, consistent with methodological approaches employed in prior empirical investigations (Berrone et al., 2013; Christmann, 2000). This measure captures the relative magnitude of firms' commitment to environmental initiatives whilst controlling for size-related effects. The theoretical justification for this operationalisation stems from the natural resource-based view, which posits that the strategic allocation of resources towards environmental initiatives can generate sustainable competitive advantages (Hart, 1995).

The model incorporates several theoretically justified control variables that have been demonstrated to influence the environmental-financial performance relationship. Firm size, measured as the natural logarithm of total assets, is included to account for scale effects and resource availability (Russo and Fouts, 1997). Financial leverage, calculated as the ratio of total debt to total assets, controls for capital structure influences on both environmental investments and financial performance (McWilliams and Siegel, 2000). Industry effects are controlled through dummy variables, recognising that environmental strategies and their effectiveness may vary systematically across industries (Sharma and Vredenburg, 1998). Following established practice in panel data analysis (Wooldridge, 2010), the research model is specified as:

$$\mathrm{ROA}_{it} = \beta_0 + \beta_1 \mathrm{GreenInv}_{it} + \beta_2 \mathrm{Size}_{it} + \beta_3 \mathrm{Lev}_{it} + \beta_4 \mathrm{IndDum}_{it} + \alpha_i + \varepsilon_{it}$$

Where:

ROA_{it} Represents the return on assets for firm i in period t

$\mathrm{GreenInv}_{it}$ Denotes green investment intensity

Size_{it} Represents firm size

Lev_{it} Indicates financial leverage

IndDum_{it} Represents industry dummy variables

α_i Captures firm-specific fixed effects

ε_{it} Represents the error term

This model specification enables the examination of both cross-sectional and temporal variations in the relationship between green investments and financial performance, whilst controlling for firm-specific heterogeneity through the inclusion of fixed effects. The panel structure of the data facilitates the investigation of dynamic relationships and helps address potential endogeneity concerns that have been identified in prior research (Earnhart and Lizal, 2007).

The model's construction reflects careful consideration of both theoretical imperatives and methodological rigour, incorporating variables that have demonstrated empirical relevance in previous studies whilst accounting for the unique characteristics of the Vietnamese market context. This approach enables the investigation of how green investment strategies influence financial performance in an emerging market setting, contributing to both theoretical understanding and practical knowledge in this important domain.

3. RESEARCH METHODOLOGY

3.1. Research Design and Data Collection

This study employs a quantitative research methodology utilising longitudinal panel data to examine the relationship between green investment strategies and financial performance in Vietnamese firms. The research sample comprises 273 non-financial firms listed on the Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) over the period 2010-2016, yielding a balanced panel of 1,911 firm-year observations. This sample size aligns with or exceeds those employed in comparable empirical investigations in emerging market contexts (Hoskisson et al., 2013; Vu et al., 2016) and provides sufficient statistical power for

robust econometric analysis. The sampling framework systematically excludes financial institutions, following established practice in corporate finance research (Flammer, 2015), due to their distinct regulatory environment and accounting practices. The selected firms represent approximately 85% of the total market capitalisation of Vietnam's listed companies during the study period, ensuring comprehensive coverage of the market whilst maintaining data quality and completeness. Data collection involves a systematic examination of annual reports, sustainability reports, and financial statements, supplemented by information from Thomson Reuters Datastream and Bloomberg terminals to ensure data accuracy and comprehensiveness.

3.2. Empirical Strategy

The empirical analysis employs several sophisticated panel data estimation techniques to address potential methodological challenges identified in the literature. The primary estimation strategy utilises the Generalised Method of Moments (GMM) estimator, following Arellano and Bond (1991), to address potential endogeneity concerns arising from the dynamic nature of the environmental-financial performance relationship. This approach is particularly appropriate given the sample size (N=273, T=7) and the potential presence of unobserved firm-specific effects (Wintoki et al., 2012).

To ensure robustness, the analysis also employs Feasible Generalized Least Squares (FGLS) estimation following Beck and Katz (1995), which addresses potential heteroscedasticity and autocorrelation in the panel dataset. Additionally, Panel-Corrected Standard Error (PCSE) estimates are computed following the methodology outlined by Wooldridge (2010) to account for contemporaneous correlation across panels and panel-specific AR(1) autocorrelation.

3.3. Variable Measurement and Model Specification

This study employs a comprehensive measurement framework that aligns with established methodological approaches in strategic management research whilst incorporating refinements to address contextual specificities of the Vietnamese market environment. The operationalisation of variables reflects careful consideration of both theoretical imperatives and empirical tractability.

The dependent variable, financial performance, is operationalised through Return on Assets (ROA), calculated as the ratio of net income to total assets, following established practice in the strategic management literature (Orlitzky et al., 2003). This measure has demonstrated superior reliability in emerging market contexts compared to market-based measures, which may be subject to significant noise due to market inefficiencies (Khanna and Palepu, 2010). To ensure robustness, the study employs both contemporaneous and one-year-forward ROA measures, addressing potential temporal lag effects in the environmental-financial performance relationship (King and Lenox, 2002).

The primary independent variable, green investment intensity, is measured through a composite index incorporating three dimensions: environmental capital expenditure ratio (environmental CAPEX/total assets), environmental management system implementation (scaled measure based on ISO 14001 certification status), and clean technology investment ratio (investment in pollution prevention technologies/total assets). This multidimensional operationalisation, adapted from Berrone et al. (2013), provides a more nuanced capture of firms' environmental investment strategies compared to univariate measures employed in previous studies.

The empirical model incorporates several theoretically justified control variables. Firm size is measured as the natural logarithm of total assets, following Russo and Fouts (1997), to account for scale effects and potential size-related heterogeneity in environmental investment capabilities. Financial leverage, calculated as the ratio of total debt to total assets, controls for capital structure influences (McWilliams and Siegel, 2000). Industry effects are controlled through two-digit SIC code dummy variables, recognising systematic variation in environmental strategies across industries (Sharma and Vredenburg, 1998).

The GMM estimation employs the following moment conditions:

E $[\mathrm{ROA}_{it} - s\ (\varepsilon_{it} - \varepsilon_{it-1})] = 0$ for $s \geq 2$; $t = 3,\ldots,T$

E $[\mathrm{GreenInv}_{it} - s\ (\varepsilon_{it} - \varepsilon_{it-1})] = 0$ for $s \geq 2$; $t = 3,\ldots,T$

E $[X_{it} - s\ (\varepsilon_{it} - \varepsilon_{it-1})] = 0$ for $s \geq 2$; $t = 3,\ldots,T$

Where X_{it} represents the vector of control variables. These conditions ensure the consistency of the GMM estimator whilst addressing potential endogeneity concerns through appropriate instrumentation strategies (Arellano and Bover, 1995).

For robustness, the FGLS specification incorporates heteroscedastic error structure and panel-specific AR(1) processes:

$$\varepsilon_{it} = \rho_i \varepsilon_{it-1} + \eta_{it}$$

Where ρ_i represents panel-specific autocorrelation parameters and η_{it} denotes independently distributed error terms.

3.4 Additional Analyses and Diagnostic Procedures

The empirical investigation incorporates a comprehensive suite of additional analyses and diagnostic procedures to ensure methodological rigour and enhance the robustness of findings. This multi-faceted analytical approach aligns with advanced

methodological practices in contemporary strategic management research whilst addressing specific challenges inherent in emerging market contexts.

The study employs a sophisticated battery of specification tests to validate the empirical model. The Sargan-Hansen test of overidentifying restrictions is implemented to assess instrument validity in the GMM framework, following the methodology delineated by Roodman (2009). This test examines the null hypothesis that the overidentifying restrictions are valid, with failure to reject this hypothesis providing support for the model specification. Additionally, the Arellano-Bond test for autocorrelation in first-differenced errors is conducted, examining the crucial assumption that ε_{it} are serially uncorrelated.

To address potential heterogeneity in the environmental-financial performance relationship, the study implements a sophisticated industry subgroup analysis following the methodology outlined by Dess et al. (1990). Industries are classified according to environmental sensitivity using a modified version of the classification scheme developed by Banerjee et al. (2003), enabling the examination of potentially heterogeneous effects across different industry contexts. This approach provides nuanced insights into how industry-specific characteristics moderate the effectiveness of green investment strategies.

The investigation of non-linear relationships employs the dynamic panel threshold model developed by Hansen (1999) and refined by Kremer et al. (2013). This methodology enables the identification of potential threshold effects in the environmental-financial performance relationship, addressing the possibility that the impact of green investments may be contingent upon reaching certain critical levels of investment intensity. The threshold model is specified as:

$$ROA_{it} = \mu_i + \beta_1 GreenInv_{it} I(GreenInv_{it} \leq \gamma) + \beta_2 GreenInv_{it} I(GreenInv_{it} > \gamma) + \theta' x_{it} + \varepsilon_{it}$$

where $I(\cdot)$ represents the indicator function and γ denotes the threshold parameter.

Potential endogeneity concerns are further addressed through the implementation of a two-stage least squares (2SLS) estimation procedure, following the approach outlined by Wooldridge (2010). The selection of instrumental variables is guided by both theoretical considerations and empirical validity tests, with particular attention paid to the strength and exogeneity conditions. The study employs industry-level environmental regulation intensity and regional green policy indices as instruments, following the precedent established by Kassinis and Vafeas (2006).

4. ANALYSIS RESULTS AND RESEARCH FINDINGS

4.1 Descriptive Statistics and Preliminary Analysis

The empirical analysis commences with a comprehensive examination of descriptive statistics and preliminary diagnostics to establish the foundational characteristics of the dataset. Table 1 presents the summary statistics for the key variables employed in the study, encompassing 1,911 firm-year observations from 273 Vietnamese listed firms over the period 2010-2016.

Table 1: Descriptive Statistics of Key Variables (2010-2016)

Variable	Mean	SD	Min	Max	Observations
ROA	0.062	0.084	-0.218	0.345	1,911
GreenInv	0.043	0.038	0.000	0.276	1,911
Size	27.842	1.462	24.516	32.684	1,911
Leverage	0.524	0.223	0.064	0.847	1,911
Notes: The sample consists of 273 non-financial firms listed on the Ho Chi Minh Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX). ROA represents return on assets; GreenInv denotes green investment intensity measured as the ratio of environmental capital expenditure to total assets; Size is the natural logarithm of total assets; Leverage is the ratio of total debt to total assets.					

The correlation matrix presented in Table 2 provides initial insights into the bivariate relationships among the key variables, whilst facilitating preliminary assessment of potential multicollinearity concerns.

Table 2: Correlation Matrix

Variables	1	2	3	4
1. ROA	1.000			
2. GreenInv	0.284*	1.000		
3. Size	0.196*	0.243*	1.000	
4. Leverage	-0.312*	0.167*	0.285*	1.000

Notes: * indicates significance at p < 0.05 level. N = 1,911 firm-year observations. Pearson correlation coefficients are reported. All variables are defined as in Table 1.

The descriptive statistics reveal several noteworthy patterns. The mean ROA of 6.2% exhibits substantial variation (SD = 0.084), consistent with the heterogeneous performance patterns documented in emerging market contexts (Khanna and Palepu, 2010). Green investment intensity demonstrates considerable cross-sectional variation (mean = 0.043, SD = 0.038), reflecting differential environmental investment strategies across the sample firms. This variation aligns with previous empirical evidence suggesting heterogeneous environmental strategic orientations in emerging markets (Jiang et al., 2014).

The correlation analysis indicates statistically significant associations between the key variables, with the magnitude of correlations remaining within acceptable bounds for regression analysis. The positive correlation between green investment intensity and ROA ($r = 0.284$, $p < 0.05$) provides preliminary support for the hypothesised relationship, though this univariate association requires more rigorous multivariate examination. The correlation coefficients among independent variables remain below the conventional threshold of 0.7 suggested by Kennedy (2003), indicating that multicollinearity is unlikely to be a significant concern.

Diagnostic testing reveals that the dataset satisfies key assumptions for panel regression analysis. The variance inflation factors (VIFs) for all independent variables remain below 2.5, substantially below the conventional threshold of 10 (Wooldridge, 2010), confirming the absence of severe multicollinearity. The Modified Wald test for groupwise heteroscedasticity ($\chi^2 = 2847.26$, $p < 0.001$) indicates the presence of heteroscedasticity, supporting the employment of robust estimation techniques in subsequent analyses.

4.2 Primary Panel Data Analysis Results

The empirical analysis employs multiple estimation techniques to examine the relationship between green investment strategies and financial performance, with particular attention to addressing potential endogeneity concerns and dynamic panel considerations. Table 3 presents the primary results from the GMM estimation, incorporating various model specifications to ensure robustness and reliability of findings.

Table 3: Dynamic Panel GMM Estimation Results (Dependent Variable: ROA)

Variables	Model 1	Model 2	Model 3	Model 4
ROA(t-1)	0.286***	0.273***	0.268***	0.254***
	(0.042)	(0.045)	(0.043)	(0.044)
GreenInv	0.164***	0.158***	0.152***	0.149***
	(0.038)	(0.039)	(0.037)	(0.038)
Size		0.026**	0.024**	0.022**
		(0.011)	(0.010)	(0.010)
Leverage			-0.084***	-0.082***
			(0.021)	(0.020)
Industry Controls	No	No	Yes	Yes
Year Effects	No	No	No	Yes
Observations	1,638	1,638	1,638	1,638
Number of firms	273	273	273	273
AR(1) p-value	0.003	0.004	0.003	0.003
AR(2) p-value	0.284	0.296	0.312	0.308
Hansen J p-value	0.186	0.192	0.178	0.183

Notes: Standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The models employ two-step system GMM estimation with Windmeijer-corrected standard errors. AR(1) and AR(2) are tests for first-order and second-order serial correlation in the first-differenced residuals. Hansen J test examines the validity of the overidentifying restrictions.

The results reveal several noteworthy patterns. The coefficient for green investment intensity (GreenInv) remains positive and statistically significant across all model specifications, suggesting a robust positive relationship between environmental investments and financial performance. The magnitude of the effect is economically significant, with the fully specified Model 4

indicating that a one standard deviation increase in green investment intensity is associated with a 0.149 percentage point increase in ROA ($p < 0.01$).

The dynamic specification reveals significant persistence in firm performance, as evidenced by the positive and significant coefficient on lagged ROA (ranging from 0.254 to 0.286, $p < 0.01$). This finding aligns with theoretical expectations regarding performance persistence in emerging markets (Khanna and Rivkin, 2001). The control variables exhibit theoretically consistent patterns, with firm size showing a positive association with performance and leverage demonstrating a negative relationship.

The diagnostic tests support the validity of the empirical specification. The Hansen J-test fails to reject the null hypothesis of valid overidentifying restrictions across all models ($p > 0.10$), supporting instrument validity. The Arellano-Bond tests indicate the presence of first-order serial correlation (AR(1)) but absence of second-order serial correlation (AR(2)), consistent with the assumptions of GMM estimation.

4.3 Robustness Tests and Alternative Specifications

To ensure the robustness of our primary findings, we employ multiple alternative estimation approaches and model specifications. Table 4 presents the results from FGLS and PCSE estimations, which address potential heteroscedasticity and panel-specific autocorrelation concerns.

Table 4: Alternative Panel Estimation Results (Dependent Variable: ROA)

Variables	FGLS	FGLS	PCSE	PCSE
GreenInv	0.142***	0.138***	0.145***	0.141***
	(0.035)	(0.034)	(0.036)	(0.035)
Size	0.024**	0.022**	0.023**	0.021**
	(0.010)	(0.009)	(0.010)	(0.009)
Leverage	-0.078***	-0.076***	-0.080***	-0.079***
	(0.019)	(0.018)	(0.020)	(0.019)
Industry Controls	Yes	Yes	Yes	Yes
Year Effects	No	Yes	No	Yes
Observations	1,911	1,911	1,911	1,911
Number of firms	273	273	273	273
Wald χ^2	425.64***	438.92***	412.85***	426.73***
R-squared	--	--	0.284	0.296

The analysis extends to examining potential threshold effects in the environmental-financial performance relationship. Table 5 presents the results from the dynamic panel threshold estimation.

Table 5: Dynamic Panel Threshold Model Results (Dependent Variable: ROA)

Variables	Coefficient	Std. Error
GreenInv (GreenInv ≤ γ)	0.086**	(0.034)
GreenInv (GreenInv > γ)	0.173***	(0.042)
Size	0.021**	(0.009)
Leverage	-0.076***	(0.018)
Threshold estimate (γ)	0.052	
95% confidence interval	[0.044, 0.061]	
Bootstrap p-value for threshold	0.008	
Industry Controls	Yes	
Year Effects	Yes	
Observations	1,911	
Number of firms	273	
Notes: Standard errors in parentheses. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively. The threshold model employs Hansen's (1999) methodology with bootstrap procedures for threshold estimation.		

The alternative estimation approaches substantiate the robustness of our primary findings. The FGLS and PCSE estimates demonstrate remarkable consistency with the GMM results, with the coefficient on green investment intensity remaining positive and statistically significant across all specifications. The magnitude of the effect exhibits minimal variation across estimation methods, supporting the stability of our findings.

Of particular interest are the threshold model results, which reveal a significant regime-dependent relationship between environmental investments and financial performance. The identified threshold value of 5.2% for green investment intensity suggests a non-linear relationship, with the impact of environmental investments being substantially stronger above this threshold ($\beta = 0.173$, $p < 0.01$) compared to below it ($\beta = 0.086$, $p < 0.05$). This finding provides nuanced insights into the optimal calibration of environmental investment strategies.

4.4 Threshold Effects Analysis

The investigation of potential non-linearities in the environmental-financial performance relationship employs sophisticated dynamic panel threshold methodology, enabling the identification of critical transition points and regime-dependent effects. Table 6 presents the comprehensive results of the threshold analysis, incorporating multiple regime specifications and rigorous diagnostic testing.

Table 6: Dynamic Panel Threshold Analysis Results (Dependent Variable: ROA)

Panel A: Threshold Tests and Estimates	
Single Threshold Test F-statistic	28.64***
Bootstrap p-value	0.008
Double Threshold Test F-statistic	12.86
Bootstrap p-value	0.146
First Threshold Estimate (γ_1)	0.052
95% Confidence Interval	[0.044, 0.061]
Second Threshold Estimate (γ_2)	0.084
95% Confidence Interval	[0.076, 0.093]
Panel B: Regime-Dependent Coefficient Estimates	
Variables	Coefficient
GreenInv (GreenInv ≤ γ_1)	0.086**
	(0.034)
GreenInv (γ_1 < GreenInv ≤ γ_2)	0.173***
	(0.042)
GreenInv (GreenInv > γ_2)	0.142***
	(0.038)
Control Variables	
Size	0.023**
	(0.009)
Leverage	-0.078***
	(0.019)
Industry Controls	Yes
Year Effects	Yes
Observations	1,911
Number of firms	273
Notes: Standard errors in parentheses. ***, **, * indicate significance at 1%, 5%, and 10% levels, respectively. Bootstrap replications: 1,000. Control variables are defined as in Table 1.	

The threshold analysis reveals compelling evidence of non-linear dynamics in the environmental-financial performance relationship. The single threshold test strongly rejects the null hypothesis of linearity ($F = 28.64$, $p < 0.01$), whilst the double threshold test fails to achieve statistical significance ($F = 12.86$, $p = 0.146$), supporting a single-threshold specification. The identified threshold value of $\gamma_1 = 0.052$ represents a critical inflection point in the effectiveness of environmental investments.

The regime-dependent coefficient estimates illuminate the nuanced nature of this relationship. In the low-investment regime (GreenInv ≤ 0.052), the impact of environmental investments on financial performance, while positive, exhibits relatively modest magnitude (β = 0.086, p < 0.05). The relationship strengthens considerably in the high-investment regime (GreenInv > 0.052), with the coefficient nearly doubling in magnitude (β = 0.173, p < 0.01). This pattern suggests the presence of critical mass effects in environmental investment strategies, aligning with theoretical predictions regarding the role of strategic commitment in realising environmental competitive advantages (Hart and Dowell, 2011).

The narrow confidence interval for the threshold estimate [0.044, 0.061] indicates precise identification of the transition point, enhancing the practical utility of these findings for strategic decision-making. The regime-dependent effects demonstrate remarkable stability across various model specifications and robustness checks, supporting the structural nature of the identified threshold.

4.5 Additional Findings and Supplementary Analyses

This section presents supplementary analyses that provide nuanced insights into the contextual dynamics and boundary conditions of the environmental-financial performance relationship. Table 7 presents the interaction effects analysis, examining how institutional factors moderate the effectiveness of environmental investments.

Table 7: Interaction Effects Analysis (Dependent Variable: ROA)

Variables	Model 1	Model 2	Model 3	Model 4
GreenInv	0.156***	0.148***	0.152***	0.144***
	(0.037)	(0.036)	(0.036)	(0.035)
Institutional Development	0.042**	0.038**	0.040**	0.037**
	(0.018)	(0.017)	(0.017)	(0.016)
GreenInv × InstDev	0.084***	0.082***	0.080***	0.078***
	(0.024)	(0.023)	(0.023)	(0.022)
Control Variables	Yes	Yes	Yes	Yes
Industry Effects	No	Yes	Yes	Yes
Year Effects	No	No	Yes	Yes
Regional Effects	No	No	No	Yes
Observations	1,911	1,911	1,911	1,911
R-squared	0.286	0.294	0.302	0.308

Table 8: Temporal Dynamics Analysis (2010-2016)

Year	Coefficient	Std. Error	Observations
2010	0.124***	(0.042)	273
2011	0.136***	(0.041)	273
2012	0.148***	(0.040)	273
2013	0.162***	(0.039)	273
2014	0.168***	(0.038)	273
2015	0.172***	(0.038)	273
2016	0.176***	(0.037)	273
Notes: Standard errors in parentheses. ***, **, * indicate significance at 1%, 5%, and 10% levels, respectively. Control variables included but not reported for brevity.			

The interaction analysis reveals significant moderating effects of institutional development on the environmental-financial performance relationship. The positive and significant interaction term (β = 0.084, p < 0.01 in Model 1) suggests that the effectiveness of environmental investments is enhanced in regions with more developed institutional frameworks. This finding aligns with institutional theory predictions regarding the role of supporting institutions in facilitating the value creation potential of environmental strategies (North, 1990; Scott, 1995).

The temporal analysis demonstrates a progressive strengthening of the environmental-financial performance relationship over the study period. The coefficient on green investment intensity exhibits a monotonic increase from 0.124 in 2010 to 0.176 in 2016,

suggesting growing institutional maturity and market recognition of environmental initiatives' value. This temporal pattern provides empirical support for the institutional evolution hypothesis advanced by Peng (2003), indicating progressive enhancement of market-supporting institutions in emerging economies.

Regional variations analysis reveals significant heterogeneity in the effectiveness of environmental investments across different geographical contexts. The coefficient magnitude varies systematically with regional economic development levels, institutional quality, and environmental regulatory stringency. These findings suggest that the value-creating potential of environmental investments is contingent upon the institutional and economic characteristics of the regional context, supporting the arguments advanced in the varieties of capitalism literature (Hall and Soskice, 2001).

4.6 Synthesis of Empirical Findings

The empirical findings present a nuanced and theoretically rich understanding of the relationship between environmental stewardship and financial performance in Vietnam's emerging market context. The integration of multiple analytical approaches yields robust evidence of a positive, albeit contextually contingent, relationship between green investment strategies and financial outcomes. This relationship demonstrates sophisticated non-linear dynamics and significant institutional dependencies that extend current theoretical frameworks in several important dimensions.

The consistency of findings across diverse estimation approaches - including GMM, FGLS, and PCSE specifications - provides compelling evidence for the structural nature of the environmental-financial performance relationship. The GMM estimates ($\beta = 0.149$, $p < 0.01$) align closely with FGLS ($\beta = 0.142$, $p < 0.01$) and PCSE ($\beta = 0.145$, $p < 0.01$) results, suggesting that the identified relationship is robust to alternative econometric specifications. This methodological triangulation addresses endogeneity concerns highlighted in previous research (Wintoki et al., 2012) whilst providing more precise estimates of the economic magnitude of environmental initiatives' financial implications.

The threshold analysis reveals particularly noteworthy theoretical implications. The identification of a critical threshold value ($\gamma = 0.052$) in environmental investment intensity suggests the presence of strategic commitment effects consistent with resource-based theory predictions (Hart and Dowell, 2011). The significant regime-dependent coefficients ($\beta1 = 0.086$, $\beta2 = 0.173$) indicate that environmental investments must achieve a minimum scale to generate substantial financial returns, supporting theoretical arguments regarding the role of strategic consistency in environmental capability development (Russo and Fouts, 1997).

These findings extend existing theoretical frameworks in several important dimensions. First, they provide empirical validation for the natural resource-based view's predictions regarding the value-creating potential of environmental strategies in emerging market contexts (Hart, 1995). Second, they demonstrate the crucial moderating role of institutional development in enabling firms to capture value from environmental investments, extending institutional theory applications in environmental strategy research (Delmas and Toffel, 2004). Third, they reveal sophisticated temporal dynamics in the environmental-financial performance relationship, suggesting evolutionary processes in market recognition of environmental initiatives' value.

The temporal analysis reveals an important boundary condition: the strengthening coefficient magnitude over the study period (from 0.124 in 2010 to 0.176 in 2016) suggests that institutional maturation processes significantly influence the effectiveness of environmental strategies. This finding extends current theoretical understanding by demonstrating how institutional evolution processes (Peng, 2003) interact with firm-level environmental strategies to determine financial outcomes.

The methodological implications of these findings are substantial. The identification of significant threshold effects suggests that linear modeling approaches may underestimate the complexity of the environmental-financial performance relationship. The demonstrated importance of institutional contingencies indicates the need for more sophisticated theoretical and empirical approaches that explicitly account for institutional context in environmental strategy research.

5. CONCLUSION

The empirical findings yield substantive implications for managerial practice, policy development, and future scholarly inquiry. These implications warrant careful articulation within the contextual specificities of emerging market environments whilst maintaining theoretical rigour and practical relevance.

From a managerial perspective, the identified threshold effects in environmental investment-performance relationships suggest the necessity for strategic commitment that surpasses critical mass thresholds. The empirical evidence indicating a minimum effective threshold of 5.2% of total assets for environmental investments provides concrete guidance for resource allocation decisions. This finding extends previous theoretical frameworks (Hart and Dowell, 2011) by specifying quantitative parameters for effective environmental strategy implementation. Moreover, the demonstrated regime-dependent effects suggest that managers

should carefully calibrate environmental investments to achieve optimal returns, particularly in institutional contexts characterised by significant market imperfections (Khanna and Palepu, 2010).

Policy implications emerge from the revealed institutional contingencies in environmental strategy effectiveness. The significant moderating effect of institutional development ($\beta = 0.084$, $p < 0.01$) on environmental-financial performance relationships suggests that policymakers must simultaneously address both market-supporting institutions and environmental regulatory frameworks. This finding aligns with theoretical arguments regarding institutional complementarities (Aguilera and Jackson, 2003) whilst extending them to environmental policy contexts. The temporal strengthening of environmental-financial performance relationships provides empirical support for policies that enhance market recognition of environmental initiatives.

Theoretical extensions of this research might productively explore several directions. First, future scholarly inquiry could examine the microfoundations of environmental capability development, particularly in emerging market contexts where institutional support structures may be embryonic. Second, research might investigate the role of institutional intermediaries in facilitating environmental strategy implementation, extending current theoretical frameworks regarding institutional voids (Mair and Marti, 2009). Third, scholars might explore the interaction between firm-specific capabilities and institutional conditions in determining environmental strategy effectiveness. Methodological refinements could enhance future research in several dimensions. The demonstrated importance of threshold effects suggests the value of employing more sophisticated econometric techniques capable of identifying multiple regime transitions. Additionally, future research might benefit from extended longitudinal analyses that capture complete institutional evolution cycles, addressing limitations in current understanding of temporal dynamics in environmental strategy effectiveness.

Contextual boundary conditions warrant careful consideration in extending these findings. The institutional specificities of Vietnam's emerging market context may limit direct generalisability to other institutional environments. Future research might productively examine how variations in institutional development trajectories influence environmental strategy effectiveness across different emerging market contexts, extending current theoretical frameworks regarding varieties of capitalism (Hall and Soskice, 2001).

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REFERENCES

1) Aguilera, R. V., & Jackson, G. (2003). The cross-national diversity of corporate governance: Dimensions and determinants. Academy of Management Review, 28(3), 447-465. https://doi.org/10.5465/amr.2003.10196772
2) Aguilera, R. V., & Jackson, G. (2010). Comparative and international corporate governance. Academy of Management Annals, 4(1), 485-556. https://doi.org/10.1080/19416520.2010.495525
3) Aiken, L. S., & West, S. G. (1991). Multiple regression: Testing and interpreting interactions. Sage Publications.
4) Aragón-Correa, J. A., & Sharma, S. (2003). A contingent resource-based view of proactive corporate environmental strategy. Academy of Management Review, 28(1), 71-88. https://doi.org/10.5465/amr.2003.8925233
5) Aragón-Correa, J. A., Hurtado-Torres, N., Sharma, S., & García-Morales, V. J. (2008). Environmental strategy and performance in small firms: A resource-based perspective. Journal of Environmental Management, 86(1), 88-103. https://doi.org/10.1016/j.jenvman.2006.11.022
6) Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies, 58(2), 277-297. https://doi.org/10.2307/2297968
7) Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-components models. Journal of Econometrics, 68(1), 29-51. https://doi.org/10.1016/0304-4076(94)01642-D
8) Banerjee, S. B., Iyer, E. S., & Kashyap, R. K. (2003). Corporate environmentalism: Antecedents and influence of industry type. Journal of Marketing, 67(2), 106-122. https://doi.org/10.1509/jmkg.67.2.106.18604
9) Bansal, P., & Song, H. C. (2017). Similar but not the same: Differentiating corporate sustainability from corporate responsibility. Academy of Management Review, 42(1), 105-125. https://doi.org/10.5465/amr.2014.0404

10) Barney, J. B., Ketchen Jr, D. J., & Wright, M. (2011). The future of resource-based theory: revitalization or decline? Journal of Management, 37(5), 1299-1315. https://doi.org/10.1177/0149206310391805
11) Beck, N., & Katz, J. N. (1995). What to do (and not to do) with time-series cross-section data. American Political Science Review, 89(3), 634-647. https://doi.org/10.2307/2082979
12) Berrone, P., Fosfuri, A., Gelabert, L., & Gomez-Mejia, L. R. (2013). Necessity as the mother of 'green' inventions: Institutional pressures and environmental innovations. Strategic Management Journal, 34(8), 891-909. https://doi.org/10.1002/smj.2041
13) Busch, T., & Hoffmann, V. H. (2009). Ecology-driven real options: An investment framework for incorporating uncertainties in the context of the natural environment. Journal of Business Ethics, 90(2), 295-310. https://doi.org/10.1007/s10551-009-0043-y
14) Chan, R. Y. K. (2005). Does the natural-resource-based view of the firm apply in an emerging economy? A survey of foreign invested enterprises in China. Journal of Management Studies, 42(3), 625-672. https://doi.org/10.1111/j.1467-6486.2005.00511.x
15) Christmann, P. (2000). Effects of "best practices" of environmental management on cost advantage: The role of complementary assets. Academy of Management Journal, 43(4), 663-680. https://doi.org/10.2307/1556360
16) Cuervo-Cazurra, A. (2012). Extending theory by analyzing developing country multinational companies: Solving the Goldilocks debate. Global Strategy Journal, 2(3), 153-167. https://doi.org/10.1111/j.2042-5805.2012.01039.x
17) Delmas, M. A., & Montes-Sancho, M. J. (2011). US state policies for renewable energy: Context and effectiveness. Business & Society, 50(1), 80-104. https://doi.org/10.1177/0007650310393260
18) Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. Strategic Management Journal, 29(10), 1027-1055. https://doi.org/10.1002/smj.701
19) Delmas, M. A., Etzion, D., & Nairn-Birch, N. (2015). Triangulating environmental performance: What do corporate social responsibility ratings really capture? Academy of Management Perspectives, 29(2), 255-267. https://doi.org/10.5465/amp.2013.0103
20) Delmas, M., & Toffel, M. W. (2004). Stakeholders and environmental management practices: An institutional framework. Business Strategy and the Environment, 13(4), 209-222. https://doi.org/10.1002/bse.409
21) Dess, G. G., Ireland, R. D., & Hitt, M. A. (1990). Industry effects and strategic management research. Journal of Management, 16(1), 7-27. https://doi.org/10.1177/014920639001600102
22) DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. American Sociological Review, 48(2), 147-160. https://doi.org/10.2307/2095101
23) Dixon-Fowler, H. R., Slater, D. J., Johnson, J. L., Ellstrand, A. E., & Romi, A. M. (2013). Beyond "does it pay to be green?" A meta-analysis of moderators of the CEP–CFP relationship. Journal of Business Ethics, 112(2), 353-366. https://doi.org/10.1007/s10551-012-1268-8
24) Earnhart, D., & Lizal, L. (2007). Effect of pollution control on corporate financial performance in a transition economy. European Environment, 17(4), 247-266. https://doi.org/10.1002/eet.447
25) Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. Management Science, 60(11), 2835-2857. https://doi.org/10.1287/mnsc.2014.1984
26) Endrikat, J., Guenther, E., & Hoppe, H. (2014). Making sense of conflicting empirical findings: A meta-analytic review of the relationship between corporate environmental and financial performance. European Management Journal, 32(5), 735-751. https://doi.org/10.1016/j.emj.2013.12.004
27) Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. Management Science, 61(11), 2549-2568. https://doi.org/10.1287/mnsc.2014.2038
28) Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
29) Freeman, R. E., Harrison, J. S., Wicks, A. C., Parmar, B. L., & De Colle, S. (2010). Stakeholder theory: The state of the art. Cambridge University Press.
30) Hall, P. A., & Soskice, D. (2001). Varieties of capitalism: The institutional foundations of comparative advantage. Oxford University Press. https://doi.org/10.1093/0199247757.001.0001
31) Hansen, B. E. (1999). Threshold effects in non-dynamic panels: Estimation, testing, and inference. Journal of Econometrics, 93(2), 345-368. https://doi.org/10.1016/S0304-4076(99)00025-1
32) Hart, S. L. (1995). A natural-resource-based view of the firm. Academy of Management Review, 20(4), 986-1014. https://doi.org/10.5465/amr.1995.9512280033

33) Hart, S. L., & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. Business Strategy and the Environment, 5(1), 30-37. https://doi.org/10.1002/(SICI)1099-0836(199603)5:1<30::AID-BSE38>3.0.CO;2-Q
34) Hart, S. L., & Dowell, G. (2011). A natural-resource-based view of the firm: Fifteen years after. Journal of Management, 37(5), 1464-1479. https://doi.org/10.1177/0149206310390219
35) Hoskisson, R. E., Wright, M., Filatotchev, I., & Peng, M. W. (2013). Emerging multinationals from mid-range economies: The influence of institutions and factor markets. Journal of Management Studies, 50(7), 1295-1321. https://doi.org/10.1111/j.1467-6486.2012.01085.x
36) Jiang, W., Wang, A. X., Zhou, K. Z., & Zhang, C. (2014). Stakeholder relationship capability and firm innovation: A contingent analysis in the Chinese context. Journal of Business Ethics, 124(2), 277-292. https://doi.org/10.1007/s10551-013-1869-x
37) Kassinis, G., & Vafeas, N. (2006). Stakeholder pressures and environmental performance. Academy of Management Journal, 49(1), 145-159. https://doi.org/10.5465/amj.2006.20785799
38) Kennedy, P. (2003). A guide to econometrics (5th ed.). MIT Press.
39) Khanna, T., & Palepu, K. G. (2010). Winning in emerging markets: A road map for strategy and execution. Harvard Business Press.
40) King, A. A., & Lenox, M. J. (2001). Does it really pay to be green? An empirical study of firm environmental and financial performance. Journal of Industrial Ecology, 5(1), 105-116. https://doi.org/10.1162/108819801753358526
41) King, A. A., & Lenox, M. J. (2002). Exploring the locus of profitable pollution reduction. Management Science, 48(2), 289-299. https://doi.org/10.1287/mnsc.48.2.289.258
42) Klassen, R. D., & McLaughlin, C. P. (1996). The impact of environmental management on firm performance. Management Science, 42(8), 1199-1214. https://doi.org/10.1287/mnsc.42.8.1199
43) Klassen, R. D., & Whybark, D. C. (1999). The impact of environmental technologies on manufacturing performance. Academy of Management Journal, 42(6), 599-615. https://doi.org/10.2307/256982
44) Kremer, S., Bick, A., & Nautz, D. (2013). Inflation and growth: New evidence from a dynamic panel threshold analysis. Empirical Economics, 44(2), 861-878. https://doi.org/10.1007/s00181-012-0553-9
45) Luo, Y., & Rui, H. (2009). An ambidexterity perspective toward multinational enterprises from emerging economies. Academy of Management Perspectives, 23(4), 49-70. https://doi.org/10.5465/amp.2009.45590140
46) Mair, J., & Marti, I. (2009). Entrepreneurship in and around institutional voids: A case study from Bangladesh. Journal of Business Venturing, 24(5), 419-435. https://doi.org/10.1016/j.jbusvent.2008.04.006
47) McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance: Correlation or misspecification? Strategic Management Journal, 21(5), 603-609. https://doi.org/10.1002/(SICI)1097-0266(200005)21:5<603:: AID-SMJ101>3.0.CO;2-3
48) Meyer, K. E., & Peng, M. W. (2016). Theoretical foundations of emerging economy business research. Journal of International Business Studies, 47(1), 3-22. https://doi.org/10.1057/jibs.2015.34
49) Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience: Defining the principle of who and what really counts. Academy of Management Review, 22(4), 853-886. https://doi.org/10.5465/amr.1997.9711022105
50) Nguyen, Q. A., & Nguyen, V. H. (2017). Institutional environment and corporate investment: Evidence from Vietnam. Pacific Accounting Review, 29(2), 199-219. https://doi.org/10.1108/PAR-08-2016-0073
51) North, D. C. (1990). Institutions, institutional change and economic performance. Cambridge University Press.
52) North, D. C. (1990). Institutions, institutional change and economic performance.Cambridge University Press. https://doi.org/10.1017/CBO9780511808678
53) Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. Organization Studies, 24(3), 403-441. https://doi.org/10.1177/0170840603024003910
54) Peng, M. W. (2003). Institutional transitions and strategic choices. Academy of Management Review, 28(2), 275-296. https://doi.org/10.5465/amr.2003.9416341
55) Peng, M. W., Sun, S. L., Pinkham, B., & Chen, H. (2009). The institution-based view as a third leg for a strategy tripod. Academy of Management Perspectives, 23(3), 63-81. https://doi.org/10.5465/amp.2009.43479264
56) Peng, M. W., Wang, D. Y., & Jiang, Y. (2008). An institution-based view of international business strategy: A focus on emerging economies. Journal of International Business Studies, 39(5), 920-936.

https://doi.org/10.1057/palgrave.jibs.8400377

57) Porter, M. E., & Kramer, M. R. (2011). Creating shared value. Harvard Business Review, 89(1/2), 62-77.
58) Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. The Stata Journal, 9(1), 86-136. https://doi.org/10.1177/1536867X0900900106
59) Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. Academy of Management Journal, 40(3), 534-559. https://doi.org/10.2307/257052
60) Scott, W. R. (1995). Institutions and organizations. Sage Publications.
61) Scott, W. R. (1995). Institutions and organizations: Ideas, interests, and identities. Sage Publications.
62) Sharfman, M. P., & Fernando, C. S. (2008). Environmental risk management and the cost of capital. Strategic Management Journal, 29(6), 569-592. https://doi.org/10.1002/smj.678
63) Sharma, S., & Henriques, I. (2005). Stakeholder influences on sustainability practices in the Canadian forest products industry. Strategic Management Journal, 26(2), 159-180. https://doi.org/10.1002/smj.439
64) Sharma, S., & Vredenburg, H. (1998). Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities. Strategic Management Journal, 19(8), 729-753. https://doi.org/10.1002/(SICI)1097-0266(199808)19:8<729::AID-SMJ967>3.0.CO;2-4
65) Short, J. C., Ketchen Jr, D. J., Palmer, T. B., & Hult, G. T. M. (2007). Firm, strategic group, and industry influences on performance. Strategic Management Journal, 28(2), 147-167. https://doi.org/10.1002/smj.574
66) Tang, Z., Hull, C. E., & Rothenberg, S. (2012). How corporate social responsibility engagement strategy moderates the CSR–financial performance relationship. Journal of Management Studies, 49(7), 1274-1303. https://doi.org/10.1111/j.1467-6486.2012.01060.x
67) Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. Strategic Management Journal, 18(7), 509-533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z
68) UNEP. (2016). Global Environment Outlook GEO-6: Regional Assessment for Asia and the Pacific. United Nations Environment Programme.
69) Vu, K. A., Tower, G., & Scully, G. (2016). Corporate communication for Vietnamese listed firms. Asian Review of Accounting, 24(2), 248-261. https://doi.org/10.1108/ARA-07-2014-0076
70) Walls, J. L., Berrone, P., & Phan, P. H. (2012). Corporate governance and environmental performance: Is there really a link? Strategic Management Journal, 33(8), 885-913. https://doi.org/10.1002/smj.1924
71) Wang, T., & Bansal, P. (2012). Social responsibility in new ventures: Profiting from a long-term orientation. Strategic Management Journal, 33(10), 1135-1153. https://doi.org/10.1002/smj.1962
72) Wintoki, M. B., Linck, J. S., & Netter, J. M. (2012). Endogeneity and the dynamics of internal corporate governance. Journal of Financial Economics, 105(3), 581-606. https://doi.org/10.1016/j.jfineco.2012.03.005
73) Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data. MIT Press.
74) Wooldridge, J. M. (2010). Econometric analysis of cross section and panel data (2nd ed.). MIT Press.
75) World Bank. (2016). Vietnam 2035: Toward prosperity, creativity, equity, and democracy. World Bank.
76) Yang, X., & Rivers, C. (2009). Antecedents of CSR practices in MNCs' subsidiaries: A stakeholder and institutional perspective. Journal of Business Ethics, 86(2), 155-169. https://doi.org/10.1007/s10551-009-0191-0
77) Zhao, M., Tan, J., & Park, S. H. (2014). From voids to sophistication: Institutional environment and MNC CSR crisis in emerging markets. Journal of Business Ethics, 122(4), 655-674. https://doi.org/10.1007/s10551-013-1751-x

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