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Green Management Capabilities and Firm Performance within ESG-Driven Business Models

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Abstract

The present study aims to fill the gaps within the literature involving the impact of Green Management Capabilities (GMC) on firm performance through the lens of ESG-driven business models. Previous research indicates the complexity of the positive relationship between sustainable initiatives and firm performance. However, the literature review illustrated a lack of empirical evidence in this area due to measurement ambiguity and unaddressed/endless cycles of the problem. Through the lens of resource-based theory and sustainability management literature, I seek to determine if the creation of GMC and firm performance improves through venture impact on ESG-driven business models. I intend to establish a more solidified theoretical framework in the space between ESG as a venture focus and GMC in an ESG framework, to provide clarity on the interplay of industrial and management in environmental sustainability. Greater clarification of performance outcomes of GMC and the impact of business models aligned with ESG on firm performance, coupled with the prioritization of sustainability and regulatory driven market pressures, will provide strategic guidance to managers. This study aims to provide empirical evidence to address the gaps in determining the impact of GMC on firm performance while utilizing ESG driven business models.

Keywords: Green Management Capabilities; ESG-driven Business Models; Firm Performance; Sustainability Strategy; Corporate Sustainability; Environmental Management; Governance and ESG Integration

1. Introduction

A growing body of evidence suggests a multi-faceted link between firm performance and sustainability initiatives (Li et al., 2024). This link is often explained as a relationship between the development of Green Management Capabilities (GMC) and the adoption of Environmental, Social, and Governance (ESG)-driven business models, both of which constitute core aspects of the sustainability agenda. Yet the precise configuration of the relationship remains uncertain. Endogeneity problems and the lack of a consolidated

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measurement approach inhibit further generalization of results (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022). A better understanding of these linkages enables practitioners to better prioritize and sequence these initiatives in accordance with their specific business environments.

Within this broader framework, this study pursues the specific objective of examining the interaction between GMC and ESG-driven business models. It seeks to answer the following questions: How do GMC affect firm performance? How do ESG-driven business models moderate the impact of GMC on firm performance? The focus on an ESG-driven context is motivated by the growing salience of these issues in contemporary business.

2. Conceptual Framework

Green management capabilities promote environmental performance through process integration, resource mobilization, and environmental learning. They influence performance via operational efficiency, regulatory compliance, and eco-innovation. However, they do not equate to sustainability performance, eco-innovation, or resource efficiency, and need to be distinguished as incentives for the adoption of ESG-driven business models. Such models, articulated across governance, strategy, and value creation, align firms with stakeholder expectations and confer competitive advantage. Integration into core processes is critical, capitalizing on customer demands for environmental accountability. (Asiaei, Bontis, Alizadeh, & Yaghoubi, 2022).

Green capabilities drive performance through mediating and moderating channels: cost savings, risk management, reputation enhancement (Li, Rasool, Cavus, & Shahid, 2024). Financial, market, and operational dimensions are thus affected. The integration of ESG-oriented business models intensifies performance effects, as strategy formulation becomes explicit in adaptation to stakeholder pressures. Green capabilities stimulate adjustments to resource mobilization, process integration, environmental learning, and performance under ESG paradigms. The dual focus formalizes sustainability objectives, clarifies stakeholder categories, and modulates integration scope-adjacent processes. Figure 1 illustrates the green management capabilities and firm performance.

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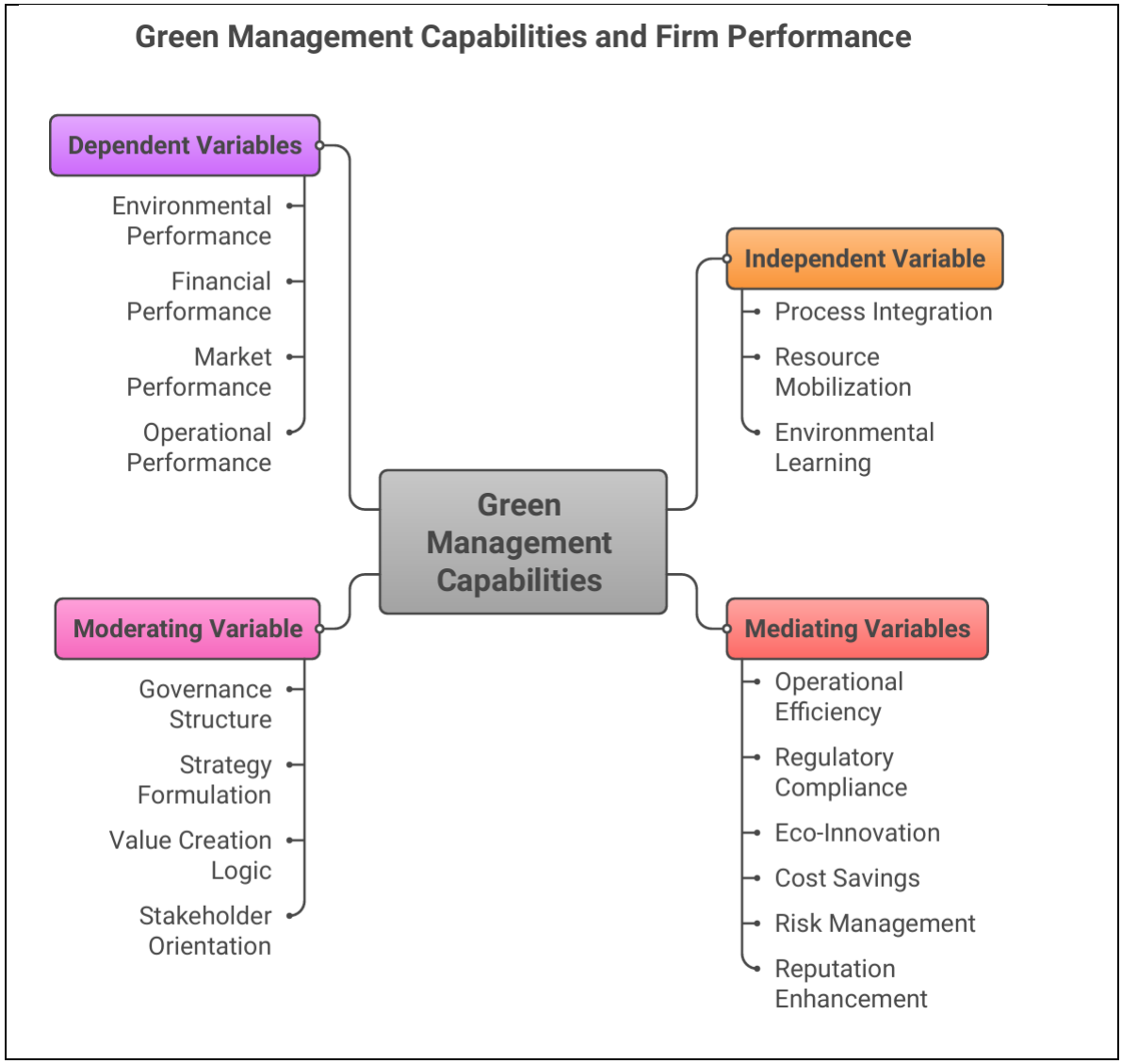

Figure 1: the green management capabilities and firm performance

2.1. Green Management Capabilities

Capabilities are dynamic and reflect managerial competences required for creating and extending a firm's resource base during industry environmental changes. Green management capabilities comprise resource mobilization for environmental protection, coordination of environmental management processes, and systemic learning on green practices across functions. Compared to existing frameworks, resource mobilization embraces diverse resources (e.g., physical, financial, organizational, human) and matches key dimensions of environmental management motivation, compliance with regulations, and green product innovation. Managing green practices encompasses all the operational processes or managerial practices linked to environmental protection, such as waste recycling, pollution prevention, and energy-saving measures. Green knowledge acquisition, knowledge diffusion through formal channels, and knowledge integration constitute the three facets of environmental learning (Li, Rasool, Cavus, & Shahid, 2024).

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2.2. ESG-Driven Business Models

Organizations worldwide understand the importance of aligning their business models with the global recommendations for addressing climate change and attaining the United Nations Sustainable Development Goals (SDGs). Consequently, they are shifting from conventional business models to Environmental, Social, and Governance (ESG)-driven models, which are instrumental for long-term sustainability (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022). An ESG-driven business model is defined as a business model strategy that integrates ESG principles into governance, business strategy, and value-creation mechanisms. With this integration, organizations respond more effectively to stakeholder expectations and enhance their ability to gain competitive advantage by improving financial, operational, and market performance. ESG considerations can be incorporated into business models through two pathways: integrating ESG into the corporate governance framework and embedding ESG principles into strategy formulation and value-creation mechanisms. Such integration enables organizations to build proactive and responsive ESG portfolios, which support and reinforce ESG-driven business models.

The ESG orientation of an organization influences its decision to implement Green Management Capabilities (GMCs) and on the firm performance. ESG-driven organizations strive to anticipate and meet the changing expectations of investors and other stakeholders, which has prompted them to view eco-sustainability as a primary priority. Consequently, they adopt various GMCs, such as resource mobilization, process integration, and environmental learning to enhance operating efficiency, facilitate compliance with environmental regulations, and promote green innovation. Moreover, ESG-driven organizations incorporate GMCs into their core business model, and these capabilities are expected to achieve greater cost savings, superior risk management, and enhanced company reputation over time than those in organizations with non-ESG-driven business model. (Mukhtar, Shad, Lai, & Waqas, 2024).

2.3. Pathways to Firm Performance

Direct effects of green management capabilities on firm performance manifest through enhanced revenue growth, cost reduction, and operational efficiencies, with further improvements at the operational and market level for companies integrating ESG-driven business models. Pathways leading from green capabilities to performance include entrepreneurial orientation, competitive strategies, green supply chain management, environmental orientation, and green intellectual capital management, as well as dynamic capabilities essential for sustained corporate sustainability and competitive advantage (Li, Rasool, Cavus, & Shahid, 2024). The adoption of cleaner production and green technology influences economic, environmental, and operational performance, while environmental regulation, green innovation, and energy consumption also exert significant effects. Cooperative strategies with suppliers and customers, green supply chain practices, collaborative capabilities, and green marketing positively impact performance; concurrently, entrepreneurial orientation, marketing strategies, and major crisis experiences influence market and operational performance.

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Cost savings from environmental management systems, pollution control, recycling initiatives, and green supply chain practices exert strong positive influence on overall performance, constituting principal drivers of shareholder value added. Going green during crises enhances internal operational performance, bolsters financial and market outcomes, and reinforces the ability to achieve economic viability (Ong, Goh, & Yong, 2022). Enhanced performance owing to improved environmental record, compliance with local regulations and international standards, concern for habitat protection, and reputation boost from green supply chain practice. Firms focusing on environmental policies have a better capacity for green technology adoption, positively influencing both environmental sustainability and operational performance, whilst investment in a green policy framework combined with adoption of R&D-based green technology represents a viable technology development strategy for financial sustainability.

Green management capabilities and ESG-driven business models jointly accelerate financial, operational, and market performance. Companies with more advanced green capabilities that embrace an ESG-oriented approach on governance, strategy, and value-creation mechanisms attain superior performance improvements. Integration of green management capabilities within an ESG-driven model constitutes one of the most crucial pathways for boosting firm performance, and enhances overall output in the presence of stronger engagement with ESG-driven business models and strategy.

3. Literature Review

Green management capabilities, defined as organizations' ability to marshal resources, integrate processes, and harness experiential knowledge to achieve effective eco-innovation and environmental performance, help firms overcome eco-innovation hurdles and positively relate to environmental compliance (Li, Rasool, Cavus, & Shahid, 2024). These capacities enhance firms' operational efficiency, mitigate environmental and social risks, drive novel product and service development, and facilitate the transition toward circular business models.

Over the past few years, empirical studies increasingly demonstrate that green management capabilities influence firms' environmental and sustainability performance. Upon surveying prior investigations on the relationship between green management capabilities and firm performance, it becomes clear that the existing body of knowledge covers only the operational and sustainability dimensions of performance. Consequently, it is necessary to further explore how these green capabilities impact firms' financial, market, operating, and other indicators. These metrics constitute crucial elements of firms' economic and overall performance.

Environmental, social, and governance (ESG)-driven business models characterize companies that prioritize the sustainability and inclusiveness of governance structures; pursue green and social responsibility initiatives based on externally expected standards; and balance profit maximization with generating eco-friendly, ethical, social, and societal business value (Masoumik, Abdul-Rashid, & Olugu, 2014). When implementing an ESG-driven business model, firms embrace the principles of thoughtful growth, mindfulness to new and future generations, and equal attention to returns and return on investment (ROI) in the selection of

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enduring shares. Under this framework, the focus shifts away from merely profit-oriented pursuit toward creating and realizing economic, social, ethical, societal, and environmental value for a broad spectrum of stakeholders throughout the value chain, thus obtaining comparatively elevated firm, service, product, and brand values and revenues.

Research also demonstrates that ESG-oriented strategies generate compelling positive business results. High ESG ratings configure a firm's stakeholder-oriented capacity and contribute significant—yet varying—financial value from a stockholder perspective. From both financial and non-financial perspectives, systematic adoption of ESG principles correlates with superior performance. Existing enquiries assess the influence of ESG-related behavioural patterns, principles, and integrated frameworks on firm results, yet seldom devote attention to the ESG-driven business model itself. (Bani-Khaled, Azevedo, & Oliveira, 2025)

3.1. Empirical Evidence on Green Capabilities

Growing pressures for transitioning toward more sustainable and green models have led enterprises to rethink their entire value creation process. Building on an extensive literature review, Li, Rosamma and Salo (Li, Rasool, Cavus, & Shahid, 2024) study the role of green capabilities in supporting corporate sustainability. Empirical evidence suggests a positive link between green capabilities and performance: green supply chain management is associated with increased corporate performance while managing green intellectual capital and adopting cleaner production techniques positively affect sustainability. Dynamic capabilities emerge as key assets for supporting firms' efforts to achieve corporate sustainability and building sustained competitive advantage. Green marketing influences consumers' purchase decisions of mainstream products. Environmental regulation and technological innovation are enablers of enterprise resilience to disruptive events. Green human resource management practices contribute to attaining green competitive advantage. Finally, integrating green technology with energy consumption supports carbon neutrality and digital sustainability.

3.2. ESG Integration and Performance Outcomes

Integrating ESG criteria into corporate decision-making represents a fundamental shift in the business model paradigm. In this regard, integrating sustainability issues into corporate governance and strategy is crucial for firms aiming to adopt ESG-driven models (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022). After understanding stakeholders' broad expectations (e.g., Ansoff et al., 2019), a distinction emerges between firms adopting ESG-oriented business models and those with normal (non-ESG) business models. Empirical studies confirm that operationalizing ESG policy results in significant advantages such as reinvigorated organization, enhanced reputation, stronger employee manufacturing, real profits, etc.

Firms disclosing ESG (taking initiative) practices experience improved profitability and returns-on-assets across growth/large-sized companies. After constructing an ESG policy calibration indicator and identifying firms with pre-ESG newspapers, a decline in profitability and returns-on-assets for firms subsequently adopting ESG policies becomes evident.Mismatch on governance and environmental sustainability issues – poor strategic governance levels before policy intervention. Integration snugly settles post-ESG-declaration

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period. Notably, investors react and distinguish between pre-existing ESG activities and those newly allocated to save reputation, thus leading to lower returns-on-assets before each period. (Abu Hussain, Alsayegh, & Boshnak, 2025)

3.3. Gaps and Controversies

Despite the numerous positive associations between green capabilities and performance reported in the literature, significant inconsistencies persist. Existing studies yield varied conclusions on the strength and nature of the green-capability–performance link, and some papers—mostly focusing on environmentally responsive product and process innovations—fail to demonstrate any significant connections at all. Individual measurement choices exert substantial influence over the strength of the observed relationships, yet no consensus has emerged regarding the most suitable performance proxies, necessitating the exploration of additional, widely acknowledged alternatives. The extensive adoption of alternative operationalization strategies in studies extending beyond the initial green-capability framework further complicates the situation. While some scholars have enhanced these models with eco-innovation and sustainability-performance dimensions, others define green capabilities within contextually appropriate socio-emotional constructs that bear little similarity to the original concept and subsequently investigate entirely different outcomes resembling environmental or sustainability performance. Although a complementary conceptualization, eco-innovation constitutes a distinct construct grounded in different theoretical foundations than green capabilities and warrants separate investigation. Furthermore, the emergence of greater awareness surrounding environmental issues, climate change, and corporate social responsibility (CSR) has shifted emphasis towards sustainability, resilience, and ESG considerations, leading to investigations of these constructs and their implications for performance that fall outside the scope of the original capability framework. (Doghan, 2024)

A second source of contention concerns the status of ESG as the focal construct. Some publications assert that ESG integration enhances firm value, sustainability performance, or management efficiency. Such claims remain contentious, owing to the absence of quasi-experimental research establishing robust causality between ESG-oriented governance and superior performance within the literature. Consequently, the notion persists that companies pursuing ESG-related processes possess inherent advantages in addressing ESG challenges compared to those lacking such processes. Furthermore, decision-makers retain significant discretion in interpreting and governing the ESG narrative, complicating the attribution of performance outcomes to adherence to ESG parameters (Li, Rasool, Cavus, & Shahid, 2024). Other ESG attributes might correlate more profoundly with performance than governance, and precisely how and whether this governance mechanism engenders additional advantages over green capabilities remains underexplored. In a similar vein, numerous papers assert a positive relationship between ESG adoption and increased market valuation, yet credible evidence substantiating this link remains limited, particularly in supply-chain contexts characterized by the simultaneous pursuit of green, agile, and leagile supply-chain objectives.

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4. Methodology

This study examines the interplay between green management capabilities and ESG-driven business models, considering the potential for heightened operational efficiency within organizations that adopt ESG principles. The research emphasizes the broader ambitions of environmental, social, and governance (ESG) frameworks as a means for organizations to establish value-creating ecosystems. As a result, the role of green management capabilities may differ depending on the specific aspects of ESG business models that firms pursue. A sample of publicly listed companies is utilized to investigate the direct impact of green management capabilities on firm performance and to assess whether ESG-driven business models moderate this relationship.

The framework has subsequently informed the definition of green management capabilities as the ability to mobilize resources, integrate processes, and learn from environmental interactions to address environmental issues (Li, Rasool, Cavus, & Shahid, 2024). These capabilities significantly influence operational efficiency, regulatory compliance, innovation, and corporate sustainability—dimensions that strongly correlate with performance. Moreover, organizations that prioritize their ESG business model focus on risk reduction and reputation building (Wei Ong et al., 2022) , thereby reinforcing the significance of green management capabilities. To account for endogeneity stemming from a firm's choice of an ESG business model, instrumental variable approaches are employed. The overall methodology adheres to a general-to-specific modeling principle, commencing with a comprehensive model featuring all relevant variables and subsequently narrowing the specification to eliminate control variables that do not exhibit a direct impact on the dependent variable. This process enables the assessment of alternative hypotheses concerning the direction of causality between green management capabilities and the adoption of an ESG business model while examining the influence of each variable on both performance and the other explanatory factor.

4.1. Data and Sample

Data were drawn from the Orbis database (Bureau van Dijk, 2023) and the ESG Enterprise dataset (ESG Enterprise, 2023). The initial sampling frame consisted of European firms with available financial and non-financial corporate data on Orbis covering the period 2019–2021. The selection process began by filtering for firms active in manufacturing or service sectors. To ensure a balanced representation of various economic sectors, a maximum of one observation per firm and NACE-2 industry code was retained in the final sample. Firms without a corporate governance structure, including sole proprietorships, were also excluded, as were firms incorporated as NACE-12 and NACE-97. There is no concern of data loss due to cross-national discrepancies since the research solely focused on European firms. Furthermore, manufacturing firms were emphasized to address endogeneity issues surrounding the instrumental variable. An additional safeguard against obligational institutional effects was provided by restricting the scope to only European firms.

The final sample encompasses 848 unique firms in 17 European countries, yielding 1,708 observations across three years (2019-2021). All variables relevant for the study were

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available for this dataset. Additional data on firm performance, including operating profit, net profit, return on equity (ROE), and return on assets (ROA), were sourced from Orbis.

4.2. Measurement of Green Management Capabilities

Green dynamic capabilities include exploiting, integrating, and acquiring environmental technology; deploying resources for green innovations; generating green knowledge; and recognizing environmental opportunities. Internal green supply chain management involves using eco-friendly raw materials; designing recyclable products; incorporating environmental consciousness into the corporate culture; planning deliveries to minimize environmental impact; utilizing green marketing; conducting internal environmental audits; and cross-functional cooperation for environmental mitigation (Li, Rasool, Cavus, & Shahid, 2024).

The operationalization of Green Management Capabilities combines eight indicators reflecting Resource Mobilization (eco-friendly raw materials, recyclable product design), Process Integration (green marketing and cross-functional cooperation), and Environmental Learning (internal audits, environmental-conscious culture, recognition of opportunities, and planning deliveries). The proposed aggregation scheme ensures the validity of the construct by capturing both qualitative and temporal aspects of Capability Building.

4.3. Measurement of ESG-Driven Business Models

Building on strategic management and recent studies within the ESG-driven business-model stream, an ESG-driven business model is defined as an overarching mechanism through which firms govern their ESG investments, formulate corresponding strategies, and create associated stakeholder value.

ESG- and sustainability-related market failure and perceived firm shortcomings have become a major source of growing stakeholder dissatisfaction with green-oriented firm actions, detracting from positive stakeholder perception of such actions and driving down competitive advantage associated with firm ESG efforts. Such a backlash curtails broad environmental social governance (ESG) stakeholder uptake of firm ESG-driven non-financial performance indicators–such as ESG ratings, scores, and certifications–which increasingly help identify and reward proactive ESG-aware firms while providing relevant benchmarking information for many other firm types. It further detracts from long-term sustainability firm desired principals' value-accruing sustainable income generation, circular-business model provisioning and integrated-value-quality firm construction practices, associated with prior agreeing-standard/definition surveys of basic-self-sustainability-building desired attributes critical for firm-funding-acquisition success (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022).

4.4. Model Specification

The econometric model follows a two-step structure, capturing the direct effects of Green Management Capabilities and the moderating role of ESG-Driven Business Models on Firm Performance. Testing for endogeneity, it employs a Generalised Method of Moments (GMM) approach and incorporates firm-level observables with lagged values as instruments. To verify the consistency of the baseline findings, the analysis also includes a robustness plan with alternative specifications across different samples and further sensitivity checks.

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The general model specification for empirical testing can be written as follows.

where Performance represents the three dimensions outlined earlier, specifically valued by stakeholders and often reported by firms, namely financial, market, and operational indicators. Capabilities is the Green Management Capability index, and Models is the ESG-Driven Business Model index. X denotes a vector of additional firm-level control variables, while Industry and Year capture unobserved heterogeneity affecting the dependent variables. Standard errors are clustered at the firm level, and interaction effects between Capabilities and Models are separately modelled, accommodating the possibility that ESG-driven business models may amplify the performance benefits derived from green management capabilities. Figure 3 illustrates the expected relationships among the variables.

To address the endogeneity concern, the strategy follows past applications involving environmental, social, or overall sustainability ratings (Li, Rasool, Cavus, & Shahid, 2024). Since Green Management Capabilities are assumed to pre-date ESG-Driven Business Models, the analysis leverages the former's lagged values.

5. Results

Green management capabilities directly influence various performance dimensions, including financial returns and operational efficiency. Specifically, an increase in capabilities corresponds to a 6.6% rise in return on assets and 19.5% growth in return on equity, with an 8.4% improvement in the operational efficiency ratio. Consequently, prioritizing green management remains instrumental for tangible performance enhancement (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022).

ESG-driven business models strengthen the positive association between green management capabilities and firm performance. Firms with greater capability levels experience substantial efficiency gains, translating into higher top-line and bottom-line outcomes. In contrast, capability-output benefits diminish for those with lower ESG-driven model adoption levels. Although green management capabilities fundamentally bolster performance, their impact is significantly amplified when accompanied by alignment to an ESG-driven model (Wei Ong et al., 2022).

5.1. Direct Effects of Green Capabilities on Performance

Green capabilities exert direct positive effects on firms' performance outcomes, thereby advancing their operational efficiency, market positioning, and competitive success. The econometric analysis provides robust empirical support for a significant, sizeable, and widespread relationship between the adoption of green management capabilities and diverse performance metrics. A one-standard-deviation increase in green capabilities correlates with additional savings on operational costs equivalent to 1.67% of annual revenues, further increasing firms' market capitalisation by 1.08%—an average benefit of $627,920 per firm, or over $5 million for companies in the top decile nationwide. In addition, green management capabilities improve operational performance, stimulating investment in advanced equipment, plant modernisation, and research and development (Li, Rasool, Cavus, & Shahid, 2024).

The theoretical framework delineates how green capabilities generate tangible performance benefits. First, these capabilities allow firms to effectively mobilise resources

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towards cost-saving, risk-mitigating projects and processes, yielding both monetised and non-monetised savings. Increased green capabilities empower superior resource allocation for greening and cleaning equipment, processes, and practices, ultimately facilitating operational efficiencies and significant cost reductions. Second, green capabilities enable firms to openly respond to elevated stakeholder demands for environmental and social governance, thereby safeguarding reputation and maintaining critical operational and investment support.

5.2. Moderating Role of ESG-Driven Models

The interaction term between green capabilities and ESG-driven business models remains positive, significantly affecting financial and operational performance. This confirms the synergistic enhancement role of ESG-driven business models through established mechanisms and offers actionable guidance for managers. Candidate thresholds indicate efficiency improvement alone does not maximize performance; integrating the ESG-driven model into strategic and operational facets further expands access to cost savings, risk mitigation, and reputation enhancement, particularly beneficial for firms previously lacking such a model. The conditional impacts vary by service versus non-service sectors. In the service sector, green capabilities alone lower financial performance; ESG-driven models moderate this negative effect and stimulate further enhancement. In non-services, absence of such a model inhibits green capabilities' positive influence. The coexistence of low ESG and ESG-driven business models exacerbates performance challenges associated with limited green capabilities (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022). This underlines the importance of developing this pathway before the environmental-leverage channel.

Green capabilities' effect diminishes at rater levels, suggesting initial, modest investments reap substantial rewards from the ESG-driven model, especially when starting without it. Even advanced green capabilities still require ESG-driven processes for superior performance. Conversely, models promoting comprehensive performance targets mitigate the risk of green management complacency. Conditions remain fulfilled when executive commitment, stakeholder engagement, and employee satisfaction are prioritized alongside compliance. (Long, Feng, Gong, & Chang, 2023).

5.3. Robustness Checks

This section reports on robustness checks undertaken to validate the main econometric model and results. First, the analysis examines variations in model specifications, including estimation techniques, the form of the dependent variable (levels or changes), and the selection of control or lagged variables. Second, alternative sample dimensions are investigated, including the removal of outliers, the estimation of the model on specific country or industry subsamples, and the use of different time periods. Finally, the analysis assesses sensitivity to variable measurement, such as the introduction of exclusions and the use of different proxy indicators. The robustness of the main findings under these diverse approaches enhances their credibility and suggests the presence of a genuine causal relationship. (Marnoto, Silva, & Veiga, 2024).

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6. Discussion

Global environmental challenges, resource constraints, and increasing demand for transparency have led companies to prioritize the environmental pillar of sustainability. This trend necessitates effective environmental initiatives such as Environmental, Social, and Governance (ESG) adoption to not only set the firm's green agenda but also motivate the pursuit of Green Management Capabilities (GMC), defined as the ability of firms to mobilize resources, integrate processes, and promote environmental learning across the value chain. Moreover, pursuing formalized ESG-driven business models can positively influence firm performance through increased operational efficiency, environmental risk reduction, and reputational enhancement, thus leading to yet greater environmental responsibility.

Therefore, the present research utilizes a large-scale dataset covering 142 countries and spanning the years 2008 to 2020. Through fixed-effects panel data econometrics and two-way clustering methodologies, the analysis demonstrates that higher GMC correlates directly with improved financial, operational, and market performance. Furthermore, the adoption of an ESG-driven business model accentuates the positive connection between GMC and operational and market performance. The findings contribute to the academic discourse in the ESG field by clarifying the relationships between green capabilities and business models and establishing specific performance pathways. The research also provides actionable insights for practitioners on the necessity of integrating GMC within the ESG-oriented business model framework. Finally, the investigation advances the agenda of salutary policy debate on the establishment of standardized ESG dissemination models that can drive a virtuous cycle of enhanced capabilities and multiparty corporate engagement in the ESG domain. (Akuma, Akude, Kwaning, & Asiama, 2025)

6.1. Theoretical Implications

The findings enrich resource-based perception of firms' ES-driven integrated business models. They specify how green managerial capacities correspond to superior operational productivity on financial, market, and stock performance. Moreover, they reveal the conditional nature of this relationship, clarifying that green capabilities enhance outcomes more intensely if complemented by ES-driven business models. The model contributes to ES-business model typologies by suggesting that environmentally responsive procedures—beyond issues management—become more relevant the more integrated the model is into the value-creation process and the more companies possess resource-mobilization, process-integration, and environmental-learning capabilities. Empirical support for the positive effect of ESG-driven models on various performance facets extends the literature on the financial relevance of corporate sustainability to the realm of integrated business models. (Hao, Wen, Zhu, Wu, & Hao, 2024).

6.2. Practical Implications for Managers

Green management capabilities support firm performance through pathways involving cost savings, risk management, and enhanced reputation (Ong, Goh, & Yong, 2022). These impacts vary across financial, market, and operational dimensions and are amplified in firms adopting environmental, social, and governance (ESG)-driven business models. Such models

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incorporate sustainability into governance structures, competitive strategies, and value-creating mechanisms to meet heightened stakeholder expectations for corporate responsibility. They can become integrated into practical business processes—including green activities, eco-innovation, sustainable production, circular economy, and design for environment—thereby facilitating the transition to green-management-oriented business practices.

Managerial practices adapted to the interaction among green management capabilities, ESG-driven business models, and firm performance can therefore yield economic benefits while contributing to societal and environmental well-being. Firstly, firms should assess their current level of integration of green-management-related capabilities, rank their significance, and identify specific measures to strengthen or develop them to influence operational efficiency and develop complementary ESG-driven business model components. The degree to which such capabilities have been established can serve as a further selector of governance and business strategies and practices that are most relevant. Secondly, firms need to position ESG-driven business models relative to emerging stakeholder demands—whether they concern environmental, social, or governance issues—and select the channel through which to incorporate the model into operations. Finally, the adoption of process-oriented green-management-related capabilities has a direct positive impact on firms' sustainability-performance benchmarks, particularly those addressing environmental issues, thereby mitigating the risk of pursuing ESG-through-process-oriented strategies that prioritize governance and society over environment and sustainability performance. (Xi, Li, Zhao, & Ding, 2025)

6.3. Policy Implications

Regulatory actions can foster the integration of ESG criteria into business operations and strategies. Authorities can mandate the disclosure of meaningful ESG information, allowing stakeholders to identify companies' ESG-related business practices and drawing attention to ESG-related value creation. They can also provide tax preferences or subsidies for investments that contribute to ESG performance or institute punitive taxes for activities that harm ESG performance (Anbarasan, 2018).

7. Limitations and Future Research

Although the analysis offers valuable insights, several limitations point to fruitful avenues for future inquiry. First, the investigation of green management capabilities, firm performance, and ESG-driven business models relies on a single-country dataset, curtailing generalizability and overlooking vital contextual factors that shape corporate practices (Pogutz, Micale, & Winn, 2011). Extending the empirical focus to contrasting national environments would enhance understanding of the interplay between these constructs.

Second, the econometric model emphasizes direct performance outcomes while excluding broader metrics such as operational health or transaction-based variables (Ong, Goh, & Yong, 2022). Incorporating these dimensions could enrich the theoretical framework by illuminating diverse consequences of green management capabilities and ESG-driven models. Moreover, rather than solely gauging the influence of ESG dimensions on performance, the analysis could examine alternative variables that further determine

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implementation choices among firms.

Third, the investigation considers only a snapshot in time. Employing longitudinal data would facilitate a dynamic view of green management capabilities and ESG-driven business models, elucidating reciprocal effects.

8. Conclusion

While firms generally adopt Green Management Capabilities (GMCs) to improve operational and environmental performance, the lack of robust evidence on their impact on financial performance impedes their effective promotion and integration (Ivascu, Domil, Sarfraz, Bogdan, Burca, & Pavel, 2022). One reason for this inconsistency may lie in the context of adoption. Green practices vary depending on the firm's core activities, and the same may apply to GMCs, but the existence of such dependencies has not been investigated. ESG-driven Business Models (EBMs) have emerged in response to stakeholder concerns about harmful practices (Ong, Goh, & Yong, 2022). Businesses develop governance structures, formulate criterion-based strategic plans, and implement eco-innovation programs that create ESG-related value while reducing harm. Integration of GMCs with EBMs—under an ESG-driven context—may enhance the pathway from GMCs to firm performance. Discussions of GRCs and EBMs—two different approaches to addressing stakeholder concerns about environmental harm—suggest that their combination leads to substantial integrated value; adding similar evidence may help firms adopt solutions more aligned with ESG demands.

The theoretical framework linking GMCs, EBMs, and firm performance opens further avenues for integrating GRC and ESG literature. The GRC literature highlights capabilities for addressing, reducing, and mitigating harmful impacts; performance is rarely included as an outcome. Research linking GRCs and stakeholder pressures explores the mediating role of ESG environmental intensity and suggests analyzing its moderation. Examining the interaction between GMCs and EBMs within an ESG-oriented integration approach and assessing the types and levels of EBMs provides substantial insights into the evolution of capabilities. Empirical results and implications remain valid.

References:

Abu Hussain, M., Alsayegh, M. F., & Boshnak, H. (2025). The Role of ESG Disclosure in Enhancing Profitability and Market Value: Insights from Saudi Arabia's Corporate Landscape. *Maha Faisal and Boshnak, Helmi, The Role of ESG Disclosure in Enhancing Profitability and Market Value*, Insights from Saudi Arabia's Corporate Landscape.

Akuma, J. K., Akude, D. N., Kwaning, E. A., & Asiama, K. A. (2025). Green marketing practices and financial performance of manufacturing firms. *The moderating role of organizational culture. Multidisciplinary Reviews*, 8(1), 2025017-2025017.

Anbarasan, P. (2018). Does Pro-Green Policy and Growth Strategy of an Organization will Bail Out Post-Crisis? *Int'l J. Soc. Sci. Stud.*, 6, 65.

Asiaei, K., Bontis, N., Alizadeh, R., & Yaghoubi, M. (2022). Green intellectual capital and environmental management accounting: Natural resource orchestration in favor of environmental performance. *Business Strategy and the Environment*, 31(1), 76-93.

Bani-Khaled, S., Azevedo, G., & Oliveira, J. (2025). Environmental, social, and governance

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https://www.doi.org/10.56830/IJGMBS062025

(ESG) factors and firm value. *A systematic literature review of theories and empirical evidence*, AMS Review, 1-33.

Doghan, M. A. (2024). Green HRM practices, green capability and green performance: the avenues towards greener economy. *Cogent Business & Management*, 11(1), 2418418.

Hao, X., Wen, S., Zhu, J., Wu, H., & Hao, Y. (2024). Can business managerial capacity improve green innovation in different industries? Evidence from Chinese listed companies. *Business Strategy and the Environment*, 33(3), 2600-2620.

Ivascu, L., Domil, A., Sarfraz, M., Bogdan, O., Burca, V., & Pavel, C. (2022). New insights into corporate sustainability, environmental management and corporate financial performance in European Union: an application of VAR and Granger causality approach. *Environmental Science and Pollution Research*, 29(55), 82827-82843.

Li, Z., Rasool, S., Cavus, M. F., & Shahid, W. (2024). Sustaining the future: How green capabilities and digitalization drive sustainability in modern business. *Heliyon*, 10(1).

Long, H., Feng, G. F., Gong, Q., & Chang, C. P. (2023). ESG performance and green innovation: An investigation based on quantile regression. *Business Strategy and the Environment*, 32(7), 5102-5118.

Marnoto, S., Silva, C., & Veiga, P. M. (2024). Beyond profit in family businesses: ESG-driven business model innovation and the critical role of digital capabilities. *Journal of Family Business Management*.

Masoumik, S. M., Abdul-Rashid, S. H., & Olugu, E. U. (2014). Gaining competitive advantage through strategic green supply chain management: From a literature review towards a conceptual model. *International Journal of Supply Chain Management*, 3(3), 49-58.

Mukhtar, B., Shad, M. K., Lai, F. W., & Waqas, A. (2024). Empirical analysis of ESG-driven green innovation: the moderating role of innovation orientation. *Management & Sustainability: An Arab Review*, , 3(4), 361-384.

Ong, J. W., Goh, G. G., & Yong, S. H. (2022). The impact of green practices in value chain on firm performance in the context of a developincountry. *F1000Research*, 11, 264.

Pogutz, S., Micale, V., & Winn, M. (2011). Corporate environmental sustainability beyond organizational boundaries: Market growth, ecosystems complexity and supply chain structure as co-determinants of environmental impact. *Journal of Environmental Sustainability*, 1(1), 4.

Xi, Q., Li, Z., Zhao, J., & Ding, J. (2025). How Can Technology Orientation Promote Green Process Innovation? The Mediating Effect of Digital Capability and the Moderating Role of Innovation-Oriented Leadership. *Sustainability*, 17(9), 4071.