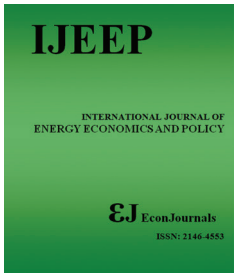

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The Mediating Role of Green Accounting Management on Financial Performance: Integrated Stakeholder Theory and Natural Resource-Based View

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ABSTRACT

This study investigates the impact of Integrated Environmental Policy (IEP) and Industrial Ecosystem Adaptability and Strategic Environment (IEAS) on Financial Performance (FP) through Green Accounting Management (GAM) as a mediating variable. The research applies the Stakeholder Theory and the Natural Resource-Based View (NRBV) Theory to understand how environmental strategies influence corporate financial outcomes. Data was collected from seven major banks, and the analysis was conducted using structural equation modeling (SEM) to assess direct, indirect, and total effects. The findings demonstrate that IEP significantly affects GAM, and GAM in turn has a substantial impact on FP. Additionally, the results confirm that IEP and IEAS directly influence FP, with GAM playing a key mediating role. Specifically, IEP's dimension environmental regulation, environmental incentives, environmental monitoring and assessment, and community empowerment—positively influence GAM, which in turn improves financial performance. Similarly, IEAS, with its dimensions of industry competition level, industrial environmental properties, and industrial resilience, shows a significant effect on GAM and subsequently on FP. The study suggests that effective integration of environmental policies and the adaptability of the industrial ecosystem, through GAM, can enhance a company's financial performance. By applying the Stakeholder Theory, it underscores the importance of considering various stakeholders' interests, while the NRBV Theory emphasizes the strategic use of environmental resources for long-term competitiveness. These findings provide valuable insights for policymakers and business leaders seeking to leverage environmental strategies for both sustainability and profitability. This research contributes to the existing literature by highlighting the pivotal role of Green Accounting Management as a mediating factor in the relationship between environmental strategies and financial performance, offering practical implications for the banking industry and beyond.

Keywords: Integrated Environmental Policy, Green Accounting Management, Industrial Ecosystem Adaptability, Financial Performance, Natural Resource-Based View Theory
JEL Classifications: Q56, M21, G32, O44, Q01.

1. INTRODUCTION

Environmental concerns have become an integral aspect of modern corporate governance and financial performance, as companies are increasingly held accountable for their environmental impact (Rogers and Kristof, 2003); (Lestari et al., 2024). The urgency to address global environmental challenges such as climate change, resource depletion, and pollution has prompted businesses to integrate sustainability into their strategic frameworks (Alshehhi et al., 2018). This transformation has led to the emergence of green accounting management, a practice that encompasses the identification, measurement, and reporting of environmental costs and benefits within a company's operations. Green accounting management acts as a bridge, enabling

organizations to align environmental objectives with economic goals, thereby enhancing long-term financial performance and sustainability (Riyadh et al., 2020).

The core premise of green accounting is to internalize environmental costs that were previously externalized, allowing businesses to make more informed decisions and take ownership of their environmental impact (Moorthy and Yacob, 2013); (Riyadh et al., 2020). By incorporating these environmental costs into their financial reporting, companies can gain a comprehensive understanding of the true costs associated with their operations and identify opportunities for cost reduction and efficiency improvements (Sumiati et al., 2022). One of the key aspects of green accounting management is the identification and internalization of environmental costs, which can have a significant impact on a company's financial performance. However, some argue that the integration of environmental costs into a company's financial reporting may not always lead to improved decision-making or enhanced profitability. (Moorthy and Yacob, 2013); (Riyadh et al., 2020) This approach can be criticized for oversimplifying the complex relationship between environmental impact and financial performance, as other factors such as market competition, regulatory frameworks, and customer preferences may play a more influential role. (Sumiati et al., 2022); (Repetto and Austin, 2002) Additionally, the implementation of green accounting practices can be resource-intensive, potentially outweighing the benefits for some organizations. Ultimately, the impact of green accounting on a company's financial performance remains a topic of debate, and its efficacy may vary across different industries and business environments.

Despite the challenges, green accounting has the potential to drive meaningful changes in the way companies approach environmental sustainability. By aligning environmental and financial objectives, businesses can identify opportunities to reduce costs, enhance operational efficiency, and mitigate environmental risks, ultimately leading to improved long-term financial performance and sustainability (Lutfillah and Amadea, 2022); (Repetto and Austin, 2002). The adoption of green accounting practices can have a direct influence on a company's profitability, as demonstrated by research studies. However, the nature and extent of this impact may vary across different industries and sectors, depending on factors such as the industry's environmental footprint, regulatory frameworks, and customer preferences (Riyadh et al., 2020). By incorporating environmental costs into their financial reporting, companies can gain a better understanding of their true cost structure, which can inform their pricing strategies and ultimately impact consumer fees.

The interplay between environmental regulations, industrial adaptability, and strategic environmental management has garnered substantial attention from academics and professionals (Xing et al., 2020); (Chen et al., 2022). Environmental policies function as regulatory frameworks that enforce sustainability standards and promote environmentally friendly practices. Concurrently, industrial ecosystem adaptability emphasizes the capacity of organizations to proactively respond to environmental changes by fostering innovation and adopting sustainable technologies (Tiwari et al., 2020). Strategic environmental management complements these efforts by integrating environmental considerations into the decision-making processes of organizations. While these elements individually hold significant impact, their collective influence on financial performance remains underexplored, particularly when mediated by green accounting management. This gap underscores the need for a nuanced understanding of how green accounting practices can harmonize environmental and financial priorities.

In Asia, rapid industrialization and urbanization have significantly amplified environmental challenges, making sustainability a pressing issue for governments and corporations alike. Countries such as China, India, and Japan have faced intense scrutiny over their environmental footprints (Zhang, 2008). For instance, China's implementation of strict environmental policies like the "Green GDP" initiative and India's focus on renewable energy highlight a growing commitment to balancing economic growth with environmental sustainability. However, these policies also underscore the challenges faced by industries in adapting to stringent regulations while maintaining profitability (Acharya and Sequeira, 2012). Green accounting has emerged as a critical tool in navigating these challenges, offering a framework for companies to quantify environmental costs and benefits while enhancing stakeholder transparency. Southeast Asia, as a region rich in biodiversity and natural resources, faces unique environmental challenges that stem from deforestation, marine pollution, and carbon emissions. Countries like Malaysia, Thailand, and Vietnam have implemented environmental policies to mitigate these impacts, such as promoting green industries and adopting renewable energy solutions (Lim et al., 2021). However, the region's reliance on resource-based industries, such as agriculture and mining, has made it particularly vulnerable to environmental degradation. In this context, industrial ecosystem adaptability becomes crucial for fostering sustainable development. The integration of green accounting practices in Southeast Asia is still in its nascent stages but shows promise as companies begin to recognize its potential in enhancing environmental compliance and financial resilience (Herzig et al., 2012).

In Indonesia, the world's largest archipelagic state and a key player in the global supply chain, environmental issues have become increasingly prominent. Indonesia faces significant challenges, including deforestation, air pollution, and marine ecosystem degradation, driven by industries such as palm oil, coal mining, and fisheries. The government has introduced policies like the Green Economy Framework and mandatory Environmental Impact Assessments (AMDAL) to address these issues (Sustainable Development for the Future, 2023); (Kharis, 2023). However, the implementation of these policies is often hindered by regulatory inconsistencies and weak enforcement mechanisms. Within this context, green accounting management holds immense potential for bridging the gap between policy intent and industrial practice. By facilitating accurate measurement and reporting of environmental costs, green accounting can enable Indonesian firms to align their operations with sustainability objectives while

improving financial performance. Despite these advancements, many companies across Asia, Southeast Asia, and Indonesia struggle to adapt to the dual pressures of regulatory compliance and market competitiveness. This phenomenon highlights the need for a systematic approach to integrating environmental policies into corporate strategies. Green accounting management can serve as a mediating mechanism that translates environmental objectives into actionable business practices, thereby fostering industrial ecosystem adaptability and strategic environmental management. Moreover, the increasing demand for sustainable investments in these regions underscores the financial incentives for adopting green accounting practices, as companies that demonstrate environmental responsibility often attract greater investor confidence and capital inflows.

Empirical research on green accounting has laid a robust foundation for understanding its impact on corporate performance. Studies have shown that integrating environmental costs into financial reporting enhances transparency, stakeholder trust, and operational efficiency. Furthermore, research indicates that firms employing green accounting practices are better equipped to comply with regulatory requirements, minimize risks, and capitalize on opportunities within the green economy. However, the literature remains fragmented, with limited emphasis on the interplay between environmental policies, industrial adaptability, and strategic management. Specifically, the role of green accounting as a mediating variable in this dynamic has not been thoroughly investigated, leaving a critical gap in the existing body of knowledge (Chen et al., 2021); (Xing et al., 2020).

This study aims to address the gap in the literature by examining the mediating influence of green accounting management in connecting environmental policy, industrial ecosystem adaptability, and strategic environmental management to a company's financial performance. Drawing on previous research, the study employs a quantitative descriptive approach to investigate the relationships among these variables and their implications for corporate financial outcomes. By building upon a robust theoretical framework and empirical data, this research endeavors to contribute to the expanding body of knowledge on sustainable business practices and their financial implications.

Theoretical insights further underscore the importance of green accounting management in navigating the complex interplay between environmental policies, industrial adaptability, and corporate strategy. This study draws on two complementary frameworks—Stakeholder Theory and the Natural Resource-Based View (NRBV)—to provide a robust theoretical foundation for understanding the mediating role of green accounting management. Stakeholder Theory posits that organizations must address the diverse interests of their stakeholders, including shareholders, governments, communities, and environmental advocates (Mitchell et al., 2015). In this context, green accounting management functions as a critical mechanism for enhancing transparency and accountability, enabling companies to demonstrate their commitment to sustainable practices. By systematically measuring and reporting environmental costs and benefits, green accounting management helps bridge the gap between stakeholder expectations and corporate actions, fostering trust and long-term support from stakeholders. Complementing this perspective, the NRBV emphasizes the strategic value of environmental stewardship in achieving competitive advantage. By embedding green accounting practices into operational and strategic frameworks, companies can effectively monitor pollution prevention, product stewardship, and sustainable resource utilization. These practices not only enhance environmental compliance but also drive innovation and efficiency, positioning firms as leaders in sustainability-driven markets. Through the lens of NRBV, green accounting management is not merely a compliance tool but a strategic enabler that aligns environmental and financial goals. The integration of Stakeholder Theory and NRBV highlights green accounting management as both a moral and strategic imperative for organizations. While Stakeholder Theory provides the moral and social rationale for prioritizing environmental considerations, NRBV reinforces the strategic benefits of leveraging green accounting to enhance adaptability and resilience in a dynamic business environment. This dual perspective underscores the central role of green accounting management in mediating the relationships among environmental policy, industrial ecosystem adaptability, strategic environmental management, and financial performance.

Despite the rich theoretical and empirical contributions of both frameworks, significant gaps remain in the literature. Existing studies often examine environmental policy, industrial adaptability, and strategic management in isolation, neglecting the integrative role of green accounting management. Moreover, limited research has explicitly investigated how the synergy between Stakeholder Theory and NRBV can inform the design and implementation of green accounting practices. This gap is particularly pronounced in emerging economies such as those in Asia, Southeast Asia, and Indonesia, were unique environmental challenges and regulatory landscapes shape corporate strategies. By addressing these gaps, this study aims to advance the understanding of how green accounting management mediates the dynamic interactions between environmental and financial imperatives. The research contributes to the theoretical discourse by demonstrating how the intersection of Stakeholder Theory and NRBV can provide a comprehensive framework for analyzing and enhancing corporate sustainability.

The primary objective of this study is to elucidate the mechanisms through which green accounting management facilitates the alignment of environmental and financial goals. Specifically, the research seeks to: (1) analyze the direct impact of environmental policy, industrial ecosystem adaptability, and strategic environmental management on financial performance; (2) investigate the mediating role of green accounting management in these relationships; and (3) provide actionable insights for practitioners seeking to enhance financial performance through sustainable practices. By addressing these objectives, the study aims to bridge the gap between environmental management and financial strategy, offering a comprehensive perspective on the value of green accounting in contemporary business.

2. LITERATURE REVIEW

2.1. Integrated Environmental Policy on Green Accounting Management (GAM) and Financial Performance (FP)

Environmental policies have evolved significantly over the past decades, transitioning from isolated, sector-specific approaches to more holistic frameworks known as Integrated Environmental Policy (IEP). IEP refers to a systematic approach that seeks to harmonize environmental objectives with economic and social goals by integrating sustainability considerations across all levels of policy and decision-making. Unlike traditional environmental policies that often operate in silos, IEP emphasizes interconnectedness, encouraging multi-stakeholder collaboration, adaptive management, and the use of innovative tools like green accounting management to measure and monitor progress (Massard et al., 2018).

The implementation of IEP has had varied impacts on industrial ecosystems, with some firms demonstrating higher adaptability and resilience than others. Factors such as technological capabilities, organizational culture, and access to resources can influence how individual firms and industrial clusters respond to environmental policies. Adaptable firms may leverage green accounting practices to enhance transparency, facilitate compliance, and drive strategic environmental initiatives, ultimately improving their financial performance.

IEP is defined as a comprehensive framework that aligns environmental policies with broader economic and social strategies to achieve sustainable development (Jamous and Müller, 2013). According to Lafferty and Hovden (2003) integration in environmental policy is characterized by the incorporation of environmental concerns into all sectors of public policy, ensuring that sustainability is a guiding principle in decision-making. Similarly, Persson et al. (2018) describe IEP as a dynamic process that requires institutional collaboration, cross-sectoral policy alignment, and mechanisms to evaluate environmental and socio-economic trade-offs. At the organizational level, IEP manifests through the adoption of strategic environmental management practices that go beyond compliance with environmental regulations (Lafferty and Hovden, 2003). Strategic environmental management encompasses a proactive and comprehensive approach to integrating environmental considerations into an organization's core business functions. This involves not only aligning product design, operations, and stakeholder engagement with sustainability principles, but also embedding environmental stewardship into the organization's overall strategic decision-making processes. Maxwell et al. (1997) By adopting a holistic view of environmental management, firms can leverage their resources and capabilities to drive innovation, enhance operational efficiency, and strengthen stakeholder relationships - all while positioning themselves as leaders in sustainability-driven markets. While this holistic approach to environmental management can indeed offer potential benefits, there are also considerable challenges associated with embedding environmental stewardship into an organization's strategic decision-making processes. Integrating sustainability principles across product design, operations, and stakeholder engagement requires significant investments of time, resources, and organizational change. Firms may face resistance from internal stakeholders, struggle to quantify the financial returns of such initiatives, and find it difficult to balance environmental goals with other pressing business priorities. Moreover, positioning oneself as a sustainability leader is no guarantee of market success, as consumer preferences and regulatory landscapes can shift rapidly. Ultimately, the decision to pursue a holistic environmental management strategy must be carefully evaluated against the specific context and constraints facing each organization.

From the perspective of Stakeholder Theory, IEP serves as a mechanism to address the diverse expectations of stakeholders by ensuring that environmental considerations are integrated into corporate and public policies. Freeman (1995) argues that organizations must balance the interests of multiple stakeholders, and IEP provides a structured way to achieve this balance by aligning environmental objectives with societal and economic needs. However, critics argue that Stakeholder Theory can be too broad and lacks clear guidelines on how to prioritize and reconcile the often-conflicting interests of various stakeholders. There are concerns that the theory may lead to suboptimal decision-making if not implemented carefully, as firms may struggle to balance environmental goals with other pressing business priorities. Additionally, the theory has been criticized for not providing a clear framework for measuring and evaluating the tradeoffs between different stakeholder interests. To address these limitations, some scholars have proposed integrating Stakeholder Theory with other management frameworks, such as the Balanced Scorecard, to provide a more structured approach to environmental management and decision-making (Saleem et al., 2020).

Stakeholder engagement is central to the success of IEP. Policies that incorporate stakeholder input are more likely to gain widespread acceptance and achieve their objectives. For instance, research by Hansen and Klewitz (2014) highlights that companies integrating stakeholder feedback into their environmental strategies report higher levels of compliance and innovation. IEP aligns closely with the Natural Resource-Based View (NRBV) by emphasizing the strategic importance of environmental stewardship. Hart (1995), the originator of NRBV, posits that firms can achieve a competitive advantage by adopting strategies that prioritize pollution prevention, product stewardship, and sustainable development. IEP facilitates these strategies by creating a policy environment that encourages innovation and resource efficiency.

For instance, a study by Triebswetter and Wackerbauer, (2008) demonstrates that firms implementing integrated policies are more likely to develop capabilities that reduce environmental impact while enhancing operational efficiency. Similarly, Porter and van der Linde (1995) argue that well-designed environmental policies can stimulate innovation, leading to cost reductions and improved market positioning (Ramanathan et al., 2016). These findings underscore the role of IEP in enabling firms to align their operations with NRBV principles, thereby achieving both environmental and financial gains. While the NRBV provides a

useful theoretical lens, it has been critiqued for its focus on internal firm-level resources and capabilities, potentially overlooking the role of external factors like stakeholder pressure and regulatory environments. Polonsky (1970) and (Putra et al., 2024) argue for a more stakeholder-centric view, emphasizing that firms must balance the interests of various stakeholders, including environmental groups, regulators, and local communities, to successfully implement environmental strategies. Thus, the hypothesis we propose in this section is:

H_1: There is a significant relationship between Integrated Environmental Policy (IEP) on Green Accounting Management (GAM).

H_2: There is a significant relationship between Integrated Environmental Policy (IEP) on Financial Performance (FP).

H_3: The mediating variable green accounting management (GAM) strengthens the positive and significant relationship between Integrated Environmental Policy (IEP) on Financial Performance (FP).

2.2. Industrial Ecosystem Adaptability and Strategic Environment on Green Accounting Management (GAM) and Financial Performance (FP)

Industrial ecosystem adaptability refers to an organization's capacity to respond effectively to changes in environmental, technological, and market conditions within its industrial ecosystem. It emphasizes resilience and the ability to integrate environmental considerations into operational and strategic decision-making processes. Studies highlight that adaptable industrial ecosystems enable firms to align their operations with environmental sustainability while maintaining competitiveness (Zhu and Rüth, 2013). Research by Lombardi and Laybourn (2012); Chertow (2000) underscores the role of adaptability in fostering industrial symbiosis, where companies within an ecosystem collaborate to optimize resource efficiency and minimize environmental impact. For example, industries that adopt adaptive practices, such as waste recycling and resource sharing, often report improved environmental and financial performance (Neves et al., 2019); (Earley, 2015). These practices, however, require robust systems for tracking and reporting environmental data function effectively served by green accounting management.

From the perspective of Natural Resource-Based View (NRBV), adaptability within industrial ecosystems is a strategic asset. Hart (1995) argues that firms capable of adapting to environmental changes can achieve competitive advantages through resource optimization and innovation. Similarly, Stakeholder Theory highlights the importance of adaptability in addressing the expectations of diverse stakeholders, particularly in industries subject to stringent environmental regulations (Chin and Tan, 2015) highlights the link between firm-level adaptability and overall ecosystem resilience, emphasizing the need for organizations to develop dynamic capabilities to navigate complex, interdependent systems. Strategic environment refers to the external and internal contexts in which organizations formulate and implement strategies to achieve long-term goals (Annarelli and Nonino, 2015). The strategic environment encompasses regulatory frameworks, market trends, technological advancements, and stakeholder demands, all of which influence an organization's approach to sustainability. A proactive strategic environment aligns closely with green accounting management, as it necessitates comprehensive tools to evaluate and communicate environmental performance (Moorthy and Yacob, 2013).

Studies by Klassen and Whybark (1999) further demonstrate that firms adopting strategic environmental practices tend to outperform their peers financially, as these practices reduce risks and create value through sustainability-driven innovation. Klassen and Whybark (1999); (Corbett and Klassen, 2006) Green accounting systems enable firms to gather, analyze, and report environmental data, allowing them to make informed decisions that align with strategic environmental objectives. Green accounting management plays a pivotal role in linking industrial ecosystem adaptability and strategic environment to financial performance (Riyadh et al., 2020). GAM provides the framework for quantifying environmental costs and benefits, enabling firms to make data-driven decisions that align with their sustainability and financial objectives. Empirical studies support the mediating role of GAM in this relationship. For instance, Derchi et al. (2013); (Molina-Azorín et al., 2009); (Aguilera-Caracuel and Ortiz-de-Mandojana, 2013) found that firms integrating green accounting practices reported improved environmental compliance and cost management, particularly in industries with high environmental impact.

Debnath (2017); (Riyadh et al., 2020) and (Delmas et al., 2011) demonstrated that the implementation of GAM systems enhanced operational efficiency and resource optimization, leading to positive financial outcomes. Furthermore, scholars argue that GAM empowers firms to communicate their environmental performance to stakeholders, strengthening legitimacy and access to resources (Moorthy and Yacob, 2013); (Yakhou and Dorweiler, 2004). In summary, the extant literature suggests that green accounting management serves as a critical link between industrial ecosystem adaptability, strategic environment, and financial performance, enabling firms to navigate the complex and evolving landscape of environmental sustainability.

These findings underscore the significance of GAM in operationalizing adaptability and strategic environmental actions, ensuring that organizations achieve a balance between sustainability and profitability. Financial performance (FP) remains a critical measure of organizational success, and its relationship with environmental initiatives has been the subject of extensive research. The adoption of GAM within adaptable industrial ecosystems and proactive strategic environments has been shown to enhance Financial Performance through various mechanisms likes, Green Accounting Management enables firms to identify inefficiencies and reduce operational costs by optimizing resource use (Moorthy and Yacob, 2013). By providing a transparent system for monitoring environmental compliance. Green accounting helps firms mitigate regulatory and reputational risks (Caraiani et al., 2007); (Tantua et al., 2023). Besides that, firms leveraging Green Accounting to demonstrate sustainability commitments often gain competitive advantages in markets where consumers prioritize environmentally responsible products (Fleischman and Schuele, 2006); (Tu and Huang, 2015); (Caraiani

et al., 2007). From the Stakeholder Theory perspective, improving financial performance through sustainability initiatives reflects the alignment of corporate objectives with stakeholder interests. Meanwhile, NRBV supports the notion that financial gains derived from environmental initiatives are a result of strategic resource utilization and innovation. Thus the hypothesis we propose in this section is:

H_4: There is a significant relationship between Industrial Ecosystem Adaptability and Strategic Environment (IASE) on Green Accounting Management (GAM).

H_5: There is a significant relationship between Industrial Ecosystem Adaptability and Strategic Environment (IASE) on Financial Performance (FP).

H_6: The mediating variable green accounting management (GAM) strengthens the positive and significant relationship between Industrial Ecosystem Adaptability and Strategic Environment (IASE) on Financial Performance (FP).

2.3. Green Accounting Management (GAM) on Financial Performance (FP)

The existing literature suggests that green accounting management plays a pivotal role in mediating the relationship between industrial ecosystem adaptability, strategic environmental orientation, and financial performance. Firms that have implemented robust green accounting systems have demonstrated improved operational efficiency, enhanced regulatory compliance, and stronger stakeholder relationships, all of which contribute to enhanced financial performance (Riyadh et al., 2020); (Tantua et al., 2023); (Tu and Huang, 2015). Specifically, green accounting management enables organizations to: Identify and quantify environmental costs and benefits, facilitating data-driven decision making that optimizes resource use and minimizes environmental impact (Moorthy and Yacob, 2013); (Sumiati et al., 2022). Communicate environmental performance transparently to stakeholders, strengthening corporate legitimacy and access to resources (Moorthy and Yacob, 2013); (Tantua et al., 2023). Align sustainability initiatives with strategic objectives, ensuring that environmental investments generate tangible financial returns. (Tantua et al., 2023); (Tu and Huang, 2015). By incorporating these green accounting practices, firms are better equipped to navigate the complex, interdependent landscape of environmental sustainability, fostering adaptability within their industrial ecosystems and aligning with proactive strategic environments. Thus, the hypothesis we propose in this section is:

H_6: There is a significant relationship between green accounting management (GAM) on Financial Performance (FP).

Based on the results of the studies that we have reviewed in this literature review section; we describe the conceptual framework of our research as shown in Figure 1.

3. RESEARCH METHODS

This study will employ a quantitative research design to investigate the relationships between industrial ecosystem adaptability and strategic environment, green accounting management, and financial performance. To gather data, the researchers will conduct a comprehensive survey targeting internal industries with 183 respondents. The survey instrument will assess the key constructions of the proposed model, including industrial ecosystem adaptability, strategic environment, green accounting management, and financial performance which we explain in full in Table 1. Additionally, the researchers will collect secondary data from company sustainability reports, financial statements, and other publicly available sources to validate and complement the primary survey data.

The sampling strategy will focus on large multinational corporations across diverse industries, given their significant environmental impact and investment in sustainability initiatives. To ensure statistical robustness and representativeness, a sample size of 7 companies from the banking sector will be considered. The inclusion criteria for the sample will be the availability of financial data and information on environmental accounting practices (e.g., PT. Bank BNI, PT. Mandiri, PT. Bank Danamon, PT. Bank BRI, PT. Bank BTN, PT. Bank Bukopin, and PT. Bank BCA), which are listed on the Indonesia Stock Exchange. This study will analyze the financial performance of the seven largest banking companies in Indonesia, which are publicly listed on the Indonesia Stock Exchange. The data collection will be conducted through secondary sources, primarily the financial statements of the research companies. The time period for data collection will span 3 years, from 2019 to 2023.

In this study, the researchers will employ the Partial Least Squares method and utilize the SmartPLS 3.0 software to analyze the data. This analytical approach will allow for the simultaneous assessment of the hypothesized relationships among the key constructs, including any potential mediating effects of green accounting management. Additionally, the researchers will conduct various robustness checks, such as sensitivity analyses and alternative model specifications, to ensure the reliability and validity of

Figure 1: Conceptual framework

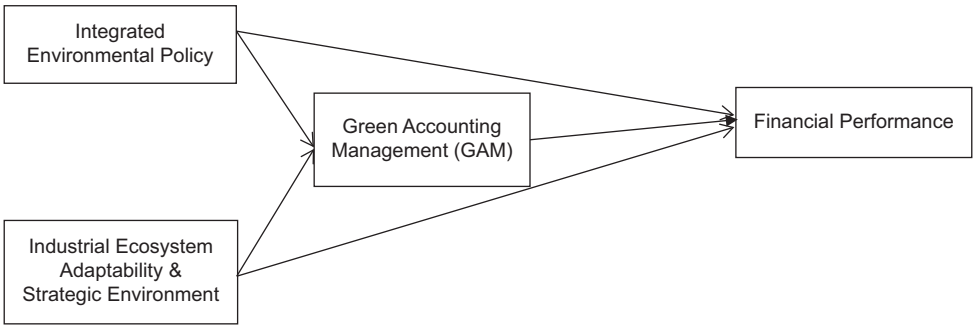

Table 1: Dimensions and measurement of variables

Variables	Dimensions	Items
Integrated Environmental Policy	• Environmental Regulation (Zhou et al., 2020)	• To what extent do you feel that existing regulations provide sufficient incentives for companies or individuals to implement environmentally friendly practices? • The extent to which law enforcement against environmental violations is strong and consistent.
	• Environmental Incentives (May, 2005)	• Do you think these incentives are attractive enough to drive environmental behavior change? • What is the level of accessibility or ease of utilizing these environmental incentives?
	• Environmental Monitoring and Assessment (Alm and Shimshack, 2014)	• Frequency and accuracy of environmental audits of companies. • Effectiveness of environmental monitoring systems to track pollution and other impacts.
	• Dimensions of Community Empowerment (Goetz, 2010)	• Do you think community participation in decision-making related to environmental or development activities has improved recently? • Do you think there are enough opportunities for skills development or capacity building for communities in managing local resources? • What is the role and accessibility of open information related to community empowerment programs or activities in your neighborhood?
Industrial Ecosystem Adaptability and Strategic Environment	• Industry Competition Level • Industrial Environmental Properties (Benjamin et al., 2003)	• What is the level of rivalry among existing firms in the industry? • Industrial environmental responsibility is crucial. Companies should prioritize effective waste management practices. • To what extent do the industries in your vicinity comply with relevant environmental regulations?
	• Industrial Resilience (Das, 2020)	• How aware is the industry of using renewable and environmentally friendly natural resources? • How extensively do industries utilize technological innovations to mitigate environmental harm?
Green Accounting Management (GAM)	• Environmental Accounting Disclosures	• How often do companies or organizations in your industry provide information on the environmental impacts of their operations? • What is the level of detail or disclosure provided on waste management, emissions or natural resource use in their reports?
	• Environmental Performance Measurement	• What is the level of suitability or relevance of the environmental performance indicators used to the needs of the company or industry? • Do you think environmental performance measurements provide a comprehensive understanding of the level of sustainability of the company's operations? (Solovida and Latan, 2017)
Financial Performance		• RoE TTM • RoE 5YA • RoA TTM • RoA 5YA • RoI TTM • RoI 5YA • TTM gross margin • 5YA Gross Margin • TTM operating margin • 5YA operating margin • TTM pre-tax margin • 5YA pre-tax margin • Net profit margin TTM • 5YA Net profit margin • Earnings/Share TTM • ANN Ordinary EPS • ANN Diluted EPS • MRQ Asset Value/Share • Fixed asset value/share MRQ • Cash/MRQ Shares • Cash Flow/Share TTM • EPS (MRQ) vs 1st Quarter Last Year MRQ • EPS (TTM) vs TTM 1 Year ago TTM • 5-Year EPS Growth 5YA • Sales (MRQ) vs Last 1Q MRQ • Sales (TTM) vs TTM 1 Year ago TTM • 5-Year 5YA Sales Growth • 5-Year Capital Expenditure Growth 5YA (Lee et al., 2021a; Tian et al., 2020)

the study's findings. Furthermore, the researchers will utilize structural equation modeling techniques to analyze the collected data and investigate the hypothesized relationships among the key variables. This analytical approach will enable them to assess both the direct and indirect impacts of industrial ecosystem adaptability, strategic environment, and green accounting management on financial performance. (Freeman and Reed, 1983) (Ardillah, 2020). The researchers will also undertake various robustness checks, including sensitivity analyses, alternative model specifications, and evaluations of common method bias, to further strengthen the reliability and validity of the study's findings.

4. RESULTS AND DISCUSSION

4.1. Data Results

Table 2 presents the distribution of respondents based on several demographic characteristics, including the bank they work for, their job position, gender, age, and educational level. The total number of respondents in this study is 183. In terms of the banks where respondents are employed, Bank BCA has the highest number of respondents, with 39 individuals, accounting for 21.3% of the total sample, followed by Bank Bukopin with 36 respondents (19.7%). On the other hand, Bank Mandiri has the lowest number of respondents, with only 20 individuals, representing 10.9% of the total sample. Other banks, such as Bank Danamon, Bank BRI, Bank BTN, and Bank BNI, have a relatively balanced distribution, with each accounting for 13-14% of the respondents. Regarding job positions, the Account Officer position stands out as the most represented, with 57 individuals, comprising 31.1% of the total sample. This is significantly higher than other positions. The positions with the fewest respondents are Junior Account Officer and Teller, both of which have 6 respondents each, or 3.3%. Other positions, such as Staff, Credit Analyst, and Customer Service, each account for between 6% and 13% of the sample. In terms of gender, there is a noticeable disparity, with most respondents being male, totaling 116 individuals (63.4% of the total sample), while female respondents make up 67 individuals, or 36.6%.

Table 2: Respondent measurement (n=183)

Bank	Total	%
Bank Bukopin	36	19.7
Bank BRI	25	13.7
Bank BCA	39	21.3
Bank Mandiri	20	10.9
Bank Danamon	26	14.2
Bank BNI	13	7.1
Bank BTN	24	13.1
Job position	**Total**	**%**
Investment Banker	9	4.9
Back Office	11	6.0
Staff	25	13.7
Credit Analyst	17	9.3
Teller	6	3.3
Customer Service	13	7.1
Sales Officer	11	6.0
Junior Account Officer	6	3.3
Account Officer	57	31.1
Manager	11	6.0
Supervisor	7	3.8
General Account Officer	10	5.5
Gender	**Total**	**%**
Man	116	63.4
Woman	67	36.6
Age (Years)	**Total**	**%**
<30	41	22.4
31-40	89	48.6
41-50	46	25.1
>50	7	3.8
Education level	**Total**	**%**
Bachelor	109	59.6
Magister	51	27.9
Diploma	23	12.6

Regarding age, many respondents fall within the age group of 31-40 years, with 89 individuals (48.6% of the total sample). This indicates that many respondents are in their middle working years. The under 30 years age group includes 41 individuals (22.4%), while 46 respondents (25.1%) fall within the 41-50 years range. Only a small proportion of respondents are over 50 years old, with just 7 individuals (3.8%). In terms of educational background, the majority of respondents hold a Bachelor's degree, with 109 individuals (59.6%). A total of 51 individuals (27.9%) has a Master's degree, and 23 individuals (12.6%) hold a Diploma. This indicates that a large proportion of respondents have higher education, with more than half possessing a Bachelor's degree.

Table 3 presents the financial performance of Bank BNI, comparing its trailing 12 months (TTM) with the 5-year average (5YA). The bank shows improvement in key profitability indicators, with Return on Equity (RoE) rising from 14.95% (TTM) to 18.14% (5YA), and Return on Assets (RoA) increasing from 2.11% (TTM) to 2.88% (5YA). Return on Investment (RoI) also grew from 9.26%

Table 3: Financial performance bank BNI

BNI	TTM	5YA
RoE TTM	14,95	18,14
RoE 5YA	11	14,11
RoA TTM	2,11	2,88
RoA 5YA	1,49	2,27
RoI TTM	9,26	13,44
RoI 5YA	6,78	10,78
TTM gross margin	-	1,35
5YA Gross Margin	0	1,35
TTM operating margin	47,32	49,17
5YA operating margin	37,39	38,89
TTM pre-tax margin	51,69	51,68
5YA pre-tax margin	40,61	42,02
Net profit margin TTM	41,66	40,49
5YA Net profit margin	32,3	24,43
Earnings/Share TTM	1,311,28	926,19
ANN Ordinary EPS	491,25	348,69
ANN Diluted EPS	491,25	348,49
MRQ Asset Value/Share	3,828,2	2,174,55
Fixed asset value/share MRQ	3,808,19	2,152,59
Cash/MRQ shares	1,400,88	695,11
Cash flow/share TTM	−1,873,02	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	11,48	45,6
EPS (TTM) versus TTM 1 year ago TTM	20,84	32,89
5-year EPS growth 5YA	6,12	10,85
Sales (MRQ) versus last 1Q MRQ	3,34	16,74
Sales (TTM) versus TTM 1 year ago TTM	15,52	23,26
5-year 5YA sales growth	5,17	12,48
5-year capital expenditure growth 5YA	4,94	23,52

to 13.44%. Operating and pre-tax margins remain strong, with a slight improvement in operating margin from 47.32% (TTM) to 49.17% (5YA). Net profit margin increased to 41.66% (TTM) from 40.49%, indicating higher profitability. However, cash flow per share remains negative in both TTM and 5YA, signaling liquidity concerns. Earnings per share (EPS) showed significant growth, reaching 1,311.28 (TTM) compared to 926.19 (5YA). Sales growth remains strong, with a 15.52% increase in TTM and a 5-year growth of 12.48%. Capital expenditures also saw a notable rise, growing by 23.52% over the last 5 years.

Table 4 presents the financial performance of Bank Mandiri, comparing its trailing 12 months (TTM) with the 5-year average (5YA). In terms of profitability, Return on Equity (RoE) is 14.95% in TTM, slightly below the 18.14% of the 5YA, indicating a decline in recent performance compared to the past 5 years. Similarly, Return on Assets (RoA) decreased from 2.88% (5YA) to 2.11% (TTM), while Return on Investment (RoI) dropped from 13.44% (5YA) to 9.26% (TTM), reflecting a decline in the bank's ability to generate returns on its assets and investments in the most recent period. Regarding margins, operating margin is strong at 47.32% (TTM), higher than the 37.39% (5YA), and the pre-tax margin remains stable at around 51.69% (TTM), compared to 42.02% (5YA). The net profit margin also shows improvement, rising to 41.66% (TTM) from 32.3% (5YA), indicating increased profitability. Earnings per share (EPS) improved significantly from 926.19 (5YA) to 1,311.28 (TTM), signaling better financial performance. However, cash flow per share remains negative, with −1,873.02 in TTM and −680.44 in 5YA, suggesting ongoing liquidity issues. Sales growth has been relatively strong, with a 15.52% increase in sales (TTM) compared to 23.26% in the previous year. Over the past 5 years, capital expenditure growth is robust at 23.52%, signaling a strong investment trajectory.

Table 5 presents the financial performance of Bank BRI, comparing its trailing 12 months (TTM) with the 5-year average (5YA). Bank BRI demonstrates positive growth in Return on Equity (RoE), which has increased from 18.14% (TTM) to 18.57% (5YA), showing improved profitability in the most recent period compared to the past 5 years. Return on Assets (RoA) also improved from 2.88% (5YA) to 3.18% (TTM), indicating better utilization of assets to generate profits. Similarly, Return on Investment (RoI) increased from 8.44% (5YA) to 9.66% (TTM), reflecting stronger returns on investments. The operating margin has decreased slightly, from 49.17% (5YA) to 40.36% (TTM), but it remains strong. The pre-tax margin remains relatively stable, with a slight decline from 51.68% (TTM) to 49.53%, and the net profit margin has slightly decreased from 40.49% (TTM) to 39.02%, though it is still relatively high compared to historical performance. In terms of earnings per share (EPS), Bank BRI shows a strong performance in TTM, with an EPS of 951.05 compared to 926.19 in 5YA, although there was a slight decline from the previous year. Cash flow per share remains negative at −838.42 in TTM, slightly worse than −680.44 in 5YA, indicating potential liquidity issues. Sales growth is strong, with a 16.32% increase in sales (TTM) compared to 23.26% from the previous year. The capital expenditure growth is notably high at 39.34% over the past 5 years, suggesting significant investment in the bank's infrastructure.

The Table 6 presents the financial performance of Bank BTN, comparing its trailing 12 months (TTM) with the 5-year average (5YA). Bank BTN shows a decline in Return on Equity (RoE)

Table 4: Financial performance bank Mandiri

Mandiri	TTM	5YA
RoE TTM	14,95	18,14
RoE 5YA	11	14,11
RoA TTM	2,11	2,88
RoA 5YA	1,49	2,27
RoI TTM	9,26	13,44
RoI 5YA	6,78	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	47,32	49,17
5YA operating margin	37,39	38,89
TTM pre-tax margin	51,69	51,68
5YA pre-tax margin	40,61	42,02
Net profit margin TTM	41,66	40,49
5YA net profit margin	32,3	24,43
Earnings/share TTM	1,311,28	926,19
ANN ordinary EPS	491,25	348,69
ANN diluted EPS	491,25	348,49
MRQ asset value/share	3,828,2	2,174,55
Fixed asset value/share MRQ	3,808,19	2,152,59
Cash/MRQ shares	1,400,88	695,11
Cash flow/share TTM	−1,873,02	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	11,48	45,6
EPS (TTM) versus TTM 1 year ago TTM	20,84	32,89
5-year EPS growth 5YA	6,12	10,85
Sales (MRQ) versus last 1Q MRQ	3,34	16,74
Sales (TTM) versus TTM 1 year ago TTM	15,52	23,26
5-year 5YA sales growth	5,17	12,48
5-Year Capital Expenditure Growth 5YA	4,94	23,52

Table 5: Financial performance bank BRI

BRI	TTM	5YA
RoE' TTM	18,57	18,14
RoE 5YA	15,79	14,11
RoA TTM	3,18	2,88
RoA 5YA	2,4	2,27
RoI TTM	9,66	13,44
RoI 5YA	8,44	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	40,36	49,17
5YA operating margin	36,31	38,89
TTM pre-tax margin	49,53	51,68
5YA pre-tax margin	44,44	42,02
Net profit margin TTM	39,02	40,49
5YA net profit margin	34,4	24,43
Earnings/share TTM	951,05	926,19
ANN ordinary EPS	338,01	348,69
ANN diluted EPS	338	348,49
MRQ asset value/share	2,031,78	2,174,55
Fixed asset value/share MRQ	2,032,43	2,152,59
Cash/MRQ Shares	414,36	695,11
Cash flow/share TTM	−838,42	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	1,69	45,6
EPS (TTM) versus TTM 1 year ago TTM	9,64	32,89
5-year EPS growth 5YA	7,36	10,85
Sales (MRQ) versus last 1Q MRQ	9,5	16,74
Sales (TTM) versus TTM 1 year ago TTM	16,32	23,26
5-year 5YA sales growth	13,72	12,48
5-year capital expenditure growth 5YA	39,34	23,52

Table 6: Financial performance bank BTN

BTN	TTM	5YA
RoE TTM	12,35	18,14
RoE 5YA	9,3	14,11
RoA TTM	0,78	2,88
RoA 5YA	0,6	2,27
RoI TTM	6,57	13,44
RoI 5YA	4,38	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	50,77	49,17
5YA operating margin	36,07	38,89
TTM pre-tax margin	30,77	51,68
5YA pre-tax margin	23,89	42,02
Net profit margin TTM	24,53	40,49
5YA net profit margin	18,08	24,43
Earnings/share TTM	885,68	926,19
ANN ordinary EPS	287,54	348,69
ANN diluted EPS	279	348,49
MRQ asset value/share	2,023,22	2,174,55
Fixed asset value/share MRQ	2,023,22	2,152,59
Cash/MRQ shares	1,202,28	695,11
Cash flow/share TTM	−654,81	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	−26,78	45,6
EPS (TTM) versus TTM 1 year ago TTM	−10,33	32,89
5-year EPS growth 5YA	0,12	10,85
Sales (MRQ) versus last 1Q MRQ	−8,26	16,74
Sales (TTM) versus TTM 1 year ago TTM	−2,48	23,26
5-year 5YA sales growth	4,75	12,48
5-year capital expenditure growth 5YA	21,32	23,52

Table 7: Financial performance bank Danamon

Danamon	TTM	5YA
RoE TTM	7,09	18,14
RoE 5YA	5,95	14,11
RoA TTM	1,75	2,88
RoA 5YA	1,47	2,27
RoI TTM	5,32	13,44
RoI 5YA	4,28	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	30,23	49,17
5YA operating margin	27,24	38,89
TTM pre-tax margin	28,86	51,68
5YA pre-tax margin	26,16	42,02
Net profit margin TTM	21,62	40,49
5YA net profit margin	19,47	24,43
Earnings/share TTM	1,579,32	926,19
ANN ordinary EPS	337,88	348,69
ANN diluted EPS	337,88	348,49
MRQ asset value/share	4,940,74	2,174,55
Fixed asset value/share MRQ	4,762,95	2,152,59
Cash/MRQ Shares	1,049,84	695,11
Cash flow/share TTM	−1,867,54	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	26,83%	45,6
EPS (TTM) versus TTM 1 year ago TTM	24,18%	32,89
5-year EPS growth 5YA	−2,53%	10,85
Sales (MRQ) versus last 1Q MRQ	10,73	16,74
Sales (TTM) versus TTM 1 year ago TTM	11,9	23,26
5-year 5YA sales growth	0,91	12,48
5-year capital expenditure growth 5YA	−4,41	23,52

from 18.14% (5YA) to 12.35% (TTM), suggesting reduced profitability in the most recent period. Return on Assets (RoA) also decreased from 2.88% (5YA) to 0.78% (TTM), reflecting less efficient asset utilization. Similarly, Return on Investment (RoI) declined from 13.44% (5YA) to 6.57% (TTM), indicating a lower return on investments. However, Bank BTN shows strong operating margins, with a notable increase from 36.07% (5YA) to 50.77% (TTM), and pre-tax margins remain high at 30.77% (TTM) compared to 51.68% (5YA). Net profit margin has decreased from 40.49% (5YA) to 24.53% (TTM), showing a reduction in profitability over the most recent period. In terms of earnings per share (EPS), Bank BTN reported 885.68 (TTM), slightly lower than 926.19 (5YA), indicating a decline in earnings. The cash flow per share is negative at -654.81 (TTM), showing a slight improvement compared to −680.44 (5YA), but liquidity concerns still exist. Sales growth has declined, with a negative growth of −2.48% in TTM compared to 23.26% from the previous year. The capital expenditure growth over the past 5 years is 21.32%, indicating a significant level of investment.

The financial performance of Bank Danamon, presented in Table 7, shows mixed results when comparing the trailing 12 months (TTM) with the 5-year average (5YA). Return on Equity (RoE) has improved from 5.95% (5YA) to 7.09% (TTM), indicating stronger profitability in the recent period, although it remains lower than the 18.14% (5YA) benchmark. Similarly, Return on Assets (RoA) increased from 1.47% (5YA) to 1.75% (TTM), suggesting a slight improvement in asset efficiency. Return on Investment (RoI) improved from 4.28% (5YA) to 5.32% (TTM), but it still falls short of the 13.44% (5YA) performance, reflecting a decline in investment efficiency. The operating margin increased from 27.24% (5YA) to 30.23% (TTM), which shows that Bank Danamon has managed to improve its operational profitability despite lower overall margins. However, the pre-tax margin decreased from 51.68% (5YA) to 28.86% (TTM), signaling a drop in profitability before tax. The net profit margin showed an increase from 19.47% (5YA) to 21.62% (TTM), reflecting a favorable trend, though still lower than the 40.49% (5YA) figure. The earnings per share (EPS) have significantly increased to 1,579.32 (TTM), a substantial jump from 926.19 (5YA), suggesting improved profitability. The cash flow per share has worsened, with a negative value of −1,867.54 (TTM), which is notably worse than −680.44 (5YA), indicating liquidity challenges. Additionally, sales growth has declined, with TTM sales showing only an 11.9% increase, compared to 23.26% in the previous year. Bank Danamon's capital expenditure has also contracted, decreasing by 4.41% over the past 5 years, in contrast to the 23.52% growth in capital expenditure observed in the broader period.

The financial performance of Bank Bukopin, as shown in Table 8, reveals significant challenges, particularly when comparing TTM to the 5YA data. The Return on Equity (RoE) is notably negative at −42.29% (TTM), a sharp decline from the 18.14% (5YA), reflecting severe issues in generating returns for shareholders. Similarly, the Return on Assets (RoA) is also negative at −6.76% (TTM), down from a positive 2.88% (5YA), indicating the bank's inefficiency in utilizing its assets to generate profit. The Return on Investment (RoI) shows a similar downward trend, with −13.31% (TTM) compared to 13.44% (5YA), signaling a major decline in the bank's investment performance. While the operating margin is exceptionally high at 157.63% (TTM), it is important to note that this number seems highly distorted, especially in comparison to the

Table 8: Financial performance bank Bukopin

Bukopin	TTM	5YA
RoE TTM	−42,29	18,14
RoE 5YA	−22,84	14,11
RoA TTM	−6,76	2,88
RoA 5YA	−2,77	2,27
RoI TTM	−13,31	13,44
RoI 5YA	−7,54	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	157,63	49,17
5YA operating margin	312,68	38,89
TTM pre-tax margin	163,21	51,68
5YA pre-tax margin	324,08	42,02
Net profit margin TTM	154,4	40,49
5YA net profit margin	−2,75	24,43
Earnings/share TTM	−19,89	926,19
ANN ordinary EPS	−74,06	348,69
ANN diluted EPS	−74,06	348,49
MRQ asset value/share	89,28	2,174,55
Fixed asset value/share MRQ	87,41	2,152,59
Cash/MRQ shares	24,38	695,11
Cash flow/share TTM	13,86	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	−125,74	45,6
EPS (TTM) versus TTM 1 year ago TTM	24,32	32,89
5-year EPS growth 5YA	0	10,85
Sales (MRQ) versus last 1Q MRQ	−109,29	16,74
Sales (TTM) versus TTM 1 year ago TTM	−16,99	23,26
5-year 5YA sales growth	0	12,48
5-year capital expenditure growth 5YA	−16,62	23,52

Table 9: Financial performance bank BCA

BCA	TTM	5YA
RoE TTM	21,53	18,14
RoE 5YA	17,92	14,11
RoA TTM	3,61	2,88
RoA 5YA	3,1	2,27
RoI TTM	21,07	13,44
RoI 5YA	17,53	10,78
TTM gross margin	-	1,35
5YA gross margin	0	1,35
TTM operating margin	62,21	49,17
5YA operating margin	56,48	38,89
TTM pre-tax margin	62,21	51,68
5YA pre-tax margin	56,44	42,02
Net profit margin TTM	50,25	40,49
5YA net profit margin	45,27	24,43
Earnings/share TTM	778,11	926,19
ANN ordinary EPS	330,45	348,69
ANN diluted EPS	330	348,49
MRQ asset value/share	1,912,4	2,174,55
Fixed asset value/share MRQ	1,900,54	2,152,59
Cash/MRQ shares	197,57	695,11
Cash flow/share TTM	3,29	−680,44
EPS (MRQ) versus 1st quarter last year MRQ	12,15	45,6
EPS (TTM) versus TTM 1 year ago TTM	29,65	32,89
5-year EPS growth 5YA	11,81	10,85
Sales (MRQ) versus last 1Q MRQ	12,79	16,74
Sales (TTM) versus TTM 1 year ago TTM	22,8	23,26
5-year 5YA sales growth	8,82	12,48
5-year capital expenditure growth 5YA	8,66	23,52

much lower 49.17% (5YA), and may reflect a temporary anomaly or revaluation of assets. Likewise, the pre-tax margin stands at an extraordinary 163.21% (TTM), significantly higher than 51.68% (5YA), indicating similar concerns over unusual financial factors. The net profit margin for the bank is also significantly higher at 154.4% (TTM), compared to a negative margin of -2.75% (5YA), further suggesting the presence of exceptional or one-off gains that are not indicative of sustainable performance. However, the earnings per share (EPS) is negative at −19.89 (TTM), showing losses compared to the positive 926.19 (5YA), pointing to serious profitability concerns. In terms of assets, the MRQ Asset Value per Share is extremely low at 89.28, far below the 5YA figure of 2,174.55. This significant drop suggests a major loss in the value of the bank's assets. Similarly, cash per share is very low at 24.38, again indicating liquidity issues in comparison to 695.11 (5YA). Despite the challenges in profitability and asset value, the bank has managed to show a positive cash flow per share of 13.86 (TTM), an improvement from −680.44 (5YA), indicating some recovery in cash management.

Table 9 presents Bank BCA's strong financial performance, with notable improvements in key metrics. RoE increased from 17.92% (5YA) to 21.53% (TTM), reflecting higher shareholder returns, while RoA rose from 3.10% (5YA) to 3.61% (TTM), showing better asset efficiency. RoI grew from 17.53% (5YA) to 21.07% (TTM), outperforming the 5-year average. The operating margin and pre-tax margin both increased, from 56.48% and 56.44% (5YA) to 62.21% (TTM), indicating improved profitability. Net profit margin also improved from 45.27% to 50.25%. However, EPS dropped from 926.19 (5YA) to 778.11 (TTM), and MRQ asset value per share decreased to 1,912.40 from 2,174.55 (5YA). Despite a decrease in cash per share (197.57), cash flow per share improved to 3.29 (TTM), indicating better liquidity management. Sales growth has been stable, with 8.82% growth over 5 years, below the industry average. Capital expenditure growth slowed to 8.66% (5YA).

4.1.1. Statistical result

Table 10 presents the outer loadings of three constructs: Green Accounting Management (GAM), Integrated Environmental Policy (IEP), and Industrial Ecosystem Adaptability and Strategic Environment (IAES). For Green Accounting Management (GAM), all four items show strong loadings, ranging from 0.783 (GAM1) to 0.921 (GAM2). These high values indicate that the items are highly correlated with the construct and are valid indicators of Green Accounting Management. In the Integrated Environmental Policy (IEP) construct, the loadings for all nine items are generally strong, with values between 0.749 (IEP9) and 0.876 (IEP7). This suggests that the items effectively represent the Integrated Environmental Policy construct, with IEP7 and IEP3 showing the highest associations. For the Industrial Ecosystem Adaptability and Strategic Environment (IAES) construct, all six items also exhibit strong loadings, ranging from 0.722 (IAES2) to 0.852 (IAES1). These values suggest that the items are strongly aligned with the Industrial Ecosystem Adaptability and Strategic Environment construct.

Table 11 presents the reliability and validity measures for the constructs in the model, including Cronbach's Alpha, rho_A, Composite Reliability, and Average Variance Extracted (AVE). For Financial Performance, Cronbach's Alpha (0.960) and rho_A (0.969) are very high, indicating excellent internal consistency.

The Composite Reliability (0.964) also reflects a high level of construct reliability. However, the AVE of 0.499 is below the recommended threshold of 0.5, suggesting that the construct's convergent validity could be improved. For Green Accounting Management (GAM), all reliability measures are strong: Cronbach's Alpha (0.891), rho_A (0.892), and Composite Reliability (0.925) indicate good internal consistency and reliability. The AVE of 0.755 exceeds the 0.5 threshold, demonstrating good convergent validity. For the Integrated Environmental Policy construct, Cronbach's Alpha (0.929), rho_A (0.931), and Composite Reliability (0.941) all suggest high reliability. The AVE of 0.640 also exceeds the threshold, indicating good convergent validity. For Industrial Ecosystem Adaptability and Strategic Environment, the reliability measures are also strong: Cronbach's Alpha (0.882), rho_A (0.889), and Composite Reliability (0.911). The AVE of 0.630 meets the acceptable threshold, confirming the construct's convergent validity.

Table 12 presents the R-Square and Adjusted R-Square values for the model constructions. For Financial Performance, the R-Square value of 0.789 indicates that approximately 78.9% of the variance in Financial Performance is explained by the independent variables in the model. The Adjusted R-Square value of 0.788 is very close, suggesting a good fit of the model while accounting for the number of predictors. For Green Accounting Management (GAM), the R-Square value of 0.810 implies that 81% of the variance in GAM is explained by the model's predictors. The Adjusted R-Square of 0.808 indicates a similarly strong model fit, with only a slight reduction due to the number of predictors.

Table 10: Outer loadings

Items	Green accounting management (GAM)	Integrated environmental policy	Industrial ecosystem adaptability and strategic environment
GAM1	0.783		
GAM2	0.921		
GAM3	0.897		
GAM4	0.869		
IEP1		0.783	
IEP2		0.783	
IEP3		0.799	
IEP4		0.799	
IEP5		0.798	
IEP6		0.809	
IEP7		0.876	
IEP8		0.798	
IEP9		0.749	
IAES1			0.852
IAES2			0.722
IAES3			0.794
IAES4			0.822
IAES5			0.774
IAES6			0.794

Table 13 presents the f-square values, which measure the effect size of the predictors on the dependent constructs. The higher the f-square value, the more significant the effect. For Financial Performance, there is no value listed, suggesting that Financial Performance does not directly affect any other construct in this model. For Green Accounting Management (GAM), the f-square value of 3.735 indicates a large effect on Financial Performance, highlighting that GAM is a strong predictor for financial performance. Integrated Environmental Policy (IEP) shows an f-square of 0.321, which suggests a medium effect on GAM. Industrial Ecosystem Adaptability and Strategic Environment (IAES) has an f-square of 0.085, indicating a small effect on GAM.

Table 14 presents the Fornell-Larcker Criterion for discriminant validity, where the square root of the Average Variance Extracted (AVE) of each construct should exceed its correlation with other constructs. Financial Performance (AVE = 0.707) shows lower values than its correlations with Green Accounting Management (GAM) (0.888), Integrated Environmental Policy (IEP) (0.936), and Industrial Ecosystem Adaptability and Strategic Environment (IAES) (0.893), indicating discriminant validity issues. Green Accounting Management (GAM) (AVE = 0.869) has higher values than its correlations with Financial Performance (0.888), but is lower than its correlations with IEP (0.891) and IAES (0.866). Integrated Environmental Policy (IEP) (AVE = 0.800) exceeds its correlations with both GAM (0.891) and IAES (0.913). Industrial Ecosystem Adaptability and Strategic Environment (IAES) (AVE = 0.794) is higher than its correlations with GAM (0.866) and IEP (0.913).

Table 15 presents the Model Fit statistics for both the Saturated Model and the Estimated Model:

- SRMR (Standardized Root Mean Square Residual) shows a value of 0.086 for the Saturated Model and 0.097 for the Estimated Model. Both values are below the threshold of 0.08, indicating good fit, though the Estimated Model is slightly worse.
- d_ULS (Squared Euclidean Distance) is 8.249 for the Saturated Model and 10.566 for the Estimated Model. A lower value indicates a better model fit, with the Saturated Model performing slightly better.
- d_G (Geodesic Distance) is 5.123 for the Saturated Model and 5.391 for the Estimated Model. While both values are relatively close, the Saturated Model shows a marginally better fit.
- Chi-Square shows 3916.523 for the Saturated Model and 4031.499 for the Estimated Model. A lower Chi-square indicates better model fit, with the Saturated Model being a slightly better fit.
- NFI (Normed Fit Index) is 0.609 for the Saturated Model and 0.597 for the Estimated Model, both of which are below

Table 11: Construct reliability and validity

Variables	Cronbach's alpha	rho_A	Composite reliability	Average variance extracted (AVE)
Financial Performance	0.960	0.969	0.964	0.499
Green Accounting Management (GAM)	0.891	0.892	0.925	0.755
Integrated Environmental Policy	0.929	0.931	0.941	0.640
Industrial Ecosystem Adaptability and Strategic Environment	0.882	0.889	0.911	0.630

the ideal value of 0.90, suggesting that model fit could be improved.

The Saturated Model shows a slightly better fit than the Estimated Model across several indicators, although both models could benefit from improvement in certain areas.

Table 16 presents the results of the total and mediating effects, as well as the hypothesis testing, examining the relationships between Green Accounting Management (GAM), Integrated Environmental Policy (IEP), Industrial Ecosystem Adaptability and Strategic Environment (IEAS), and Financial Performance (FP).

1. Green Accounting Management (GAM) → Financial Performance (FP): The relationship between GAM and FP shows a strong positive effect with a sample mean of 0.888, a T-statistic of 27.147, and a P = 0.000. This result is statistically significant at the 1% level, suggesting that GAM has a substantial and positive impact on financial performance.
2. Integrated Environmental Policy (IEP) → Financial Performance (FP): IEP also demonstrates a significant positive impact on FP, with a sample mean of 0.525, a T-statistic of 3.149, and a P = 0.002. This indicates that IEP positively influences financial performance at a statistically significant level (1%).
3. Integrated Environmental Policy (IEP) → Green Accounting Management (GAM): The relationship between IEP and GAM shows a positive effect with a sample mean of 0.586, a T-statistic of 3.416, and a P = 0.001. This result is statistically significant at the 1% level, suggesting that IEP positively affects the adoption and implementation of GAM.
4. Industrial Ecosystem Adaptability and Strategic Environment (IEAS) → Financial Performance (FP): The direct effect of IEAS on FP is also positive, with a sample mean of 0.290, a T-statistic of 2.302, and a P = 0.022. This relationship is statistically significant at the 5% level, indicating that a more adaptable industrial ecosystem and strategic environmental considerations positively contribute to financial performance.
5. Industrial Ecosystem Adaptability and Strategic Environment (IEAS) → Green Accounting Management (GAM): The impact of IEAS on GAM is also positive, with a sample mean of 0.331, a T-statistic of 2.129, and a P = 0.034. This relationship is significant at the 5% level, suggesting that industrial ecosystem adaptability contributes to the implementation of green accounting practices.
6. Integrated Environmental Policy (IEP) → Green Accounting Management (GAM) → Financial Performance (FP): The mediating effect of GAM in the relationship between IEP and FP shows a sample mean of 0.525, a T-statistic of 3.149, and a P = 0.002. This result is statistically significant at the 1% level, indicating that GAM partially mediates the impact of IEP on financial performance.
7. Industrial Ecosystem Adaptability and Strategic Environment (IEAS) → Green Accounting Management (GAM) → Financial Performance (FP): The mediating effect of GAM in the relationship between IEAS and FP shows a sample mean of 0.290, a T-statistic of 2.302, and a P = 0.022. This relationship is statistically significant at the 5% level, indicating that GAM also plays a mediating role in the impact of IEAS on financial performance.

Table 12: R-square

Variables	R-square	R-square adjusted
Financial Performance	0.789	0.788
Green Accounting Management (GAM)	0.810	0.808

Table 13: f-square

Variables	Financial performance	Green accounting management (GAM)
Financial Performance		
Green Accounting Management (GAM)	3.735	
Integrated Environmental Policy		0.321
Industrial Ecosystem Adaptability and Strategic Environment		0.085

The results support the hypothesis that both Integrated Environmental Policy (IEP) and Industrial Ecosystem Adaptability and Strategic Environment (IEAS) have positive direct and indirect effects on Financial Performance (FP) through the mediating role of Green Accounting Management (GAM). These findings highlight the importance of integrating environmental policies and adaptability to industrial ecosystems for enhancing financial performance, with green accounting serving as a key mediator in this relationship.

4.2. Discussion

The findings of this study indicate that the Integrated Environmental Policy (IEP) significantly influences Financial Performance (FP), underscoring the critical role of environmental management and sustainability-focused initiatives in driving corporate financial outcomes. This relationship suggests that firms implementing comprehensive environmental policies not only contribute to ecological sustainability but also realize tangible financial

Table 14: Fornell-Larcker criterion

Variables	Financial performance	Green accounting management (GAM)	Integrated environmental policy	Industrial ecosystem adaptability and strategic environment
Financial Performance	0.707			
Green Accounting Management (GAM)	0.888	0.869		
Integrated Environmental Policy	0.936	0.891	0.800	
Industrial Ecosystem Adaptability and Strategic Environment	0.893	0.866	0.913	0.794

benefits. The analysis employed dimensions of environmental regulation, environmental incentives, environmental monitoring and assessment, and community empowerment as key measures of integrated environmental policy, providing a multidimensional perspective on the construct. The significant influence of IEP on FP can be attributed to several factors embedded within the dimensions used in this study. First, environmental regulation, which includes compliance with legal frameworks and international standards, ensures that firms operate within an environmentally sustainable framework, reducing risks associated with regulatory penalties and enhancing the firm's legitimacy and reputation. The adherence to such regulations often signals a firm's commitment to sustainable practices, which can attract environmentally conscious investors and customers, thereby positively impacting financial performance.

Second, environmental incentives play a crucial role by encouraging firms to adopt environmentally friendly practices through financial or non-financial rewards, such as tax breaks, grants, or recognition programs. These incentives not only reduce the cost burden of implementing green initiatives but also motivate firms to innovate in sustainable processes and products, which can lead to competitive advantages and improved market positioning. The financial support or rewards associated with these incentives further enhances profitability and cost efficiency, contributing to better financial outcomes. The dimension of environmental monitoring and assessment ensures that firms continuously evaluate their environmental impact, implement necessary corrective measures, and report their sustainability performance transparently. Effective monitoring provides firms with actionable insights to optimize resource use, minimize waste, and improve operational efficiency. Additionally, transparent reporting fosters trust and strengthens relationships with stakeholders, including investors, regulators, and customers, further supporting financial performance through enhanced brand equity and stakeholder loyalty. Lastly, the inclusion of community empowerment as a dimension of IEP highlights the social aspect of environmental sustainability. Community empowerment initiatives, such as involving local communities in decision-making, supporting education and training programs, or funding community development projects, create shared value and foster goodwill. These efforts can enhance a firm's social license to operate, reduce community resistance, and build strong local networks that support the firm's long-term sustainability goals. The positive social capital generated through community empowerment often translates into reputational benefits and market goodwill, which are reflected in improved financial outcomes.

The findings regarding the significant influence of Integrated Environmental Policy (IEP) on Financial Performance (FP) can be further contextualized by analyzing the financial performance data of the seven banks in this study. The diverse financial metrics, including Return on Equity (RoE), Return on Assets (RoA), and Net Profit Margin, demonstrate the varying degrees of financial success among these institutions and provide a nuanced perspective on the role of integrated environmental strategies.

For banks such as Bank BCA and Bank Mandiri, which consistently exhibit robust financial metrics like high RoE and RoA, it can be inferred that their adherence to integrated environmental policies may have contributed to their strong financial performance. As leaders in the banking sector, these institutions likely implement stringent environmental regulations, capitalize on environmental incentives, and engage in monitoring and assessment practices. These measures not only align their operations with global sustainability standards but also foster stakeholder trust, which is critical in attracting environmentally conscious investors and corporate clients.

For example, banks that excel in community engagement—an essential aspect of community empowerment—may leverage their reputation as socially responsible entities to attract deposits and strengthen their lending portfolios. Bank BCA's remarkable financial performance metrics, such as its RoA of 3.61% and net profit margin of 50.25%, could be partly attributed to its strategic environmental and social initiatives, which resonate well with its stakeholders and enhance long-term profitability.

Conversely, banks like Bank Bukopin, which report weaker financial indicators, including negative RoE and RoA, may highlight the risks of inadequate integration of environmental and sustainability policies. The challenges faced by these banks could underscore the opportunity cost of neglecting

Table 15: Model fit

Measurement	Saturated model	Estimated model
SRMR	0.086	0.097
d_ULS	8.249	10.566
d_G	5.123	5.391
Chi-square	3916.523	4031.499
NFI	0.609	0.597

Table 16: Total and mediating effect and hypotheses test result

Hyphotesis	Sample mean	Standard deviation	T statistics	P-values
Green Accounting Management (GAM) → Financial Performance (FP)	0.888	0.033	27.147	0.000
Integrated Environmental Policy (IEP) → Financial Performance (FP)	0.525	0.171	3.149	0.002
Integrated Environmental Policy (IEP) → Green Accounting Management (GAM)	0.586	0.177	3.416	0.001
Industrial Ecosystem Adaptability and Strategic Environment (IEAS) → Financial Performance (FP)	0.290	0.121	2.302	0.022
Industrial Ecosystem Adaptability and Strategic Environment (IEAS) → Green Accounting Management (GAM)	0.331	0.147	2.129	0.034
Integrated Environmental Policy (IEP) → Green Accounting Management (GAM) → Financial Performance (FP)	0.525	0.171	3.149	0.002
Industrial Ecosystem Adaptability and Strategic Environment (IAES) → Green Accounting Management (GAM) → Financial Performance (FP)	0.290	0.121	2.302	0.022

comprehensive environmental strategies. In a financial sector increasingly influenced by ESG (Environmental, Social, and Governance) considerations, the lack of robust environmental policies may result in diminished investor confidence and higher operational risks, adversely impacting financial performance. Banks like Bank BTN and Bank Danamon, which exhibit moderate financial performance metrics, highlight the transitional phase of integrating environmental policies into their core strategies. For such institutions, the adoption of GAM could enhance their ability to translate IEP into tangible financial gains by improving resource management and fostering stakeholder alignment. For instance, Bank Danamon's efforts in environmental monitoring and community engagement could help it strengthen its net profit margin, which currently stands at 21.62%.

Theorethical Implication: Stakeholder Theory asserts that companies operate not only to fulfill shareholder interests but also to address the concerns of various stakeholder groups, including regulators, communities, customers, and business partners (Bashir et al., 2022). In this context, GAM serves as a bridge enabling companies to meet stakeholder expectations regarding environmental transparency and accountability. Theoretically, this suggests that implementing Integrated Environmental Policy (IEP)—encompassing dimensions such as environmental regulations, incentives, and monitoring—can translate into tangible outcomes through GAM. GAM provides a systematic mechanism to measure, report, and communicate environmental performance to stakeholders, ultimately influencing their support for the company. According to NRBV Theory, environmentally based resources like industrial ecosystem adaptability (IEAS) are strategic assets that can create competitive advantages. These findings emphasize that a company's ability to adapt to environmental dynamics (such as industrial competition, environmental properties, and resilience) can be maximized through the mediation of GAM. Green Accounting Management allows companies to manage and utilize environmental resources more effectively, enhance operational efficiency, and foster relevant innovations (Derchi et al., 2013). Theoretically, this expands the understanding that sustainability practices—often considered additional costs—can serve as key drivers of financial performance.

Managerial Implication: By applying Stakeholder Theory and the Natural Resource-Based View (NRBV), the findings provide significant practical implications for organizations seeking to balance environmental sustainability and financial performance. Both theoretical approaches underscore the importance of integrating environmental management into core business strategies to meet stakeholder expectations and leverage natural resources for competitive advantage. From the Stakeholder Theory perspective, the significant role of Green Accounting Management (GAM) highlights the increasing demand from stakeholders—such as investors, customers, regulators, and communities—for transparency in environmental practices. GAM serves as a critical tool to fulfill these expectations by providing measurable, credible disclosures about an organization's environmental performance and sustainability initiatives. For example, stakeholders are more likely to support companies that effectively report their adherence to Integrated Environmental Policy (IEP) components, such as environmental regulations, incentives, and monitoring systems. Businesses can use GAM to demonstrate accountability, thereby fostering stronger relationships with stakeholders, enhancing brand reputation, and securing a loyal customer base.

For practitioners, this means that embedding Green Accounting Management within organizational processes is no longer optional but essential. Companies should invest in training for their accounting and sustainability teams, adopt advanced environmental accounting software, and prioritize transparent communication of environmental metrics to stakeholders (Bailey and Soyka, 1996) and (Bartolomeo et al., 2000). This approach not only satisfies stakeholder demands but also differentiates the company in increasingly competitive markets. Under the lens of NRBV Theory, the findings suggest that Industrial Ecosystem Adaptability and Strategic Environment (IEAS) drives financial performance when mediated by GAM. The NRBV emphasizes that organizations that effectively manage and adapt to environmental constraints can transform these challenges into strategic resources. For instance, companies operating in competitive industries with stringent environmental requirements can use GAM to optimize resource usage, reduce waste, and innovate in sustainable technologies. These actions convert environmental responsibilities into cost-saving opportunities and sources of differentiation, aligning with the principles of the NRBV. Practically, this means that businesses should view environmental adaptability not as a regulatory burden but as an opportunity to develop rare, inimitable, and valuable capabilities. By leveraging GAM to implement sustainable practices, organizations can enhance their resilience and ability to thrive in dynamic environments. For example, industries with high environmental scrutiny, such as manufacturing and energy, can adopt green accounting systems to identify areas for improvement, such as energy efficiency or waste reduction, which in turn reduce operating costs and increase profitability.

5. CONCLUSION

The role of Green Accounting Management as a mediating variable is central to comprehending how independent variables such as Integrated Environmental Policy and Industrial Ecosystem Adaptability and Strategic Environment influence organizational outcomes, particularly Financial Performance. The rigorous analysis reveals that GAM effectively bridges the relationship between these independent variables and FP, underscoring its pivotal function in translating environmental and industrial strategies into tangible financial benefits. As a robust mediator, GAM demonstrates a strong capability to integrate and operationalize the dimensions of its independent variables. For instance, the impact of IEP, with its facets of environmental regulation, incentives, and monitoring, is significantly amplified when channeled through GAM. This is because GAM enables organizations to quantify, disclose, and manage their environmental performance effectively, transforming regulatory compliance and policy alignment into strategic advantages. In this process, GAM not only ensures that environmental objectives are met but also helps organizations derive cost efficiencies, enhance stakeholder trust, and improve long-term financial stability. Similarly, the

influence of IEAS, with dimensions like industrial competition, environmental properties, and resilience, is further magnified when mediated by GAM. GAM provides a structured framework for responding to industrial challenges by seamlessly integrating sustainability into the core accounting and reporting processes. For example, industries facing high competition or environmental scrutiny can leverage GAM to showcase their commitment to sustainable practices, thereby improving their reputation and access to green financing. Moreover, the resilience aspect of IEAS is strengthened through GAM's capacity to identify risks and opportunities in resource utilization, waste management, and environmental impact reduction.

The mediating role of GAM is particularly noteworthy in its ability to harmonize sustainability objectives with financial performance. By quantifying the economic value of environmental initiatives, GAM helps organizations demonstrate how investments in environmental strategies—such as cleaner technologies, resource optimization, or compliance mechanisms—contribute to profitability. This alignment is critical in convincing internal and external stakeholders that sustainability is not merely a cost center but a driver of competitive advantage and financial growth. The findings also highlight the theoretical importance of a synergistic relationship between the dimensions of environmental policy and industrial ecosystem adaptability with green accounting management. IEP dimensions such as regulations, incentives, and monitoring, along with IEAS dimensions like competition, environmental properties, and resilience, form a complementary foundation upon which GAM can thrive. For instance, stringent environmental regulations coupled with an adaptable industrial ecosystem create a conducive environment for GAM to be effectively implemented, leading to enhanced financial performance.

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