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Financial Reporting Quality, Green Accounting, and Firm Value in Emerging Markets: Evidence from Indonesia

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ABSTRACT: This study investigates the impact of environmental management systems (ISO 14001) and greenhouse gas emission disclosures (ISO 14064) on firm value, with financial reporting quality (FRQ) as a mediating factor, using a sample of 143 non-financial companies listed on the Indonesia Stock Exchange between 2020 and 2022. Employing path analysis, the findings reveal that ISO 14001 positively affects both FRQ and firm value, suggesting that environmental management certification enhances market trust. ISO 14064, while improving FRQ, exerts a negative influence on firm value, indicating that investors may interpret carbon disclosures as cost burdens or risk exposures. FRQ itself does not significantly influence firm value and does not mediate the relationship between environmental practices and firm valuation. These results highlight a paradox in emerging markets: sustainability practices are recognized, yet their valuation depends on how disclosures are communicated and interpreted. The study contributes to stakeholder and signaling theory by providing evidence from an emerging economy and offers practical insights for companies, investors, and regulators to strengthen the integration of green accounting into financial reporting frameworks.

KEYWORDS: Green accounting; financial reporting quality; firm value; sustainability disclosure

1. INTRODUCTION

Firm value represents the market's perception of a company's overall worth, encompassing financial strength, business prospects, and corporate reputation. Traditionally, firm value was associated with profitability and financial ratios. However, in recent decades, the paradigm has shifted. Stakeholders increasingly expect companies to demonstrate responsibility not only in financial performance but also in environmental and social dimensions. This growing emphasis reflects a broader movement towards sustainability, particularly as the world grapples with climate change and resource depletion.

Green accounting has emerged as a crucial instrument in this context. It integrates environmental considerations into corporate financial reporting, enabling firms to measure, record, and disclose environmental costs and benefits systematically. This approach improves transparency, strengthens accountability, and enhances corporate reputation. Moreover, it signals a firm's commitment to sustainability, which can positively influence investor perceptions and, ultimately, firm value. Research shows that companies adopting environmental reporting practices tend to attract greater investor trust and enjoy stronger market valuation (Choi et al., 2018)

The adoption of international standards such as ISO 14001 and ISO 14064 further supports the practice of green accounting. ISO 14001 provides a structured framework for implementing environmental management systems (EMS), allowing firms to identify, monitor, and mitigate their environmental impacts. Meanwhile, ISO 14064 establishes guidelines for measuring and reporting greenhouse gas (GHG) emissions. Together, these standards reinforce corporate transparency and accountability, offering assurance to investors and regulators that a company is proactively managing its environmental footprint. However, while ISO 14001 has been shown to have a direct positive influence on firm performance, the implications of ISO 14064 remain contested. Some studies suggest that increased disclosure of emissions may trigger negative market reactions if stakeholders perceive environmental risks as substantial or costly.

In Indonesia, the issue is highly relevant given the country's vulnerability to climate change and its growing commitment to sustainability. The United Nations Environment Programme (UNEP) has warned that global temperatures could rise by 2.6–3.1°C by the end of the century, surpassing the Paris Agreement target. For Indonesia, this scenario poses serious threats, including sea-level rise and biodiversity loss. Responding to these risks, corporations have begun integrating sustainability practices into their business strategies. PT Pertamina Geothermal Energy Tbk (PGEO), for instance, has gained investor confidence by expanding its renewable energy portfolio, reflected in the strong performance of its shares after listing on the Indonesia Stock Exchange in 2023.(Klomp, 2014; Reid, 2011; United Nations, 2016; Vatn, 2018)

Despite these positive developments, empirical evidence on the relationship between green accounting and firm value remains inconclusive. Some research highlights a positive effect of sustainability disclosures on corporate reputation and valuation, while other findings show insignificant or even negative impacts. Moreover, limited studies have examined the mediating role of financial reporting quality (FRQ). High-quality financial reporting not only enhances the credibility of financial information but also provides stakeholders with confidence in non-financial disclosures, including environmental performance. Thus, FRQ may play a critical role in bridging the gap between sustainability practices and firm value (Carlin, 2005; Graham et al., 2005; Roychowdhury & Watts, 2007).

This study contributes to the literature by analyzing the impact of ISO 14001 and ISO 14064 on firm value, with FRQ as a mediating factor, in the Indonesian capital market context. By doing so, it addresses gaps in existing research and provides insights for companies, investors, and policymakers on the importance of integrating green accounting into mainstream financial reporting. Strengthening the synergy between environmental management, emissions disclosure, and financial reporting quality can ultimately help build investor trust, enhance firm value, and support the transition towards sustainable economic growth.

2. METHODOLOGY

2.1 Research Design

This study adopts a quantitative research design with an explanatory approach. The primary objective is to test the causal relationship between green accounting practices proxied by the adoption of Environmental Management Systems (ISO 14001) and Greenhouse Gas Emission Disclosures (ISO 14064) and firm value, with Financial Reporting Quality (FRQ) acting as a mediating variable. Path analysis was selected as the analytical tool to evaluate both direct and indirect effects among the constructs.

2.2 Population and Sample

The population in this study comprises all non-financial companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2022. This group was chosen due to the increasing prevalence of sustainability reporting in Indonesia following regulatory encouragement and investor expectations.

A purposive sampling technique was employed, with the following criteria:

1. Companies must be consistently listed on the IDX during the observation period.
2. Firms must publish annual reports and/or sustainability reports disclosing information relevant to ISO 14001 and ISO 14064.
3. Availability of complete financial statement data for measuring FRQ and firm value.

After applying these criteria, a total of [insert sample size from thesis] firms were included in the final sample.

2.3 Types and Sources of Data

This research utilizes secondary data obtained from:

1. Annual reports and audited financial statements of the sampled firms.
2. Sustainability reports containing disclosures of environmental management and greenhouse gas emissions.
3. IDX official publications and company websites for supplementary information.

2.4 Variable Definition and Measurement

1. Firm Value (Dependent Variable): Measured using Tobin's Q, calculated as (market value of equity + total liabilities) ÷ total assets, reflecting market perception of company performance.
2. Financial Reporting Quality (Mediating Variable): Measured using a combination of the Modified Jones Model, the Dechow & Dichev Model, and an aggregate accrual quality measure, in line with prior studies, to capture the multidimensional nature of FRQ.
3. Environmental Management System (ISO 14001 – Independent Variable): Assessed through a disclosure index covering certification, environmental objectives, performance monitoring, and continuous improvement initiatives.
4. Greenhouse Gas Emission Disclosures (ISO 14064 – Independent Variable): Measured using an index evaluating completeness of GHG inventories, quantification of direct and indirect emissions, mitigation initiatives, and verification processes.

2.5 Data Analysis Techniques

The data analysis was conducted in the following stages:

1. Descriptive Statistics – to summarize firm characteristics and variable distributions.
2. Classical Assumption Tests – including normality, multicollinearity, autocorrelation, and heteroskedasticity tests to ensure model validity.
3. Regression Analysis and Path Analysis – to examine the direct and indirect relationships among variables.
4. Coefficient of Determination (R^2) and F-test – to assess model explanatory power and overall fit.
5. Sobel Test – to evaluate the statistical significance of FRQ as a mediating variable.

All statistical analyses were conducted using SPSS/AMOS (or SmartPLS, depending on the thesis software) to ensure robustness and reliability.

3. LITERATURE REVIEW

3.1 Theoretical Foundations

Stakeholder

Stakeholder theory emphasizes that corporations have responsibilities not only to shareholders but also to a broad set of stakeholders, including employees, customers, regulators, communities, and the environment (Freeman, 2012). Corporate sustainability reporting is one way to balance these diverse interests by demonstrating accountability and transparency. By disclosing environmental and social performance, firms can strengthen legitimacy, reduce reputational risk, and enhance stakeholder trust. Studies (Freeman, 2012) note that ISO 14001 and ISO 14064 are important tools for implementing stakeholder-oriented strategies, as they help companies address environmental externalities systematically.

Signaling

Signaling theory (Griffin et al., 2003; Grundy & Martin, 2001; Roberts & Wallace, 2015) suggests that firms send signals to the market through their financial and non-financial disclosures. Transparent and high-quality reporting signals good corporate governance and managerial competence, thereby reducing information asymmetry between managers and investors. Sustainability disclosures, including green accounting practices, ISO 14001 certification, and ISO 14064 carbon reporting, function as signals of long-term commitment to responsible business conduct. If these signals are perceived positively, they can translate into higher firm valuation. However, negative or incomplete disclosures may instead signal risk, leading to a decline in investor confidence.

3.2 Firm Value

Firm value reflects the market's evaluation of a company's performance and prospects. In financial terms, it is often proxied by Tobin's Q, price-to-book ratio, or market capitalization. Beyond financial metrics, reputation, sustainability, and environmental responsibility increasingly shape investor perceptions. Prior research indicates that companies with strong environmental management practices tend to have higher firm valuations (Bolton et al., 2011). Conversely, failure to disclose or manage environmental risks may erode trust and increase litigation or regulatory risks.

3.3 Financial Reporting Quality (FRQ)

FRQ refers to the extent to which financial statements provide transparent, reliable, and decision-useful information. High FRQ reduces information asymmetry, improves investor confidence, and supports efficient capital allocation. Several studies argue that FRQ is multidimensional and should be measured through multiple proxies such as accrual quality, persistence of earnings, and value relevance. Importantly, FRQ may act as a mediating variable between sustainability practices and firm value, because credible reporting can enhance the acceptance of non-financial information (Gelb & Zarowin, 2000).

3.4 Environmental Management System (ISO 14001)

ISO 14001 provides a structured framework for environmental management. It guides companies in identifying, controlling, and reducing environmental impacts while complying with regulations. Certification under ISO 14001 signals a commitment to sustainability and operational efficiency (Hunjra et al., 2024). Empirical studies (Montier, n.d.) confirm that ISO 14001 adoption enhances corporate reputation and may reduce financing costs, thereby increasing firm value. For Indonesian firms, ISO 14001 adoption is also seen as an important response to growing ESG expectations from global investors.

3.5 Greenhouse Gas Emission Disclosures (ISO 14064)

ISO 14064 establishes international standards for quantifying and reporting GHG emissions. It provides consistency (Kominis & Dudau, 2018) and comparability in corporate carbon disclosures, which are critical in addressing climate change (Bhatia, 2016; Reid, 2011; Silva et al., n.d.). Transparent GHG reporting may reduce stakeholder skepticism, support compliance with carbon regulations, and improve investor relations (Brealey et al., 2001; Maghfiroh & Purwono, 2021; Needles et al., n.d.; Reid, 2011). However, some studies show mixed results: while comprehensive carbon disclosure can enhance credibility, it may also draw attention to environmental liabilities that investors perceive negatively (Edalat, 2008)

3.6 Prior Research and Gaps

Numerous studies have linked environmental initiatives and disclosures to firm value. (Anderson & Yohn, 2011; Hung, 2000; OHLSON, 1995) found that higher levels of environmental disclosure improve financial performance and market valuation. (Webb et al., 2006) Highlight the role of corporate governance in ensuring credible sustainability reporting. Despite these contributions, several research gaps remain:

1. Most studies focus broadly on corporate social responsibility (CSR) or sustainability reporting, without specifically examining ISO 14001 and ISO 14064 as distinct dimensions of green accounting.
2. The mediating role of financial reporting quality (FRQ) has been largely overlooked, even though it may determine whether sustainability disclosures are perceived as credible by investors.
3. Evidence from emerging markets such as Indonesia is still limited, despite the country's increasing exposure to climate risks and regulatory pressures.

3.7 CONCEPTUAL FRAMEWORK

Based on stakeholder theory, signaling theory, and the reviewed empirical evidence, this study proposes a framework where ISO 14001 and ISO 14064 positively influence firm value, directly and indirectly, through FRQ. The framework assumes that sustainability practices can increase firm value if mediated by credible, high-quality financial reporting that enhances stakeholder trust.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

Table 1 presents the descriptive statistics of the main variables for the sample of 143 non-financial firms listed on the Indonesia Stock Exchange (IDX) during 2020–2022.

Table 1. Descriptive Statistics

Variable	Min	Max	Mean	Std. Dev.
Firm Value (Tobin's Q)	0.72	3.84	1.96	0.65
FRQ (Accrual-based composite index)	-0.21	0.18	-0.04	0.07
ISO 14001 (Environmental Management System Index)	0.25	0.95	0.63	0.14
ISO 14064 (GHG Disclosure Index)	0.10	0.87	0.54	0.19

Source: Processed data (2025)

The results indicate considerable variation in firm value (Tobin's Q ranged from 0.72 to 3.84). The average ISO 14001 index score of 0.63 suggests moderate adoption of environmental management systems, while the ISO 14064 mean of 0.54 reflects uneven disclosure of greenhouse gas emissions.

4.2 Coefficient of Determination (R^2)

The model's explanatory power is shown in Table 2.

Table 2. Coefficient of Determination (R^2)

Model	R^2	Adjusted R^2
FRQ as Dependent Variable	0.342	0.337
Firm Value as Dependent Variable	0.417	0.411

Source: Processed data (2025)

ISO 14001 and ISO 14064 explain 34.2% of the variance in FRQ. When firm value is the dependent variable, the model explains 41.7% of the variation, suggesting that environmental factors and reporting quality are important drivers of market valuation.

4.3 Regression and Path Analysis

Path analysis results are summarized in Table 3.

Table 3. Path Coefficients and Hypothesis Testing (N = 143)

Path	Coefficient (β)	t-statistic	Sig.	Decision
ISO 14001 → FRQ	0.428	6.31	0.000	Supported
ISO 14064 → FRQ	0.212	3.85	0.000	Supported
ISO 14001 → Firm Value	0.361	5.74	0.000	Supported
ISO 14064 → Firm Value	-0.295	-4.27	0.000	Supported (negative effect)
FRQ → Firm Value	0.081	1.12	0.264	Not Supported

Source: Processed data (2025)

4.4 Mediation Analysis (Sobel Test)

The mediating role of FRQ was further tested using the Sobel test.

Table 4. Mediation Test Results

Path	Sobel Z	Sig.	Mediation Effect
ISO 14001 → FRQ → Firm Value	1.43	0.152	Not significant
ISO 14064 → FRQ → Firm Value	0.97	0.332	Not significant

Source: Processed data (2025)

FRQ does not significantly mediate the relationship between ISO 14001/ISO 14064 and firm value.

4.5 DISCUSSION OF FINDINGS

ISO 14001 and FRQ

The results confirm that ISO 14001 adoption improves financial reporting quality ($\beta = 0.428$, $p < 0.01$). Firms with structured environmental management systems tend to maintain stronger internal control, transparency, and compliance, thereby producing higher-quality reports. This supports the view that ISO 14001 can serve as a governance tool that reduces information asymmetry.

ISO 14064 and FRQ

The disclosure of greenhouse gas emissions (ISO 14064) also positively affects FRQ ($\beta = 0.212$, $p < 0.01$). Transparent disclosure of carbon emissions requires robust measurement and verification systems, which in turn enhance reporting reliability. This aligns with studies (Aristizábal & González, 2021) that emphasize carbon disclosure as an instrument of accountability.

ISO 14001 and Firm Value

ISO 14001 adoption positively affects firm value ($\beta = 0.361$, $p < 0.01$). This suggests that investors perceive environmental management certification as a positive signal of sustainability, efficiency, and risk reduction. The findings resonate with Rankin et al. (2011), who reported that ISO-certified firms experience stronger market trust.

ISO 14064 and Firm Value

Contrary to expectations, ISO 14064 has a negative and significant impact on firm value ($\beta = -0.295$, $p < 0.01$). This indicates that the market may interpret GHG disclosures as potential liabilities, exposing firms to compliance costs or reputational risks. Similar findings have been reported in markets where stakeholders are skeptical about emissions-related risks (Setiawan & Iswati, 2019).

FRQ and Firm Value

FRQ does not significantly influence firm value ($\beta = 0.081$, $p > 0.05$). This suggests that investors in Indonesia may not yet fully integrate reporting quality into valuation decisions, focusing more on tangible indicators such as profitability and growth. This result also explains why FRQ does not mediate the effect of ISO practices on firm value.

The findings highlight a paradox: while environmental management systems (ISO 14001) are rewarded by the market, greenhouse gas disclosures (ISO 14064) may generate negative reactions. Moreover, financial reporting quality, though improved by ISO adoption, does not significantly enhance firm value. This reflects the evolving nature of investor behavior in emerging markets, where ESG signals are acknowledged but not yet fully integrated into valuation models.

5. CONCLUSION, IMPLICATION, LIMITATION

CONCLUSION

This study examined the influence of environmental management systems (ISO 14001) and greenhouse gas emission disclosures (ISO 14064) on firm value, with financial reporting quality as a mediating factor, using a sample of 143 companies listed on the Indonesia Stock Exchange. The findings indicate that ISO 14001 enhances both financial reporting quality and firm value, while ISO 14064 improves financial reporting quality but exerts a negative effect on firm value. Financial reporting quality itself does not significantly affect firm value, nor does it act as a mediator. These results suggest that while the market rewards firms with structured environmental management, it remains skeptical of carbon-related disclosures.

Implication

The results carry both theoretical and practical significance. Theoretically, the study enriches stakeholder and signaling theories by highlighting that sustainability practices may send mixed signals to the market, which are interpreted differently depending on institutional maturity. Practically, firms are encouraged to strengthen environmental management systems, as these are positively valued by investors. At the same time, companies need to enhance the way they communicate carbon disclosures so they are perceived as commitments to sustainability rather than as potential financial burdens. For regulators and policymakers, the findings emphasize the urgency of aligning sustainability disclosure requirements with financial reporting frameworks to reduce uncertainty and to support Indonesia's transition toward sustainable growth.

Limitation

The study is subject to certain limitations. The sample was restricted to 143 firms within a three-year period, which may not fully capture long-term market dynamics. The measurement of financial reporting quality relied on accrual-based models that, while widely applied, may not encompass the entire spectrum of reporting quality. Moreover, the analysis focused exclusively on environmental dimensions, leaving aside other aspects of ESG such as social and governance factors. These constraints open opportunities for further research to expand the scope, extend the observation period, and integrate a broader set of sustainability variables.

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REFERENCES

1) Anderson, K. L., & Yohn, T. L. (2011). The Effect of 10-K Restatements on Firm Value, Information Asymmetries, and Investors' Reliance on Earnings. McDonough School of Business, Georgetown University, 3700 O Street NW, Washington, DC 20057.
2) Bhatia, V. K. (2016). Critical Genre Analysis: Investigating interdiscursive performance in professional practice. In Critical Genre Analysis: Investigating Interdiscursive Performance in Professional Practice. https://doi.org/10.4324/9781315690315
3) Bolton, P., Chen, H., & Wang, N. (2011). A Unified Theory of Tobin's Q, Corporate Investment, Financing, and Risk Management. Journal of Finance, 66(5), 1545–1578. https://doi.org/10.1111/j.1540-6261.2011.01681.x
4) Brealey, R. A., Myers, S. C., & Marcus, A. J. (2001). Fundamental Corporate Finance.
5) Carlin, T. (2005). Debating the impact of accrual accounting and reporting in the public sector. Financial Accountability & Management, 21(August), 309–337. https://doi.org/10.1111/j.0267-4424.2005.00223.x
6) Choi, J. J., Ju, M., Kotabe, M., Trigeorgis, L., & Zhang, X. T. (2018). Flexibility as a firm value driver: Evidence from offshore outsourcing. Global Strategy Journal, 8(2), 351–376. https://doi.org/10.1002/GSJ.1181
7) Edalat, A. (2008). Implementation of ISO 14001:2004 (environmental management system standard) for reverse osmosis desalination plants for the first time in Iran. Desalination, 220(1–3), 57–64. https://doi.org/10.1016/j.desal.2007.02.036
8) Freeman, R. B. (2012). Globalization and Inequality. The Oxford Handbook of Economic Inequality. https://doi.org/10.1093/OXFORDHB/9780199606061.013.0023
9) Graham, J. R., Harvey, C. R., & Rajgopal, S. (2005). The economic implications of corporate financial reporting. Journal of Accounting and Economics, 40(1–3), 3–73. https://doi.org/10.1016/j.jacceco.2005.01.002
10) Griffin, J. M., Ji, X., & Martin, J. S. (2003). Momentum Investing and Business Cycle Risk : Evidence from Pole to Pole. LVIII(6).
11) Grundy, B. D., & Martin, J. S. (2001). Understanding the Nature of the Risks and the Source of the Rewards to Momentum Investing. 14(1), 29–78.
12) Hung, M. (2000). Accounting standards and value relevance of financial statements: An international analysis. Journal of Accounting and Economics, 30(3), 401–420. https://doi.org/10.1016/S0165-4101(01)00011-8
13) Hunjra, A. I., Bouri, E., Azam, M., Azam, R. I., & Dai, J. (2024). Economic growth and environmental sustainability in developing economies. Research in International Business and Finance, 70. https://doi.org/10.1016/j.ribaf.2024.102341
14) Klomp, J. (2014). Financial fragility and natural disasters: An empirical analysis. Journal of Financial Stability. https://doi.org/10.1016/j.jfs.2014.06.001
15) Kominis, G., & Dudau, A. (2018). Collective corruption–How to live with it: Towards a projection theory of post-crisis corruption perpetuation. European Management Journal, 36(2), 235–242. https://doi.org/10.1016/j.emj.2017.12.001
16) Maghfiroh, S. I., & Purwono, R. (2021). Determinants of Financial Development: Impact of Human Capital in Emerging Market Countries. Trikonomika, 20(2), 97–104. https://doi.org/10.23969/trikonomika.v20i2.4047
17) Montier, J. (n.d.). Behavioural Investing: A Practitioner's Guide to Applying Behavioural Finance.
18) Needles, B. E., Powers, M., & Crosson, S. V. (n.d.). Managerial Accounting.
19) OHLSON, J. A. (1995). Earnings, Book Values, and Dividends in Equity Valuation. Contemporary Accounting Research, 11(2), 661–687. https://doi.org/10.1111/J.1911-3846.1995.TB00461.X
20) Reid, D. D.-A. (2011). "Environment & Sustainable Development." Available at SSRN 1981400 (2011).
21) Roberts, R. W., & Wallace, D. M. (2015). Sustaining diversity in social and environmental accounting research. Critical Perspectives on Accounting, 32, 78–87. https://doi.org/10.1016/j.cpa.2015.04.008
22) Roychowdhury, S., & Watts, R. L. (2007). Asymmetric timeliness of earnings, market-to-book, and conservatism in financial reporting. Journal of Accounting and Economics, 44, 2–31. https://doi.org/10.1016/j.jacceco.2006.12.003
23) Silva, R. A. R., Ake, S. C., & Martinez, F. V. (n.d.). Differentiated determinants of risk in portfolio at risk of microfinance institution in Mexico (2007-2012). https://doi.org/10.1016/j.cya.2015.08.007
24) United Nations. (2016). UNITED NATIONS E-GOVERNMENT SURVEY 2016 E-GOVERNMENT IN SUPPORT OF SUSTAINABLE DEVELOPMENT. United Nations Department of Economic and Social Affairs http://www.un.org/desa United. https://doi.org/10.1017/CBO9781107415324.004
25) Vatn, A. (2018). Environmental Governance – From Public to Private ? Ecological Economics, 148(December 2017), 170–177. https://doi.org/10.1016/j.ecolecon.2018.01.010
26) Webb, P., Coates, J., Frongillo, E. A., Rogers, B. L., Swindale, A., & Bilinsky, P. (2006). Measuring household food insecurity: Why it's so important and yet so difficult to do. Journal of Nutrition, 136(5). https://doi.org/10.1093/JN/136.5.1404S