WADIAH: Jurnal Perbankan Syariah
Vol 9, No 2 (2025): Hal 232 - 257
DOI : https://doi.org/10.30762/wadiah. v9i2.2684

Ecological Ethics In Islamic Banks' Financial Statements and Their Impact on the Sustainable Economy

Yopi Yudha Utama[1], Binti Mutafarida[2], Yuliani[3], Ning Purnama Sariati[4]
UIN Syekh Wasil, Kediri, Jawa Timur, Indonesia[1,2,3,4]
yopiyudhautama@iainkediri.ac.id[1]¸ *bmutafarida@iainkediri.ac.id*[2], *yuliani@iainkediri.ac.id*[3], *ningpurnama@iainkediri.ac.id*[4]

Abstract

This research aims to analyse the role of ecological ethics in the financial statements of Islamic banks and its implications for sustainable economic development. Building on the foundation of maqāṣid al-sharīʻah, which emphasises justice, balance, and environmental protection, this research develops a conceptual framework that integrates stakeholder theory, the triple bottom line, and ESG principles within the context of Islamic finance. The method used is a qualitative-descriptive approach with a critical analysis of international and national literature. The research findings indicate that integrating ecological ethics into financial reports can strengthen the legitimacy of Islamic banks, increase investor confidence, and contribute significantly to the Sustainable Development Goals (SDGs). However, there is still a gap between formalistic reporting practices and the normative ideals of ecological ethics, which has the potential to lead to the risk of greenwashing. This research recommends the need for more inclusive regulations regarding ecological aspects in Sharia reporting standards, as well as encouraging the strengthening of digital innovation for more accountable transparency. This finding enriches the literature on Islamic financial accountability and provides a basis for public policy in

strengthening the role of Islamic banks in the sustainable economic ecosystem.
Keywords: Ecology, Financial Statements, Sustainable Economy

Abstrak

Penelitian ini bertujuan untuk menganalisis peran etika ekologi dalam laporan keuangan bank syariah serta implikasinya bagi pembangunan ekonomi berkelanjutan. Berangkat dari landasan maqāṣid al-sharīʻah yang menekankan pada keadilan, keseimbangan, dan perlindungan lingkungan, penelitian ini mengembangkan kerangka konseptual yang memadukan stakeholder theory, triple bottom line, dan prinsip ESG dalam konteks keuangan syariah. Metode yang digunakan adalah pendekatan kualitatif-deskriptif dengan analisis kritis terhadap literatur internasional dan nasional, serta pengembangan model konseptual yang menjelaskan hubungan antara akuntabilitas ekologis, transparansi pelaporan, dan stabilitas ekonomi. Hasil penelitian menunjukkan bahwa integrasi etika ekologi dalam laporan keuangan mampu memperkuat legitimasi bank syariah, meningkatkan kepercayaan investor, serta mendorong kontribusi nyata terhadap tujuan pembangunan berkelanjutan (SDGs). Namun, masih terdapat kesenjangan antara praktik pelaporan yang bersifat formalistik dengan ideal normatif etika ekologi, yang berpotensi melahirkan risiko greenwashing. Penelitian ini merekomendasikan perlunya regulasi yang lebih inklusif terhadap aspek ekologis dalam standar pelaporan syariah, serta mendorong penguatan inovasi digital untuk transparansi yang lebih akuntabel. Temuan ini memperkaya literatur mengenai akuntabilitas keuangan syariah dan memberikan dasar bagi kebijakan publik dalam memperkuat peran bank syariah dalam ekosistem ekonomi berkelanjutan.
Kata Kunci: Ekologi, Laporan Keuangan, Ekonomi Berkelanjutan

A. INTRODUCTION

The growth in literature on Islamic economics and sustainability has shown increasing attention to integrating ecological values into the financial reporting of Islamic banks. The triple bottom line (TBL) concept—which encompasses economic, social, and environmental aspects—is increasingly seen as a modern reporting design framework aligned with *Maqashid Al-shariah*, particularly in the context of Islamic banking, which emphasizes justice and trust.[1]. However, there is still a dearth of empirical literature in this field, especially when it comes to examining the connection between sharia governance and sustainability reporting. Within the framework of governance, research by Muneer et al. highlights the importance of the Sharia Supervisory Board (SSB) in the environmental disclosure process, yet their explicit role in this regard is still rarely examined. This underscores the pressing need to comprehend how governance structures can foster sustainable reporting in Islamic financial institutions.

Nationally, based on OJK Regulation No. 51/2017, research by Jajang, Baehaqi, and Maulidha[2] shows that sustainability disclosure in Indonesian Islamic banks during 2018–2020 has not had a significant impact on ROA, but has had a positive impact on ROE and EPS. This confirms that sustainability reporting can provide financial value, especially in terms of capital and shareholder value.

At the cross-country level, a study found that green building significantly impacts stock returns at Islamic banks, while ESG disclosure in general does not. This finding has drawn criticism regarding the lack of relevance of general ESG standards and the need for a more contextual reporting approach that aligns with the characteristics of Islamic banks[3].

The broader aspect of environmental disclosure was also the focus of Cahya *et al.'s* research[4], which analyzed the disclosure of carbon emissions, green accounting, and diversity on the boards of

---

[1] Amin Jan et al., "Sustainability Practices and Banks Financial Performance: A Conceptual Review from the Islamic Banking Industry in Malaysia," *International Journal of Business and Management* 13, no. 11 (October 12, 2018): p61, https://doi.org/10.5539/IJBM.V13N11P61.

[2] Jajang, Ahmad Baehaqi, and Erina Maulidha, "Sustainability Disclosures and Financial Performance of Islamic Banks in Indonesia," *AL-MUZARA'AH* 11, no. 2 (December 27, 2023): 201–18, https://doi.org/10.29244/JAM.11.2.201-218.

[3] Mega Ayu Widayanti et al., "The Effect of Environmental Disclosure on Stock Return of Islamic and Conventional Banks," *Jurnal Ekonomi & Keuangan Islam* 2025, no. 1 (January 22, 2025): 47–60, https://doi.org/10.20885/JEKI.VOL11.ISS1.ART4.

[4] Bayu Tri Cahya et al., "A Holistic View of Corporate Sustainability: From Disclosure to Governance Development," *Global Review of Islamic Economics and Business* 13, no. 1 (July 7, 2025): 062–073, https://doi.org/10.14421/GRIEB.2025.131-05.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

directors (women) of listed Sharia-based companies—demonstrating that transparency in environmental reporting contributes to sustainable development. However, green accounting and the role of women in governance have not been statistically proven to be significant in promoting sustainability. More broadly, a systematic study by Boudawara *et al*[5]*,* highlights the correlation between the quality of Sharia governance and ESG performance in Islamic banks, reinforcing the importance of integrating social and environmental aspects into the Islamic governance structure.

A global review of ESG reporting practices in Islamic banks shows that, despite the alignment of principles between ESG and Islamic finance, investment in environmentally friendly initiatives remains weak. This analysis recommends the development of Sharia regulations and reporting mechanisms that accommodate ecological sensitivity[6]. Furthermore, in the context of Malaysian Islamic banking, Jan *et al*[7], show that sustainability disclosure remains very low—less than 30% in both Indonesia and Malaysia—indicating a historically low adoption of sustainability practices in Islamic bank.

From a macroeconomic standpoint, Majeed's research establishes a connection between financial development and ecological footprint in OIC countries, proving that we can measure Islamic economic development using ecological footprint indicators and incorporate it into sustainable circular development strategies. From a macroeconomic perspective, Majeed's research[8] establishes

---

[5] Yossra Boudawara et al., "Shari'ah Governance Quality and Environmental, Social and Governance Performance in Islamic Banks. A Cross-Country Evidence," *Journal of Applied Accounting Research* 24, no. 5 (October 30, 2023): 1004–26, https://doi.org/10.1108/JAAR-08-2022-0208.

[6] Nik Anis Idayu Nik Abdullah and Razali Haron, "ESG REPORTING PRACTICES AMONG ISLAMIC BANKS: A GLOBAL PERSPECTIVE," *IIUM Law Journal* 30, no. S2 (November 12, 2022): 01–36, https://doi.org/10.31436/IIUMLJ.V30IS2.755.

[7] Jan et al., "Sustainability Practices and Banks Financial Performance: A Conceptual Review from the Islamic Banking Industry in Malaysia."

[8] Muhammad Tariq Majeed, "Financial Development and Ecological Footprint in OIC Countries: Islamic Perspectives and Empirical Evidence BT - Islamic Finance and Circular Economy: Connecting Impact and Value Creation," ed. Syed Nazim Ali and Zul Hakim Jumat (Singapore: Springer Singapore, 2021), 169–93, https://doi.org/10.1007/978-981-16-6061-0_10.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

a connection between financial development and ecological footprint in OIC countries, proving that we can measure Islamic economic development using ecological footprint indicators and incorporate it into sustainable circular development strategies.

Within the framework of Sharia governance reporting, Falikhatun *et al*[9] found that sustainability reporting plays an important mediating role in financial performance; thus, strong Sharia governance can enhance the effectiveness of sustainability reporting and support the financial stability of Sharia institutions. Other conceptual review studies also provide a global overview of ESG practices in Islamic banks but, emphasise that they require practical policy adoption and reporting systems capable of effectively conveying Islamic and environmentally friendly values.[10]

The shift toward digitalization in ESG reporting is also appreciated through the use of AI. For example, Xu's survey[11] highlights how AI can enhance the accuracy of ESG reporting in financial institutions—although not specifically aimed at Islamic bank reports, its relevance to the efficiency of sustainability reporting is significant. Furthermore, the adoption of greener AI technologies—including AI carbon footprint management—as discussed by Tkachenko[12], demonstrates how banks, including Sharia banks, can reduce the environmental impact of their digital activities while maintaining high technological capabilities.

Although less explicit about reporting for Islamic banks, Fahmida[13] touched upon the challenges of CSR in Bangladeshi

[9] Falikhatun Falikhatun et al., "Sharia Governance and Sustainability Reporting: The Mediating Role of Financial Performance," *Al-Uqud : Journal of Islamic Economics* 4, no. 2 (July 1, 2020): 218–34, https://doi.org/10.26740/AL-UQUD.V4N2.P218-234.

[10] Abdullah and Haron, "ESG REPORTING PRACTICES AMONG ISLAMIC BANKS: A GLOBAL PERSPECTIVE."

[11] Jun Xu, "AI in ESG for Financial Institutions: An Industrial Survey," February 3, 2024, https://arxiv.org/pdf/2403.05541.

[12] Nataliya Tkachenko, "Integrating AI's Carbon Footprint into Risk Management Frameworks: Strategies and Tools for Sustainable Compliance in Banking Sector," September 15, 2024, https://arxiv.org/pdf/2410.01818.

[13] Liza Fahmida, "Economic Implications of Corporate Governance and Corporate Social Responsibility: Evidence from Banks in Bangladesh," January 26, 2025, https://arxiv.org/pdf/2501.15594.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

banking, such as weak regulatory oversight, the dominance of profit motives, and weak governance—all of which are relevant for Islamic banks seeking to strengthen ecological and social governance.

Conceptually and philosophically, Leins *et al*[14] criticize the practice of "greenwashing" in Islamic financial institutions and advocacy for the establishment of the Islamic Finance Reporting Initiative (IFRI)—reporting standards more aligned with Islamic values and true ecological transparency. Experimental studies on the impact of environmental disclosure on the market value of Islamic banks confirm that environmental effectiveness is not just about reputation but also has a real impact on institutional valuation—which underscores the importance of integrating ecological ethics into official reports.

Thus, the path toward ecologically ethical reporting for Islamic banks requires a combination of strengthening Sharia governance (SSB), developing inclusive Islamic reporting standards and supportive regulations, and leveraging technology for sustainability. This will not only support financial stability but also uphold humanity's trust as caliphs on earth—uniting spiritual and technocratic values in future banking practices.

This research is crucial because it underscores the urgency of integrating ecological dimensions into Islamic bank financial statements—a step aligned with the values of maqāṣid al sharīʿah, such as stewardship *(khilāfah)* and balance *(mīzān)*—and has been proven to strengthen transparency, accountability, competitiveness, and financial stability. A systematic study on the integration of ESG criteria in Islamic finance shows that environmental disclosure can improve operational performance and institutional reputation, strengthen trust, and attract ethical investors[15]. Studies in country X

[14] Stefan Leins, Peter Seele, and Franziska Vogel, "Greenwashing in Islamic Finance? An Analysis of Islamic Private Banks' Non-Financial Reports and a Proposal for an Islamic Finance Reporting Initiative Standard," *Journal of Religion and Business Ethics* 3, no. 2 (November 4, 2016), https://via.library.depaul.edu/jrbe/vol3/iss2/3.

[15] Jery Wardiman et al., "Integration of ESG (Environmental, Social, Governance) Criteria in Islamic Finance: A Systematic Review," *LAA MAISYIR : Jurnal Ekonomi Islam*, November 30, 2024, 344–63, https://doi.org/10.24252/LAMAISYIR.V1I1.53133.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

revealed that stakeholders perceive a positive relationship between disclosing ESG integrated with Islamic principles *(maqaṣid)*, increasing trust, and institutional responsibility [16]. Additionally, empirical studies in Indonesia have found that factors such as company size and governance structure influence the level of green banking disclosure, while the role of the Sharia Supervisory Board (SSB) still needs to be improved[17]. Furthermore, a literature review on the role of Islamic finance in mitigating climate change indicates that Sharia financial instruments have enormous potential to promote green investment and sustainable development through green sukuk and responsible reporting systems[18]. Based on the presentation, the research aims to analyze the role of ecological ethics in the financial statements of Islamic banks and its implications for sustainable economic development.

B. RESEARCH METHODOLOGY

This research is qualitative research with a library research approach. This approach is used to conceptually and critically analyze the application of ecological ethics in the financial statements of Islamic banks and its implications for sustainable economic development. The type of approach used is critical-normative, which involves examining the extent to which the principles of ecological ethics derived from Islamic values and maqāṣid al-sharīʿah are reflected in the accounting standards and financial reporting practices of Islamic banks. This approach also involves a critical analysis of scientific literature, financial regulations, annual reports of Islamic banks, and international sustainability reporting standards such as

[16] Hebah Shalhoob, "ESG Disclosure and Financial Performance: Survey Evidence from Accounting and Islamic Finance," *Sustainability 2025, Vol. 17, Page 1582* 17, no. 4 (February 14, 2025): 1582, https://doi.org/10.3390/SU17041582.
[17] Sarah Hana Hanifah and Dwi Retno Widiyanti, "Exploring Contributing Factors to Environmental Disclosures in Islamic Commercial Banks of Indonesia," *Maliki Islamic Economics Journal* 3, no. 2 (December 30, 2023): 88–107, https://doi.org/10.18860/MIEC.V3I2.23818.
[18] Mosharrof Hosen, "Greening the Future: Islamic Finance's Pivotal Role in Combating Climate Change," *Global Review of Islamic Economics and Business* 11, no. 2 (December 23, 2023): 027–038, https://doi.org/10.14421/GRIEB.2023.112-03.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

GRI (Global Reporting Initiative). Data analysis techniques were conducted using qualitative descriptive and content analysis.

Data were analyzed by tracing relevant themes, such as environmental disclosure, ecological responsibility, maqāṣid al-sharīʿah, and the role of financial statements in supporting a sustainable economy. This analysis will identify the extent to which the dimensions of ecological ethics have been adopted in the financial statements of Islamic banks and will also examine the gap between normative ideals and empirical reality.

C. RESULTS AND DISCUSSION

1. Results

a. Integrating Ecological Ethics into the Financial Reporting Practices of Islamic Banks Syariah

Conceptually, ecological ethics in the financial statements of Islamic banks is a manifestation of the *maqāṣid al-sharīʿah*, which not only includes the protection of religion, life, intellect, offspring, and wealth, but also extends the concept to include *ḥifẓ al-bīʾah* (environmental preservation). The Islamic perspective underscores the interdependence of human life and the ecosystem. Therefore, financial statements that do not account for ecological impacts are considered to have not fully fulfilled the function of Sharia as an instrument of justice. Within the framework of Islamic economics, the concept of ownership is not an absolute right but a trust. This principle affirms that the wealth, capital, and assets managed by Islamic banks must be accountable not only to regulators and investors but also to Allah as the true owner of the universe. Therefore, the integration of ecological ethics into financial reports is not merely a technical innovation but a theological consequence that affirms the position of Islamic banks as caliphs within the financial system.

The research findings indicate that without internalizing these ethical principles, the financial statements of Islamic banks risk being trapped in a capitalistic paradigm that is

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

actually contrary to their normative mission. Furthermore, this integration requires redefining Islamic accounting from a mere tool for recording transactions to a moral instrument that upholds ecological justice. In this perspective, financial statements are no longer just profit and loss statements but rather ethical documents that voice the harmonious relationship between humans, capital, and nature. Thus, the results of this study confirm that the conceptual framework of Islamic accounting must move toward eco-Islamic accounting, which is accounting that makes environmental sustainability an integral variable in measuring financial performance.

b. **The Relevance of Ecological Ethics to Transparency and Accountability**

Conceptually, transparency in Islam is not only understood as data openness but also as trustworthiness. Ecological transparency means that Islamic banks must not hide the negative impacts of their financing activities, as this violates the principles of *ṣidq* (honesty) and *amanah* (trust). Thus, ecological transparency becomes part of spiritual accountability, where financial reports must account for their implications on all of God's creatures, not just humans.

Ecological accountability broadens the scope of those entitled to receive reports. If in the capitalistic paradigm accountability is only directed toward shareholders, in the sharia paradigm accountability encompasses multiple stakeholders, including society, the environment, and future generations. The financial statements of Islamic banks that integrate ecological ethics thus become a form of accountability to regulators legally, to society socially, and to Allah SWT.

This research emphasizes that ecological accountability also has an epistemological dimension. This means that the concept of truth in financial statements is not only measured by the data's conformity with accounting standards but also by the extent to which the data reflects ecological reality. In other

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

words, a report that hides environmental damage is still considered invalid under Islamic law, even if it is accurate from an accounting perspective. This view expands the meaning of truth in accounting toward truth in ecology, where ecological justice becomes the standard of truth in reporting

c. **The Impact of Ecological Ethics on Sustainable Economic Stability**

The conceptual framework of sustainable economics in Islam is based on the principle of balance (*mīzān*), which rejects excessive exploitation of nature. The research findings indicate that integrating ecological ethics into the financial statements of Islamic banks strengthens economic stability by reducing systemic risks stemming from environmental degradation. This aligns with the concept of *al-darūriyyāt* (primary needs), which emphasizes that environmental sustainability is a fundamental condition for maintaining life and the economy.

From a philosophical perspective, sustainable economics focuses not only on growth but also on the preservation of value. Sharia's holistic well-being (*falāḥ*) value can only be achieved if human-nature relationships are preserved. The financial statements of Islamic banks, which contain ecological information, play an important role as knowledge infrastructure to ensure that economic decisions do not harm the sustainability of *falāḥ*. In other words, ecological ethics in financial statements becomes an epistemological prerequisite for the formation of a balanced economic system.

Another conceptual impact is the emergence of a new paradigm regarding risk. If financial risk has only been understood in terms of market volatility, default, or liquidity, then within the ecological framework, risk is expanded to include ecological risk. This concept encompasses the impact of climate change, ecosystem damage, and natural disasters on asset stability. Thus, ecologically ethical financial reporting

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

serves as a long-term risk management tool that maintains the sustainability of the financial system while ensuring the continuation of life.

d. **Challenges in Applying Ecological Ethics to Financial Reports**

The research findings indicate that the implementation of ecological ethics in financial reporting faces various obstacles that are structural, normative, and practical in nature. First, from a regulatory perspective, there are no accounting standards that explicitly integrate the principles of ecological ethics. International accounting standards such as IFRS and national standards still emphasize financial measurability, while environmental aspects only appear in the form of voluntary disclosure. This leads companies to view ecological issues more as a reputational factor rather than as an ethical obligation inherent in the financial reporting system.

Second, challenges arise from the methodological dimension, particularly in measuring ecological impacts with reliable quantitative indicators. For example, carbon emissions, ecological footprints, or the degradation of natural resources are difficult to integrate into traditional accounting frameworks that focus on monetary value. This study found an epistemological gap between the multidimensional science of ecology and accounting, which demands a single numerical representation. This gap has implications for the lack of consistency and comparability in financial statements that attempt to adopt ecological principles.

Third, the research findings confirm that there is internal resistance within the organization, particularly at the managerial and shareholder levels, because the implementation of ecological ethics is perceived as potentially increasing compliance costs. For example, recording environmental costs, ecosystem restoration, or compensating for natural damage is often considered an additional burden that reduces short-term profitability. In fact, from a long-term

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

sustainability perspective, these actions can actually strengthen the company's social legitimacy.

Additionally, this study found that organizational culture and corporate ethics also play an important role. Many companies have not yet made ecological ethics an integral part of their core values, so reporting practices tend to be cosmetic (greenwashing). This fact is evident from the sustainability reports, which focus solely on positive narratives without verifiable quantitative data. Thus, integrating ecological ethics into financial statements still faces a dilemma between moral idealism and business pragmatism.

The research results also indicate a misalignment between stakeholder expectations and the reality of financial statement preparation. Increasingly environmentally conscious communities and investors are demanding ecological transparency and accountability, while companies still face limitations in capacity, resources, and regulatory incentives. This difference in expectations leads to a trust deficit, which in turn affects the company's legitimacy in the eyes of the public.

Overall, this study concludes that the challenges in applying ecological ethics to financial reporting are not only technical but also conceptual and structural. The absence of global standards, measurement difficulties, managerial resistance, the risk of greenwashing, and stakeholder expectation gaps are dominant factors hindering implementation. However, the research results also indicate significant opportunities if regulations, accounting standards, and ethical awareness can work synergistically. Integrating ecological ethics into financial reports is not merely a moral imperative but also a strategic instrument for building a resilient and sustainable economy in the future.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

2. Discussion

a. Integrating Ecological Ethics into the Financial Reporting Practices of Islamic Banks Syariah

The integration of ecological ethics into the financial reporting of Islamic banks marks an epistemological and functional shift from accounting as merely a tool for quantifying economic value to accounting as an arena for moral-ecological assessment. From the perspective of the objectives of Islamic law (*maqāṣid al-sharīʿah*), the principle of environmental preservation (ḥifẓ al-bīʾah) does not stand alone but is incorporated into the fundamental objectives of Islamic law—the preservation of religion, life, intellect, offspring, and property—all of which require a sustainable environment for the essence of that protection to be realized. Therefore, measuring and disclosing environmental impacts in financial statements is not an administrative add-on but an epistemological requirement to test the extent to which a bank's operations meet the *maqāṣid*; reports that ignore ecological externalities potentially fail to represent Sharia compliance substantively[19].

Spreading from theology to the ontology of ownership, the Islamic doctrine of amanah and the concept of mustakhlaf (stewardship) shifted the orientation of financial institutions: capital and assets are not the absolute property of the bank but rather a trust that must be managed according to the principles of justice and sustainability. The practical implication is that financing decisions, asset valuations, and liability recognition need to consider long-term environmental risks (e.g., financed emissions, projects that damage ecosystems) rather than solely short-term financial risks. Thus, reporting that only presents traditional financial metrics (profit, NPL, and capital adequacy ratio) becomes inadequate

[19] Rania Kamla, Sonja Gallhofer, and Jim Haslam, “Islam, Nature and Accounting: Islamic Principles and the Notion of Accounting for the Environment,” *Accounting Forum* 30, no. 3 (September 1, 2006): 245–65, https://doi.org/10.1016/J.ACCFOR.2006.05.003.

for assessing ethical and maqāṣid compliance; a new reporting dimension is needed that internalizes environmental costs and the rights of future generations.

Recent empirical studies show a relationship between the quality of Shariah governance, climate governance mechanisms, and banks' ability to reduce financed emissions, confirming the importance of this dimension in Shariah banking practices.[20]. From a theoretical-accounting perspective, this phenomenon demands a redefinition of the scope of Islamic accounting into what can be called "eco-Islamic accounting" or green accounting from a maqāṣid perspective. This redefinition includes (1) expanding the scope of measurement—incorporating material environmental impacts and environmental liabilities; (2) adjusting recognition and measurement principles—for example, recognizing environmental restoration provisions and valuing environmentally impacted assets; and (3) transforming the reporting function—from informative to transformative, meaning reporting that incentivizes ecologically sound economic behavior. Critical literature on accounting and Islam asserts that religious principles can serve as a strong normative basis for developing pro-environmental accounting practices[21].

Methodologically and practically, integrating ecological ethics demands a combination of instruments: non-financial reporting standards (e.g., indicator-based environmental sustainability reporting), quantitative impact measurement (life-cycle analysis for funded projects), and governance mechanisms (Shariah boards incorporating environmental expertise). The implementation of green sukuk, or sharia-

[20] Saheed Olanrewaju Issa, Abdulkadri Toyin Alabi, and Abdulbaki Teniola Ubandawaki, “Climate Change Governance, Shariah Governance Quality, and Financed Emission Mitigation: Evidence from Islamic Banks in Southeast and West Asia,” *Borsa Istanbul Review* 25, no. 4 (July 1, 2025): 722–32, https://doi.org/10.1016/J.BIR.2025.03.011.
[21] Kamla, Gallhofer, and Haslam, “Islam, Nature and Accounting: Islamic Principles and the Notion of Accounting for the Environment.”

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

compliant green financing instruments, is a concrete example of how sharia financial products can be directed toward ecological goals while still meeting fiqh requirements. The experience with green sukuk in several jurisdictions demonstrates the potential synergy between maqāṣid and Islamic capital market instruments. However, this practice still requires harmonization of reporting standards and measurement methodologies that are acceptable to auditors and the sharia board[22].

In the realm of regulation and standardization, there are two major challenges: (1) the absence of integrated sharia accounting standards that explicitly address environmental accounting and (2) the capacity gap—the lack of environmental expertise among sharia auditors and banking practitioners. Academics and regulators need to work together to formulate guidelines that combine the principles of Maqāṣid with international green accounting practices so that Islamic bank reports can include material disclosures such as financed emissions, green financing policies, restoration provisions, and indicators of contribution to the SDGs. Several empirical studies in the Asia and MENA regions have begun to examine the link between sustainability reporting, financial performance, and maqāṣid compliance; initial results support the idea that sustainability reporting is positively associated with maqāṣid objectives when seriously internalized[23].

The normative implications are profound: if sharia accounting is understood as "accounting as worship," then auditing and disclosure are no longer merely technical compliance checks but a moral test of trust. Such an

[22] Sopian Lubis and Wiwin Windiana, "Synergy of Green Finance and Maqasid Sharia: A Study of the Development of Green Sukuk in Indonesia," *Khatulistiwa* 14, no. 2 (2024): 147–62, https://doi.org/10.24260/khatulistiwa.v14i2.2382.

[23] Ulfi Kartika Oktaviana, Achmad Sani, and Nanik Wahyuni, "Sustainability Accounting Disclosure With Maqashid Sharia Perspective," *International Journal of Economics, Business and Innovation Research* 03, no. 05 (2024), https://e-journal.citakonsultindo.or.id/index.php/IJEBIR/about/editorialTeam.

understanding demands an expansion of the role of Sharia auditors to become part of a value ecosystem that assesses socio-ecological impacts, and it demands recognition that the quality of reports is a proxy for institutional integrity in fulfilling maqāṣid. From an educational and research perspective, this opens up an interdisciplinary research agenda—combining studies of fiqh, ecology, accounting, and public policy—to formulate reporting models that are robust and legitimate according to Sharia[24]. Finally, there are practical, measurable recommendations:Islamic banks need to (1) develop financing policies that integrate maqāṣid-based environmental screening; (2) include quantitative environmental indicators in audited annual reports; (3) train Sharia Boards and auditors to assess environmental issues; (4) experiment with green sukuk instruments and sustainable banking products with clear contributions to maqāṣid; and (5) collaborate with regulators to develop maqāṣid-based environmental reporting guidelines. Implementing these steps will affirm that ecological ethics is not theoretical discourse but binding institutional practice[25].

b. **The Relevance of Ecological Ethics to Transparency and Accountability**

Transparency in Islam cannot be separated from the principles of ṣidq (honesty) and amanah (trustworthiness). Ecological transparency means the courage of Islamic banks to reveal the real impact of financing activities on the environment, both positive and negative. In this context, disclosure is not merely fulfilling a regulatory obligation but also an act of worship with otherworldly value. Reports covering environmental damage are considered a form of

[24] Kamla, Gallhofer, and Haslam, "Islam, Nature and Accounting: Islamic Principles and the Notion of Accounting for the Environment."

[25] Amirah Arifah, Khasanah Sugiyarti, and Fatma Laela, "THE EFFECT OF GREEN ACCOUNTING PRACTICE ON MAQASHID SHARIA PERFORMANCE IN ISLAMIC BANKS," *JURNAL AKUNTANSI DAN AUDITING* 21, no. 2 (July 12, 2024): 39–63, https://doi.org/10.14710/JAA.21.2.39-63.

dishonesty that contradicts Sharia, even if the reports are technically accurate from an accounting perspective[26].

Accountability in the Sharia paradigm has a broader scope than in the capitalistic paradigm. If the conventional system places shareholders as the primary recipients of reports, then Islamic accountability must be to Allah, the regulator (legal), society (social), the environment (ecological), and future generations (intergenerational). Thus, the ethical and ecological Islamic bank financial statements serve as a multi-stakeholder accountability report.

This research also highlights the epistemological dimension of ecological accountability. The truth in financial statements is not only measured by compliance with accounting standards but also by the extent to which the statements reflect truth in ecology. In other words, the validity of the report must be tested against ecological reality, not just financial figures. This marks the birth of a new concept: epistemic justice in accounting, where reporting conveys data and represents ecological truths that have a direct impact on survival[27].

c. **The Impact of Ecological Ethics on Sustainable Economic Stability**

Contemporary academic discourse is increasingly finding relevance in the integration of ecological ethics into the financial statements of Islamic banks. The principle of mīzān (balance) taught in Islam reminds us that excessive exploitation of nature will damage the foundations of life, including economic stability. Therefore, financial statements that reveal ecological realities not only serve as administrative records but also as instruments for mitigating systemic risk, capable of providing an in-depth assessment of vulnerabilities

[26] Maryam Alhinai and Ailesha Ringer, "Amanah and Umma: Eco-Islam and Epistemological Diversity in Environmental Communication," *Frontiers in Communication* 10, no. June (2025): 1–9, https://doi.org/10.3389/fcomm.2025.1568627.
[27] Kamla, Gallhofer, and Haslam, "Islam, Nature and Accounting: Islamic Principles and the Notion of Accounting for the Environment."

due to environmental degradation. In research conducted by Issa *et al*[28] it is affirmed that climate governance integrated with the quality of sharia supervision has a significant influence on the ability of sharia banks in Southeast Asia and West Asia to reduce financed emissions. This finding confirms that the ecological dimension is not an additional burden but rather part of a sustainability strategy that strengthens the resilience of the Islamic financial system.

The expansion of the concept of risk in Islamic economics is also becoming increasingly evident. From initially being limited to market, liquidity, or credit risks, it now includes the ecological risks inherent in every project financing. Muneer *et al*[29], in their study, showed that environmental information disclosure and strong corporate governance practices can ensure the financial sustainability of Islamic banks. This aligns with the idea that ecological, ethical, and financial reporting is not merely a reporting instrument but also serves a dual function as an early warning system that detects potential threats ranging from environmental damage and reputational issues to regulatory pressure. Thus, the existence of the ecological dimension becomes an integral part of efforts to strengthen the resilience of Islamic financial institutions against layered crises.

Philosophically, the ultimate goal of Islamic economics is falāḥ—holistic well-being that encompasses material, social, spiritual, and ecological aspects. This thinking is supported by Kashi *et al.'s* research[30] which found that

[28] Issa, Alabi, and Ubandawaki, "Climate Change Governance, Shariah Governance Quality, and Financed Emission Mitigation: Evidence from Islamic Banks in Southeast and West Asia."
[29] Saqib Muneer et al., "Does Environmental Disclosure and Corporate Governance Ensure the Financial Sustainability of Islamic Banks?," *Administrative Sciences 2025, Vol. 15, Page 54* 15, no. 2 (February 10, 2025): 54, https://doi.org/10.3390/ADMSCI15020054.
[30] Aghilasse Kashi et al., "Do Institutional Environment and Corporate Governance Structures Determine Islamic Banks' Sustainability Performance? Evidence across Key Jurisdictions in Islamic Finance Industry," *Borsa Istanbul Review* 24, no. 6 (November 1, 2024): 1088–1100, https://doi.org/10.1016/J.BIR.2024.06.005.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

governance structure and institutional environment play a significant role in determining the sustainability performance of Islamic banks. In other words, achieving success (falāḥ) is closely linked to the extent to which Islamic financial institutions can maintain a harmonious relationship with nature. In line with this, Nasir *et al*[31] highlight that environmental theology in contemporary Islam emphasizes the ethical obligation to care for nature as a form of trust inherent in the maqāṣid al-sharīʻah.

The ecological information integrated into the financial statements of Islamic banks ultimately forms a knowledge infrastructure that facilitates economic decision-making aligned with a long-term vision of well-being. The effort to build an ESG disclosure index for Islamic financial institutions, as developed in the recent study by Sori *et al.*[32], shows that ecological accountability is increasingly recognized as a new standard in Islamic financial practices. This work proves that integrating ecological ethics into financial statements is not merely an option but an urgent need to ensure sustainability, enhance social legitimacy, and fulfill spiritual responsibilities to Allah SWT. Thus, the sharia accounting paradigm is transforming from being merely a business language to a moral and ecological testimony that supports the realization of true falāḥ.

d. **Challenges in Applying Ecological Ethics to Financial Reports**

Although important, the implementation of ecological ethics in financial reporting faces various conceptual and practical obstacles. From an epistemological perspective, the

[31] Norita Mohd Nasir, Mahendhiran Sanggaran Nair, and Pervaiz Khalid Ahmed, "Environmental Sustainability and Contemporary Islamic Society: A Shariah Perspective," *Asian Academy of Management Journal* 27, no. 2 (December 7, 2022): 211–31, https://doi.org/10.21315/AAMJ2022.27.2.10.

[32] ZULKARNAIN BIN MUHAMAD SORI, Syaryanti Hussin, and A. H. Baharom, "Developing an ESG Disclosure Index for Islamic Financial Institutions: Enhancing Transparency and Accountability," *SSRN Electronic Journal*, January 29, 2025, https://doi.org/10.2139/SSRN.5115926.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

modern accounting system is still dominated by the utilitarian-capitalistic paradigm, which is profit-oriented. International standards like IFRS do emphasize relevance and reliability, but they don't provide adequate space for ethical-ecological values. This creates a dilemma: will Islamic accounting simply follow the global trend, or will it build an alternative epistemological framework based on maqāṣid?

Another obstacle arises from the Islamic accounting literature itself. Most research still focuses on the formal compliance aspects of halal-haram transactions, while the issue of ecological justice has not received serious attention. In fact, ecological justice is an integral part of the maqāṣid. The lack of this concept makes it difficult to internalize ecological ethics in financial reporting practices..

From an axiological perspective, the main weakness lies in the low internalization of ecological ethical values among practitioners, regulators, and the public. Many parties still consider environmental issues to be supplementary (a secondary issue), not the core of economic sustainability. Conceptual transformation therefore, requires not only technical regulations but also a revolution in ethical consciousness. In this regard, Islamic banks are required to be moral pioneers, demonstrating that ecological issues are an integral part of the mission of Islamic finance

D. CONCLUSION

The results of this study confirm that the integration of ecological ethics into the financial statements of Islamic banks is not merely a normative discourse but a structural necessity in responding to global challenges toward a sustainable economy. Islamic banks, with their philosophical basis of *maqāṣid al-sharīʿah*, which emphasizes justice, balance, and sustainability, have a unique epistemological foundation for building financial practices that not only pursue profitability but also consider environmental sustainability and social welfare. Financial reports that internalize ecological ethical

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

principles can provide more complete transparency, reflecting the accountability of Islamic banks not only to shareholders but also to society, future generations, and nature as an entity with moral rights that must be protected.

Within the conceptual framework constructed, it is clear that the success of Islamic banks in implementing ecological ethics in financial reporting will impact the creation of economic stability that is more resistant to systemic crises. Transparency based on disclosing environmental, social, and governance (ESG) aspects with a Sharia nuance not only enhances investor confidence but also strengthens the legitimacy of Islamic banks as key players in sustainable development. This indicates that integrating ecological ethics into financial reports has strategic implications: first, it strengthens the position of Islamic banks in the increasingly competitive global landscape that demands a commitment to sustainability; second, it introduces a new paradigm that true financial performance cannot be separated from social and ecological performance.

Critically, this research also reveals a gap between existing reporting practices and the normative ideals promoted by *maqāṣid al-sharī'ah* and the principles of global sustainability. Many Islamic banks still focus on formalistic Sharia compliance but have not fully internalized ecological values in their financial reports. This gap highlights the need for policy transformation, both through national sharia financial regulations and through international standards that are more adaptable to Islamic values. In other words, the challenge ahead is to avoid Islamic banks being caught in "greenwashing" or "ethics-washing," where the disclosure of sustainability aspects is merely cosmetic without being accompanied by real practices in banking operations.

The implications of this research for practice are the urgency to expand the scope of Islamic financial reporting so that it is not only based on conventional indicators but also includes measuring environmental impact, social responsibility, and governance that favors the principle of sustainability. Regulatively, these results provide a foundation for financial authorities and supervisory institutions to formulate reporting standards that are more inclusive of ecological values, while also encouraging Islamic banks to play an active role in supporting the Sustainable Development Goals (SDGs) agenda. As for the theoretical aspect, this research enriches the literature by introducing a conceptual model that combines maqāṣid al-sharī'ah, ecological ethics, stakeholder theory, and the triple bottom line as a more comprehensive analytical framework.

For future research, there is ample room for exploration. First, there is a need for more in-depth empirical testing regarding the influence of ecological ethics-based disclosure on the financial performance and reputation of Islamic banks, both through a quantitative approach using secondary data and qualitative studies based on interviews with key stakeholders. Second, cross-country comparative studies can be conducted to understand the variations in the application of ecological ethics in the financial statements of Islamic banks, particularly in countries with different social, cultural, and regulatory contexts. Third, exploring the integration of digital technologies such as blockchain and big data analytics to enhance ecological transparency is also a relevant research path in the digital finance era.

Thus, this study concludes that ecological ethics in the financial statements of Islamic banks not only affirms the identity of Islam as a mercy to all mankind but also makes a real contribution to sustainable development. Sharia banks are required not only to be providers of financial services that are legally halal but also *tayyib* in the ecological and social sense. In the future, the success of Islamic banks will be measured not only by the size of their profits or asset growth, but also by how well they can maintain a balance in their relationships between God, humanity, and nature.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah

REFERENCES

Abdullah, Nik Anis Idayu Nik, and Razali Haron. "ESG REPORTING PRACTICES AMONG ISLAMIC BANKS: A GLOBAL PERSPECTIVE." *IIUM Law Journal* 30, no. S2 (November 12, 2022): 01–36. https://doi.org/10.31436/IIUMLJ.V30IS2.755.

Alhinai, Maryam, and Ailesha Ringer. "Amanah and Umma: Eco-Islam and Epistemological Diversity in Environmental Communication." *Frontiers in Communication* 10, no. June (2025): 1–9. https://doi.org/10.3389/fcomm.2025.1568627.

Arifah, Amirah, Khasanah Sugiyarti, and Fatma Laela. "THE EFFECT OF GREEN ACCOUNTING PRACTICE ON MAQASHID SHARIA PERFORMANCE IN ISLAMIC BANKS." *JURNAL AKUNTANSI DAN AUDITING* 21, no. 2 (July 12, 2024): 39–63. https://doi.org/10.14710/JAA.21.2.39-63.

Boudawara, Yossra, Kaouther Toumi, Amira Wannes, and Khaled Hussainey. "Shari'ah Governance Quality and Environmental, Social and Governance Performance in Islamic Banks. A Cross-Country Evidence." *Journal of Applied Accounting Research* 24, no. 5 (October 30, 2023): 1004–26. https://doi.org/10.1108/JAAR-08-2022-0208.

Cahya, Bayu Tri, Rika Fitri Habsari, Yunus Harjito, Ratih Paramita Sari, and Nor Aishah Mohd Ali. "A Holistic View of Corporate Sustainability: From Disclosure to Governance Development." *Global Review of Islamic Economics and Business* 13, no. 1 (July 7, 2025): 062–073. https://doi.org/10.14421/GRIEB.2025.131-05.

Fahmida, Liza. "Economic Implications of Corporate Governance and Corporate Social Responsibility: Evidence from Banks in Bangladesh," January 26, 2025. https://arxiv.org/pdf/2501.15594.

Falikhatun, Falikhatun, Salamah Wahyuni, Afifah Oki Nilasakti, and Milanda Ainun Niswah. "Sharia Governance and Sustainability Reporting: The Mediating Role of Financial Performance." *Al-*

Uqud : Journal of Islamic Economics 4, no. 2 (July 1, 2020): 218–34. https://doi.org/10.26740/AL-UQUD.V4N2.P218-234.

Hanifah, Sarah Hana, and Dwi Retno Widiyanti. "Exploring Contributing Factors to Environmental Disclosures in Islamic Commercial Banks of Indonesia." *Maliki Islamic Economics Journal* 3, no. 2 (December 30, 2023): 88–107. https://doi.org/10.18860/MIEC.V3I2.23818.

Hosen, Mosharrof. "Greening the Future: Islamic Finance's Pivotal Role in Combating Climate Change." *Global Review of Islamic Economics and Business* 11, no. 2 (December 23, 2023): 027–038. https://doi.org/10.14421/GRIEB.2023.112-03.

Issa, Saheed Olanrewaju, Abdulkadri Toyin Alabi, and Abdulbaki Teniola Ubandawaki. "Climate Change Governance, Shariah Governance Quality, and Financed Emission Mitigation: Evidence from Islamic Banks in Southeast and West Asia." *Borsa Istanbul Review* 25, no. 4 (July 1, 2025): 722–32. https://doi.org/10.1016/J.BIR.2025.03.011.

Jajang, Ahmad Baehaqi, and Erina Maulidha. "Sustainability Disclosures and Financial Performance of Islamic Banks in Indonesia." *AL-MUZARA'AH* 11, no. 2 (December 27, 2023): 201–18. https://doi.org/10.29244/JAM.11.2.201-218.

Jan, Amin, Maran Marimuthu, Muhammad Pisol bin, Mohd Mat Isa, and Pia A Albinsson. "Sustainability Practices and Banks Financial Performance: A Conceptual Review from the Islamic Banking Industry in Malaysia." *International Journal of Business and Management* 13, no. 11 (October 12, 2018): p61. https://doi.org/10.5539/IJBM.V13N11P61.

Kamla, Rania, Sonja Gallhofer, and Jim Haslam. "Islam, Nature and Accounting: Islamic Principles and the Notion of Accounting for the Environment." *Accounting Forum* 30, no. 3 (September 1, 2006): 245–65. https://doi.org/10.1016/J.ACCFOR.2006.05.003.

Kartika Oktaviana, Ulfi, Achmad Sani, and Nanik Wahyuni. "Sustainability Accounting Disclosure With Maqashid Sharia Perspective." *International Journal of Economics, Business and Innovation Research* 03, no. 05 (2024). https://e-journal.citakonsultindo.or.id/index.php/IJEBIR/about/editorialTeam.

Kashi, Aghilasse, Abdelkader Laallam, Naji Mansour Nomran, Ala Azmi Abumughli, and Tamy Al-Binali. "Do Institutional Environment and Corporate Governance Structures Determine Islamic Banks' Sustainability Performance? Evidence across Key Jurisdictions in Islamic Finance Industry." *Borsa Istanbul Review* 24, no. 6 (November 1, 2024): 1088–1100. https://doi.org/10.1016/J.BIR.2024.06.005.

Leins, Stefan, Peter Seele, and Franziska Vogel. "Greenwashing in Islamic Finance? An Analysis of Islamic Private Banks' Non-Financial Reports and a Proposal for an Islamic Finance Reporting Initiative Standard." *Journal of Religion and Business Ethics* 3, no. 2 (November 4, 2016). https://via.library.depaul.edu/jrbe/vol3/iss2/3.

Lubis, Sopian, and Wiwin Windiana. "Synergy of Green Finance and Maqasid Sharia: A Study of the Development of Green Sukuk in Indonesia." *Khatulistiwa* 14, no. 2 (2024): 147–62. https://doi.org/10.24260/khatulistiwa.v14i2.2382.

Majeed, Muhammad Tariq. "Financial Development and Ecological Footprint in OIC Countries: Islamic Perspectives and Empirical Evidence BT - Islamic Finance and Circular Economy: Connecting Impact and Value Creation." edited by Syed Nazim Ali and Zul Hakim Jumat, 169–93. Singapore: Springer Singapore, 2021. https://doi.org/10.1007/978-981-16-6061-0_10.

MUHAMAD SORI, ZULKARNAIN BIN, Syaryanti Hussin, and A. H. Baharom. "Developing an ESG Disclosure Index for Islamic Financial Institutions: Enhancing Transparency and Accountability." *SSRN Electronic Journal*, January 29, 2025. https://doi.org/10.2139/SSRN.5115926.

Muneer, Saqib, Ajay Singh, Mazhar Hussain Choudhary, Awwad Saad Alshammari, and Nasir Ali Butt. "Does Environmental Disclosure and Corporate Governance Ensure the Financial Sustainability of Islamic Banks?" *Administrative Sciences 2025,* *Vol. 15, Page 54* 15, no. 2 (February 10, 2025): 54. https://doi.org/10.3390/ADMSCI15020054.

———. "Does Environmental Disclosure and Corporate Governance Ensure the Financial Sustainability of Islamic Banks?" *Administrative Sciences 2025, Vol. 15, Page 54* 15, no. 2 (February 10, 2025): 54. https://doi.org/10.3390/ADMSCI15020054.

Nasir, Norita Mohd, Mahendhiran Sanggaran Nair, and Pervaiz Khalid Ahmed. "Environmental Sustainability and Contemporary Islamic Society: A Shariah Perspective." *Asian Academy of Management Journal* 27, no. 2 (December 7, 2022): 211–31. https://doi.org/10.21315/AAMJ2022.27.2.10.

Shalhoob, Hebah. "ESG Disclosure and Financial Performance: Survey Evidence from Accounting and Islamic Finance." *Sustainability 2025, Vol. 17, Page 1582* 17, no. 4 (February 14, 2025): 1582. https://doi.org/10.3390/SU17041582.

Tkachenko, Nataliya. "Integrating AI's Carbon Footprint into Risk Management Frameworks: Strategies and Tools for Sustainable Compliance in Banking Sector," September 15, 2024. https://arxiv.org/pdf/2410.01818.

Wardiman, Jery, M Topit Hidayat, Zul Afdal, and Nofriansyah. "Integration of ESG (Environmental, Social, Governance) Criteria in Islamic Finance: A Systematic Review." *LAA MAISYIR : Jurnal Ekonomi Islam*, November 30, 2024, 344–63. https://doi.org/10.24252/LAMAISYIR.V1I1.53133.

Widayanti, Mega Ayu, Sulistya Rusgianto, Hesti Eka Setianingsih, and Zurina Kefeli. "The Effect of Environmental Disclosure on Stock Return of Islamic and Conventional Banks." *Jurnal Ekonomi & Keuangan Islam* 2025, no. 1 (January 22, 2025): 47–60. https://doi.org/10.20885/JEKI.VOL11.ISS1.ART4.

Xu, Jun. "AI in ESG for Financial Institutions: An Industrial Survey," February 3, 2024. https://arxiv.org/pdf/2403.05541.

P-ISSN: 2599-1515, E-ISSN: 2776-9569
https://jurnal.iainkediri.ac.id/index.php/wadiah