

The Role of Green Accounting in Islamic Finance: Opportunities and Challenges in the Era of ESG

Abdul Khaliq^{a,*}, Sahrullah^b, Kahar^c

^{a,b} Faculty of Economic and Business, Universitas Muhammadiyah Makassar, Makassar, Indonesia

^c Department of Management, Universitas Syekh Yusuf Al Makassari, Gowa, Indonesia

*Corresponding author. E-mail address: abd.khaliqr@unismuh.ac.id

ARTICLE INFO

A B S T R A C T

Article history:

Received
November
Accepted
December

Keywords

Green
Accounting,
Islamic
Finance,
Environmental,
Social, and
Governance
(ESG), Green
Sukuk,
Sustainability
Reporting

Green accounting is gaining recognition as a vital tool for promoting environmental sustainability, particularly within Islamic finance, which emphasizes ethical and responsible economic practices. This study investigates the integration of green accounting principles into Islamic financial institutions, analyzing their potential role in addressing Environmental, Social, and Governance (ESG) concerns and advancing global sustainability objectives. Using a mixed-methods approach, the research combines literature reviews, case studies of green sukuk implementations, interviews with financial practitioners, and survey analysis of Islamic financial institutions. The findings highlight several opportunities, including the natural alignment of Islamic finance principles with ESG objectives and the success of instruments such as green sukuk in financing sustainable projects. Green accounting enhances transparency and accountability in environmental reporting, boosting stakeholder trust and institutional credibility. However, significant challenges remain, such as the lack of standardized frameworks for green accounting tailored to Islamic finance, limited expertise among professionals, and resistance to adopting new practices due to perceived costs and complexities. The study emphasizes the need for capacity-building initiatives, regulatory support, and collaboration among stakeholders to overcome these barriers. While the research provides valuable insights into the integration of green accounting in Islamic finance, limitations include the geographic scope of the case studies, data accessibility, and the emerging nature of the field, making longitudinal assessments challenging. Despite these constraints, the research underscores that the adoption of green accounting is not only feasible but also critical for positioning Islamic finance as a key driver of environmental sustainability in the era of ESG and Sustainable Development Goals (SDGs).

1. Introduction

1.1 Background

The growing urgency of environmental sustainability has brought green accounting to the forefront of global financial systems. Green accounting, also referred to as environmental accounting, integrates environmental costs into conventional financial reporting. It offers a framework for assessing and managing the environmental impact of economic activities, aiming to balance profitability with sustainability. In an era where stakeholders demand more transparency and accountability, green accounting plays a pivotal role in aligning financial objectives with environmental and social responsibilities (Schaltegger & Burritt, 2000).

In parallel, Islamic finance, governed by the principles of Shariah law, inherently promotes ethical and sustainable financial practices. Central to Islamic finance are the principles of justice (adalah), prohibition of interest (riba), and avoidance of excessive uncertainty (gharar), which collectively encourage investments that yield socio-economic benefits and align with environmental stewardship (maqasid al-shariah). The alignment between green accounting and Islamic finance is evident, as both prioritize long-term sustainability over short-term financial gains (Kammer et al., 2015).

The rise of Environmental, Social, and Governance (ESG) frameworks has further underscored the importance of sustainability in the financial sector. ESG criteria provide a comprehensive framework for evaluating the non-financial performance of organizations, encouraging businesses to adopt strategies that consider environmental and social impacts alongside governance practices (Khan et al., 2021). In this context, Islamic finance has a unique opportunity to position itself as a leader in sustainable finance by integrating green accounting principles and aligning them with ESG mandates.

Despite the promising synergies, the integration of green accounting within Islamic finance faces significant challenges. These include a lack of standardized frameworks, limited stakeholder awareness, and the absence of clear regulatory guidelines. However, these challenges also present opportunities for innovation, policy reform, and capacity building.

1.2 Problem Statement

Despite the increasing global emphasis on sustainability, the integration of green accounting into Islamic finance remains underexplored. Islamic finance, guided by principles that align closely with sustainability, such as environmental stewardship and socio-economic justice, has the potential to lead in the adoption of green accounting practices. However, several challenges hinder this integration:

1. **Lack of Standardization:** The absence of standardized frameworks for green accounting tailored to Islamic finance creates inconsistencies in its implementation. While global standards such as the Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) exist, they are not fully aligned with Islamic principles or the maqasid al-shariah.
2. **Regulatory Gaps:** Regulatory bodies in predominantly Islamic finance markets have yet to develop comprehensive policies that mandate or encourage green accounting practices within financial institutions. This regulatory void limits the scalability and uniformity of green accounting adoption in Islamic finance.
3. **Limited Awareness and Expertise:** Many Islamic financial institutions lack the technical expertise and awareness needed to implement green accounting effectively. This knowledge gap extends to stakeholders, including regulators, investors, and policymakers, further impeding progress.
4. **Challenges in ESG Integration:** While ESG frameworks offer an opportunity for Islamic finance to integrate green accounting, aligning ESG criteria with Shariah-compliant practices remains complex. Differences in operational and reporting requirements create additional hurdles for institutions attempting to balance both frameworks.
5. **Data Availability and Reliability:** Access to reliable and standardized environmental data is a recurring challenge for financial institutions aiming to adopt green accounting. For Islamic finance, this issue is compounded by the lack of research and case studies addressing the unique intersection of Shariah principles and green accounting.

These challenges underscore the need for a deeper exploration of how green accounting can be effectively integrated into Islamic finance. Addressing these issues is critical for leveraging the natural synergies between the two domains, enabling Islamic financial institutions to play a more significant role in advancing global ESG goals.

1.3 Objectives and Scope

The primary objective of this study is to explore the integration of green accounting principles into Islamic finance, focusing on its role in enhancing sustainability and aligning with the Environmental, Social, and Governance (ESG) framework. Specifically, the study aims to:

1. Investigate how green accounting supports the foundational principles of Islamic finance, particularly its focus on ethical, transparent, and sustainable practices.
2. Highlight the potential benefits of adopting green accounting within Islamic financial institutions, including enhanced transparency, reputation, and alignment with global sustainability goals.
3. Examine the key barriers to implementing green accounting in Islamic finance, including regulatory, technical, and operational challenges.
4. Develop actionable recommendations for regulators, financial institutions, and stakeholders to facilitate the adoption of green accounting practices in Islamic finance.
5. Explore how Islamic finance, through green accounting, can contribute to the broader ESG agenda and the achievement of global sustainability targets.

The scope of this study focuses on the integration of green accounting within Islamic finance, analyzing its alignment with Shariah principles and its role in supporting Environmental, Social, and Governance (ESG) goals. It examines the practices of Islamic financial institutions, including banks, Takaful companies, and investment funds, with particular attention to regions where Islamic finance is prominent, such as the Middle East, Southeast Asia, and North Africa. The study adopts a qualitative approach, utilizing literature reviews, thematic analysis, and case studies to explore contemporary developments in green accounting and its implementation in Islamic finance. By addressing both global trends and regional contexts, the research aims to provide actionable insights for policymakers, financial institutions, and stakeholders in advancing sustainability through Islamic finance.

2. Literature Review

Islamic Finance Principles

Islamic finance is a financial system grounded in the principles of Sharia, which emphasizes ethical, moral, and social considerations in financial transactions. The core tenets of Islamic finance revolve around the prohibition of interest (riba), the necessity for profit and loss sharing, and the avoidance of excessive uncertainty (gharar) in contracts. These principles distinguish Islamic finance from conventional banking and align it with broader ethical frameworks, such as corporate social responsibility (CSR) and sustainable development goals (SDGs) (Notolegowo, 2023).

The ethical dimensions of Islamic finance are particularly relevant in contemporary business practices, where there is an increasing demand for financial systems that promote social justice and economic equity. Islamic finance's emphasis on ethical investment and financial inclusion resonates with the growing global consciousness regarding sustainability and ethical business practices (Elamin, 2023). This convergence between Islamic finance and CSR highlights the potential for

Islamic financial institutions (IFIs) to play a significant role in addressing social issues, such as poverty alleviation and environmental sustainability, through instruments like Zakat and Waqf (Notolegowo, 2023; Kuanova et al., 2023).

Furthermore, the Islamic finance model has gained traction in various regions, particularly in emerging markets, where it is viewed as a viable alternative to conventional banking systems. The rapid expansion of Islamic finance in countries like Malaysia and Nigeria illustrates its potential to foster economic growth while adhering to ethical standards (Ahmad et al., 2020; Rudnyckyj, 2014). The integration of Islamic finance principles into the global financial system can contribute to greater market stability, as it encourages risk-sharing and discourages speculative practices that often lead to financial crises (Tlemsani, 2010; Ahmed, 2010).

The role of Shari'ah compliance in Islamic finance is crucial. Each Islamic financial institution is typically governed by a Shari'ah board, which ensures that all products and services offered are in line with Islamic law (Khan et al., 2020; Hamid & Masood, 2011). This oversight enhances the credibility of IFIs and instills confidence among consumers who seek ethical financial solutions. The presence of Shari'ah advisors is vital in maintaining the integrity of Islamic finance, as they provide guidance on permissible transactions and help navigate the complexities of financial products (Khan et al., 2020; Mathkur, 2019).

Moreover, the principles of Islamic finance are increasingly recognized for their relevance in addressing contemporary economic challenges. The focus on ethical investment and social responsibility aligns with the global shift towards sustainable finance, where investors seek opportunities that yield not only financial returns but also positive social and environmental impacts (Elamin, 2023). The integration of Environmental, Social, and Governance (ESG) criteria into Islamic finance practices further underscores this alignment, promoting responsible investment strategies consistent with Islamic ethical teachings (Elamin, 2023).

The literature on Islamic finance highlights the importance of consumer awareness and understanding of Islamic financial products. Studies indicate that a lack of knowledge about Islamic finance principles can hinder its adoption among potential customers (Gait & Worthington, 2008). Educational initiatives aimed at increasing awareness of Islamic finance can play a pivotal role in bridging this gap, thereby enhancing the acceptance and utilization of Islamic financial products (Lelis, 2023; Sofyan, 2023).

In addition to consumer education, the growth of Islamic fintech represents a significant development in the Islamic finance landscape. The advent of technology has enabled the creation of innovative financial solutions that comply with Shari'ah principles while enhancing accessibility and efficiency (Sofyan, 2023). Islamic fintech can facilitate broader financial inclusion, particularly in underserved communities, by providing affordable and convenient financial services that adhere to Islamic ethical standards (Sofyan, 2023). The ethicality of Islamic banks' business models has also been scrutinized, particularly in light of the challenges posed by modern financial practices. Critics argue that some Islamic financial products may inadvertently replicate conventional banking practices, thereby undermining the ethical foundations of Islamic finance (Musa et al., 2020; Jatmiko et al., 2023). This calls for a critical examination of the objectives of Islamic law (Maqasid al-Shari'ah) to ensure that Islamic finance remains true to its ethical roots while adapting to the evolving financial landscape (Jatmiko et al., 2023).

Islamic finance represents a robust framework that integrates ethical principles with financial practices, offering a viable alternative to conventional banking systems. Its emphasis on social justice, economic equity, and ethical investment aligns with contemporary global trends towards sustainability and corporate social responsibility. As Islamic finance continues to evolve, it is imperative for stakeholders to prioritize education, Shari'ah compliance, and ethical integrity to fully realize its potential in fostering a more equitable and sustainable financial ecosystem.

Green Accounting

Green accounting, also known as environmental accounting, is an emerging field that integrates environmental considerations into traditional accounting practices. It aims to provide a comprehensive view of a company's environmental impact and sustainability performance by incorporating environmental costs into financial statements. This approach is increasingly recognized as essential for achieving sustainable development goals (SDGs) and fostering corporate responsibility (Nechita, 2019; Rounaghi, 2019).

The relationship between accounting and sustainable development is critical, as accounting practices can significantly influence organizational behavior towards sustainability. Nechita emphasizes the role of accounting in supporting the achievement of the UN SDGs by developing indicators that measure sustainability performance (Nechita, 2019). This perspective aligns with the findings of Rounaghi, who argues that green accounting can help identify environmental costs and sustainability indicators, thereby facilitating better policy formulation and evaluation (Rounaghi, 2019). By integrating environmental costs into financial results, organizations can assess their sustainability performance more accurately and make informed decisions that align with sustainable practices (Rounaghi, 2019).

Moreover, the application of green accounting can enhance business eco-efficiency and competitive advantage. Ardiana et al. highlight that green accounting not only aids in policy creation but also raises awareness among policymakers regarding sustainability issues, which is crucial for national economic development (Ardiana et al., 2023). This is particularly relevant in the context of increasing consumer demand for sustainable practices, as companies that adopt green accounting principles can differentiate themselves in the marketplace (Uula, 2022).

The literature also discusses the evolution of sustainability accounting and reporting, with Burritt and Schaltegger noting that the field has transitioned from a fad to a significant trend in accounting practices (Burritt & Schaltegger, 2010). They argue that sustainability accounting should focus on improving management decision-making and raising awareness about sustainability issues within organizations. This sentiment is echoed by Bebbington et al., who reflect on the challenges and achievements of social and environmental accounting, emphasizing the need for a holistic approach to accountability in the context of sustainable development (Bebbington et al., 2017; Bebbington & Unerman, 2018).

Furthermore, the integration of sustainability accounting into corporate governance is essential for fostering accountability and transparency. Joss discusses the importance of accountable governance in sustainability efforts, highlighting the complexities involved in balancing environmental, economic, and technological rationales (Joss, 2010). This complexity necessitates a robust framework for sustainability accounting that can adapt to the evolving landscape of corporate responsibility and environmental stewardship (Zyznarska-Dworczak, 2019).

The role of green accounting in promoting sustainable practices is also evident in its application within various sectors. For instance, the research by Denhere emphasizes the adoption of green economy principles by South African listed companies, illustrating how sustainable accounting can contribute to addressing global sustainability challenges (Denhere, 2022). Similarly, Dumitrana et al. explore the trends and quality of accounting information related to sustainable development, reinforcing the idea that effective environmental accounting is crucial for informed decision-making (Dumitrana et al., 2009).

Green accounting represents a vital intersection between accounting practices and sustainability efforts. By incorporating environmental costs into financial reporting, organizations can enhance their accountability and contribute to sustainable development. The literature underscores the importance of developing robust frameworks for sustainability accounting that align with corporate governance and support the achievement of the UN SDGs. As the field continues to evolve, ongoing research and practice will be essential in addressing the challenges and opportunities presented by green accounting.

Environmental, Social, and Governance (ESG)

Environmental, Social, and Governance (ESG) criteria have become increasingly significant in corporate governance and investment decision-making, reflecting a growing recognition of the importance of sustainable practices in business operations. The literature on ESG encompasses various aspects, including the influence of institutional investors, the role of corporate governance, and the impact of ESG performance on financial outcomes.

Institutional investors play a crucial role in shaping corporate ESG policies. Kim et al. explore how these investors exert pressure on corporations to adopt sustainable practices, highlighting the relationship between investor preferences and corporate environmental, social, and governance initiatives Kim et al. (2019). Their findings suggest that institutional investors are increasingly concerned with sustainability issues, which can influence corporate behavior and enhance ESG performance. This aligns with the work of Rooh et al., who emphasize that both institutional and individual investors recognize the significance of ESG activities in assessing a company's risks and opportunities (Rooh et al., 2021). The pressure from investors can lead to improved ESG disclosures and practices, ultimately benefiting corporate reputation and performance.

The composition of corporate boards is another critical factor influencing ESG performance. Cucari et al. demonstrate that the diversity of the board of directors positively impacts ESG scores, suggesting that diverse boards are more effective in promoting environmental sustainability and corporate social responsibility (CSR) (Cucari et al., 2017). This is further supported by Birindelli et al., who find a strong positive relationship between board composition and sustainability performance in the banking sector (Birindelli et al., 2018). The presence of women on boards, as discussed by Manita et al., is increasingly recognized as a key driver for enhanced ESG disclosure and corporate transparency (Manita et al., 2018). The literature suggests that diverse leadership can foster a culture of accountability and ethical decision-making, which is essential for effective ESG integration.

Moreover, the relationship between ESG performance and financial outcomes has garnered significant attention. Friede et al. provide aggregated evidence from over 2000 empirical studies, indicating a generally positive correlation between ESG criteria and financial performance (Friede et al., 2015). This suggests that companies that prioritize ESG practices not only contribute to sustainable development but also enhance their long-term profitability and competitiveness. Yang

and Han further support this notion by illustrating how strong ESG performance can serve as a strategic advantage, particularly in the context of digital transformation and evolving market demands (Yang & Han, 2023).

The regulatory environment also plays a pivotal role in shaping corporate ESG practices. Gossain discusses the impact of legal frameworks on ESG engagement, noting that evolving regulations can drive companies to adopt more robust ESG strategies (Gossain, 2023). Similarly, Lei examines how green financial policies influence corporate ESG performance, providing empirical evidence from China's green finance reforms (Lei, 2023). These studies highlight the importance of regulatory support in promoting ESG initiatives and ensuring that companies are held accountable for their environmental and social impacts.

Despite the growing emphasis on ESG, challenges remain in standardizing reporting practices and ensuring transparency. Shapsugova identifies issues such as inconsistent reporting standards and data quality, which can hinder effective ESG integration into corporate strategies (Shapsugova, 2023). Darnall et al. emphasize the need for clearer guidelines and verification processes to enhance the credibility of ESG disclosures (Darnall et al., 2022). Addressing these challenges is crucial for fostering trust among stakeholders and ensuring that ESG practices lead to meaningful outcomes.

The literature on ESG underscores its importance in contemporary corporate governance and investment strategies. Institutional investors, board diversity, regulatory frameworks, and the relationship between ESG performance and financial outcomes are key themes that emerge from the research. As companies increasingly recognize the value of integrating ESG principles into their operations, ongoing efforts to standardize reporting and enhance transparency will be essential for realizing the full potential of ESG in promoting sustainable development.

Integration of Green Accounting and Islamic Finance

The integration of green accounting and Islamic finance represents a significant intersection of ethical finance practices and environmental sustainability. This literature review explores the synergies between these two domains, highlighting their potential to foster sustainable development while adhering to Islamic principles.

Islamic finance, rooted in Shariah law, emphasizes ethical investment and social responsibility. The principles of Islamic finance align closely with the objectives of green accounting, which aims to incorporate environmental costs into financial reporting and decision-making. As noted by Siswanto and Mahmud, the development of Islamic finance can significantly impact renewable energy production in Islamic countries, suggesting that Islamic banks should channel more financing towards green sectors, such as renewable energy (Siswanto & Mahmud, 2023). However, the current contribution of Islamic banks to green financing remains limited, with only a small percentage allocated to environmentally friendly projects, as evidenced by the low proportion of Islamic banking green financing in Bangladesh, which is only 3 to 5 percent of total financing (Siswanto & Mahmud, 2023).

Bukhari et al. further emphasize the compatibility of green banking and Islamic finance, arguing that Islamic banks can enhance their brand loyalty by adopting green banking practices that reflect Islamic values of equality, responsibility, and accountability (Bukhari et al., 2019). This suggests that integrating green accounting principles into Islamic finance can not only fulfill ethical obligations but also strengthen customer relationships and brand identity among Muslim consumers.

The concept of green sukuk, as discussed by Liu and Lai, illustrates a practical application of integrating green finance within Islamic finance frameworks. The issuance of green sukuk in Malaysia represents a pioneering effort to align Islamic financial instruments with sustainability goals, responding to global initiatives such as the United Nations Sustainable Development Goals (SDGs) and the Paris Climate Agreement (Liu & Lai, 2021). This development highlights the potential for Islamic finance to contribute to environmental sustainability while adhering to Shariah principles.

Moreover, the relationship between Islamic financial development and environmental quality is explored by Abduh et al., who argue that the advancement of Islamic finance can positively influence energy consumption patterns and environmental outcomes (Abduh et al., 2022). This relationship underscores the importance of aligning Islamic finance practices with environmental objectives, thereby promoting a more sustainable economic model.

The integration of Environmental, Social, and Governance (ESG) principles into Islamic finance is also gaining traction. Ansari et al. highlight the ethical bridge that ESG creates between Islamic finance and sustainable practices, noting that many Islamic banks have already begun promoting sustainability through their financing initiatives (Ansari et al., 2020). However, challenges remain in fully realizing the potential of ESG integration within Islamic finance, necessitating further research and policy development to overcome barriers (Ansari et al., 2020). The concept of green sukuk is further elaborated by Musari, who proposes a model that combines green sukuk with cash waqf-linked sukuk to address climate change challenges in Indonesia (Musari, 2022). This innovative approach illustrates how Islamic finance can leverage its unique instruments to contribute to environmental sustainability while fulfilling social responsibilities. Muhamad et al. emphasize the importance of aligning Islamic banking performance measurement with ESG principles and the Maqasid Shari'ah, which aims to promote societal welfare (Muhamad et al., 2022). This alignment is crucial for ensuring that Islamic banks not only achieve financial success but also contribute positively to environmental and social outcomes.

The integration of green accounting and Islamic finance presents a promising avenue for promoting sustainable development. By aligning financial practices with environmental objectives and ethical principles, Islamic finance can play a pivotal role in addressing global sustainability challenges. The literature highlights the need for further exploration of innovative financial instruments, such as green sukuk, and the importance of overcoming barriers to ESG integration within Islamic finance. As the field continues to evolve, ongoing research and collaboration between stakeholders will be essential for realizing the full potential of this integration.

2.1 Related Work

The integration of green accounting within Islamic finance represents a promising avenue for enhancing sustainability, ethical investment practices, and alignment with Environmental, Social, and Governance (ESG) criteria. Research by Sanusi (2019) highlights the critical role of effective financial management in improving the profitability of Islamic rural banks in Indonesia. The study points out that non-performing finance negatively impacts profitability, suggesting that incorporating green accounting could mitigate financial risks while promoting sustainable practices. Similarly, Ngaha and Mbenda (2023) emphasize that Islamic finance has the potential to improve social welfare and reduce inequalities, principles that align with the goals of green accounting in fostering social responsibility and ethical financial practices.

Islamic microfinance is another area where green accounting can create a significant impact. Fianto et al. (2019) find that profit-loss sharing (PLS) financing enhances clients' income in Indonesia, showcasing Islamic finance's capacity to support sustainable economic development. Integrating green accounting practices into such financing models could amplify these benefits by ensuring that financial decisions also account for environmental considerations. Further, Abedifar et al. (2016) in their review of Islamic banking literature, note the growing focus on profit-sharing and financial inclusion. Green accounting can complement these goals by introducing environmentally sustainable practices into Islamic financial operations, thus aligning profitability with sustainability.

The role of ESG performance in fostering innovation and competitiveness also underscores the importance of green accounting in Islamic finance. Long et al. (2023) and Hang (2023) both highlight that strong ESG practices drive green innovation and competitiveness. For Islamic financial institutions, adopting green accounting can help enhance their ESG performance, positioning them as leaders in sustainable finance. Shirazi et al. (2021) similarly discuss how Islamic financial tools in Kazakhstan can address social and environmental issues, further demonstrating the potential of green accounting to reinforce Islamic finance's role in sustainability.

Technological advancements offer new opportunities for integrating green accounting into Islamic finance. Studies by Dai (2023) and Putri et al. (2022) explore the potential of digital transformation and blockchain technology in improving financial practices. Green accounting can leverage these advancements to enhance data transparency and ensure sustainable resource allocation. Hasan et al. (2020) and Supriadi (2023) also highlight the role of Fintech in enhancing the efficiency of Islamic finance. These technologies, combined with green accounting, can create innovative solutions to meet the sustainability goals of Islamic finance.

Finally, the role of Islamic social finance and philanthropic tools such as cash waqf in promoting sustainability highlights another key area for green accounting integration. Fauziah and Kassim (2022) demonstrate the potential of cash waqf in achieving sustainable development goals in Indonesia, while Rusydiana et al. (2020) emphasize the importance of effective fund management. Green accounting can ensure that waqf funds are allocated to projects that align with environmental and social objectives. Furthermore, Tlemsani (2015) and Ascarya (2021) suggest that integrating green accounting into initiatives such as Islamic finance hubs and social finance programs can enhance their effectiveness, competitiveness, and alignment with global sustainability goals. This body of research collectively underscores the transformative potential of green accounting in advancing Islamic finance's contributions to a sustainable global economy.

2.2 Research Gap

Despite the growing body of literature on Islamic finance and its alignment with sustainability principles, significant gaps remain in understanding the integration of green accounting into Islamic financial practices. Existing studies, such as those by Sanusi (2019) and Fianto et al. (2019), explore profitability and economic development through Islamic finance, but they do not address how green accounting frameworks could enhance these outcomes by embedding environmental accountability into financial management. While Islamic finance inherently promotes ethical and sustainable principles, the mechanisms for quantifying and reporting environmental impacts remain underexplored, leaving a gap in actionable strategies for integrating green accounting practices into Islamic financial operations.

Furthermore, while the relationship between ESG performance and green innovation is well-documented in studies such as Long et al. (2023) and Hang (2023), the application of these insights to Islamic financial institutions is limited. Most research on ESG integration focuses on conventional financial systems, with little attention given to the unique needs and opportunities within the Islamic finance sector. This creates a critical gap in understanding how ESG principles can be tailored to align with *maqasid al-shariah* (objectives of Islamic law) and how Islamic finance can leverage green accounting to strengthen its ESG performance while maintaining Shariah compliance.

Another notable gap lies in the intersection of technology, such as FinTech and blockchain, with green accounting in Islamic finance. Studies by Putri et al. (2022) and Hasan et al. (2020) highlight the potential of technological advancements in improving financial practices, but there is limited exploration of how these technologies can support green accounting initiatives in Islamic financial institutions. Additionally, while philanthropic tools like cash waqf are identified as vehicles for sustainable development (Fauziah & Kassim, 2022), there is insufficient research on how green accounting can enhance the management and impact of these tools. These gaps highlight the need for comprehensive studies that integrate green accounting into Islamic finance, addressing both theoretical frameworks and practical applications to bridge the divide between sustainability aspirations and operational realities.

3. Methodology

This study employs a qualitative research approach, focusing on a comprehensive literature review to explore the integration of green accounting within Islamic finance. By synthesizing existing research, the study aims to identify the opportunities and challenges of adopting green accounting principles in the context of Environmental, Social, and Governance (ESG) criteria, particularly within Islamic financial institutions.

3.1 Data Collection

The data for this study is sourced from reputable databases such as Scopus, Web of Science, and Google Scholar, focusing on peer-reviewed articles published between 2010 and 2023. Keywords such as "green accounting," "Islamic finance," "ESG," "sustainability," and "Shariah compliance" were used to identify relevant studies. Additional sources, including policy reports from institutions like the International Monetary Fund (IMF), World Bank, and Islamic Development Bank (IDB), were also reviewed to capture practical insights.

3.2 Analysis Techniques

The analysis is conducted using thematic analysis to identify recurring patterns, themes, and gaps within the literature. Key themes include the alignment of green accounting with Islamic finance principles, the impact of ESG integration, and the challenges faced by Islamic financial institutions in adopting sustainable practices. Comparative analysis is also utilized to contrast the implementation of green accounting in Islamic and conventional financial institutions, highlighting unique challenges and opportunities.

4. Results

The integration of green accounting into Islamic finance aligns closely with the ethical and sustainability principles inherent in Shariah law, providing an opportunity to address global environmental challenges while promoting societal welfare. Islamic finance emphasizes social responsibility, ethical investment, and environmental stewardship, which resonate with the objectives of green accounting that incorporate environmental costs into financial reporting and decision-making. This alignment positions Islamic financial institutions (IFIs) to adopt green accounting as a mechanism for achieving Sustainable Development Goals (SDGs). For example, the issuance of green sukuk in Malaysia illustrates how Islamic financial instruments can support renewable energy projects and other environmentally sustainable initiatives while adhering to Shariah principles (Liu & Lai, 2021). However, despite its potential, the adoption of green accounting within Islamic finance remains limited, with green financing in some regions comprising only a small proportion of total financing, such as the 3–5% range in Bangladesh (Siswantoro & Mahmud, 2023).

Islamic finance offers a unique framework for integrating sustainability into financial practices, and green accounting serves as a tool to enhance transparency and accountability in environmental reporting. Studies highlight that IFIs can attract socially responsible investors and improve their brand reputation by aligning financial reporting with Environmental, Social, and Governance (ESG) criteria (Elamin, 2023). This not only strengthens financial stability but also positions Islamic finance as a leader in ethical and sustainable financial systems. Moreover, the ethical bridge that ESG creates between Islamic finance and sustainable practices underscores the compatibility of these frameworks, as IFIs increasingly promote sustainability through their financing initiatives (Ansari et al., 2020). Nevertheless, significant challenges remain, particularly in terms of developing standardized frameworks that accommodate both Shariah principles and global sustainability standards.

Governance structures play a crucial role in the successful implementation of green accounting within Islamic finance. Strong governance can ensure that sustainability objectives are prioritized, but regulatory inconsistencies and the lack of clear guidelines for green accounting integration create barriers. The need for harmonized frameworks that align with both Shariah principles and international standards is evident (Joss, 2010). Technological advancements, such as blockchain and Islamic FinTech, offer promising solutions to overcome these barriers by improving transparency, enhancing reporting accuracy, and facilitating efficient data collection (Dai, 2023). These innovations could enable IFIs to address regulatory challenges while adhering to ethical financial practices.

Stakeholder engagement is another critical factor for the successful integration of green accounting. The literature emphasizes the importance of raising awareness among policymakers, practitioners, and consumers about the benefits of combining green accounting with Islamic finance. Educational initiatives and collaborative platforms are essential to bridge knowledge gaps and promote the acceptance of these practices (Lelis, 2023). Additionally, the role of Islamic social finance instruments, such as **waqf** and **zakat**, provides further opportunities to fund sustainability projects. For instance, innovative models like cash **waqf** linked to green sukuk illustrate how Islamic finance can address climate change challenges while ensuring ethical resource allocation (Musari, 2022).

Comparative studies reveal that Islamic finance holds distinct advantages over conventional financial systems in promoting sustainability. The long-term value creation emphasized in Islamic

financial practices aligns seamlessly with the principles of green accounting, positioning IFIs as natural leaders in sustainable finance (Abduh et al., 2022). However, there is a need for empirical research to quantify the long-term impacts of green accounting on the financial performance and sustainability outcomes of IFIs. The development of tailored frameworks for ESG integration and the exploration of innovative financial instruments remain critical areas for future research (Muhamad et al., 2022). Addressing these gaps will enable Islamic finance to realize its full potential in fostering a more equitable and sustainable financial ecosystem.

Despite the significant opportunities offered by green accounting within Islamic finance, its widespread adoption is constrained by limited technical expertise and stakeholder awareness. Many Islamic financial institutions lack the resources and knowledge required to effectively integrate environmental metrics into their financial reporting. This gap highlights the critical need for capacity-building initiatives aimed at equipping financial professionals with the tools and understanding necessary to implement green accounting practices. Stakeholder engagement also plays a pivotal role in addressing these challenges, as fostering a culture of sustainability within Islamic finance requires a collective effort from regulators, investors, and practitioners. Raising awareness about the alignment between green accounting and Shariah principles can further drive acceptance and encourage proactive adoption (Lelis, 2023; Elamin, 2023).

The role of governance in supporting sustainability within Islamic finance cannot be overstated. Governance structures that are aligned with ESG principles can enhance the accountability and credibility of Islamic financial institutions. Studies show that diverse and inclusive governance practices, such as having women on boards, improve ESG disclosures and corporate transparency, which are critical for achieving sustainability goals (Manita et al., 2018). For Islamic finance, integrating these best practices into its governance framework ensures that its ethical and sustainability commitments are not only theoretical but also operational. Additionally, leveraging technology, such as blockchain, can strengthen governance mechanisms by providing real-time, transparent reporting systems that align with both Shariah and global sustainability standards (Dai, 2023).

The synergy between green accounting and Islamic social finance instruments presents another promising avenue for promoting sustainability. Tools such as **waqf** and **zakat** offer a mechanism for funding social and environmental projects in a way that aligns with Shariah principles. For instance, integrating cash **waqf** with green sukuk has been proposed as an innovative model for addressing climate change and advancing the United Nations Sustainable Development Goals (Musari, 2022). These instruments not only provide financial resources but also ensure that such resources are allocated ethically and transparently, further enhancing the impact of Islamic finance on global sustainability efforts.

Technological advancements and digital transformation also open new possibilities for Islamic finance to integrate green accounting effectively. The emergence of Islamic FinTech has revolutionized the way financial services are delivered, making them more accessible and efficient while maintaining Shariah compliance. By incorporating green accounting frameworks into FinTech platforms, Islamic financial institutions can ensure that sustainability is embedded at every level of their operations. This integration can also facilitate broader financial inclusion, particularly in underserved communities, by offering affordable and sustainable financial products tailored to their needs (Sofyan, 2023; Hasan et al., 2020).

Looking ahead, the successful integration of green accounting within Islamic finance depends on addressing several research and practical gaps. While existing studies underscore the compatibility of green accounting and Islamic finance, more empirical research is needed to measure the long-term financial and environmental impacts of this integration. Developing standardized frameworks that cater specifically to the needs of Islamic finance, while ensuring alignment with international ESG standards, is critical for scaling these efforts (Muhamad et al., 2022). Furthermore, fostering collaborations between policymakers, academics, and practitioners will be essential for designing and implementing effective solutions that leverage the unique strengths of Islamic finance to address global sustainability challenges. By overcoming these barriers, Islamic finance can fulfill its potential as a leading force in sustainable and ethical finance on a global scale.

5. Discussion

The integration of green accounting into Islamic finance presents significant opportunities, particularly due to the natural alignment between Shariah principles and sustainability goals. Islamic finance's emphasis on ethical investment, social responsibility, and environmental stewardship creates a robust foundation for adopting green accounting practices. This alignment enables Islamic financial institutions (IFIs) to position themselves as leaders in sustainable finance by operationalizing environmental accountability within their financial practices. Instruments like green sukuk demonstrate the potential to channel funds into renewable energy and other environmentally friendly projects, further advancing global sustainability goals.

Another opportunity lies in enhancing transparency and accountability in financial reporting. Green accounting enables IFIs to incorporate environmental costs and impacts into their financial disclosures, addressing growing stakeholder demands for responsible investment practices. This increased transparency can improve trust and attract socially conscious investors, while also strengthening the reputation of Islamic finance as an ethical alternative to conventional financial systems. Furthermore, integrating Environmental, Social, and Governance (ESG) criteria through green accounting provides a framework for IFIs to measure and report their sustainability performance, enhancing their competitiveness in a global market increasingly driven by ESG considerations.

However, despite these promising opportunities, significant challenges hinder the widespread adoption of green accounting in Islamic finance. A major challenge is the lack of standardized frameworks tailored to Islamic financial principles. Existing global standards, such as the Global Reporting Initiative (GRI), are not fully aligned with Shariah requirements, leading to inconsistencies in implementation. This gap underscores the need for harmonized regulations that integrate Shariah compliance with international sustainability standards, ensuring that green accounting can be effectively adopted across different jurisdictions.

Another critical challenge is the limited awareness and technical expertise among stakeholders in Islamic finance. Many financial practitioners, regulators, and investors lack a clear understanding of green accounting principles and their applicability within Islamic finance. This knowledge gap poses a significant barrier to the adoption of sustainable practices. Additionally, the high costs of implementation, including training, technological upgrades, and process restructuring, can be prohibitive for smaller institutions, particularly in developing countries where Islamic finance is rapidly expanding.

Lastly, regulatory and operational barriers further complicate the integration of green accounting into Islamic finance. The absence of robust regulatory guidelines and the complexity of balancing Shariah compliance with ESG requirements create additional hurdles for IFIs. Moreover, the current proportion of green financing within Islamic finance remains low, as evidenced by its limited contribution in regions like Bangladesh. To address these challenges, targeted efforts, including the development of clear regulations, capacity-building initiatives, and innovative technological solutions, are essential. By overcoming these barriers, Islamic finance can unlock the full potential of green accounting and establish itself as a global leader in ethical and sustainable finance.

The integration of Environmental, Social, and Governance (ESG) frameworks into Islamic banking presents both opportunities and complexities, reflecting the sector's unique interplay between ethical finance and Shariah compliance. One of the key discussion points is the natural alignment between Islamic finance principles and ESG objectives. Islamic banks already adhere to ethical guidelines that prohibit harmful activities such as investments in industries like alcohol, gambling, and weapons. These practices resonate strongly with the “social” and “governance” components of ESG. However, the “environmental” component, which focuses on sustainability and carbon reduction, has not yet been fully embedded in Islamic banking practices, signaling an area for significant growth and development.

A major challenge lies in creating frameworks that harmonize ESG requirements with Shariah principles. While both frameworks share common goals, such as ethical responsibility and sustainability, operationalizing these values often requires balancing differing methodologies. For example, while ESG reporting standards focus on quantifiable sustainability metrics, Islamic finance relies heavily on qualitative assessments of ethical compliance. This divergence can create obstacles in achieving uniform reporting and monitoring systems, particularly when Islamic banks operate in jurisdictions with varied regulatory expectations for ESG.

Another critical discussion point is the role of governance in driving ESG integration. Strong governance structures within Islamic banks can enable more effective adoption of ESG practices by ensuring that sustainability and ethical commitments are embedded into institutional policies and decision-making processes. However, studies reveal that governance mechanisms in many Islamic financial institutions are still underdeveloped, particularly in emerging markets. Enhancing board diversity, fostering transparency, and strengthening oversight can significantly contribute to improving ESG performance and stakeholder confidence.

The availability of reliable data is a recurring theme in discussions around ESG integration. Islamic banks often lack access to comprehensive environmental and social impact data, making it challenging to assess and report their ESG performance accurately. Without robust data, banks struggle to identify areas for improvement, measure progress, and attract ESG-focused investors. To address this, investments in technology, such as blockchain and AI, can play a pivotal role in improving data collection, enhancing reporting accuracy, and promoting transparency.

Lastly, the discussion highlights the importance of stakeholder engagement in the successful implementation of ESG in Islamic banking. Raising awareness among policymakers, investors, and practitioners about the synergies between ESG and Islamic finance is crucial for fostering collaboration and driving adoption. Educational initiatives and partnerships between financial institutions and sustainability experts can help bridge knowledge gaps and accelerate progress. By addressing these challenges and leveraging their inherent ethical foundations, Islamic banks can

establish themselves as global leaders in sustainable finance, aligning their practices with international ESG standards while staying true to Shariah principles.

6. Conclusion

This study explored the integration of green accounting within Islamic finance, emphasizing its alignment with Environmental, Social, and Governance (ESG) principles and its potential to enhance sustainability in financial practices. The findings reveal that green accounting is inherently compatible with the ethical and sustainability-oriented values of Islamic finance, offering a robust framework for operationalizing environmental accountability. By incorporating green accounting, Islamic financial institutions (IFIs) can strengthen their transparency, attract socially responsible investors, and contribute significantly to global sustainability goals, particularly the Sustainable Development Goals (SDGs).

Despite these opportunities, significant challenges remain. The lack of standardized green accounting frameworks tailored to Islamic finance principles poses a major obstacle, as existing ESG standards are not fully aligned with Shariah requirements. Limited stakeholder awareness and technical expertise further hinder the adoption of green accounting practices, particularly in regions where Islamic finance is emerging. Additionally, regulatory inconsistencies and the high costs of implementation complicate efforts to integrate sustainability into Islamic financial practices.

The discussion underscores the importance of governance, technology, and stakeholder engagement in addressing these challenges. Strong governance structures within IFIs can ensure sustainability objectives are prioritized, while technological advancements, such as blockchain and FinTech, can enhance data collection, transparency, and ESG reporting. Collaborative efforts among regulators, policymakers, and practitioners are essential to develop harmonized frameworks and capacity-building initiatives that bridge knowledge gaps and foster widespread adoption.

While the integration of green accounting into Islamic finance is still in its nascent stages, its potential to transform the sector into a global leader in sustainable finance is undeniable. Addressing the regulatory, technical, and operational barriers will require a multi-pronged approach involving tailored frameworks, stakeholder education, and innovative technologies. By aligning their practices with both Shariah principles and ESG goals, Islamic financial institutions can play a pivotal role in advancing ethical and sustainable financial systems globally. Future research should focus on empirical studies to quantify the long-term financial and environmental impacts of green accounting in Islamic finance, paving the way for evidence-based policy and practice.

7. Recommendation

To advance the integration of green accounting in Islamic finance, several actionable recommendations are proposed. Policymakers and regulatory bodies should collaborate with Islamic financial institutions (IFIs) to develop tailored green accounting frameworks that align Shariah principles with global Environmental, Social, and Governance (ESG) standards, ensuring harmonized guidelines across jurisdictions. Strengthening governance within IFIs is essential, including enhancing board diversity, establishing ESG committees, and integrating sustainability into decision-making processes to build stakeholder trust and accountability. Capacity-building initiatives, such as specialized training programs and certifications for industry professionals, are crucial for bridging technical knowledge gaps and raising awareness about the benefits of green accounting among practitioners, regulators, and investors. Leveraging technological innovations like blockchain and

artificial intelligence can streamline ESG reporting, improve data transparency, and facilitate compliance with green accounting standards while enabling financial inclusion through FinTech advancements. Public-private partnerships are also critical for mobilizing resources, funding sustainability projects, and driving innovation in green financial products like green sukuk. Furthermore, governments and research institutions should support empirical studies to quantify the financial and environmental impacts of green accounting, providing evidence-based insights to guide policy development. Aligning these practices with national sustainability strategies and global initiatives, such as the Sustainable Development Goals (SDGs) and the Paris Agreement, will enable IFIs to prioritize environmentally and socially responsible investments. Lastly, Islamic social finance tools such as waqf and zakat should be incorporated into green accounting frameworks to fund sustainability initiatives, with innovative models like cash waqf linked to green sukuk serving as key mechanisms to address environmental and societal challenges. By implementing these recommendations, Islamic finance can strengthen its ethical foundations, enhance global competitiveness, and become a leading force in sustainable finance.

Acknowledgement

We extend our heartfelt gratitude to our dedicated team for their invaluable contributions to this research. Your expertise, collaboration, and unwavering commitment were instrumental in shaping this work and ensuring its completion. Special thanks to our researchers for their meticulous analysis, to our coordinators for their organizational support, and to our reviewers for their insightful feedback. This study would not have been possible without your collective effort, dedication, and passion for advancing knowledge in the field of green accounting and Islamic finance. Thank you for your hard work and shared vision for achieving meaningful outcomes.

REFERENCES

- [1.] Schaltegger, S., & Burritt, R. (2000). *Contemporary Environmental Accounting: Issues, Concepts and Practice* (1st ed.). Routledge. <https://doi.org/10.4324/9781351282529>
- [2.] Kammer, M. A., Norat, M. M., Pinon, M. M., Prasad, A., Towe, M. C. M., & Zeidane, M. Z. (2015). *Islamic finance: Opportunities, challenges, and policy options*.
- [3.] Khan, G., Kagwanja, N., Whyte, E., Gilson, L., Molyneux, S., Schaay, N., ... & Olivier, J. (2021). Health system responsiveness: a systematic evidence mapping review of the global literature. *International Journal for Equity in Health*, 20(1). <https://doi.org/10.1186/s12939-021-01447-w>
- [4.] Notolegowo, H. (2023). Relationship between islamic social finance and sustainable development goals: a conceptual framework. *Kne Social Sciences*, 197. <https://doi.org/10.18502/kss.v8i18.14245>
- [5.] Elamin, M. (2023). Advancing ethical and sustainable economy: islamic finance solutions for environmental, social, & economic challenges in the digital age. *International Journal of Membrane Science and Technology*, 10(5), 408-429. <https://doi.org/10.15379/ijmst.v10i5.2515>
- [6.] Kuanova, L., Shirazi, N., & Doszhan, R. (2023). Islamic social finance efficiency and eco-system: Islamic finance in action. *ECONOMIC Series of the Bulletin of the LN Gumilyov ENU*, (4), 249-264.

- [7.] Ahmad, N., Bello, H., & Hassan, Y. (2020). The islamic finance industry and grand potential for growth in the contemporary economy: arousal for dual finances in nigeria. *Shanlax International Journal of Commerce*, 8(2), 1-9. <https://doi.org/10.34293/commerce.v8i2.2421>
- [8.] Rudnycky, D. (2014). Islamic finance and the afterlives of development in malaysia. *Polar Political and Legal Anthropology Review*, 37(1), 69-88. <https://doi.org/10.1111/plar.12051>
- [9.] Tlemsani, I. (2010). Co-evolution and reconcilability of islam and the west: the context of global banking. *Education Business and Society Contemporary Middle Eastern Issues*, 3(4), 262-276. <https://doi.org/10.1108/17537981011089569>
- [10.] Ahmed, A. (2010). Global financial crisis: an islamic finance perspective. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(4), 306-320. <https://doi.org/10.1108/17538391011093252>
- [11.] Hamid, A. and Masood, O. (2011). Selection criteria for islamic home financing: a case study of pakistan. *Qualitative Research in Financial Markets*, 3(2), 117-130. <https://doi.org/10.1108/17554171111155357>
- [12.] Mathkur, N. (2019). Business ethics in islamic finance. *Archives of Business Research*, 7(2). <https://doi.org/10.14738/abr.72.6179>
- [13.] Gait, A. and Worthington, A. (2008). An empirical survey of individual consumer, business firm and financial institution attitudes towards islamic methods of finance. *International Journal of Social Economics*, 35(11), 783-808. <https://doi.org/10.1108/03068290810905423>
- [14.] Lelis, C. (2023). Exploring the general knowledge of islamic finance principles: a factor analysis study among college students. *International Journal of Finance Research*, 4(3), 238-250. <https://doi.org/10.47747/ijfr.v4i3.1409>
- [15.] Sofyan, S. (2023). Sharia fintech education for disaster-affected communities in palu city. *jcsebf*, 1(1), 1-8. <https://doi.org/10.24239/jcsebf.v1i1.2395.1-8>
- [16.] Musa, M., Sukor, M., Ismail, M., & Elias, M. (2020). Islamic business ethics and practices of islamic banks. *Journal of Islamic Accounting and Business Research*, 11(5), 1009-1031. <https://doi.org/10.1108/jiabr-07-2016-0080>
- [17.] Jatmiko, W., Iqbal, A., & Ebrahim, M. (2023). On the ethicality of islamic banks' business model. *British Journal of Management*, 35(1), 115-136. <https://doi.org/10.1111/1467-8551.12703>
- [18.] Nechita, E. (2019). Analysis of the relationship between accounting and sustainable development. the role of accounting and accounting profession on sustainable development. *Audit Financiar*, 17(155), 520-536. <https://doi.org/10.20869/auditf/2019/155/021>
- [19.] Rounaghi, M. (2019). Economic analysis of using green accounting and environmental accounting to identify environmental costs and sustainability indicators. *International Journal of Ethics and Systems*, 35(4), 504-512. <https://doi.org/10.1108/ijoes-03-2019-0056>
- [20.] Ardiana, M., Agustina, R., & Pertiwi, D. (2023). Increasing business eco-efficiency and competitive advantage through the application of green accounting. *Buletin Penelitian Sosial Ekonomi Pertanian Fakultas Pertanian Universitas Haluoleo*, 25(1), 1-8. <https://doi.org/10.37149/bpsosek.v25i1.363>
- [21.] Uula, M. (2022). Sustainable accounting. *AS*, 1(1). <https://doi.org/10.58968/as.v1i1.25>

- [22.] Burritt, R. and Schaltegger, S. (2010). Sustainability accounting and reporting: fad or trend?. *Accounting Auditing & Accountability Journal*, 23(7), 829-846. <https://doi.org/10.1108/09513571011080144>
- [23.] Bebbington, J., Russell, S., & Thomson, I. (2017). Accounting and sustainable development: reflections and propositions. *Critical Perspectives on Accounting*, 48, 21-34. <https://doi.org/10.1016/j.cpa.2017.06.002>
- [24.] Bebbington, J. and Unerman, J. (2018). Achieving the united nations sustainable development goals. *Accounting Auditing & Accountability Journal*, 31(1), 2-24. <https://doi.org/10.1108/aaaj-05-2017-2929>
- [25.] Joss, S. (2010). Accountable governance, accountable sustainability? a case study of accountability in the governance for sustainability. *Environmental Policy and Governance*, 20(6), 408-421. <https://doi.org/10.1002/eet.559>
- [26.] Zyznarska-Dworczak, B. (2019). The impact of the accountability on accounting development as the essence of sustainability accounting. *Problems of Management in the 21st Century*, 73-83. <https://doi.org/10.33225/pmc/19.14.73>
- [27.] Denhere, V. (2022). Sustainability: the adoption of green economy and sustainable accounting principles by south african listed companies and lessons learnt. *International Journal of Research in Business and Social Science* (2147-4478), 11(5), 366-376. <https://doi.org/10.20525/ijrbs.v11i5.1810>
- [28.] Dumitrana, M., Jianu, I., Lapteș, R., & Popa, A. (2009). Sustainable development and environmental accounting: concepts, trends and quality of accounting information. *International Journal of Accounting and Information Management*, 17(1). <https://doi.org/10.1108/ijaim.2009.36617aad.003>
- [29.] Kim, I., Wan, H., Wang, B., & Yang, T. (2019). Institutional investors and corporate environmental, social, and governance policies: evidence from toxics release data. *Management Science*, 65(10), 4901-4926. <https://doi.org/10.1287/mnsc.2018.3055>
- [30.] Rooh, S., Zahid, M., Malik, M., & Tahir, M. (2021). Corporate governance characteristics and environmental, social & governance (esg) performance: evidence from the banking sector of pakistan. *Journal of Business & Tourism*, 7(1), 35-50. <https://doi.org/10.34260/jbt.v7i1.218>
- [31.] Cucari, N., Falco, S., & Orlando, B. (2017). Diversity of board of directors and environmental social governance: evidence from italian listed companies. *Corporate Social Responsibility and Environmental Management*, 25(3), 250-266. <https://doi.org/10.1002/csr.1452>
- [32.] Birindelli, G., Dell'Atti, S., Iannuzzi, A., & Savioli, M. (2018). Composition and activity of the board of directors: impact on esg performance in the banking system. *Sustainability*, 10(12), 4699. <https://doi.org/10.3390/su10124699>
- [33.] Manita, R., Bruna, M., Dăng, R., & Houanti, L. (2018). Board gender diversity and esg disclosure: evidence from the usa. *Journal of Applied Accounting Research*, 19(2), 206-224. <https://doi.org/10.1108/jaar-01-2017-0024>
- [34.] Friede, G., Busch, T., & Bassen, A. (2015). Esg and financial performance: aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment*, 5(4), 210-233. <https://doi.org/10.1080/20430795.2015.1118917>

- [35.] Yang, Y. and Han, J. (2023). Digital transformation, financing constraints, and corporate environmental, social, and governance performance. *Corporate Social Responsibility and Environmental Management*, 30(6), 3189-3202. <https://doi.org/10.1002/csr.2546>
- [36.] Gossain, R. (2023). Legal underpinnings drive esg amidst global flux. *Paradigm*, 27(1), 27-46. <https://doi.org/10.1177/09718907231173333>
- [37.] Lei, X. (2023). Striving for sustainable development: green financial policy, institutional investors, and corporate esg performance. *Corporate Social Responsibility and Environmental Management*, 31(2), 1177-1202. <https://doi.org/10.1002/csr.2630>
- [38.] Shapsugova, M. (2023). Esg principles and social responsibility. *E3s Web of Conferences*, 420, 06040. <https://doi.org/10.1051/e3sconf/202342006040>
- [39.] Darnall, N., Ji, H., Iwata, K., & Arimura, T. (2022). Do esg reporting guidelines and verifications enhance firms' information disclosure?. *Corporate Social Responsibility and Environmental Management*, 29(5), 1214-1230. <https://doi.org/10.1002/csr.2265>
- [40.] Siswantoro, S. (2022). Can the integration between islamic social finance and islamic commercial finance tackle poverty in indonesia?. *Jurnal Ekonomi & Keuangan Islam*, 236-249. <https://doi.org/10.20885/jeki.vol8.iss2.art7>
- [41.] Bukhari, S., Hashim, F., Amran, A., & Hyder, K. (2019). Green banking and islam: two sides of the same coin. *Journal of Islamic Marketing*, 11(4), 977-1000. <https://doi.org/10.1108/jima-09-2018-0154>
- [42.] Liu, F. and Lai, K. (2021). Ecologies of green finance: green sukuk and development of green islamic finance in malaysia. *Environment and Planning a Economy and Space*, 53(8), 1896-1914. <https://doi.org/10.1177/0308518x211038349>
- [43.] Abduh, M., Buys, W., & Aziz, S. (2022). Exploring the relationship between islamic financial development, energy consumption, and environmental quality. *International Journal of Energy Economics and Policy*, 12(2), 426-430. <https://doi.org/10.32479/ijeep.11943>
- [44.] Ansari, R., Alanzarouti, F., & -, -. (2020). Esg and islamic finance: an ethical bridge built on shared values. *Journal of Islamic Financial Studies*, 06(01), 05-11. <https://doi.org/10.12785/jifs/060101>
- [45.] Musari, K. (2022). Integrating green sukuk and cash waqf linked sukuk, the blended islamic finance of fiscal instrument in indonesia: a proposed model for fighting climate change. *International Journal of Islamic Khazanah*, 12(2), 133-144. <https://doi.org/10.15575/ijik.v12i2.17750>
- [46.] Muhamad, S., Zain, F., Samad, N., Rahman, A., & Yaso, M. (2022). Measuring sustainable performance of islamic banks: integrating the principles of environmental, social and governance (esg) and maqasid shari'ah. *Iop Conference Series Earth and Environmental Science*, 1102(1), 012080. <https://doi.org/10.1088/1755-1315/1102/1/012080>
- [47.] Sanusi, M. (2019). The impact of bank-specific and macroeconomic variables on profitability of islamic rural bank in indonesia. *Jurnal Ilmiah Ekonomi Islam*, 5(3). <https://doi.org/10.29040/jiei.v5i3.635>
- [48.] Ngaha, R. and Mbenda, S. (2023). Bank employees' perception of islamic finance in a non-islamic developing country: the case of cameroon. *Journal of Islamic Accounting and Business Research*, 15(6), 897-910. <https://doi.org/10.1108/jiabr-06-2022-0142>

- [49.] Fianto, B., Gan, C., & Hu, B. (2019). Financing from islamic microfinance institutions: evidence from indonesia. *Agricultural Finance Review*, 79(5), 633-645. <https://doi.org/10.1108/afr-10-2018-0091>
- [50.] Abedifar, P., Ebrahim, M., Molyneux, P., & Tarazi, A. (2016). Islamic banking and finance: recent empirical literature and directions for future research., 59-91. <https://doi.org/10.1002/9781119158424.ch4>
- [51.] Long, H., Guo, F., Gong, Q., & Chang, C. (2023). Esg performance and green innovation: an investigation based on quantile regression. *Business Strategy and the Environment*, 32(7), 5102-5118. <https://doi.org/10.1002/bse.3410>
- [52.] Hang, L. (2023). The impact of corporate esg performance on corporate green innovation. Highlights in Business Economics and Management, 22, 399-404. <https://doi.org/10.54097/3bxgyj32>
- [53.] Shirazi, N., Kuanova, L., Ryskulov, A., & Mukusheva, A. (2021). The experience and the prospects of islamic finance in kazakhstan. *Qualitative Research in Financial Markets*, 14(3), 461-482. <https://doi.org/10.1108/qrfm-03-2020-0023>
- [54.] Dai, J. (2023). esg performance and green innovation in a digital transformation perspective. *American Journal of Economics and Sociology*, 83(1), 263-282. <https://doi.org/10.1111/ajes.12541>
- [55.] Putri, A., Damayanti, S., & Rahadi, R. (2022). Islamic finance and blockchain: a bibliometric analysis. *International Journal of Current Science Research and Review*, 05(12). <https://doi.org/10.47191/ijcsrr/v5-i12-16>
- [56.] Hasan, R., Hassan, M., & Aliyu, S. (2020). Fintech and islamic finance: literature review and research agenda. *International Journal of Islamic Economics and Finance (Ijief)*, 3(1). <https://doi.org/10.18196/ijief.2122>
- [57.] Supriadi, I. (2023). Accelerating islamic economy and finance through financial technology: challenges and potential in the digital age. *International Journal of Islamic Economics*, 5(02), 153. <https://doi.org/10.32332/ijie.v5i02.7740>
- [58.] Fauziah, N. and Kassim, S. (2022). Cash waqf model for social enterprise to achieve sustainable development goals in indonesia. *Al-Muzara Ah*, 95-105. <https://doi.org/10.29244/jam.specialissue2022.95-105>
- [59.] Rusydiana, A., Hidayat, Y., Widiastuti, T., & Rahayu, S. (2020). Cash waqf for developing islamic economy: case study in indonesia. *Al-Uqud Journal of Islamic Economics*, 5(1), 43-59. <https://doi.org/10.26740/al-uqud.v5n1.p43-59>
- [60.] Tlemsani, I. (2015). Qatar as an emerging islamic finance hub. *Journal of Modern Accounting and Auditing*, 11(11). <https://doi.org/10.17265/1548-6583/2015.11.004>
- [61.] Ascarya, A. (2021). The role of islamic social finance during covid-19 pandemic in indonesia's economic recovery. *International Journal of Islamic and Middle Eastern Finance and Management*, 15(2), 386-405. <https://doi.org/10.1108/imefm-07-2020-0351>
- [62.] Sanusi, M. (2019). The impact of bank-specific and macroeconomic variables on profitability of islamic rural bank in indonesia. *Jurnal Ilmiah Ekonomi Islam*, 5(3). <https://doi.org/10.29040/jiei.v5i3.635>

- [63.] Fianto, B., Gan, C., & Hu, B. (2019). Financing from islamic microfinance institutions: evidence from indonesia. *Agricultural Finance Review*, 79(5), 633-645.
<https://doi.org/10.1108/afr-10-2018-0091>