Iqtishodia: Jurnal Ekonomi Syariah
Program Studi Hukum Ekonomi Syariah,
Unversitas Al-Qolam Malang
Jalan Raya Putatlor, Putatlor, Gondanglegi, Malang, Jawa Timur 65174, Indonesia.

ISSN (Print): 2503-118X, ISSN (Online): 2580-4669
Vol. 11(2), September 2026, pp. 64-75
DOI: https://doi.org/10.35897/iqtishodia.v11i2.2760

Algorithmic Maqashid: An Ethical Critique of Robo-Advisor Algorithmic Bias in Sharia Stock Screening

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ARTICLE INFO:

Article History:
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Received: 21 June 2026
Revised: 10 August 2026
Published: 17 September 2026

Keywords:
Algorithmic Maqashid; Robo-Advisor; Artificial Intelligence; Sharia Stock Screening; DSN-MUI

Kata Kunci:
Algorithmic Maqashid; Robo-Advisor; Kecerdasan Buatan; Skrining Saham Syariah; DSN-MUI

ABSTRACT

The rapid integration of Artificial Intelligence (AI) and Robo-advisors in Islamic wealth management has streamlined the sharia stock screening process. However, this technological advancement poses a critical ethical dilemma. This qualitative study utilizes a library research approach to philosophically and technically critique the algorithmic bias inherent in current Robo-advisors. It argues that contemporary AI systems perform sharia screening purely mechanically focusing exclusively on quantitative thresholds (e.g., debt-to-asset ratios and non-halal income limits) while entirely failing to comprehend the substantive essence of *Maqashid Sharia* (the higher objectives of Islamic law). Consequently, a company causing severe environmental degradation or social injustice may still pass the algorithmic screening simply by meeting the numerical criteria. By synthesizing Islamic Behavioral Finance and AI Ethics, this research introduces the concept of Algorithmic Maqashid, proposing a shift from negative mechanical screening to positive substantive screening using Natural Language Processing (NLP) to evaluate ESG (Environmental, Social, and Governance) variables. The findings provide a foundational blueprint for regulatory bodies, specifically OJK and DSN-MUI, to establish new regulatory frameworks and sharia compliance audit standards tailored for Algorithmic Trading and AI technology in the Indonesian Islamic capital market.

ABSTRAK

Integrasi pesat Kecerdasan Buatan (AI) dan Robo-advisor dalam pengelolaan kekayaan Islam telah mengefisienkan proses penyaringan saham syariah. Namun, kemajuan teknologi ini menghadirkan dilema etis yang krusial. Studi kualitatif ini menggunakan pendekatan studi pustaka untuk mengkritisi baik secara filosofis maupun teknis bias algoritmik yang melekat pada Robo-advisor saat ini. Penelitian ini berargumen bahwa sistem AI kontemporer melakukan penyaringan syariah secara mekanistis semata dengan hanya berfokus pada ambang batas kuantitatif (misalnya, rasio utang terhadap aset dan batas pendapatan non-halal) tanpa mampu memahami esensi substantif dari Maqashid Syariah (tujuan luhur hukum Islam). Akibatnya, perusahaan yang menyebabkan kerusakan lingkungan parah atau ketidakadilan sosial bisa saja lolos penyaringan algoritmik hanya karena memenuhi kriteria numerik tersebut. Dengan memadukan Keuangan Perilaku Islam (Islamic Behavioral Finance) dan Etika AI, penelitian ini memperkenalkan konsep Algorithmic Maqashid, yang mengusulkan peralihan dari penyaringan mekanistis yang bersifat negatif menuju penyaringan substantif yang bersifat positif dengan memanfaatkan Natural Language Processing (NLP) untuk mengevaluasi variabel ESG (Lingkungan, Sosial, dan Tata Kelola). Temuan penelitian ini memberikan cetak biru dasar bagi badan regulator, khususnya OJK dan DSN-MUI, untuk menyusun kerangka regulasi baru serta standar

audit kepatuhan syariah yang disesuaikan dengan Algorithmic Trading dan teknologi AI di pasar modal syariah Indonesia.

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How to cite: Dewi, A, P & Laksono, B (2026). Algorithmic Maqashid: An Ethical Critique of Robo-Advisor Algorithmic Bias in Sharia Stock Screening. *Iqtishodia: Jurnal Ekonomi Syariah*, 11(2), 64-75. doi: https://doi.org/10.35897/iqtishodia.v11i2.2760

INTRODUCTION

The digitalization of the Islamic Capital Market in Indonesia has entered a new frontier with the deployment of Artificial Intelligence (AI) and Robo-advisors. These automated platforms offer algorithmic trading and portfolio management, explicitly marketing themselves as Sharia-compliant. The current standard for classifying a stock as sharia-compliant in Indonesia, regulated by the Financial Services Authority (OJK) and the National Sharia Board (DSN-MUI), primarily relies on negative screening. This involves quantitative financial ratios (e.g., total interest-based debt compared to total assets must not exceed 45%) and qualitative business sector screening (excluding businesses involving alcohol, gambling, and conventional banking) (Umam, 2012).

The rapid convergence of financial technology, artificial intelligence, and Islamic finance is transforming the way investors access, evaluate, and manage financial assets. In the Islamic capital market, this transformation is particularly significant because investment decisions are increasingly mediated by digital platforms that translate complex financial and Sharia considerations into automated recommendations (Ummah et al., 2024). The emergence of robo-advisors represents an important development within this transformation, as algorithm-driven systems can screen securities, construct portfolios, and provide investment recommendations with minimal direct human intervention. While automation offers substantial advantages in terms of efficiency, scalability, and consistency, it also introduces a fundamental question for Islamic finance: whether computational efficiency can adequately capture the substantive ethical principles that underpin Sharia-based investment decisions (Schnebel, 2024).

This question becomes increasingly important as the boundaries between formal Sharia compliance and broader ethical responsibility become more complex. A company may satisfy established financial and business-sector screening requirements while simultaneously generating significant social or environmental consequences that are difficult to capture through conventional screening parameters. Such a condition raises an important epistemological issue concerning what an algorithm should recognize as relevant when determining whether an investment is genuinely consistent with Islamic principles. From the perspective of *Maqashid al-Shariah*, compliance cannot be understood solely through the exclusion of prohibited elements, but also through the realization of human welfare, justice, protection of wealth, and the prevention of harm. Therefore, the increasing reliance on AI-driven investment systems creates an urgent need to reconsider whether existing computational approaches to Sharia screening are sufficiently equipped to translate these substantive objectives into algorithmic decision-making (Bahri, 2022.

Robo advisors excel at this binary, mechanical parsing. However, this mechanical perfection masks a profound ethical deficiency, which highlights the (1) research problem: current AI systems perform sharia screening purely mechanically, entirely failing to comprehend the substantive essence of *Maqashid Sharia*. The core philosophy of Islamic Economics is not merely the avoidance of Riba (usury) or Gharar (uncertainty), but the active realization of *Maqashid Sharia* the preservation of religion, life, intellect, lineage, and wealth (Chapra, 2001). A critical anomaly arises when a corporation perfectly meets the OJK's debt ratios but simultaneously engages in exploitative labor practices or mass deforestation (violating *Hifz al-Nafs* and *Hifz al-Bi'ah*). Currently, Robo-advisors suffer from an algorithmic bias of reductionism; they classify such companies as halal simply because the AI is not programmed to compute social and environmental harm (Hakim, 2016).

Regarding the (2) insight and problem solve planning, this research proposes a shift from negative mechanical screening to positive substantive screening by utilizing Natural Language Processing (NLP) to evaluate Environmental, Social, and Governance (ESG) variables. Based on a (3) summary of theoretical studies, there is a significant void in the discourse on Islamic Behavioral Finance and AI ethics. While conventional finance vigorously debates Algorithmic ESG integration, Islamic finance literature has largely accepted mechanical AI screening without philosophical scrutiny (state of the art), leaving a critical observed gap. This research fills this novelty gap by introducing the concept of Algorithmic Maqashid.

This section could also provide the expected results. The results of the present study are expected to yield a comprehensive framework where NLP effectively parses ESG variables, ensuring algorithmic evaluations align with substantive Islamic justice. Finally, the (4) research aims are to critically question the technological capacity of AI to comprehend substantive Islamic ethics and to construct a foundational regulatory blueprint for OJK and DSN-MUI to audit algorithms, ensuring they transcend numerical compliance and achieve true *Maqashid* realization.

The introduction comprises of a significant void in the discourse on Islamic Behavioral Finance and AI ethics. While conventional finance vigorously debates Algorithmic ESG (Environmental, Social, and Governance) integration, Islamic finance literature has largely accepted mechanical AI screening without philosophical scrutiny. This research fills this novelty gap by introducing the concept of Algorithmic Maqashid. It critically questions the technological capacity of AI to comprehend substantive Islamic ethics and aims to construct a foundational regulatory blueprint for OJK and DSN-MUI to audit algorithms, ensuring they transcend numerical compliance and achieve true Maqashid realization.

The urgency of this research is underscored by the explosive growth of retail investors in the Indonesian Islamic capital market, who increasingly rely on fintech applications for everyday wealth management. Because robo-advisors operate with high computational speed and scalability, they process and direct massive volumes of Muslim capital in fractions of a second, simultaneously managing the funds of thousands of individuals. When these systems depend exclusively on narrow, deterministic input parameters like debt-to-asset ratios, the resulting mechanical bias ceases to be a mere technical glitch; it transforms into a systemic vulnerability. Tens of thousands of retail investors, acting on the good faith that a digital Sharia-compliant label guarantees ethical integrity, are unwittingly channeled into funding corporations responsible for ecological destruction or social exploitation. Therefore, addressing the epistemological foundation of these algorithms is no longer just an academic exercise, but a critical practical necessity to prevent large scale, automated Sharia washing and to protect the moral integrity of digital Islamic finance (Dziawgo & Dziawgo, 2016).

Ultimately, this study seeks to bridge the widening gap between technological automation and Islamic ethical philosophy. By deconstructing the mechanical flaws of current robo-advisors and proposing the *Algorithmic Maqashid* framework, this research aims to spark a paradigm shift in Islamic wealth management. It serves as a call to action for both fintech developers and regulatory bodies, particularly OJK and DSN-MUI, to move beyond superficial numerical compliance. Through the integration of qualitative ESG data and advanced AI, this paper envisions a future where digital Islamic finance authentically champions social justice, environmental sustainability, and the holistic well-being mandated by Maqashid Sharia.

RESEARCH METHOD

In general, this section describes the way the research was done. This study utilizes a qualitative research design with a Library Research approach, as it deals with conceptualizing the intersection of nascent technology (AI) and classical legal philosophy (*Maqashid*) (Zed, 2014). As a qualitative library study, the researcher acts as the primary instrument attending to the data gathering process, conducted digitally via institutional academic access over a research duration of six months. Given the theoretical nature of the study, it relies exclusively on document analysis rather than human informants or field locations.

Research Design & Population and Samples: The research subject is the operational algorithm of Sharia Robo-advisors vis-a-vis the principles of *Maqashid Sharia*. In the context of library research, the population constitutes the body of literature on Islamic finance and algorithmic technology. The specific samples (secondary data sources) deliberately selected for this study include DSN-MUI Fatwas regarding capital markets, OJK regulations on digital financial innovation, literature on machine learning biases, and classical texts on *Maqashid* by Al-Shatibi and Ibn Ashur.

Sample Collection Techniques and Instrumental Development: Data was systematically collected through academic databases, specifically Scopus and DOAJ. The primary tools utilized were academic search engines and digital referencing software, using targeted keywords such as AI in Islamic Finance, Algorithmic Bias, Robo-advisor Ethics, Maqashid Sharia Screening, and ESG Integration

Data Analysis Techniques & Validation: The data analysis employs a critical-philosophical method. It first deconstructs the current mechanical screening algorithms to expose their ethical blind spots. Subsequently, it synthesizes AI capabilities (like Natural Language Processing) with *Maqashid* variables to construct a proposed Algorithmic Maqashid framework suitable for regulatory adoption. The description of research results validation is achieved through source triangulation, meticulously cross-referencing classical Islamic jurisprudence with contemporary computer science literature to ensure the reliability and validity of the proposed framework.

RESULT AND DISCUSSION

The findings indicate that the unquestioned reliance on current Robo-advisors creates a facade of Sharia compliance, necessitating a paradigm shift in how algorithms are coded and audited. This facade emerges because contemporary fintech infrastructure treats Islamic finance as a rigid checklist of mathematical prohibitions rather than a holistic, values-driven ethical system. When developers program algorithms to exclusively prioritize deterministic financial thresholds such as debt to asset ratios, they inadvertently validate corporations that technically pass numerical screens but inflict severe environmental or social harm. To dismantle this illusion of compliance, the underlying coding architecture must evolve to contextualize corporate behavior beyond the balance sheet. This requires an epistemological shift in algorithmic design, integrating qualitative data processing to ensure that digital wealth management authentically reflects the life-preserving and justice-oriented objectives of *Maqashid Sharia* (Novita et al., 2026).

The Mechanical Bias: Halal by Numbers, Unethical by Impact

The phenomenon of Halal by Numbers, Unethical by Impact is prominently visible in the inclusion of large-scale coal mining companies within the Indonesian Sharia Stock Index (ISSI) and the Jakarta Islamic Index (JII). The current regulatory framework by the Financial Services Authority (OJK) relies strictly on mechanical financial screening, which perfectly illustrates the algorithmic reductionism where Sharia compliance is reduced to a mathematical threshold (Bao et al., 2027).

The Case of the Coal Mining Sector in the Indonesian Sharia Market: Mechanical Compliance (Halal by Numbers): Under official OJK regulations (POJK No. 35/POJK.04/2017), a stock officially qualifies for the Sharia index if its interest-based debt does not exceed 45% of its total assets and its non-halal revenue remains under 10% (Oktaviani, 2021). Many prominent Indonesian coal mining giants maintain extremely healthy balance sheets with low debt ratios. Because their core business (mining) is not explicitly prohibited like alcohol or conventional banking, deterministic rules-based algorithms automatically green-light them for Sharia

portfolios. The Unstructured Reality (Unethical by Impact): Despite passing the numerical screening, these coal corporations are frequently cited in unstructured data such as investigative reports by environmental NGOs like WALHI (Wahana Lingkungan Hidup Indonesia) or Greenpeace for massive carbon emissions, post-mining toxic waste dumping, and deforestation (Wichianrak et al., 2023). Because current screening systems ingest only structured financial statements and seek maximum computational efficiency, they remain systematically "blind" to these ethical realities on the ground, The Maqashid Violation: While these companies successfully satisfy the formalism of Fiqh by avoiding *Riba* (usury), their operational reality destroys local ecosystems, directly violating the Maqashid principles of *Hifz al-Bi'ah* (environmental preservation) and public interest (*Maslahah Mursalah*) (Fatarib et al., 2025).

When highly scalable robo-advisor technology relies solely on these narrow input parameters, it channels vast amounts of retail capital into structurally unethical companies. Muslim investors who intend to purify their wealth end up unwittingly funding social and environmental degradation due to a superficial Sharia label curated by machines, highlighting the urgent need for algorithms capable of processing qualitative ESG data (Saivasan, 2024). The primary flaw in contemporary Robo-advisors is their reliance on deterministic, rules-based algorithms that interpret Sharia compliance merely as a mathematical threshold.

For instance, if a mining company's interest-bearing debt is 44.9% of its total assets, the algorithm automatically green-lights it for a Sharia portfolio. However, this mechanical logic strips away the moral context (Trivedi & Dzingirai, 2026). If that same mining company has a track record of toxic waste dumping that destroys local ecosystems, it directly violates the Maqashid principle of protecting life and public interest (*Maslahah Mursalah*). The AI is biased because its input parameters are deliberately narrow, completely ignoring the substantive ethical impact of the corporate entity (Khan & Ali, 2026).

The root of this flaw lies in a phenomenon known as algorithmic reductionism. Robo-advisor developers tend to program artificial intelligence to seek maximum computational efficiency by ingesting only structured data such as balance sheets and income statements that can easily be converted into binary values (Akhtar et al., 2025).1 for Halal and 0 for Haram. In contrast, a company's social and environmental impacts often manifest as unstructured data, such as grievances from indigenous communities, investigative reports on environmental damage, or NGO reports on human rights violations. Because current AI systems are not trained to interpret and weigh such qualitative data, the machines become systematically blind to ethical realities on the ground, effectively reducing Sharia principles to nothing more than a debt-ratio calculator (Masri et al., 2025).

This mechanical blindness creates a dangerous dichotomy between the formalism of Fiqh and the substance of Maqasid Shariah. Within the framework of Islamic economic philosophy, avoiding Riba (usury) and Gharar (uncertainty) is merely an initial step a condition for validity whereas the ultimate goal is to realize distributive justice and holistic well-being (Falah), encompassing the preservation of religion, life, intellect, lineage, and property (Baining et al., 2024). When an algorithm approves an environmentally destructive company simply because its interest-bearing debt ratio falls below 45%, the system is technically engaging in Sharia-washing. The algorithm safeguards the form or shell of Sharia compliance while fundamentally undermining the spirit of Sharia itself particularly regarding Hifz al-Bi'ah (environmental preservation) and the protection of social rights (Zafar & Ali, 2026).

The implications of this mechanical bias become massive and destructive when accelerated by highly scalable robo-advisor technology. Unlike the slow, manual screening processes performed by humans, robo-advisors execute algorithmic trades in seconds and simultaneously manage the funds of thousands of retail investors. Consequently, this narrow input bias indirectly channels vast amounts of Muslim capital Sharia-compliant capital into companies that are structurally unethical. Muslim retail investors intending to purify their wealth unwittingly end up funding social and environmental degradation, simply because they place unquestioning reliance on a Sharia label curated by machines (Akhtar et al., 2025).

Therefore, maintaining the status quo of these deterministic, rules-based algorithms can no longer be justified on either academic or ethical grounds. To ensure that robo-advisor technology truly operates within Sharia parameters, there must be an epistemological shift in how these machines process compliance data (Kofman, 2025). Artificial intelligence must be compelled to move beyond the comfort zone of quantitative analysis and integrate with technologies capable of capturing moral context, thereby yielding screening processes that are not merely Halal by the numbers but also ethical in their impact on society and the environment (Zulkepli et al., 2026).

Constructing Algorithmic Maqashid: From Negative to Positive Screening

To overcome the mechanical bias that creates a facade of Sharia compliance, the architecture of Robo-advisors must undergo a fundamental evolution. The system can no longer be maintained by merely relying on negative screening, which simply excludes entities based on non-halal financial ratios, as this rigid approach has proven to be blind to the substantive ethical impacts and operational realities of companies on the ground. As a solution, artificial intelligence technology must be directed toward positive screening, which proactively identifies a company's ethical contributions to society and the environment. The urgent need to transform how machines process compliance data shifting from merely satisfying mathematical thresholds to conducting a holistic ethical evaluation serves as the primary foundation for Constructing Algorithmic Maqashid: From Negative to Positive Screening (Kismawadi et al., 2025).

To overcome this mechanical bias, the architecture of Sharia Robo-advisors must evolve from mere negative screening (excluding non-halal ratios) to positive screening (identifying ethical contributions). This requires programming AI to understand Algorithmic Maqashid.

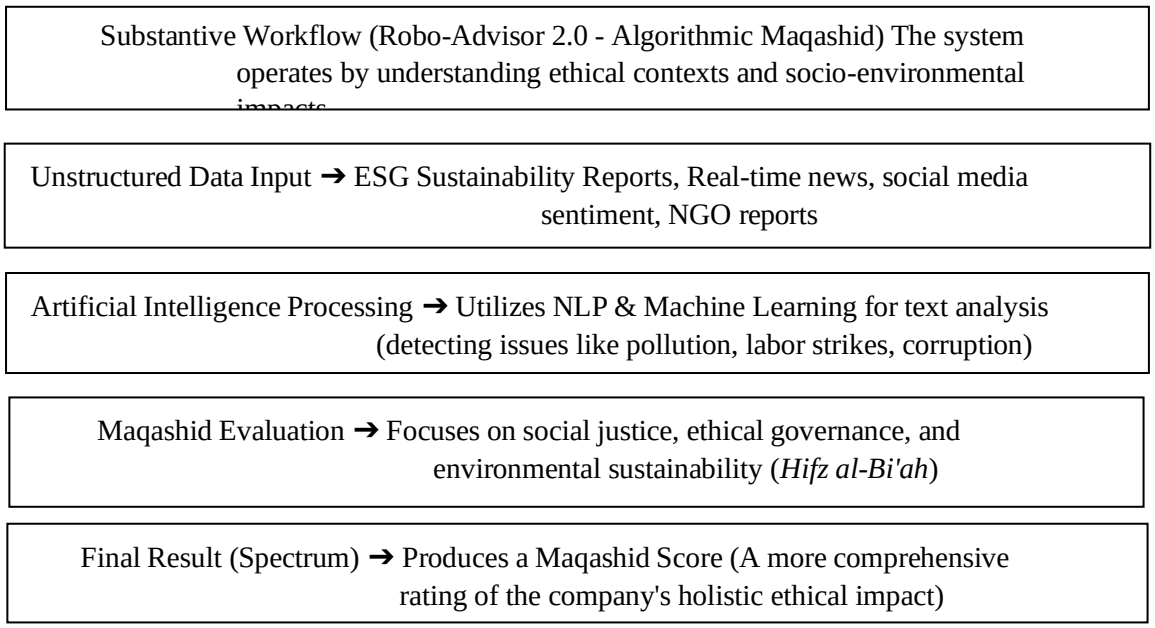


Figure 1. The system operates by understanding ethical contexts and socio-environmental impacts

From figure 1, The Substantive Workflow of Robo-Advisor 2.0, or *Algorithmic Maqashid*, represents a fundamental paradigm shift in Sharia stock screening by moving away from rigid mathematical thresholds towards a holistic evaluation of a company's operational ethics. The process begins with the Unstructured Data Input phase, where the algorithm no longer relies solely on structured financial statements like balance sheets. Instead, it actively ingests vast amounts of qualitative, unstructured data, which includes corporate ESG (Environmental, Social, and Governance) sustainability reports, real-time news articles, social media sentiment, and investigative reports from Non-Governmental Organizations (NGOs) (Wichianrak et al., 2023).

Once the data is gathered, the system enters the Artificial Intelligence Processing stage, which serves as the cognitive core of the upgraded Robo-advisor (Trivedi & Dzingirai, 2026). By integrating Natural Language Processing (NLP) and Machine Learning, the system is endowed with the artificial capability to read and analyze massive volumes of narrative text, often referred to as Big Data. The NLP is specifically programmed to perform sentiment analysis and detect critical keywords associated with ethical controversies, such as pollution, deforestation, corruption, or labor strikes. This allows the machine to uncover real-world corporate behaviors and hidden impacts that traditional mathematical screening algorithms would completely ignore

The insights generated from the textual analysis are then channeled into the Maqashid Evaluation phase. In this step, the algorithm automatically maps the textual findings as indicators of compliance or violation against the higher objectives of Islamic law, particularly *Hifz al-Bi'ah* (preservation of the environment) and *Hifz al-Nafs* (preservation of life) (Asy-Syathibi, 2021; Dewi et al., n.d.). This marks a profound philosophical shift from mere Legalistic Compliance which only focuses on removing Riba (usury) and Gharar (uncertainty) to pass a numerical threshold to Substantive Maqashid Compliance. The AI evaluates the company based on its actual impact on social justice, ethical governance, and environmental sustainability, ensuring that the digital wealth management authentically reflects the justice-oriented objectives of Islamic economics (Saivasan, 2024).

Finally, this comprehensive evaluation culminates in the Final Result (Spectrum), where the system abandons the absolute binary logic of labeling a stock merely as Halal or Haram. Instead, it generates a Maqashid Score, an algorithmic composite index that provides a holistic ethical rating for each Sharia-compliant stock. This score is calculated using a dynamic weighting algorithm that automatically penalizes companies with a track record of negative social or environmental impacts, while simultaneously rewarding those that actively report valid philanthropic initiatives or green energy transitions. By presenting this Maqashid Score to retail investors, the system eliminates information asymmetry, provides a precise guide for ethical investing, and effectively dismantles the illusion of digital Sharia-washing (Ryandono et al., 2024).

Table 1. Proposed Algorithmic Maqashid Framework for Next-Generation Islamic Robo-Advisory

Screening Dimension	Current Mechanical AI (Robo-Advisor 1.0)	Algorithmic Maqashid (Proposed Robo-Advisor 2.0)
Data Inputs	Structured Financial Statements (Balance Sheets, Income Statements).	Unstructured Data: ESG Sustainability Reports, News articles, NGO reports, and social media sentiment.
Technological Capability	Basic arithmetic logic and deterministic rules (If Debt < 45%, Then Halal).	Natural Language Processing (NLP) and Machine Learning to parse textual data for ethical controversies (e.g., detecting keywords like "labor strike," "pollution," "corruption").
Sharia Philosophy	Legalistic/Fiqh Compliance (Focus on removing Riba and Gharar).	Substantive Maqashid Compliance (Focus on social justice, environmental sustainability, and ethical governance).
Output Result	Binary: Halal / Haram.	Spectrum: A Maqashid Score rating the company's holistic ethical impact alongside its financial compliance.

As illustrated in the table, integrating Natural Language Processing (NLP) allows the algorithm to read and analyze Sustainability Reports (SR) and real-time news, transforming abstract Maqashid principles into measurable data points. By assigning weights to environmental and social governance (ESG) factors, the AI can compute a holistic Maqashid Score. The shift from structured to unstructured data forms the core analytical foundation of Algorithmic Maqashid. Historically, Robo-advisor 1.0 algorithms were trained solely to extract numerical figures from financial statements to verify debt ratio limits a rigid, deductive approach susceptible to accounting manipulation (Sharma et al., 2026). By integrating NLP and machine learning, Robo-advisor 2.0 is

endowed with artificial cognitive capabilities to read and interpret vast amounts of narrative text (Big Data). The system dissects corporate sustainability reports, scans real-time news articles, and analyzes the sentiment of investigative reports from non-governmental organizations (NGOs) (Wichianrak et al., 2023). Technically, the NLP is programmed to perform sentiment analysis by detecting keywords such as waste pollution, deforestation, or labor rights violations. The algorithm then automatically maps these textual findings as indicators of violations against the principles of Hifz al-Bi'ah (preservation of the environment) and Hifz al-Nafs (preservation of life) (Rohim, 2022).

Furthermore, the integration of NLP technology shifts the philosophical paradigm of Sharia compliance within the system from mere Legalistic Compliance to Substantive Maqashid Compliance (Koushal et al., 2025). Traditional negative screening operates on an absolute binary logic (Halal or Haram) a logic that fails to capture the highly complex operational realities of modern corporations. In the real world, a company might not produce alcohol (passing the sectoral screen) and may carry low debt (passing the financial ratio screen), yet simultaneously employ exploitative supply chain practices. Through Algorithmic Maqashid, AI moves beyond this binary paradigm to provide a comprehensive, spectrum-based assessment. Companies are evaluated based on the extent of their positive contribution to social and environmental well-being, effectively positioning the ESG (Environmental, Social, and Governance) framework as a measurable proxy for Maqashid Sharia (Novita et al., 2026).

The key output of this upgraded AI system is the formulation of the Maqashid Score an algorithmic composite index that assigns a holistic ethical rating to each Sharia-compliant stock. This score is calculated using a dynamic weighting algorithm that automatically penalizes issuers with a track record of negative sentiment, while simultaneously rewarding issuers that actively report green energy transitions or valid philanthropic initiatives (Zulkepli et al., 2026). By displaying the Maqashid Score directly on the robo-advisor interface, information asymmetry is eliminated. Retail investors no longer invest blindly based on superficial "halal" labels; instead, they possess a precise guide for channeling capital into companies that genuinely embody the distributive justice and ethical vision of the Islamic economy.

Regulatory Blueprint for OJK and DSN-MUI

The transition to Algorithmic Maqashid cannot rely solely on the goodwill of Fintech developers; it requires regulatory enforcement. Currently, DSN-MUI audits the Sharia Supervisory Board (DPS) of fintech companies, but there is no specific framework to audit the algorithm's code. The traditional audit mechanism is heavily human-centric, focusing primarily on corporate governance and fatwa compliance, which leaves a massive regulatory blind spot regarding how the machine makes its autonomous screening decisions (Iska, 2022). Without structural regulatory intervention, technology companies may prioritize computational efficiency or profit margins over holistic Islamic ethics, leading to a superficial and mechanical implementation of sharia values within the digital ecosystem (Launingtia et al., 2025).

To bridge this critical gap, this study proposes that OJK and DSN-MUI issue a new regulation outlining standard parameters for an AI Sharia Audit. This innovative standard would mandate Robo-advisor developers to disclose their algorithmic weights and prove that their machine learning models ingest qualitative ESG data to filter out companies that systematically violate human rights or environmental safety (Saivasan, 2024). This proposed audit framework goes beyond merely checking quantitative financial ratios; it necessitates a white-box approach where regulators can peer into the black box of AI. Regulators and sharia auditors must be granted access to examine the Natural Language Processing (NLP) parameters and the underlying decision-making logic of the AI, ensuring that the platform genuinely penalizes corporate malpractice rather than merely engaging in digital Sharia-washing.

Ultimately, executing this regulatory blueprint means institutionalizing Maqashid Sharia into the code itself (Noviyanti, 2016). To achieve this, the traditional Sharia Supervisory Board (DPS) must be modernized, requiring its members to acquire technological literacy or be actively supported by Sharia-compliant data scientists capable of conducting these specialized algorithmic audits. Once OJK and DSN-MUI enforce these standards, Islamic fintech platforms will be legally bound to align their technological infrastructure with substantive Islamic justice. This proactive regulatory stance will not only protect Muslim retail investors from inadvertently funding unethical enterprises but also position Indonesia as a global pioneer in ethical AI governance within the Islamic capital market (Kismawadi, 2025).

Implementing this regulatory blueprint will fundamentally transform the Sharia stock screening ecosystem on the Indonesia Stock Exchange (IDX) from a static financial checklist into a dynamic driver of corporate accountability. By mandating an AI Sharia Audit, national indices such as the Indonesian Sharia Stock Index (ISSI) and the Jakarta Islamic Index (JII) will no longer inadvertently harbor structurally unethical companies simply because they possess low debt-to-asset ratios (Muchtar, 2019). Instead, the national screening system will systematically penalize publicly listed entities involved in environmental degradation or social injustice, while actively channeling Muslim retail capital toward corporations demonstrating strong Environmental, Social, and Governance (ESG) commitments. Ultimately, this structural shift ensures that the Indonesian Islamic capital market operates not merely as a halal investment alternative, but as a proactive enabler of sustainable development and substantive Islamic justice (Sadhana et al., 2026).

CONCLUSION

The conclusion of this study highlights a critical ethical void in the current digitalization of the Islamic Capital Market. While Robo-advisors excel at mechanical Sharia screening based on quantitative financial ratios, their algorithms suffer from a reductionist bias that fails to capture the substantive essence of Maqashid Sharia. A company may be mathematically "halal" but substantively unethical if its operations cause environmental or social harm. To resolve this, this study introduces the concept of Algorithmic Maqashid, which advocates for utilizing advanced AI (such as NLP) to parse qualitative ESG data, moving from negative screening to substantive positive screening. Most importantly, this research provides a foundational blueprint for OJK and DSN-MUI to establish specialized AI Sharia Audit Standards, ensuring that the future of Algorithmic Trading in Indonesia embodies the holistic justice and ethical depth intended by Islamic law.

However, this study has limitations as it is a conceptual critique based on library research. Further research is aimed at expanding the objects by collaborating with computer scientists to build and empirically test a prototype NLP algorithm that actively scores IDX Sharia-listed companies based on these proposed Maqashid variables.

Author's Contributions

Arlinta Prasetian Dewi: Conceptualization, Methodology, Investigation, Data curation, Formal analysis, Writing – original draft, review & editing. Bagus Laksono: Research method, validation, review & editing. All authors have read and approved the final version of the manuscript.

Acknowledgements

The authors gratefully acknowledge the support and cooperation of all parties who contributed to this study. Constructive feedback from academic colleagues, particularly in the fields of Islamic finance and artificial intelligence ethics, is also appreciated. The authors extend their appreciation to the Sharia Economic Law Study Program, Faculty of Sharia, Institut Agama Islam Riyadlotul Mujahidin, for institutional support. This research was conducted for academic purposes and did not receive any specific funding from public, commercial, or not-for-profit organizations.

Declarations of Ethical Considerations

This study is a qualitative library research that relies exclusively on document analysis and does not involve human participants, field research, or primary data collection. Therefore, no informed consent or ethical clearance for human subjects was required. All secondary sources, including classical Islamic texts, regulatory documents, and contemporary scholarly literature, were cited and referenced in accordance with academic integrity standards. The authors confirm that no confidential or proprietary information was misused in the conduct of this research.

Use of Artificial Intelligence (AI)

The authors declare that no generative artificial intelligence (AI) tools were used in the preparation, analysis, or writing of this manuscript.

Conflict of Interest

The authors declare no conflicts of interest.

Funding

This research did not receive any financial support.

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