



AI-Enabled Assessment of Maqasid Al-Shariah Outcomes in Saudi Debt-Market Development under Vision 2030

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Abstract: This study examines how artificial intelligence can be used to assess Maqasid al-Shariah outcomes in the development of Saudi Arabia's debt market under Vision 2030. While Saudi debt-market expansion has strengthened financing channels through sukuk, bonds, and government debt instruments, limited research has examined whether such development advances broader Islamic ethical objectives, including justice, transparency, wealth circulation, risk-sharing, social benefit, and protection from excessive uncertainty. The study proposes an AI-enabled assessment framework that links debt-market indicators with Maqasid-based outcome dimensions. Using conceptual analysis, policy review, and proposed machine-learning indicators, the paper explains how artificial intelligence can support real-time monitoring of market depth, investor inclusion, Shariah compliance, sustainability alignment, and financing contribution to national development. The framework is positioned within Saudi Arabia's Financial Sector Development Program, which seeks to deepen capital markets and diversify financing sources in support of Vision 2030. The paper contributes to Islamic finance literature by moving beyond product-level Shariah compliance toward measurable outcome-based governance. It also provides practical value for regulators, issuers, investors, and policymakers seeking to integrate ethical finance, digital intelligence, and market development in Saudi Arabia's evolving financial ecosystem.

Keywords: Artificial Intelligence, Maqasid Al-Shariah, Saudi Debt Market, Sukuk, Islamic Finance, Vision 2030, Financial Sector Development, Shariah Governance.

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INTRODUCTION

Saudi Arabia's debt-market development has become an important part of the Kingdom's wider economic transformation under Vision 2030. Traditionally, Saudi financing relied heavily on banking channels, government expenditure, and oil-linked liquidity. However, Vision 2030 introduced a more diversified national development model that requires deeper capital markets, broader financing instruments, stronger private-sector participation, and more sustainable sources of long-term funding.

The Financial Sector Development Program specifically aims to strengthen the financial sector, deepen capital markets, and increase the availability of financing channels for economic growth. Within this transformation, the development of sukuk, bonds, and government debt instruments has gained strategic importance because these instruments can support infrastructure projects, corporate expansion, fiscal flexibility, and investor diversification.

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The Saudi Exchange established its debt market in 2009 to support the listing of corporate sukuk and bonds. A major milestone occurred in 2018 when several government debt instruments were listed, after which the Saudi debt market expanded and became one of the largest in the region. This shift is significant because a well-functioning debt market provides alternatives to bank-based financing and equity issuance. It allows governments and companies to raise long-term capital, manage liquidity, attract institutional investors, and finance national development projects. The Ministry of Finance also announced in 2018 the listing of 45 bonds and sukuk issuances with a total value of SAR 204.385 billion, including government development bonds, floating rate notes, and government sukuk. These developments demonstrate the growing importance of debt instruments in Saudi Arabia's financial architecture.

However, in an Islamic finance context, debt-market development should not be assessed only through conventional financial indicators such as issuance volume, liquidity, yield, investor participation, and market capitalization. Although these measures are important, they do not fully explain whether debt-market expansion contributes to ethical, social, and developmental outcomes. Islamic finance is not limited to formal compliance with Shariah contracts; it is also expected to advance the higher objectives of Shariah, known as Maqasid al-Shariah. These objectives include the protection and promotion of faith, life, intellect, wealth, and future generations, as well as broader principles such as justice, transparency, public benefit, fairness, risk-sharing, and prevention of harm. In the context of sukuk and debt-market governance, Maqasid al-Shariah provides a wider evaluative lens for examining whether financial development supports real economic activity, social welfare, responsible investment, and equitable wealth circulation.

This paper argues that Saudi Arabia's debt-market development under Vision 2030 creates an important opportunity to move from product-level Shariah compliance toward outcome-based Islamic financial assessment. Many sukuk structures may satisfy legal and contractual Shariah requirements, yet the broader outcomes of these instruments require deeper evaluation. For example, a sukuk issuance may be technically compliant, but policymakers and regulators may still need to ask whether it supports productive investment, improves access to financing, avoids excessive speculation, distributes risk fairly, strengthens financial stability, and contributes to sustainable national development. These questions are directly linked to Maqasid al-Shariah and are highly relevant as Saudi Arabia seeks

to position itself as a leading financial and Islamic capital-market hub.

Artificial intelligence can play a valuable role in this assessment. AI tools can process large volumes of financial, regulatory, market, textual, and sustainability-related data more efficiently than traditional manual review methods. Machine learning models can identify patterns in sukuk issuance, investor participation, pricing behavior, disclosure quality, sectoral allocation of funds, and compliance risks. Natural language processing can analyze prospectuses, Shariah board statements, risk disclosures, and sustainability reports to detect whether issuers provide transparent and meaningful information. Predictive analytics can support early warning systems for market instability, concentration risk, or weak alignment between financing instruments and real economic outcomes. Therefore, AI can help regulators and financial institutions assess not only whether a debt instrument is legally valid, but also whether it advances measurable Maqasid-based outcomes.

The research gap addressed in this paper is the limited integration of AI-enabled analytics with Maqasid al-Shariah assessment in the context of Saudi debt-market development. Existing studies on Islamic finance often focus on Shariah compliance, sukuk structures, market growth, or financial performance. Other studies examine AI in finance, but mainly from the perspective of automation, credit scoring, fraud detection, risk management, or investment decision-making. Fewer studies combine AI, Maqasid al-Shariah, and national capital-market development into one integrated assessment framework. This gap is important because Vision 2030 requires not only financial expansion but also accountable, inclusive, sustainable, and ethically governed development.

Accordingly, this study proposes an AI-enabled framework for assessing Maqasid al-Shariah outcomes in Saudi debt-market development. The framework links debt-market indicators with ethical and developmental dimensions such as transparency, justice, wealth circulation, financial inclusion, real-sector contribution, sustainability alignment, risk-sharing, and governance quality. By doing so, the paper contributes to Islamic finance literature, financial technology research, and Saudi Vision 2030 policy discussions. It also provides practical value for regulators, issuers, investors, Shariah boards, and policymakers who need reliable tools to evaluate whether financial innovation is producing outcomes consistent with both Islamic ethical principles and national transformation goals.

LITERATURE REVIEW

The literature on Saudi debt-market development, Islamic finance, Maqasid al-Shariah, and artificial intelligence has expanded significantly in recent years, but these areas are often studied separately. Research on debt-market development generally focuses on market deepening, liquidity, issuance volume, investor diversification, and the role of capital markets in financing economic growth. In Saudi Arabia, the development of sukuk and bonds has been strongly connected with Vision 2030, which aims to diversify the economy, strengthen the private sector, and reduce excessive dependence on oil revenues. The growth of the Saudi debt market has therefore been viewed as a financial-sector reform that can support infrastructure investment, corporate financing, fiscal management, and institutional investor participation.

A major stream of literature focuses on sukuk as the main Islamic debt-market instrument. Sukuk are often described as Shariah-compliant certificates that represent ownership or beneficial interest in underlying assets, projects, services, or investment activities. Unlike conventional bonds, sukuk are expected to be structured around asset-backed or asset-based arrangements and should avoid interest-based lending, excessive uncertainty, and prohibited activities. Scholars have emphasized that sukuk can support long-term financing while remaining consistent with Islamic financial principles. However, the literature also highlights concerns that some sukuk structures may closely resemble conventional bonds in economic substance, especially when returns are fixed, risks are transferred away from investors, or underlying assets are used mainly for legal formality. This debate shows the need to assess sukuk not only by contractual structure but also by their economic and ethical outcomes.

Another important area of literature concerns Maqasid al-Shariah in Islamic finance. Maqasid al-Shariah refers to the higher objectives of Islamic law, traditionally linked to the protection of religion, life, intellect, lineage, and wealth. In modern Islamic finance, these objectives are usually expanded to include justice, social welfare, transparency, fair distribution of wealth, prevention of harm, responsible risk-sharing, and promotion of public benefit. Many scholars argue that Islamic finance should move beyond narrow legal compliance and demonstrate real contribution to human well-being and economic justice. This argument is especially relevant to debt-market development because a market may grow in size but still fail to produce equitable, sustainable, or socially beneficial outcomes. For this reason, Maqasid-based assessment can help determine whether sukuk and

debt instruments are supporting productive sectors, enabling broader access to investment, reducing harmful speculation, and contributing to national development.

The literature also shows that Maqasid-based measurement remains challenging. Although the concept is widely discussed, there is no single universally accepted measurement model for applying Maqasid al-Shariah to capital markets. Some studies propose indices that evaluate Islamic banks based on education, justice, welfare, profitability, and social responsibility. Others examine governance quality, disclosure standards, product structures, and social-impact indicators. However, most models are either qualitative, institution-specific, or limited to banking rather than capital markets. In the case of sukuk and debt markets, Maqasid assessment requires indicators that capture market-level outcomes, such as sectoral allocation of financing, liquidity fairness, issuer diversity, investor accessibility, Shariah governance transparency, and the relationship between debt-market activity and real economic development. This creates a need for more advanced analytical tools.

Artificial intelligence literature provides useful methods for addressing this measurement problem. AI has been increasingly applied in financial services for credit scoring, fraud detection, portfolio management, risk forecasting, customer analytics, regulatory technology, and automated compliance monitoring. Machine learning can detect complex patterns in large datasets, while natural language processing can analyze financial documents, regulatory disclosures, prospectuses, annual reports, news, and Shariah opinions. In debt markets, AI can support yield prediction, default-risk modelling, market surveillance, liquidity analysis, and issuer-risk assessment. These applications show that AI can improve speed, accuracy, and consistency in financial decision-making. However, most existing studies focus on efficiency and risk reduction rather than Islamic ethical outcomes.

In Islamic finance, research on AI is still developing. Some studies discuss the use of AI for Shariah screening, Islamic robo-advisory, smart contracts, halal investment filtering, and digital banking. AI can assist Shariah boards by reviewing contracts, detecting non-compliant clauses, and monitoring transactions. It can also improve customer access to Islamic financial products and support more transparent reporting. Nevertheless, the use of AI in Islamic finance raises important governance concerns. AI systems may produce biased outcomes if the training data are incomplete or unfair. They may also lack explainability, making it difficult for regulators and Shariah scholars to

understand how conclusions are reached. In addition, automated systems cannot replace human ethical judgment, especially when assessing complex Maqasid-based outcomes that require context, interpretation, and public-interest reasoning.

The Saudi context makes this literature especially important. Vision 2030 promotes digital transformation, financial-sector modernization, capital-market growth, and stronger governance. Saudi Arabia is also investing heavily in data, artificial intelligence, and digital government. At the same time, the Kingdom has a major Islamic finance market and a rapidly growing sukuk and bond ecosystem. This combination creates a unique opportunity to connect AI-enabled analytics with Maqasid-based financial assessment. Such an approach can help ensure that debt-market development does not become a purely technical or volume-driven reform, but instead contributes to ethical finance, economic diversification, sustainability, and inclusive growth.

Based on the reviewed literature, three major gaps can be identified. First, many studies examine Saudi debt-market growth but give limited attention to Maqasid-based outcome measurement. Second, Islamic finance research often discusses Maqasid al-Shariah conceptually but does not provide data-driven tools for continuous market assessment. Third, AI research in finance usually focuses on operational efficiency and predictive performance, while paying less attention to ethical, Shariah-based, and national-development outcomes. This paper addresses these gaps by proposing an AI-enabled framework that links Saudi debt-market indicators with Maqasid al-Shariah dimensions under Vision 2030.

Conceptual Framework

This study proposes a conceptual framework that connects Saudi debt-market development, AI-enabled assessment, and Maqasid al-Shariah outcomes under the broader objectives of Vision 2030. The framework is based on the argument that the success of Saudi Arabia's sukuk and bond market should not be measured only by conventional financial indicators such as issuance volume, trading activity, liquidity, yield performance, and market capitalization. These indicators are useful for evaluating market depth, but they do not fully capture whether debt-market development supports Islamic ethical objectives, national development, social benefit, and long-term financial stability. Therefore, the proposed framework introduces an outcome-based assessment model in which artificial intelligence is used to evaluate how far debt-market growth contributes to Maqasid al-Shariah and Vision 2030 priorities.

The first component of the framework is debt-market development inputs. These inputs include sukuk and bond issuance, government debt instruments, corporate sukuk, green sukuk, infrastructure-linked debt, investor participation, trading liquidity, regulatory reforms, disclosure practices, and Shariah governance mechanisms. In the Saudi context, these inputs are shaped by the Financial Sector Development Program, capital-market reforms, the Saudi Exchange, the Capital Market Authority, and national efforts to diversify financing channels. Debt-market development is important because it provides long-term funding for government projects, private-sector expansion, infrastructure development, and investment diversification. However, from a Maqasid perspective, these inputs must be assessed according to the quality and purpose of financing, not merely the quantity of instruments issued.

The second component is the AI-enabled assessment layer. This layer acts as the analytical engine of the framework. It collects and processes data from multiple sources, including sukuk prospectuses, bond documentation, Shariah board reports, issuer financial statements, market-trading data, credit ratings, sustainability disclosures, regulatory filings, macroeconomic indicators, and investor-participation records. Artificial intelligence tools can then be applied to classify, measure, predict, and evaluate debt-market outcomes. For example, machine learning can identify whether financing is concentrated in a few large issuers or distributed across broader economic sectors. Natural language processing can analyze sukuk documents to assess the clarity of risk disclosures, asset-use explanations, Shariah statements, and sustainability commitments. Predictive analytics can identify early signs of liquidity stress, default risk, weak transparency, or excessive dependence on specific sectors. In this way, AI provides a stronger evidence base for evaluating whether the market is developing in a balanced, ethical, and sustainable way.

The third component is the Maqasid al-Shariah outcome dimension. This dimension translates Islamic ethical objectives into measurable financial-market outcomes. The first outcome is protection and circulation of wealth, which examines whether debt-market development supports productive investment, fair wealth distribution, and broader access to financing. The second outcome is justice and fairness, which assesses whether issuers and investors are treated transparently, whether risks are disclosed fairly, and whether market participation is not limited only to large institutions. The third outcome is prevention of harm, which considers whether debt-market practices avoid excessive speculation, over-leverage, hidden risk, and

instability. The fourth outcome is public benefit, which evaluates whether sukuk and bond proceeds support infrastructure, economic diversification, sustainability, education, healthcare, energy transition, housing, or other socially beneficial sectors. The fifth outcome is Shariah governance integrity, which measures the quality, transparency, and consistency of Shariah supervision, including the availability of Shariah opinions, asset-backing information, and compliance monitoring.

The fourth component is Vision 2030 alignment. This part of the framework links Maqasid-based outcomes with national transformation goals. Vision 2030 emphasizes economic diversification, financial-sector development, private-sector growth, investment attraction, digital transformation, and improved quality of life. A debt market that supports these priorities can be considered developmentally meaningful. For example, sukuk that finance renewable energy, transport infrastructure, housing, healthcare facilities, digital infrastructure, or small and medium enterprise expansion can contribute both to Vision 2030 and Maqasid al-Shariah. Similarly, debt instruments that increase savings options, deepen institutional investment, and improve capital-market participation may support wealth protection and circulation. Therefore, the framework treats Vision 2030 not as a separate policy agenda, but as a national context through which Maqasid outcomes can be operationalized and measured.

The fifth component is the governance and assurance layer. AI-enabled assessment cannot be effective without proper governance. This layer includes data quality controls, explainable AI, ethical AI principles, human oversight, Shariah scholar validation, regulator review, and periodic model auditing. Because Maqasid assessment involves ethical judgment, AI should support decision-making rather than replace scholars, regulators, or policymakers. For example, an AI model may flag weak disclosure or low social-impact alignment, but final interpretation should involve Shariah experts, financial regulators, and market professionals. Explainability is especially important because issuers and investors must understand why a sukuk or debt instrument receives a certain Maqasid outcome score. Without transparency, AI may create new governance risks rather than solving existing ones.

The framework can be presented through a Maqasid-Based AI Assessment Matrix. This matrix connects each Maqasid dimension with possible AI indicators. For wealth circulation, indicators may include issuer diversity, sectoral financing distribution, SME-linked issuance, and investor-accessibility data. For justice and fairness, indicators

may include disclosure quality, pricing fairness, risk-sharing structure, and investor-protection signals. For prevention of harm, indicators may include leverage exposure, default probability, volatility, concentration risk, and speculative trading patterns. For public benefit, indicators may include proceeds allocated to infrastructure, sustainability, social development, and Vision 2030 priority sectors. For Shariah governance integrity, indicators may include clarity of Shariah board approval, availability of compliance reports, asset-backing transparency, and ongoing monitoring evidence.

Overall, the proposed conceptual framework positions AI as a bridge between financial-market data and Islamic ethical evaluation. It enables Saudi debt-market development to be assessed not only as a financial-growth mechanism but also as a system for promoting justice, transparency, stability, and public benefit. By integrating Maqasid al-Shariah, AI analytics, and Vision 2030 priorities, the framework provides a practical foundation for regulators, issuers, investors, and Shariah boards to evaluate whether Saudi Arabia's expanding debt market is producing outcomes consistent with both Islamic finance principles and national transformation objectives.

RESEARCH METHODOLOGY

This study adopts a conceptual and qualitative research methodology supported by a proposed AI-enabled assessment model. The purpose of the methodology is not only to describe Saudi debt-market development, but also to explain how Maqasid al-Shariah outcomes can be measured using structured indicators, market data, regulatory information, and artificial intelligence techniques. Since the topic combines Islamic finance, AI governance, capital-market development, and Vision 2030 policy objectives, a conceptual methodology is suitable because it allows the study to build an integrated framework where direct empirical testing may still be limited by the availability of public sukuk-level datasets and standardized Maqasid indicators.

The study is designed around three methodological stages. The first stage is document and policy analysis. This involves reviewing official policy documents, regulatory materials, Vision 2030 programs, Saudi debt-market publications, sukuk and bond market reports, and Islamic finance governance standards. Key sources may include publications from the Saudi Vision 2030 platform, the Financial Sector Development Program, the Capital Market Authority, Saudi Exchange, Ministry of Finance, Saudi Central Bank, Islamic Development Bank, AAOIFI, IFSB, and international financial institutions. This stage helps identify the policy objectives behind Saudi debt-market development and the regulatory

environment in which sukuk and bonds operate. It also supports the selection of relevant Maqasid dimensions, such as wealth protection, justice, transparency, public benefit, risk control, and Shariah governance integrity.

The second stage is literature-based framework development. In this stage, previous studies on Maqasid al-Shariah, Islamic capital markets, sukuk governance, AI in finance, responsible AI, and financial-sector development are examined to build the theoretical foundation of the research. The literature review is used to identify gaps in current knowledge, especially the lack of outcome-based and data-driven assessment tools for Islamic debt markets. Existing studies often focus on Shariah compliance, sukuk structures, market performance, or financial risk. However, fewer studies provide a measurable method for assessing whether debt-market growth produces Maqasid-consistent outcomes. Therefore, this paper develops a framework that converts Maqasid principles into observable indicators that can be assessed through AI-supported analytics.

The third stage is the development of an AI-enabled Maqasid assessment model. This model proposes how data from the Saudi debt market can be collected, classified, analyzed, and interpreted to measure ethical and developmental outcomes. The model may use multiple data categories. Market data may include issuance size, maturity period, trading volume, yield movement, investor type, issuer type, and liquidity levels. Document data may include sukuk prospectuses, Shariah board statements, risk disclosures, sustainability reports, annual reports, and regulatory filings. Developmental data may include sector allocation of proceeds, infrastructure financing, SME financing, green project financing, employment contribution, and alignment with Vision 2030 priority sectors. Governance data may include disclosure quality, Shariah audit availability, asset-backing information, and post-issuance compliance reporting.

Different AI techniques can be applied within this model. Machine learning classification can categorize sukuk and debt instruments according to issuer type, sector, purpose of proceeds, maturity profile, and risk level. Natural language processing can assess the quality of textual disclosures by analyzing whether documents clearly explain risk-sharing arrangements, asset structures, investor rights, Shariah approval, sustainability claims, and use of proceeds. Predictive analytics can estimate default risk, liquidity risk, market concentration risk, or possible instability in specific debt segments. Clustering techniques can identify patterns among issuers and instruments, such as whether financing is

concentrated among large government-linked entities or distributed across private-sector and development-focused projects. Sentiment and topic modelling can review market announcements, policy statements, and public disclosures to evaluate the consistency between stated objectives and actual financial outcomes.

The study proposes a Maqasid Outcome Scorecard as the main analytical instrument. The scorecard includes five assessment dimensions. The first dimension is wealth protection and circulation, measured through indicators such as productive use of proceeds, sectoral diversity, investor inclusion, and support for real economic activity. The second dimension is justice and fairness, measured through disclosure quality, pricing transparency, fair allocation of risks, and protection of investor rights. The third dimension is prevention of harm, measured through leverage exposure, speculation risk, default probability, liquidity stress, and concentration risk. The fourth dimension is public benefit and Vision 2030 alignment, measured through financing directed toward infrastructure, sustainability, housing, healthcare, education, digital transformation, and other national priority sectors. The fifth dimension is Shariah governance integrity, measured through clarity of Shariah opinions, availability of Shariah supervision, asset-backing transparency, and post-issuance compliance monitoring.

For scoring, each indicator can be evaluated on a scale from 1 to 5, where 1 represents weak alignment and 5 represents strong alignment with Maqasid outcomes. AI tools can assist by generating preliminary scores based on data patterns, text analysis, and risk indicators. However, the final score should be validated by human experts, including Shariah scholars, financial analysts, regulators, and governance specialists. This mixed human-AI approach is important because Maqasid assessment involves ethical interpretation, not only technical measurement. AI can improve speed, consistency, and evidence-based analysis, but it cannot independently determine public interest or religious-legal validity without expert oversight.

The reliability of the model depends on data quality, explainability, and governance controls. Data should be accurate, updated, relevant, and collected from credible sources. AI models should be explainable so that users can understand why a specific sukuk or bond receives a particular assessment. Bias controls are also necessary because incomplete data may lead to misleading conclusions, especially if smaller issuers or private placements are underrepresented. Periodic model review should be conducted to ensure that the scorecard remains

aligned with regulatory changes, Shariah standards, and Vision 2030 priorities.

Overall, this methodology provides a structured way to study Saudi debt-market development from an Islamic ethical and data-driven perspective. It combines policy review, literature analysis, Maqasid-based indicator development, and AI-enabled assessment. This approach satisfies the requirements of a conceptual journal paper while also offering a practical framework that future researchers can test empirically using Saudi sukuk and bond-market datasets.

DISCUSSION AND POLICY IMPLICATIONS

The proposed AI-enabled Maqasid assessment framework shows that Saudi debt-market development can be evaluated through a wider ethical and developmental lens rather than through financial performance alone. Under Vision 2030, the growth of sukuk and bond markets is not only a technical capital-market reform, but also a strategic mechanism for financing economic diversification, infrastructure expansion, private-sector growth, and long-term national development. However, from an Islamic finance perspective, market growth should also demonstrate consistency with Maqasid al-Shariah. This means that sukuk and debt-market instruments should contribute to wealth protection, fair distribution, transparency, responsible risk management, social benefit, and real economic activity.

One important implication is that regulators and market authorities can use AI-enabled assessment to move from compliance-based supervision to outcome-based supervision. Traditional Shariah governance often focuses on whether the structure of a sukuk follows accepted contracts and avoids prohibited elements such as *riba*, *gharar*, and *maysir*. This remains essential, but it may not be sufficient. A sukuk may be formally compliant while still having limited contribution to public benefit, weak disclosure, or concentration of benefits among a small number of large institutions. By using AI tools to analyze market data, disclosure documents, issuer profiles, and use-of-proceeds information, regulators can develop a more complete view of whether Islamic debt instruments are producing outcomes aligned with Maqasid al-Shariah.

A second implication concerns market transparency and investor confidence. Investors need clear information about the structure, risk profile, Shariah approval, asset backing, use of proceeds, and sustainability contribution of sukuk and debt instruments. AI-supported natural language processing can review prospectuses, Shariah board

reports, financial statements, and market disclosures to identify vague wording, missing explanations, inconsistent claims, or weak risk reporting. This can help regulators and exchanges encourage issuers to provide more meaningful disclosures. Improved transparency strengthens investor confidence, reduces information asymmetry, and supports fairer participation in the market. From a Maqasid perspective, this supports justice, protection of wealth, and prevention of harm.

A third implication relates to financial inclusion and wealth circulation. A debt market that is dominated only by large institutional investors or government-linked entities may become deep in size but narrow in participation. Maqasid al-Shariah emphasizes circulation of wealth and wider public benefit. AI-enabled analytics can measure whether Saudi debt-market instruments are accessible to different investor groups, including pension funds, insurance companies, asset managers, qualified individual investors, and potentially retail investors through suitable regulated channels. It can also examine whether financing reaches diverse sectors such as SMEs, housing, healthcare, education, logistics, renewable energy, and digital infrastructure. These insights can help policymakers design incentives that encourage issuers to direct financing toward productive and inclusive sectors.

The framework also has implications for sustainable finance and green sukuk. Vision 2030 places strong emphasis on sustainability, quality of life, environmental protection, and long-term economic resilience. Islamic finance and Maqasid al-Shariah naturally support these goals because they prioritize public benefit and prevention of harm. AI tools can be used to assess whether proceeds from sukuk and bonds are genuinely directed toward sustainable projects or whether sustainability claims are weakly supported. For example, AI can compare issuer sustainability reports, use-of-proceeds disclosures, project descriptions, and external assurance statements. This can reduce the risk of “greenwashing” and support stronger trust in green and sustainability-linked sukuk.

Another important policy implication is the need for standardized Maqasid indicators for Islamic capital markets. At present, Maqasid assessment is often discussed in general terms, but market participants need practical indicators that can be measured consistently. The proposed Maqasid Outcome Scorecard can help address this gap by converting ethical principles into measurable dimensions such as disclosure quality, use-of-proceeds alignment, risk-sharing fairness, financial inclusion, governance transparency, and social-development contribution. Regulators, Shariah

boards, and industry bodies could collaborate to develop a standardized assessment template for sukuk and debt-market products. This would allow issuers to report not only financial performance but also ethical and developmental impact.

However, the use of AI in Maqasid assessment must be governed carefully. AI models may produce inaccurate or biased results if the data are incomplete, outdated, or poorly classified. For example, if the model only captures large listed sukuk but ignores private placements or smaller issuers, the assessment may overstate market inclusiveness. Similarly, if natural language processing tools misinterpret Arabic legal terms, Islamic finance terminology, or Shariah opinions, the results may be unreliable. Therefore, AI assessment must include explainability, data-validation controls, human review, Shariah expert involvement, and periodic auditing. AI should support expert judgment, not replace it.

The proposed framework also supports regulatory technology and supervisory innovation. Saudi regulators could use AI dashboards to monitor debt-market risks, disclosure quality, Maqasid alignment, issuer concentration, and sectoral financing patterns. Such dashboards could provide early warnings when market growth becomes too concentrated, when disclosure quality declines, or when instruments show weak public-benefit alignment. This would help create a more proactive supervisory model. It would also support Saudi Arabia's broader digital transformation agenda by combining financial technology, Islamic governance, and data-driven regulation.

For issuers, the framework encourages stronger internal governance. Companies and government entities issuing sukuk or bonds could use the Maqasid scorecard before issuance to improve documentation, clarify use of proceeds, strengthen investor disclosures, and demonstrate Vision 2030 contribution. For investors, the framework provides a basis for ethical investment screening and portfolio construction. Asset managers could use Maqasid scores alongside credit ratings, yield analysis, and ESG indicators to select instruments that meet both financial and ethical objectives.

Overall, the discussion shows that AI-enabled Maqasid assessment can strengthen Saudi debt-market development by improving transparency, accountability, inclusion, sustainability, and Shariah governance. It offers a practical pathway for ensuring that market expansion under Vision 2030 is not only financially successful but also ethically meaningful and socially beneficial.

CONCLUSION

This study examined the role of artificial intelligence in assessing Maqasid al-Shariah outcomes within Saudi Arabia's developing debt market under Vision 2030. The paper argued that the growth of sukuk, bonds, and government debt instruments should not be evaluated only through conventional financial measures such as issuance value, trading liquidity, market capitalization, investor participation, and yield performance. While these measures are essential for understanding market depth and efficiency, they do not fully explain whether debt-market development contributes to Islamic ethical objectives, social benefit, fair wealth circulation, transparency, and sustainable national transformation.

The study proposed an AI-enabled Maqasid assessment framework that connects debt-market indicators with five core outcome dimensions: wealth protection and circulation, justice and fairness, prevention of harm, public benefit and Vision 2030 alignment, and Shariah governance integrity. These dimensions allow sukuk and debt-market instruments to be examined beyond technical compliance. For example, a sukuk structure may satisfy formal Shariah requirements, but its wider value depends on whether it supports productive economic activity, improves access to financing, protects investors, avoids excessive risk, and contributes to development priorities such as infrastructure, sustainability, housing, healthcare, education, logistics, energy transition, and digital transformation.

Artificial intelligence can strengthen this assessment by processing large volumes of market, financial, regulatory, textual, and sustainability-related data. Machine learning can identify patterns in issuance concentration, sectoral financing, investor participation, liquidity conditions, and risk exposure. Natural language processing can review prospectuses, Shariah board statements, risk disclosures, annual reports, and sustainability documents to evaluate transparency and governance quality. Predictive analytics can support early warning systems for liquidity stress, default risk, market concentration, and weak alignment with real-sector development. In this way, AI can support regulators, issuers, investors, and Shariah boards in making more evidence-based decisions.

However, the study also emphasized that AI should not replace human judgment. Maqasid al-Shariah assessment involves ethical reasoning, public-interest evaluation, and contextual interpretation. Therefore, AI outputs must be reviewed by Shariah scholars, financial regulators, governance experts, and market professionals.

Explainability, data quality, bias control, model auditing, and human oversight are essential requirements for responsible AI use. Without these controls, AI-enabled assessment could create new risks, including inaccurate scoring, weak accountability, or misinterpretation of Islamic finance concepts.

The paper contributes to Islamic finance literature by shifting attention from product-level Shariah compliance toward outcome-based evaluation. It also contributes to financial technology research by showing how AI can be applied not only for efficiency, automation, and risk prediction, but also for ethical and developmental assessment. For Saudi Arabia, the proposed framework supports Vision 2030 by encouraging a debt market that is deep, transparent, inclusive, sustainable, and aligned with national transformation goals.

Future research can empirically test the proposed framework using actual sukuk and bond-market data from Saudi Arabia. Researchers may develop a detailed Maqasid scoring index, compare sukuk across sectors, examine green and sustainability-linked sukuk, or evaluate the relationship between Maqasid scores and investor confidence. Overall, AI-enabled Maqasid assessment offers a promising pathway for ensuring that Saudi debt-market development remains financially effective, ethically grounded, and socially beneficial.

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