

Riba in Maqāṣid-Based Exegesis: Evaluating the Viability of Cryptocurrency as an Islamic Financial Instrument

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Abstract

The rapid growth of cryptocurrency as a digital financial instrument raises fundamental questions regarding its compatibility with Islamic legal principles, particularly the prohibitions of *riba*, *gharar*, and *maysir*. This study examines the concept of *riba* through *maqāṣidi* exegesis, identifies the characteristics and functions of cryptocurrency as a financial instrument, and applies a *maqāṣidi* analytical framework to assess its Shariah eligibility. Employing qualitative library research with a descriptive-analytical method, the study examines Qur'anic verses concerning *riba*, classical and contemporary *tafsir* works, and digital finance literature as primary and secondary sources. The findings demonstrate that, from a *maqāṣidi* perspective, the prohibition of *riba* is not confined to the formal existence of an increment in a transaction but is grounded in four substantive considerations: economic injustice, exploitation, the undermining of wealth preservation (*ḥifẓ al-māl*), and social destabilization. Accordingly, cryptocurrency cannot be classified as categorically permissible or prohibited; its legal status requires a graduated assessment based on its underlying mechanism and intended use. Real-asset-backed stablecoins tend toward conditional permissibility, while spot transactions involving cryptocurrencies with genuine utility may be permissible under appropriate supervision. By contrast, the

widespread use of Bitcoin as a medium of exchange raises concerns ranging from reprehensibility to conditional prohibition, whereas interest-bearing DeFi lending, crypto derivatives, and fraudulent digital schemes are deemed prohibited. The study concludes that *maqāṣidī* exegesis provides a more adaptive evaluative framework than reliance on classical analogical reasoning alone for addressing digital financial innovation. This framework contributes to contemporary Islamic finance scholarship by enabling context-sensitive Shariah assessment of cryptocurrency instruments according to their mechanisms, purposes, risks, and socioeconomic consequences.

Keywords: Cryptocurrency; Islamic Finance; *Maqāṣid al-Shari'ah*; *Maqāṣidī* Exegesis; *Riba*

INTRODUCTION

The era of digitalization and the Industrial Revolution 4.0 have transformed the global economic landscape through the emergence of cryptocurrencies. From mere information technology discourse, crypto has now become a financial asset considered by institutional investors, corporations, and individuals alike, with a market capitalization that has reached trillions of dollars (Raharjo, 2022). The blockchain technology that underpins it promises decentralization and transparency, but also brings extreme volatility that has created a new paradox in the history of modern finance (Huynh et al., 2022).

This phenomenon is directly in conflict with the sharia economic legal framework which strictly prohibits usury, gharar and maysir. Allah SWT. said in Q.S. al-Baqarah (2): 275, “وَأَحَلَّ اللَّهُ الْبَيْعَ وَحَرَّمَ الرِّبَا”...Allah has permitted buying and selling and forbidden usury...”.

These three prohibitions are the main benchmarks in assessing the suitability of a financial instrument, and the volatile and speculative nature of cryptocurrencies triggers a major dilemma among Muslims regarding their legal status (Warman & Hayati, 2022).

The inconsistent stance of religious authorities demonstrates the gravity of this dilemma. In Indonesia, crypto assets are considered permissible as commodities, but their use as a medium of exchange is considered to involve gharar and maysir, making them forbidden (Siregar et al., 2024). On the other hand, a number of religious authorities in the Gulf region tend to open up space for Bitcoin and Ethereum transactions as long as they meet certain conditions and are used for legitimate purposes (Hamin, 2020). These differing views are often triggered by approaches that directly analogize (*qiyas*) crypto to old financial

instruments such as stocks or foreign exchange, even though the intrinsic nature of crypto without a physical underlying asset, without a central authority, and its value is entirely determined by market confidence, making this analogy tend to be forced and fail to comprehensively capture the essence of the problem (Hassan et al., 2025).

To address these methodological limitations, this study employs the *maqāṣidi* interpretation approach, a methodology that focuses on the objectives (*maqāṣid*) behind legal stipulations, specifically adopting the systems approach developed by Jasser Auda as a contemporary analytical tool. Previous studies on crypto from a sharia perspective are generally divided between the normative qiyas approach, which tends to lead to binary conclusions about *halal* and *haram*, and the partial *maqāṣid* approach, which focuses on only one specific asset type without formulating a generalizable assessment framework (Auda, 2008b). The novelty of this study lies in its attempt to reconstruct the essential objective of the prohibition of usury through a cross-reading of classical interpretations and Auda's systems approach, then applying it in a structured manner to various crypto mechanisms, from Proof-of-Work-based Bitcoin, Ethereum and the Proof-of-Stake-based DeFi ecosystem, to stablecoins, resulting in a multilevel assessment model (*al-taqyīm al-mutadarrij*), rather than a single verdict applicable to the entire crypto ecosystem..

A review of previous research reinforces the urgency of this innovation. Huda and Amin's study, which analyzes Bitcoin from the perspective of its legitimate requirements as *ṣaman* (money), such as its intrinsic value and general acceptance (*ta'āmul*), concludes that Bitcoin does not meet the requirements for money and contains gharar, thus being deemed haram across the board, regardless of its usage mechanism (Huda & Amin, 2025). Jamal's study which uses the *maqāṣid al-syarī'ah* framework to assess Ethereum and stablecoins, with a focus on safeguarding wealth (*ḥifẓ al-māl*) and reason (*ḥifẓ al-'aql*), provides an important contribution but is limited to one or two types of assets so it has not yet produced a framework that can be applied to the crypto ecosystem at large (Jamal, 2024). These two studies represent two major trends in the existing literature: normative qiyas, which tends to produce binary verdicts, and partial *maqāṣid*, which targets only one instrument. This research positions itself as both a continuation and a methodological correction of both tendencies, by offering a functional assessment model applicable to a variety of evolving crypto mechanisms.

This article examines the feasibility of cryptocurrency as an Islamic financial instrument by applying a *maqāṣidī* tafsir approach to the concept of *riba*, cryptocurrency characteristics, and their alignment with Sharia objectives. It aims to develop a comprehensive framework for evaluating digital financial innovations beyond surface-level transactions. Theoretically, this study enriches Quranic and Islamic studies on justice and wealth preservation (*ḥifẓ al-māl*); practically, it guides scholars, the public, and regulators in identifying risks related to *riba*, *gharar*, and *maysir* to develop responsive financial policies.

METHODS

This research is a qualitative, library-based study with descriptive-analytical and integrative-conceptual approaches (Nasution, 2023; Sugiyono, 2022). This approach was chosen to explore the dialectic between Islamic normative-juridical texts and the empirical phenomena of contemporary financial technology. The primary focus of the research is directed at the ontological and axiological reconstruction of the prohibition of usury through the lens of Islamic legal philosophy, which is then dialectically confronted with the technical architecture and operational mechanisms of cryptocurrencies. Through a systematic library research design, this research seeks to produce a normative synthesis that is contextual and adaptive to digital economic disruption.

The research data corpus is classified into two main categories: primary and secondary. The primary data is rooted in authoritative sources of Islamic law, including Qur'anic texts and hadiths on thematic issues of usury (*riba*), the literature of *mu'tabar* (interpretative) interpretations, and monumental works on Islamic jurisprudence (*Uṣūl al-Fiqh*) and the *Maqāṣid al-Shari'ah* (Islamic principles)—particularly Abū Isḥāq al-Syāṭibī's *Al-Muwāfaqāt fī Uṣūl al-Shari'ah* and Muḥammad al-Ṭāhir Ibn 'Āsyūr's *Al-Muwāfaqāt fī Uṣūl al-Shari'ah al-Islāmiyyah*. Meanwhile, secondary data was obtained from reputable scholarly journal articles in the fields of Islamic economics and fintech, publications by monetary policy regulators and crypto exchanges, technical reports from the digital asset ecosystem, and technical whitepapers from relevant blockchain protocols. Data collection was conducted through critical documentation and a systematic literature search across languages (Sulistiyo, 2023). This process was operationalized through four hierarchical stages: identification of relevant literature with thematic keywords; selection based on parameters of academic validity and the credibility of scientific authorities; classification of data into

normative, theoretical, and technical-operational clusters; and conceptual synthesis to map the common thread between the prohibition of economic exploitation and the consensus feature of digital assets (Hasan et al., 2025).

The data analysis technique applied qualitative content analysis integrated with a systems approach framework based on the *maqāṣid* formulated by Jasser Auda. This framework was used to dismantle and reconstruct the law prohibiting usury to avoid atomistic and rigidly textualist reductions. The analysis was operationalized through six features of Auda's system: (1) Cognitive Nature: Separating the boundaries between the sacred text of revelation and the results of human ijtihad bound by historical context (human cognition). (2) Wholeness: Analyzing the principles and prohibitions of usury holistically through the entire fabric of the evidence, not isolated interpretations of verses. (3) Openness: Accommodating critical dialogue between sharia principles and the dynamics of the modern decentralized financial ecosystem. (4) Interrelated Hierarchy: Linking the objectives of substantive justice, protection of property (*ḥifẓ al-māl*), and prevention of *mafsadat* as an intertwined *maqāṣid* structure. (5) Multidimensionality: Assessing the legitimacy of crypto instruments through a multidimensional spectrum—covering aspects of formal legal compliance, monetary viability, social-distributive impact, and moral ethics. (6) Purposefulness: Making the realization of universal benefits and mitigation of harm (*dar' al-mafāsīd*) the final compass in formulating a tiered assessment framework for cryptocurrencies (Auda, 2008b).

RESULTS

The Concept of Usury from the Perspective of *Maqāṣidī Tafsīr*

Etymologically, the word *riba* comes from the root *rabā yarbū* which means to increase, develop or rise, a meaning which is linguistically neutral (Manẓūr, 1994). When used in the context of *muamalah*, the term narrows its meaning so that it refers to certain forms of addition that are prohibited by the *Shari'a*. Terminologically, Wahbah al-Zuhailī defines *riba* as an addition required in an exchange contract without compensation that is justified by the sharia (Al-Zuhailī, 1985). Meanwhile, Muḥammad Abū Zahrah explains usury as an excess taken by one party in a debt-credit transaction or exchange of usurious goods which causes a loss of balance between rights and obligations. These two definitions converge on the same

point: usury is not simply a matter of nominal value, but rather the absence of a fair exchange of benefits. Broadly speaking, scholars distinguish between *riba nasi'ah*, which is the additional fee required for a delay in payment in a lending transaction, and *riba fadl*, which is the exchange of similar goods that is unequal in quantity, size, or quality (Al-Zuhaylī, 1985), as confirmed in the hadith of the Prophet SAW. following:

الذَّهَبُ بِالذَّهَبِ مِثْلًا بِمِثْلٍ، وَالْفِضَّةُ بِالْفِضَّةِ مِثْلًا بِمِثْلٍ، فَمَنْ زَادَ أَوْ اسْتَرَادَ فَقَدْ أَرْبَى

The meaning: “Gold with gold (must be exchanged) is of equal value, silver with silver (must be exchanged) is of equal value; Whoever adds or asks for additional, indeed he has committed usury.” (H.R. Muslim, Kitāb al-Musāqāh)

This hadith became the main reference for the fuqaha in formulating the six *ribawi* commodities (gold, silver, wheat, sya'ir, dates, and salt) as well as the rules of equality (*tamāshul*) and immediate handover (*taqābud*) in the exchange of similar goods—a rule that later became a direct reference in assessing the validity of sharf contracts on gold-based stablecoins. The prohibition of usury in the Qur'an takes place in stages (*tadarruj fi al-tasyri'*), reflecting the character of the *Shari'u* which builds awareness of the people gradually before establishing a firm prohibition. The first stage is contained in the word of Allah Swt.:

وَمَا آتَيْتُمْ مِّن رَّبًّا لِّيَرْبُو فِي أَمْوَالِ النَّاسِ فَلَا يَرْبُو عِنْدَ اللَّهِ—وَمَا آتَيْتُمْ مِّن زَكَاةٍ تُرِيدُونَ وَجْهَ اللَّهِ فَأُولَٰئِكَ هُمُ الْمُضْعِفُونَ

The meaning: “And if you give *riba* (additional) so that people's wealth will increase, that *riba* will not increase in the sight of Allah. As for the *zakat* which you give with the intention of gaining Allah's approval, then they are the ones who multiply (the reward).” (Q.S. al-Rūm [30]: 39)

This verse does not explicitly stipulate the prohibition of usury, but provides a moral assessment that the additional income obtained through usury has no value in the sight of Allah, so that the Qur'an begins to shift the orientation of society from material gain to blessings (Kathīr, 1998). The second stage is confirmed through:

وَأَخَذِهِمُ الرِّبَا وَقَدْ هُمُوهَا عَنْهُ وَأَكْلِهِمْ أَمْوَالِ النَّاسِ بِالْبَاطِلِ—وَأَعْتَدْنَا لِلْكَافِرِينَ مِنْهُمْ عَذَابًا أَلِيمًا

The meaning: *“And because they consume usury, even though they have been forbidden from it, and (because) they consume people's wealth in an unlawful way (batil). We have prepared for the disbelievers among them a very painful punishment.”* (Q.S. al-Nisā' [4]: 161)

Al-Ṭabarī explains that the mention of usury in this verse is a warning to Muslims not to repeat the deviations that were committed by previous generations, so that the prohibition of usury has a historical and moral dimension which emphasizes that economic exploitation is contrary to divine values (Al-Ṭabarī, 2000). The third and peak stage of the prohibition of usury is determined through the following series of verses:

الَّذِينَ يَأْكُلُونَ الرِّبَا لَا يَقُومُونَ إِلَّا كَمَا يَقُومُ الَّذِي يَتَخَبَّطُهُ الشَّيْطَانُ مِنَ الْمَسِّ ذَٰلِكَ بِأَنَّهُمْ قَالُوا إِنَّمَا الْبَيْعُ مِثْلُ الرِّبَا وَأَحَلَّ اللَّهُ الْبَيْعَ وَحَرَّمَ الرِّبَا فَمَنْ جَاءَهُ مَوْعِظَةٌ مِنْ رَبِّهِ فَانْتَهَى فَلَهُ مَا سَلَفَ وَأَمْرُهُ إِلَى اللَّهِ وَمَنْ عَادَ فَأُولَٰئِكَ أَصْحَابُ النَّارِ هُمْ فِيهَا خَالِدُونَ

The meaning: *“Those who consume (transact in) usury cannot stand except as one who staggers due to a devil's possession. That is because they say that buying and selling is like usury. But Allah has permitted buying and selling and forbidden usury. Whoever receives a reminder from his Lord and then refrains, then what he has acquired is his, and his affair is with Allah. Whoever repeats it, those are the inmates of the Fire; they will abide therein forever.”* (Q.S. al-Baqarah [2]: 275)

Fakhr al-Dīn al-Rāzī explained that the fundamental difference between buying and selling and usury lies in the existence or absence of an exchange of benefits and risks: buying and selling contains a balanced exchange, while usury produces one-sided profits without a balance of rights and obligations (Al-Rāzī, 1999). Al-Qurṭubī added an important dimension through his interpretation of Q.S. al-Baqarah (2): 278, “leave what remains of usury,” which he understood as indicating that the prohibition on usury applies even to transactions that are already in progress and not yet settled—reflecting the social dimension of the prohibition on usury which not only prevents new exploitation, but also requires the elimination of existing structures of exploitation (Al-Qurṭubī, 1964). Ibn Kathīr summarizes this discussion with an emphasis on exploring legal reasons (*ta'lil al-hukm*), concluding that *riba* is essentially a form of disguised deception that exploits the urgent needs of others for one-sided gain (Kathīr, 1998).

The confirmation of the Qur'an is strengthened by the hadith of the Prophet Muhammad saw. In the hadith narrated by Abū Hurairah r.a., Rasulullah saw. said:

اجْتَنِبُوا السَّبْعَ الْمُوبِقَاتِ، قَالُوا يَا رَسُولَ اللَّهِ وَمَا هُنَّ؟ قَالَ الشِّرْكُ بِاللَّهِ، وَالسِّحْرُ، وَقَتْلُ النَّفْسِ الَّتِي حَرَّمَ اللَّهُ إِلَّا بِالْحَقِّ، وَأَكْلُ الرِّبَا، وَأَكْلُ مَالِ الْيَتِيمِ، وَالتَّوَلَّى يَوْمَ الرَّحْفِ، وَقَذْفُ الْمُحْصَنَاتِ الْمُؤْمِنَاتِ الْغَافِلَاتِ

The meaning: *“Stay away from the seven things that destroy. The companions asked, 'O Messenger of Allah, what is that?' He said, 'Associating partners with Allah, magic, killing souls which Allah has forbidden except for a just cause, consuming usury, consuming the property of orphans, running away from the battlefield, and accusing pure and negligent believing women of adultery.’”* (H.R. al-Bukhārī dan Muslim, dari Abū Hurairah)

Another hadith narrated by Jābir confirms the broader scope of the prohibition:

لَعَنَ رَسُولُ اللَّهِ ﷺ آكِلَ الرِّبَا وَمُوكِلَهُ وَكَاتِبَهُ وَشَاهِدَيْهِ وَقَالَ هُمْ سَوَاءٌ

The meaning: *“Rasulullah saw. cursed the usury taker, the giver, the recorder, and the two witnesses, saying: they are all the same.”* (H.R. Muslim, Kitāb al-Musāqāh, dari Jābir)

These two hadiths show that the prohibition of usury covers the entire chain of transactions, not just the party who directly enjoys the benefits, at the same time, it emphasizes that sharia views usury as a structural crime that involves collective responsibility, not just an individual violation.

Reading the series of verses, hadith and classical interpretations through the *maqāṣidi* framework, the prohibition of usury can be reconstructed into four substantive objectives. First, economic justice (*al-'adālah al-iqtisādiyyah*), which includes fairness in exchange, distribution and transaction procedures. Ibn 'Āsyūr linked this economic justice to *al-fīṭrah al-insāniyyah*, a human instinct that naturally rejects injustice, so that usury is seen as the most naked form of injustice because it allows the growth of wealth without work, without risk, and without a real contribution to production (MZ et al., 2023). Second, preventing exploitation (*man'u al-istighlāl*) of parties in a weaker bargaining position. Ibn al-Qayyim al-Jawziyyah in *I'lām al-Muwaqqi'in* asserts that the prohibition of usury is essentially a prohibition against “devouring the wealth of others in an unlawful manner,” as stated in the word of Allah:

يَا أَيُّهَا الَّذِينَ آمَنُوا لَا تَأْكُلُوا أَمْوَالَكُمْ بَيْنَكُمْ بِالْبَاطِلِ إِلَّا أَنْ تَكُونَ تِجَارَةً عَنْ تَرَاضٍ مِّنْكُمْ وَلَا تَقْتُلُوا
أَنْفُسَكُمْ إِنَّ اللَّهَ كَانَ بِكُمْ رَحِيمًا

The meaning: "O you who believe, do not consume each other's wealth in a false way, except in trade that takes place on the basis of mutual consent between you. And don't kill yourself. Indeed, Allah is Most Merciful to you." (Q.S. al-Nisā' [4]: 29)

The exploitation in question is not always individual: structurally, a usury-based system can create a mechanism for the transfer of wealth from debtors to creditors or from the productive sector to the speculative financial sector (Al-Jawziyyah, 1991). Third, the protection of property (*hifẓ al-māl*), which not only protects individual ownership, but also the economic system as a whole from structural distortions caused by the usury mechanism; Muhammad Umar Chapra added a macroeconomic dimension that the interest-based financial system tends to create unstable economic cycles and enlarge asset bubbles (Chapra, 1992). Fourth, maintaining social stability (*al-istiqrār al-ijtimā'i*), because usury has historically always been a source of conflict between the creditor class whose wealth grows passively and the debtor class who are trapped in a spiral of ever-growing debt (Āsyūr, 2001).

This finding is in line with the conclusion that classical interpretation actually contains the seeds of *maqāṣidi* reading, even though it has not used this terminology explicitly (Azis et al., 2024). Al-Syāṭibī in *al-Muwāfaqāt* emphasizes the epistemological principle that every provision of sharia must have an objective that can be identified through a thorough examination of all related evidence (Al-Syāṭibī, 1997), a principle that was later developed by Muhammad Hashim Kamali through the *ta'līl al-aḥkām bi al-maqāṣid* method, namely legal reasoning based on the objectives of the Shari'a, where a mujtahid not only asks whether a transaction contains formal elements of usury, but also whether the transaction produces effects that are prohibited by the objectives of the Shari'a (Kamali, 1996). Nuruddin al-Khadimi emphasized that this kind of *maqāṣidi* paradigm requires mastery of the empirical reality that is to be assessed (Al-Khādīmī, 1998). So a sharia assessment of cryptocurrencies cannot be carried out adequately without a deep understanding of how this technology works. The implications are significant: sharia assessment of a financial instrument, including crypto, cannot rely solely on the similarity of its external form to bank interest, but must explore the presence or absence of these four destructive elements in their mechanism and

real impact. The answer to the first problem formulation is the framework for the analysis in the next two sub-sections.

Development of *Maqāṣid* Theory: al-Juwaynī, al-Ghazālī, and al-Syāṭibī

The *maqāṣidī* framework used to reconstruct the concept of usury above did not emerge in a directly systematic form, but rather developed gradually through the thinking of three key figures in *uṣūl al-fiqh*. Imam al-Juwaynī (d. 478 AH) laid an important foundation in his work *al-Burhān fī Uṣūl al-Fiqh*, demonstrating that legal provisions can be understood not only from their textual form, but also through the reasons and objectives behind their determination. He also introduced the division of human needs into *ḍarūriyyah* (basic needs), *ḥājīyyah* (supporting needs), and *taḥsīniyyah* (complementary needs), a division that became the foundation for subsequent *maqāṣid* theory..

Imam al-Ghazālī (d. 505 AH) took this idea to a more structured level by emphasizing the welfare (*maṣlaḥah*) as the primary objective of Islamic law. In *al-Mustaṣfā*, he formulated that the objective of sharia is to safeguard the five basic human needs (*al-ḍarūriyyāt al-khams*): religion (*ḥifẓ al-dīn*), life (*ḥifẓ al-nafs*), reason (*ḥifẓ al-'aql*), progeny (*ḥifẓ al-nasl*), and property (*ḥifẓ al-māl*) (Al-Ghazālī, 1993). This formulation is the main reference framework for this research in assessing the position of wealth (*māl*) and its protection (*ḥifẓ al-māl*) as one of the five needs.

Imam al-Syāṭibī (d. 790 H) then refined this theory systematically in *al-Muwāfaqāt* by dividing *maqāṣid al-syarī'ah* into three tiered categories: *maqāṣid ḍarūriyyah* (basic needs which if not met threaten the existence of life), *maqāṣid ḥājīyyah* (secondary needs which eliminating difficulties), and *maqāṣid taḥsīniyyah* (improving the quality of life) (Al-Syāṭibī, 1997). This hierarchical division is what inspired the multilevel assessment model (*al-taqyīm al-mutadarrij*) proposed in this study in section C.3, as it demonstrates that sharia itself does not view all *muamalah* issues in a binary manner, but rather in a gradual manner according to the scale of their impact and urgency. This development of thought was then continued by contemporary thinkers such as Jasser Auda through a systems approach, which serves as the primary analytical instrument of this study (Auda, 2008a).

Characteristics and Functions of Cryptocurrency as a Financial Instrument

Classical economics positions money as a structural solution to the limitations of barter, with three main functions: medium of exchange, unit of account, and store of value (Ichsan, 2020). Islamic economics limits the function of money to only the first two functions; the store of value function in the sense that justifies the hoarding and commodification of money for profit is rejected because it opens up opportunities for usury and speculation (Sihombing, 2022). The next fundamental question is whether crypto is classified as *māl* (wealth) according to Islamic jurisprudence. Hanafi scholars require physical form (*'ayn*) for something to be considered *māl*. Meanwhile, the majority of scholars formulate *māl* more broadly as everything that is valuable and can be owned and utilized (Rosele et al., 2022). Based on this general standard, digital assets have the potential to be categorized as *māl* as long as they have a recognized economic value, can be owned, and can be utilized, provided they are free from excessive *gharar*.

Technically, cryptocurrency is a digital asset that operates on blockchain technology, a decentralized record-keeping system without a single authority that guarantees the authenticity of data through network consensus, rather than through trust in a central party (Pilkington, 2016). Bitcoin, introduced by Satoshi Nakamoto in 2009, validates transactions through a Proof of Work (PoW) mechanism, where miners compete to solve cryptographic puzzles using computing power (Antonopoulos, 2017). Ethereum and a number of next-generation blockchains are moving to a Proof of Stake (PoS) mechanism, where validators are selected based on the number of coins staked, paving the way for smart contract execution, which is the foundation of the Decentralized Finance (DeFi) ecosystem (Buterin, 2015). The distinctive characteristics of crypto are pseudonymous because the user's identity is not directly revealed even though the transaction trail can be traced on the blockchain, the transactions are irreversible because they cannot be canceled once confirmed, and the supply is generally limited so that it is deflationary, fundamentally differentiating it from conventional fiat money whose supply can be increased by monetary authorities.

Another technical dimension that is relevant from a sharia perspective is tokenomics, namely the entire system that regulates the creation, distribution, supply, and utility of a token within its ecosystem. Tokenomics elements include total supply, burn mechanisms, and participation incentives designed to align the interests of developers, investors, and user. From a *maqāṣidī* perspective, tokenomics is a critical point for assessing whether a crypto

asset has real utility value (*manfa'ah ḥaqīqiyah*) or is solely designed for speculative purposes. Empirical data also shows that crypto ownership—particularly Bitcoin—is highly concentrated, with less than two percent of wallet addresses controlling over seventy percent of the circulating supply, a fact that will be an important consideration in the analysis of distributive justice in the next subsection. Indonesian regulations currently position crypto assets as commodities traded on futures exchanges, not as currencies or Islamic financial instruments (Annisa & Isroqunnajah, 2025), a pragmatic approach that does not substantively address sharia questions.

DISCUSSION

***Maqāṣidī* Analysis of the Feasibility of Cryptocurrency as a Sharia Financial Instrument**

Referring to the four substantive objectives of the prohibition of usury that have been formulated, cryptocurrencies cannot be assessed as a single entity, but rather as an ecosystem whose respective mechanisms need to be tested independently using the interrelated multidimensionality and hierarchy features of the Auda system approach.

1. Bitcoin and Proof of Work-Based Assets

Bitcoin, as a PoW-based asset, presents a serious *maqāṣidī* ambivalence: on the one hand, the absence of a central authority that can manipulate the money supply theoretically protects society from artificial inflation, which is often an instrument of state exploitation of asset holders; on the other hand, the extreme concentration of ownership, with less than two percent of wallet addresses controlling more than seventy percent of the circulating supply, creates a distributive injustice that contradicts the principle of equitable circulation of wealth (*al-rawāḍ*). From the exploitation side, the PoW mechanism produces a capital asymmetry between large mining pools with massive infrastructure and small miners who are eliminated when energy and hardware costs exceed the rewards received—a distributive pattern that, despite its different medium, produces effects similar to *riba*: the powerful increasingly benefit, the weak increasingly marginalized. From the perspective of *ḥifẓ al-māl*, price volatility that has plunged more than eighty percent in one bear market cycle makes it difficult to fulfill the function of asset preservation for ordinary users who use Bitcoin as savings, although this assessment must still be proportional: Bitcoin held as a long-term investment

asset by parties who understand the risks is different in *maqāṣidī* from Bitcoin marketed to the general public as a safe savings instrument.

2. Ethereum and the Smart Contract Ecosystem

Ethereum presents a more complex issue. Staking rewards in PoS mechanisms differ from conventional lending interest, as validators bear the real risk of having their stakes slashed in the event of fraud or inactivity—a characteristic that, referring to Ibn Rushd's distinction between incremental gains from exchange contracts and incremental gains from actual contributions to the system, falls into the latter category (Rushd, 1416). However, the DeFi ecosystem is built on Ethereum, such as lending and borrowing platforms with fixed or variable interest rates determined by algorithms (Babu et al., 2024). In substance, it is no different from conventional banking: borrowers pay interest without a proportional risk sharing. Technological sophistication does not change the underlying economic reality, because the reason for the prohibition of *riba* lies in its structural impact, not in the medium of transaction (Al-Qaraḍāwī, 1994).

3. Stablecoins: Between Solution and Illusion

Stablecoins require careful distinction, not simply being accepted as a “Sharia bridge” without thorough verification. Fiat-based stablecoins like USDT and USDC hold their collateral reserves in conventional, interest-bearing instruments like government bonds and certificates of deposit, making each unit in circulation structurally connected to a *riba*-based ecosystem. In Islamic jurisprudence, this issue is relevant to the concept of *al-ḍarar al-muta'addi*, or the corruption that spreads, even though users do not directly engage in *riba* transactions, their participation indirectly funds the interest-based ecosystem. In contrast, physical gold-backed stablecoins like PAX Gold represent direct ownership of a real commodity stored in a regulated vault (Company, 2019), so that it is much closer to the ideal principle of *ḥifẓ al-māl* with the note that the ownership agreement must still fulfill the sharf requirements, namely immediate handover (*taqābul*) and equivalence of value (*tamāṣul*) if exchanged for physical gold, as per the framework that can be adapted from the DSN-MUI fatwa regarding the non-cash sale and purchase of gold (Dewan Syariah Nasional–Majelis Ulama Indonesia, 2020).

4. *Gharar* and *Maysir*: Beyond Formal Definitions

The analysis of *gharar* and *maysir* also needs to go beyond the formal identification of uncertainty and profit and loss, to the question of how significant their impact on *maqāṣid* is and whether there are mechanisms available to neutralize them. Classical jurists distinguish between minor *gharar* (*yasir*), which can be ignored, moderate *gharar* (*mutawassit*), which depends on the context, and severe *gharar* (*fahisy*), which invalidates the contract (Qudāmah, 1418). Price fluctuations alone do not automatically categorize crypto as *gharar fahisy*, as volatility also occurs in commodities that are legitimate according to Islamic jurisprudence, such as gold, silver, and agricultural products. What distinguishes *gharar* in crypto from ordinary price fluctuations is the accumulation of three layers of uncertainty: legal uncertainty, because the legal status of crypto can be changed at any time unilaterally by the government; technical uncertainty, in the form of protocol vulnerability to network majority attacks or bugs in smart contracts; and fundamental value uncertainty, because most cryptocurrencies lack established intrinsic valuation instruments like stocks or bonds. These three layers of uncertainty, when combined with low retail investor literacy, can reach the level of *gharar fahisy*, as defined by Ibn Qudāmah in *al-Mughni*, namely the inability of the parties to adequately recognize the object of the contract (Jabatan Mufti Negeri Selangor, 2021).

The prohibition of *gharar* in *muamalah fiqh* is based on the hadith of the Prophet Saw narrated by Abu Hurairah:

نَهَى رَسُولُ اللَّهِ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ عَنْ بَيْعِ الْحَصَاةِ، وَعَنْ بَيْعِ الْغَرَرِ

The meaning: “The Prophet Muhammad Saw forbade buying and selling by throwing pebbles (transactions without certainty of the object) and *gharar* buying and selling (containing uncertainty).” (H.R. Muslim from Abū Hurairah)

This hadith serves as the primary basis for jurists in formulating the gradation of *gharar* as described above: the prohibition is not directed at all forms of absolute uncertainty, as almost all *muamalah* transactions contain an element of uncertainty to some degree, but rather at uncertainty that precludes adequate knowledge of the object of the contract. As for *maysir*, it is more appropriate to measure it not by the presence or absence of a winner or loser, as such a narrow definition would render all stock and commodity trading as *maysir*, but rather by three parameters: the absence of productive economic activity underlying the

transaction, the zero-sum nature where one party's profit comes solely from the loss of the other without creating new value, and the dominance of luck over analysis and skill. Based on these three parameters, trading in crypto derivatives such as futures, options, and perpetual contracts, Initial Coin Offerings (ICOs) from projects with no tangible product, and yield farming with extreme annual returns unsupported by real economic activity tend to meet the criteria for *maysir*. In contrast, spot purchases of cryptos that have real utility such as ETH to pay network transaction fees or BTC as a hedge against fiat inflation are closer to the category of permissible speculative asset trading, a distinction that Malaysian religious authorities also use in their resolutions between crypto purchases for transactional purposes and pure speculation for short-term gains (Jabatan Mufti Negeri Selangor, 2021).

5. Calculation of *al-Maṣlahah wa al-Maḥsadah*

The calculation of *al-maṣlahah wa al-maḥsadah* demands honesty in data, as emphasized by al-Ghazālī in *al-Mustaṣfā* that the determination of *maṣlahah*-based law must be based on measurable reality, not on assumptions or one-sided desires, whether from those who exaggerate the benefits of crypto or who excessively distort its risks (Al-Ghazālī, 1993). Claims of financial inclusion through crypto face a fundamental paradox: the unbanked groups it primarily targets generally also lack smartphones, stable internet connections, and sufficient digital literacy to use crypto safely (World Bank, 2022). Meanwhile, crypto adoption data in developing countries like India, Nigeria, and Vietnam is dominated by educated urban groups, not truly unbanked groups (Chainalysis Team, 2023). A more concrete and verifiable benefit lies in the efficiency of cross-border remittances: the cost of international money transfers via conventional channels averages 6.2 percent of the transaction value, while transfers via crypto networks can be reduced to below one percent—a difference that has a direct material impact on the ability of Indonesian migrant workers' families to meet basic needs (Badan Pelindungan Pekerja Migran Indonesia, 2024). Tokenization of real assets through blockchain, such as digital sukuk and agricultural land tokenization, also has significant potential for *maṣlahah* (benefit) because it allows partial ownership of assets that have previously been difficult to fractionalize, allowing people with small capital to participate in real asset investments that were previously only accessible to the wealthy—in direct line with the *maqāṣid* of economic justice and equitable circulation of wealth (Afrizal & Marliyah, 2021).

On the contrary, the most destructive risk in the crypto ecosystem is not price volatility per se, which is in principle a managed risk for informed investors, but rather the structural information asymmetry between those who issue and promote crypto assets and the public who buy them. From the collapse of major crypto platforms that wiped out billions of dollars in customer assets, to various Indonesian crypto projects ending in rug pulls, ordinary people losing their savings because they don't have access to the same information as insiders—this is not just a normal investment risk, but a structural exploitation that directly contradicts the prohibitions on *al-ghisy* (fraud) and *al-tadlis* (concealment of defects) in *muamalah* fiqh (Chainalysis Team, 2023). The environmental impact of the PoW mechanism also needs to be positioned proportionally in this calculation: the annual energy consumption of the Bitcoin network is estimated to be equivalent to the energy consumption of a medium-sized country, A burden that a number of contemporary scholars attribute to the dimensions of *hijz al-nafs* and *hijz al-māl* in their ecological and intergenerational scope. Meanwhile, concerns about crypto as a means of money laundering need to be assessed proportionally, as only a small portion of total global crypto transactions are related to illegal activities, far below the proportion of cash used for similar purposes, and the ever-growing forensic investigative capabilities of blockchain actually make crypto even less ideal as a money-laundering medium than cash.

From a domestic regulatory perspective, the Financial Services Authority (OJK) through OJK Regulation No. 3/POJK.02/2021 and the Commodity Futures Trading Supervisory Agency (*Bappebti*) through Minister of Trade Regulation No. 99 of 2018 position crypto assets as commodities that can be traded on futures exchanges, not as currencies or Islamic financial instruments. This approach pragmatically avoids complex Islamic issues, but is inadequate in the long run because it does not provide an evaluative framework that protects the public from problematic crypto products. This is reinforced by data showing that Bappebti has frozen more than 1,500 illegal crypto entities since 2021, empirically confirming the scale of the *mafsadah* category of digital fraud (Bappeti, 2024).

6. *Maqāṣidī* Synthesis: A Multilevel Assessment Model

Based on this overall analysis, this study proposes a multilevel assessment model (*al-taqyīm al-mutadarrij*) as an answer to the third problem formulation, which rejects the halal-haram binary approach and offers a conditional-functional assessment. First, conditionally permissible, namely stablecoins fully backed by real, *riba*-free assets such as physical gold,

provided they fulfill the sharf contract. Second, supervised permissible, namely spot transactions of crypto with real utility conducted with own funds without *riba* leverage and accompanied by adequate risk understanding. Third, conditionally *makruh* to haram, namely the massive use of Bitcoin as a mandatory medium of exchange in the national economy, because its uncontrolled volatility undermines the function of *ḥifẓ al-māl* on a large scale, as is problematic in legal tender policy in El Salvador (Bappeti, 2024). Fourth, "haram" refers to interest-bearing DeFi lending platforms and all crypto derivative instruments, whose substance is identical to usury and conventional gambling, despite their digital nature. Fifth, "absolutely haram" refers to fraudulent ICOs, rug pulls, and Ponzi schemes disguised as yield farming, which are designed from the outset to exploit lay investors.

Table 1. Multilevel Assessment Model (al-Taqyīm al-Mutadarrij) of Cryptocurrencies

Legal Category	Mechanism/Instrument	Maqāṣidī Reasons	Main Requirements
Mubah Conditional	Riba-free real asset-based stablecoins (e.g. physical gold: PAXG, XAUT)	Value is directly linked to real commodities; there is no underlying interest; supports <i>ḥifẓ al-māl</i>	Fulfilling the sharf contract: <i>taqābuḍ</i> and <i>tamāṣul</i>
Mubah with supervision	Real utility crypto spot transactions (e.g. ETH, BTC as hedge)	Analogous to legitimate trading of volatile commodities (gold, agricultural products)	Own funds without usury leverage; investors understand the risks
Makruh to conditionally haram	Bitcoin as a mandatory/mass medium of exchange in the national economy	Extreme volatility undermines the functions of <i>ḥifẓ al-māl</i> and <i>miyār al-qiyam</i> to a large extent.	The degree of forced adoption and the scale of social impact
Haram	DeFi lending/interest-bearing borrowing; crypto derivatives (futures, options, perpetuals)	The substance is identical to <i>riba</i> and conventional <i>maysir</i> ; only the medium is digital	There is no proportional risk sharing
Absolutely forbidden	ICOs without real products, rug pulls, ponzi schemes disguised as yield farming	Simultaneous violation of justice, prohibition of exploitation, <i>ḥifẓ al-māl</i> , and social stability	Designed from the start to exploit the lay investor

The model in Table 1 emphasizes that the law on crypto does not stop at one point, but rather shifts according to the mechanism, purpose of use, and actual impact it creates, in line with the principle of *al-ḥukm yadūru ma'a 'illatibi wujūdan wa 'adaman* (the law revolves around the existence or absence of *illat*). Thus, two individuals who both “own crypto” can fall into completely different legal categories depending on the specific asset, acquisition mechanism, and purpose of their respective uses.

These findings have concrete regulatory implications. A more appropriate approach for the Financial Services Authority, Bappebti, and the DSN-MUI is to develop a functional evaluation framework that assesses each type of crypto asset and transaction mechanism based on its impact on the *maqāṣid al-syarī'ah* (Islamic principles), not simply its formal categories (Bappeti, 2024). The most pressing issue is not a global fatwa on the halal-haram nature of crypto, but rather the disclosure and investor protection standards that every crypto asset issuer and marketer must meet, given that information asymmetry is the most obvious principle in the Indonesian crypto ecosystem—a step that, in *maqāṣid* terminology, can be understood as *sadd al-ṣarā'i'*, or closing the path to harm. A collective *ijtihād* approach (*ijtihād jamā'i*) through a forum such as the DSN-MUI, which brings together *muamalah* fiqh experts with blockchain technology experts, is more likely to produce precise fatwas than individual *ijtihād*, which risks misreading the technical aspects of the instruments being assessed.

CONCLUSION

This research yields three conclusions that address the proposed problem formulation. First, the concept of usury from the perspective of *maqāṣidi* interpretation is not understood merely as a prohibition on nominal additions, but rather as a sharia instrument for realizing economic justice, preventing exploitation, protecting property (*ḥifẓ al-māl*), and maintaining social stability—a conclusion supported not only by contemporary *maqāṣidi* reasoning, but also by a direct reading of the *tadarruj* verses prohibiting usury and the hadiths of the Prophet Muhammad Saw, which emphasize the scope of the prohibition over the entire transaction chain. Second, cryptocurrencies are blockchain-based digital assets characterized by decentralization, transparent validation mechanisms, and tokenomics that determine their real utility; these characteristics place crypto in a position that is neither automatically contrary to nor automatically in line with sharia, so that its legal assessment depends on the transaction mechanism and its intended use, not on the label “crypto” alone.

Third, the application of *maqāṣidī* analysis to the concept of *riba* produces a tiered assessment model as summarized in Table 1: real asset-based stablecoins tend to be conditionally permissible, spot transactions of crypto with real utility are permissible with supervision, the use of Bitcoin as a mass medium of exchange has the potential to be *makruh* to conditionally *haram*, while interest-bearing DeFi lending, crypto derivatives, and digital fraud schemes are considered *haram*.

REFERENCES

- Afrizal, Marliyah, & Fuadi. (2021). Analisis terhadap cryptocurrency: Perspektif mata uang, hukum, ekonomi, dan syariah. *E-Mabis: Jurnal Ekonomi Manajemen dan Bisnis*, 22(2), 13–41. <https://doi.org/10.29103/e-mabis.v22i2.689>
- Al-Ghazālī, A. Ḥ. (1993). *Al-Mustaṣfā min ‘ilm al-uṣūl*. Dār al-Kutub al-‘Ilmiyyah.
- Al-Jawziyyah, I. Q. (1991). *I’lām al-muwaqqi’in*. Dār al-Kutub al-‘Ilmiyyah.
- Al-Khādimī, N. al-D. (1998). *Al-ijtibād al-maqāṣidī: Ḥujjiyyatuhu, dawābiṭuhu, wa majālatuhu*. Wizārat al-Awqāf wa al-Shu’ūn al-Islāmiyyah.
- Al-Qaraḍāwī, Y. (1994). *Al-ḥalāl wa al-ḥarām fī al-Islām*. Maktabah Wahbah.
- Al-Qurṭubī. (1964). *Al-Jāmi‘ li aḥkām al-Qur’ān*. Dār al-Kutub al-Miṣriyyah.
- Al-Rāzī, F. al-D. (1999). *Mafātīḥ al-ghayb (Al-tafsīr al-kabīr)*. Dār Iḥyā’ al-‘Turāth al-‘Arabī.
- Al-Syāṭibī. (1997). *Al-Muwāfaqāt fī uṣūl al-syarī‘ah*. Dār al-Kutub al-‘Ilmiyyah.
- Al-Ṭabarī. (2000). *Jāmi‘ al-bayān ‘an ta’wīl āy al-Qur’ān*. Mu’assasah al-Risālah.
- Al-Zuhaylī, W. (1985). *Al-fiqh al-Islāmī wa adillatuh*. Dār al-Fikr al-‘Arabī.
- Annisa, D., & Isroqunnajah. (2025). Cryptocurrency sebagai aset digital: Perspektif fiqh muamalah dan fatwa kontemporer. *Didaktik: Jurnal Ilmiah PGSD STKIP Subang*, 11(4), 279–299. <https://doi.org/10.36989/didaktik.v11i04.9874>
- Antonopoulos, A. M. (2017). *Mastering Bitcoin: Programming the open blockchain* (2nd ed.). O’Reilly Media.
- Auda, J. (2008). *Maqāṣid al-Sharī‘ah as philosophy of Islamic law: A systems approach*. International Institute of Islamic Thought.
- Azis, M. I., Eril, E., BN, A. M. T., Salam, A., & Arief, A. (2024). Maqāṣid al-Sharī‘ah theory by Imam al-Syāṭibī. *ANAYASA: Journal of Legal Studies*, 2(1), 17–34. <https://doi.org/10.61397/ays.v2i1.191>
- Babu, C. V. S., Manoharan, S., Kishore, G. L., & Kumar, S. V. (2024). Application of support vector machine algorithm in automated lending protocols for decentralized finance platforms. In A. Driouchi, L. Vardari, & I. Qabrati (Eds.), *Decentralized finance and tokenization in FinTech* (pp. 1–20). IGI Global Scientific Publishing. <https://doi.org/10.4018/979-8-3693-3346-4.ch001>
- Badan Pelindungan Pekerja Migran Indonesia. (2024). *Data penempatan dan perlindungan pekerja migran Indonesia tahun 2023*.

- Badan Pengawas Perdagangan Berjangka Komoditi. (2024). *Laporan kinerja Bappebti tahun 2023*. https://bappebti.go.id/resources/docs/LAK_BAPPEBTI_2023.pdf
- Buterin, V. (2014). *A next-generation smart contract and decentralized application platform* [White paper]. Ethereum. <https://ethereum.org/whitepaper/>
- Chainalysis. (2023). *The 2023 geography of cryptocurrency report*. <https://www.chainalysis.com/wp-content/uploads/2024/06/the-2023-geography-of-cryptocurrency-report-release.pdf>
- Chapra, M. U. (1992). *Islam and the economic challenge*. The Islamic Foundation.
- Demirgüç-Kunt, A., Klapper, L., Singer, D., & Ansar, S. (2022). *The Global Findex Database 2021: Financial inclusion, digital payments, and resilience in the age of COVID-19*. World Bank. <https://openknowledge.worldbank.org/entities/publication/b74e1909-3ecf-5009-b51c-8527fc4eeFeb>
- Dewan Syariah Nasional–Majelis Ulama Indonesia. (2010). *Fatwa Dewan Syariah Nasional No. 77/DSN-MUI/VI/2010 tentang jual-beli emas secara tidak tunai*. <https://dsnmu.or.id/jual-beli-emas-secara-tidak-tunai/>
- Hamin, D. I. (2020). Crypto currensi dan pandangan legalitas menurut Islam: Sebuah literature review. *Jambura: Jurnal Ilmiah Manajemen dan Bisnis*, 3(2), 127–139. <https://doi.org/10.37479/jimb.v3i2.9430>
- Hasan, H., Bora, M. A., Afriani, D., Artiani, L. E., Puspitasari, R., Susilawati, A., Dewi, P. M., Asroni, A., Yunesman, Y., Merjani, A., & Hakim, A. R. (2025). *Metode penelitian kualitatif*. Yayasan Tri Edukasi Ilmiah.
- Hassan, M. K., Muneeza, A., & Mohamed, I. (2025). Cryptocurrencies from Islamic perspective. *Journal of Islamic Accounting and Business Research*, 16(2), 390–410. <https://doi.org/10.1108/JIABR-09-2022-0238>
- Huda, A., & Amin, M. M. (2025). Aset digital sebagai objek waris: Telaah yuridis dan fikih terhadap cryptocurrency di Indonesia. *USRATUNA: Jurnal Hukum Keluarga Islam*, 8(2), 34–50. <https://doi.org/10.65356/usratuna.v8i2.740>
- Huynh, A. N. Q., Duong, D., Burggraf, T., Luong, H. T. T., & Bui, N. H. (2022). Energy consumption and Bitcoin market. *Asia-Pacific Financial Markets*, 29(1), 79–93. <https://doi.org/10.1007/s10690-021-09338-4>
- Ibn ‘Āshūr, M. al-Ṭāhir. (2001). *Maqāṣid al-syarī‘ah al-Islāmiyyah*. Dār al-Nafā’is.
- Ibn Kathīr. (1998). *Tafsīr al-Qur’ān al-‘aẓīm*. Dār al-Salām.
- Ibn Manẓūr. (1994). *Lisān al-‘Arab*. Dār Ṣādir.
- Ibn Qudāmah. (1418 AH). *Al-Mughnī*. Dār ‘Ālam al-Kutub.
- Ibn Rushd. (1416 AH). *Bidāyat al-mujtahid wa nihāyat al-muqtaṣid*. Dār al-Fikr al-‘Arabī.
- Ichsan, M. (2020). Konsep uang dalam perspektif ekonomi Islam. *Profetika: Jurnal Studi Islam*, 21(1), 27–38. <https://doi.org/10.23917/profetika.v21i1.11646>
- Jabatan Mufti Negeri Selangor. (2021). *Hukum matawang kripto (cryptocurrency): Satu analisa syarak*. <https://www.muftiselangor.gov.my/2023/10/27/hukum-matawang-kripto-cryptocurrency-satu-analisa-syarak/>

- Jamal, S. (2024). Peran teknologi blockchain dalam keuangan syariah: Analisis tantangan dan solusinya. *Al-Musyarakah: Jurnal Ekonomi Islam*, 4(1), 93–107. <https://doi.org/10.71247/qjds1j03>
- Kamali, M. H. (1996). Methodological issues in Islamic jurisprudence. *Arab Law Quarterly*, 11(1), 3–33. <https://doi.org/10.2307/3381731>
- MZ, H., Efendi, S., Khamisan, K., & Risaldi, M. (2023). Keadilan sebagai maqāṣid al-ḍarūriyyāt dalam kebutuhan sosial modern. *Indonesian Journal of Shari'ah and Justice*, 3(2), 247–268. <https://doi.org/10.46339/ijsj.v3i2.47>
- Nasution, A. F. (2023). *Metode penelitian kualitatif*. Harfa Creative.
- Paxos Trust Company. (2019). *PAX Gold (PAXG) whitepaper*.
- Pilkington, M. (2016). Blockchain technology: Principles and applications. In F. X. Olleros & M. Zhegu (Eds.), *Research handbook on digital transformations* (pp. 225–253). Edward Elgar Publishing. <https://doi.org/10.4337/9781784717766.00019>
- Raharjo, B. (2022). *Uang masa depan: Blockchain, Bitcoin, cryptocurrencies*. Prima Agus Teknik.
- Rosele, M. I., Muneem, A., Che Seman, A. B., Abdullah, L. B. H., Binti Abdul Rahman, N. N., Sukor, M. E. B. A., & Ali, A. K. B. (2022). The concept of wealth (māl) in the Shari'ah and its relation to digital assets. *SAGE Open*, 12(2), 1–13. <https://doi.org/10.1177/21582440221102424>
- Sihombing, J. S. (2022). *Mata uang dan kebijakan moneter*. UGM Press.
- Siregar, E. S., Manurung, W., Gunawan, R., Dzulkhairil, M., Siagian, R., Ardiansyah, M., Lubis, R., & Sitorus, A. (2024). Kepastian hukum aset kripto sebagai instrumen investasi dalam perspektif hukum Islam dan hukum positif. *El-Mujtama: Jurnal Pengabdian Masyarakat*, 4(1), 90–101. <https://doi.org/10.47467/elmujtama.v4i1.413>
- Sugiyono. (2022). *Metode penelitian kuantitatif, kualitatif, dan R&D*. Alfabeta.
- Sulistiyo, U. (2023). *Metode penelitian kualitatif*. PT Salim Media Indonesia.
- Warman, A. B., & Hayati, R. F. (2022). Tahkim dalam standar syariah dan urgensinya terhadap penyelesaian sengketa ekonomi syariah di Indonesia. *Islamika: Jurnal Ilmu-Ilmu Keislaman*, 22(1), 37–58. <https://doi.org/10.32939/islamika.v22i01.1246>