



CRYPTOCURRENCY IN THE MODERN ECONOMIC SYSTEM: ANALYSIS OF FUNCTIONS, REGULATIONS, AND ISLAMIC LEGAL VIEWS

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ABSTRACT

The rapid advancement of digital technology in the era of the Fourth Industrial Revolution has significantly transformed global financial systems, including the emergence of cryptocurrency as a digital currency and asset powered by blockchain technology. Cryptocurrency introduces a decentralized, transparent, and efficient transaction system without reliance on a central authority. However, its existence raises substantial debate regarding its functions, legality, and compliance with Islamic economic principles. This study aims to analyze the concept of cryptocurrency, its functions and characteristics, regulatory frameworks in Indonesia, and Islamic legal perspectives on its use as both a medium of exchange and a digital commodity. This research employs a library research method with a descriptive-analytical approach, utilizing data sourced from books, academic journals, government regulations, and fatwas issued by the Indonesian Council of Ulama (MUI). The findings indicate that cryptocurrency can function as a medium of exchange and an investment asset, but its high price volatility positions it more as a speculative instrument. In Indonesia, cryptocurrency is not recognized as a legal means of payment but is permitted as a tradable commodity under the supervision of Bappebti. From an Islamic economic perspective, cryptocurrency is considered prohibited (*haram*) as a currency due to elements of *gharar* and *dharar*, but it may be traded as a commodity if it fulfills the principles of clear value, clear benefit, and legitimate ownership. This study concludes that the use of cryptocurrency requires strong regulatory control and careful consideration to align with economic stability and Sharia compliance.

Keywords: cryptocurrency, blockchain, digital currency, Islamic economics, Sharia law, Bappebti.

INTRODUCTION

The development of digital technology in the era of the Fourth Industrial Revolution has driven major transformations in the global economic system, including in the ways humans store, transfer, and evaluate economic value through modern financial instruments. One of the most significant innovations is the emergence of cryptocurrency, a blockchain-based digital asset secured cryptographically and operating without a central authority (Narayanan et al., 2016). Its major milestone was the publication of *Bitcoin: A Peer-to-Peer Electronic Cash System* by Satoshi Nakamoto in 2008 (Nakamoto, 2008), which introduced a decentralized, transparent, and censorship-resistant payment system.

On the other hand, this transformation cannot be separated from the long history of the evolution of money. Beginning with the barter era, society later



used commodity money and metallic money, until eventually paper money and demand deposits developed in the modern era (Pigou, 1950; Robertson, 1922). In economics, money is generally defined as anything widely accepted as a medium of exchange and a unit of account (Sayers, 1938; Thomas, 1963). In the modern context, transaction efficiency is a key component in driving economic activity (Keynes, 1936).

The emergence of cryptocurrency is also closely connected to the 2008 global financial crisis, which shook public trust in conventional financial institutions (Yermack, 2015). The centralized financial system, perceived as vulnerable and opaque, motivated the creation of alternative decentralized payment systems. Blockchain technology is subsequently viewed as a solution to enhance security, transparency, and efficiency in digital transactions (Swan, 2015; Tapscott & Tapscott, 2016).

Although cryptocurrency offers advantages such as efficiency, global accessibility, peer-to-peer transactions, and investment opportunities, it also carries risks including high volatility, uncertainty of value, and potential misuse (Baur, Hong & Lee, 2018). In Indonesia, cryptocurrency is not recognized as a legal payment instrument in accordance with Law No. 7 of 2011 on Currency. However, the government categorizes it as a digital commodity asset that may be traded through crypto exchanges registered under BAPPEBTI (Bappebti, 2022).

For Muslim communities, the emergence of cryptocurrency becomes an essential issue due to concerns regarding its compliance with Sharia principles. DSN-MUI, through Fatwa No. 116/2017, established regulations regarding Sharia-compliant electronic money, and during the 2021 *Ijtima Ulama*, MUI affirmed that the use of cryptocurrency as a medium of exchange is prohibited (*haram*) due to elements of *gharar* and *dharar*. However, cryptocurrency may be traded as a commodity if it fulfills the criteria of *sil'ah* (DSN-MUI, 2021). In Islamic economics, clarity of the object, value, and benefits is a fundamental principle in determining the validity of a transaction (Karim, 2010; Ascarya, 2016).

With the rapid development of technology, regulation, and Sharia perspectives, academic studies on cryptocurrency become increasingly important. Therefore, this article seeks to examine the fundamental concept of cryptocurrency, its characteristics and functions in the modern economy, as well as Islamic legal perspectives on its use as a medium of exchange and as a digital asset.

LITERATURE REVIEW

The Concept and Functions of Money in Economics

Classical literature on money states that money serves four primary functions: as a medium of exchange, a unit of account, a store of value, and a standard of deferred payment. Pigou (1950) argues that money is anything that can be used as a medium of exchange. Robertson (1922) emphasizes that money is widely accepted in the payment of goods and services, while Thomas (1963) adds that money constitutes a generally accepted means of payment in various



economic transactions. Keynes (1936), in his liquidity preference theory, explains that money plays an important role in economic stability because it influences society's demand for liquidity. Modern literature further affirms that money has evolved from commodity money to fiat money and eventually electronic money (Sayers, 1938).

Technological Developments and the Emergence of Cryptocurrency

Cryptocurrency was formally introduced by Satoshi Nakamoto (2008) through *Bitcoin: A Peer-to-Peer Electronic Cash System*. This technology uses blockchain, a distributed ledger system that can be verified without a central authority (Narayanan et al., 2016). Chaum (1983) pioneered cryptographic-based digital payment systems that inspired the development of modern cryptocurrencies. Swan (2015) asserts that blockchain is not only a financial technology but also the foundation of the digital economic revolution. Tapscott & Tapscott (2016) add that blockchain enables transparent, secure, and efficient transaction systems. The emergence of cryptocurrency was also influenced by the 2008 financial crisis, which undermined public trust in centralized financial institutions (Yermack, 2015). Since then, various cryptocurrencies such as Ethereum, Ripple, Litecoin, and others have continued to evolve as global digital assets.

Cryptocurrency as an Investment Asset

Cryptocurrency functions not only as a medium of exchange but has also developed into an investment asset. Baur, Hong, and Lee (2018) argue that Bitcoin resembles a speculative asset rather than a stable currency. Its extreme price volatility reflects high risk but also the potential for significant returns (Catalini & Gans, 2016).

Other studies show that many countries classify cryptocurrency as a commodity rather than a currency due to its unstable characteristics and lack of attachment to monetary authorities (Narayanan et al., 2016).

Cryptocurrency Regulation in the Indonesian Context

In Indonesia, cryptocurrency is not recognized as a legal means of payment under Law No. 7 of 2011 on Currency. Bank Indonesia (PBI 17/2015) affirms that payment transactions must use the rupiah. However, the government, through BAPPEBTI (2022), recognizes cryptocurrency as a tradable digital commodity in futures exchanges. Some registered crypto asset traders include Indodax, Tokocrypto, Zipmex, Pintu, and Luno. This regulatory framework reinforces cryptocurrency's position as a commodity instrument rather than a currency.

Islamic Economic Perspectives on Cryptocurrency

Debates surrounding the Islamic legal status of cryptocurrency have grown because of its unique characteristics. According to Antonio (2001) and Karim (2010), a financial instrument in Islam must fulfill the principles of *maslahah*, clarity of object (*ma'lum*), and be free from *gharar*, *maysir*, and



dharar.

DSN-MUI (2017), through its fatwa on electronic money, states that digital money may be used as long as it complies with Sharia principles. However, in the 2021 *Ijtima Ulama*, MUI declared that:

1. Cryptocurrency is *haram* as a medium of exchange because it contains *gharar* and does not meet the requirements of a currency.
2. Cryptocurrency is *haram* as an asset if it lacks clear utility and involves high speculation.
3. Cryptocurrency is *halal* as a commodity if it fulfills the criteria of *sil'ah*, has underlying value, and possesses clear benefits (DSN-MUI, 2021). Ascarya (2016) emphasizes that in Islamic economics, the clarity of value is a mandatory condition in transactions, and thus the extreme volatility of cryptocurrency forms one of the main reasons for scholars' caution.

METHODS

This study employs a qualitative approach using the library research method, as the focus of the investigation lies in analyzing concepts, theories, regulations, and Sharia perspectives on cryptocurrency without involving field data collection. The research is descriptive-analytical in nature, aiming to describe the phenomenon of cryptocurrency while simultaneously analyzing it through economic theories, government regulatory frameworks, and Islamic economic principles. Research data were obtained from various sources, including classical and modern economic literature, academic journals related to blockchain technology and digital assets, official government documents such as Law Number 7 of 2011 on Currency, Bappebti regulations on crypto assets, as well as the 2017 DSN-MUI fatwa and the 2021 *Ijtima Ulama* ruling concerning the legal status of cryptocurrency.

The data collection process was carried out through systematic reading, note-taking, and classification of relevant literature, which were then analyzed using content analysis techniques. This analysis involved data reduction, categorization into themes such as the concept of money, the characteristics of cryptocurrency, regulatory frameworks, and Sharia provisions, as well as data interpretation based on economic approaches and *fiqh muamalah*. Data validity was strengthened through source triangulation by comparing findings from multiple literature sources and official documents to produce a comprehensive and reliable analysis

RESULT AND DISCUSSION

Concept of Cryptocurrency in the Modern Economic System

In the modern economic system, cryptocurrency has evolved into a complex phenomenon that occupies a unique position between exchange instruments, investment assets, and digital commodities. According to Baur et al. (2018), cryptocurrency functions as a hybrid financial instrument with dual characteristics - as both a medium of exchange and a store of value, albeit with limited effectiveness.



The role of cryptocurrency in the global financial architecture continues to evolve. The Financial Stability Board (2022) notes that although cryptocurrency market capitalization has reached trillions of US dollars, its impact on the stability of the conventional financial system remains limited. However, potential systemic risks are beginning to be considered by global regulators, especially related to the increasingly close interconnections between cryptocurrency markets and traditional financial markets.

In the context of the digital economy, cryptocurrency facilitates efficient borderless transactions. According to Catalini & Gans (2016), the blockchain technology underlying cryptocurrency can reduce transaction costs and increase the speed of cross-border transfer settlements. However, Narayanan et al. (2016) caution that scalability and energy efficiency remain significant technical challenges.

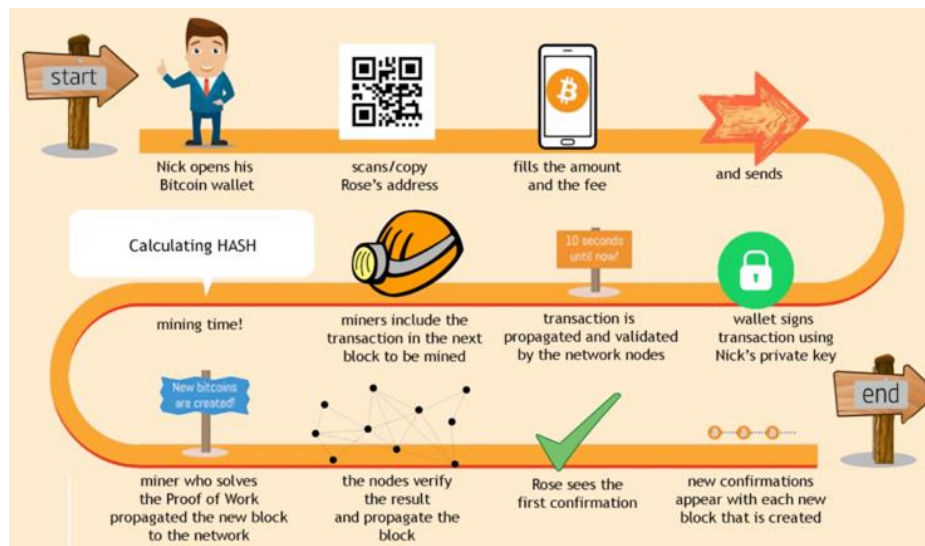
From a monetary policy perspective, Bank Indonesia (2017) emphasizes that cryptocurrency is not recognized as a legal payment instrument in Indonesia. This regulation is based on considerations of monetary stability and consumer protection, given the high price volatility and risks of misuse for illegal activities.

Recent developments show a trend of integrating cryptocurrency into the formal financial system. The Financial Services Authority (2022) notes the emergence of cryptocurrency-based investment products regulated within the capital market framework, albeit with strict restrictions. This reflects the recognition of cryptocurrency as a class of digital assets, although not as a payment instrument.

In the modern economic ecosystem, cryptocurrency has created a new paradigm in economic value and exchange. However, the absence of underlying assets and dependence on speculative market mechanisms mean that its position in the conventional economic system remains the subject of ongoing academic and regulatory debate.

Functions of Cryptocurrency: Medium of Exchange and Investment Asset

The literature indicates that cryptocurrency has two primary functions: as a digital medium of exchange and as an investment asset (Yermack, 2015). As a medium of exchange, several global companies—such as Microsoft, Overstock, and Newegg—have accepted payments using Bitcoin. However, this adoption is not yet widespread, particularly in countries that enforce strict regulations on digital currencies. As an investment asset, cryptocurrency is more commonly used as a speculative instrument due to its extreme price volatility. Baur, Hong, and Lee (2018) found that Bitcoin resembles a “speculative asset” rather than a stable currency. Sharp price fluctuations offer high profit opportunities but also present significant risks for investors.



Based on the provided illustration, the process of sending Bitcoin from Nick to Rose begins when Nick opens his Bitcoin wallet, scans or copies Rose's wallet address, fills in the amount of Bitcoin to be transferred (0.5 BTC), sets the transaction fee, and then sends it. Once the transaction is initiated, Nick's wallet automatically signs the transaction using his private key as a form of authentication and security. This signed transaction is then broadcast to the entire Bitcoin network to be validated by the distributed nodes across the network.

Subsequently, the transaction enters the mining phase where miners include Nick's transaction in the next block to be mined. The miners then compete to solve complex mathematical puzzles known as Proof of Work. The first miner to successfully solve the problem broadcasts the new block containing Nick's transaction to the entire network. The nodes in the network then verify the validity of the block before propagating it further.

Once the block is successfully mined and accepted by the network, Rose will see the first confirmation of the transaction she received. Each new block successfully mined afterward adds additional confirmations to the transaction, making it increasingly secure and irreversible. This mining process not only confirms transactions but also creates new Bitcoins as rewards for the successful miners. Thus, the entire Bitcoin transaction process operates in a decentralized manner without requiring intermediaries, supported by blockchain technology that ensures transaction transparency and security.

Regulation of Cryptocurrency in Indonesia

The analysis of Indonesian regulations shows that cryptocurrency is not recognized as a legal means of payment within the domestic payment system. Law Number 7 of 2011 explicitly stipulates that the only legal payment instrument in Indonesia is the Rupiah. Bank Indonesia, through Regulation PBI 17/3/2015, also prohibits the use of cryptocurrency as a payment instrument. However, the government does not completely ban the presence of



cryptocurrency. Through the 2022 Bappebti Regulation, cryptocurrency is recognized as a tradable digital commodity on futures exchanges. Several registered crypto asset traders include Indodax, Tokocrypto, Zipmex, Pintu, and Luno. This reflects the state's position that cryptocurrency is categorized as a commodity rather than a currency. These findings illustrate that Indonesia's regulatory approach is prudential in nature—allowing cryptocurrency as an asset while prohibiting its use as a payment instrument.

Islamic Economic Perspective on Cryptocurrency

Cryptocurrency offers several advantages, such as the ease of transacting from anywhere and at any time without the constraints of bank holidays, national borders, or bureaucracy; resilience against monetary inflation due to its limited supply, like Bitcoin which is capped at 21 million coins; as well as its transparent, fast, practical nature and protection from identity theft. However, cryptocurrency also has disadvantages, including its susceptibility to use in illegal activities due to the lack of real identities, high volatility which causes its value to change drastically in a short time, value that is difficult to predict, and its invalidity for service transactions in Indonesia.

From an Islamic perspective, the Indonesian Ulema Council (MUI) through Fatwa DSN-MUI No.116 of 2017 stipulated that electronic money is valid as a payment instrument if it complies with sharia principles, such as being issued based on pre-deposited funds and used as a means of payment to merchants who are not the issuer. However, this fatwa did not fully address the status of cryptocurrency due to its dual function as both a digital currency and a commodity asset. Subsequently, at the 7th Ijtima of the MUI Fatwa Commission in 2021, the MUI established a haram ruling for the use of cryptocurrency as a currency because it contains elements of *gharar* (uncertainty) and *dharar* (harm), and contradicts existing laws and regulations. As a digital asset, cryptocurrency is also haram if traded because it contains *gharar*, *dharar*, and *qimar* (gambling), and does not meet the requirements of *sil'ah* (a tradable good) in sharia, such as having a physical form and a certain value. However, cryptocurrency as a commodity or asset that fulfills the requirements of *sil'ah* and has clear benefits is permissible to be traded. Therefore, the use of cryptocurrency as a medium of exchange in Indonesia is considered to contain uncertainty (*gharar*) due to its unstable and often unpredictable price fluctuations, and can cause harm (*dharar*).

Sharia-based analysis shows that scholars' views on cryptocurrency fall into two main categories:

1. Prohibited (*haram*) as a medium of exchange;
2. Conditionally permissible as a tradable asset.

In the 2021 *Ijtima Ulama* of the MUI Fatwa Commission, the use of cryptocurrency as a currency was declared *haram* due to elements of *gharar*, *dharar*, and potential *qimar*. One of the primary reasons is its extreme price instability and the absence of an authority that guarantees its value stability. However, MUI also stipulates that cryptocurrency may be traded if it meets the criteria of *sil'ah*, namely having clear utility, clear ownership, and the ability to



be delivered in a real and verifiable manner. DSN-MUI Fatwa No. 116 of 2017 on electronic money also provides the foundation that digital instruments may be used as long as they comply with Sharia principles and are free from excessive speculation. Thus, the Islamic economic perspective does not reject cryptocurrency entirely but provides strict boundaries regarding the halal aspects of transactions, utility, value, and avoidance of speculative risks.

Theoretical Analysis: Cryptocurrency Within the Framework of the Concept of Money

Theoretically, money has four main functions: as a medium of exchange, a unit of account, a store of value, and a standard of deferred payment (Mankiw, 2018; Samuelson & Nordhaus, 2010). Based on the literature review, cryptocurrency's performance across these functions reveals significant theoretical challenges:

Cryptocurrency demonstrates limited functionality as a medium of exchange due to constrained merchant acceptance and regulatory barriers (Narayanan et al., 2016). While blockchain technology enables peer-to-peer transactions, its practical implementation faces scalability issues and technical complexities (Catalini & Gans, 2016). In Indonesia, regulatory restrictions explicitly prohibit cryptocurrency as legal tender, further limiting its exchange functionality (Bank Indonesia, 2017).

As a unit of account, cryptocurrency fails fundamentally due to extreme price volatility (Yermack, 2015). The dramatic price fluctuations, regularly exceeding 10-20% intraday, prevent reliable price denomination and accounting consistency (Baur et al., 2018). This instability makes cryptocurrency impractical for financial reporting and contract valuation (Mougayar, 2016).

Cryptocurrency's effectiveness as a store of value remains highly speculative and unstable (Financial Stability Board, 2022). While the fixed supply algorithm of certain cryptocurrencies theoretically supports value preservation, in practice, the extreme volatility undermines this function (CoinGecko, 2023). Most investors treat cryptocurrency as a speculative asset rather than a stable value repository, with empirical studies categorizing it more as a high-risk investment than a reliable store of value (Baur et al., 2018).

Regarding its function as a standard of deferred payment, cryptocurrency cannot serve this purpose in Indonesia due to legal incompatibility with existing currency laws (Undang-Undang No. 7, 2011). The uncertainty regarding future value, combined with regulatory prohibitions, prevents cryptocurrency from fulfilling debt settlement functions (Majelis Ulama Indonesia, 2021). Contracts denominated in cryptocurrency would introduce significant uncertainty from both conventional and Islamic financial perspectives (Hasan, 2020).

From a technological perspective, cryptocurrency demonstrates principles of efficiency and transparency through its decentralized ledger system (Tapscott & Tapscott, 2016). However, from macroeconomic and Sharia perspectives, the absence of value stability fundamentally undermines its monetary viability (Hasan, 2020). The high volatility contradicts the stability requirements of both conventional macroeconomic theory and Islamic financial



principles, which emphasize price stability and the elimination of excessive uncertainty in financial transactions (Mankiw, 2018; Hasan, 2020).

Economic and Sharia Implications

The analysis reveals several important implications: Economic Implications

1. Cryptocurrency has the potential to drive innovation in digital payment systems.
2. However, its price volatility poses risks to economic stability and investors.
3. The lack of comprehensive regulation creates risks of money laundering and illegal activities.

Sharia Implications :

1. Price instability and high speculation are the main reasons for its prohibition as a currency.
2. Cryptocurrency may be acceptable as a commodity if it possesses clear value, clear utility, and identifiable ownership.

Thus, the existence of cryptocurrency offers opportunities for innovation but also presents significant regulatory, economic, and Sharia-related challenges.

CONCLUSION

Based on the literature review regarding the concept of money, the development of digital technology, and the regulatory as well as Sharia perspectives on cryptocurrency, it can be concluded that cryptocurrency is a financial innovation based on blockchain technology that introduces a decentralized, transparent, and efficient transaction system. The emergence of cryptocurrency is part of the evolution of the modern financial system and serves as a response to the weaknesses of centralized financial structures, particularly in the aftermath of the 2008 global financial crisis.

From an economic perspective, cryptocurrency has two main functions: as a medium of exchange and as an investment asset. However, in practice, its function as a medium of exchange is not yet optimal because it is not recognized as a legal payment instrument in many countries, including Indonesia. The Indonesian government, through Law No. 7 of 2011 and Bank Indonesia regulations, emphasizes that only the Rupiah may be used as legal tender. Nonetheless, the government still provides space for cryptocurrency as a digital commodity asset that may be traded on crypto exchanges under the supervision of Bappebti.

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its invalidity for service transactions in Indonesia. From an Islamic perspective, the Indonesian Ulema Council (MUI) through Fatwa DSN-MUI No.116 of 2017 stipulated that electronic money is valid as a payment instrument if it complies with sharia principles, such as being issued based on pre-deposited funds and used as a means of payment to merchants who are not the issuer. However, this fatwa did not fully address the status of cryptocurrency due to its dual function as both a digital currency and a commodity asset. Subsequently, at the 7th Ijtima of the MUI Fatwa Commission in 2021, the MUI established a haram ruling for the use of cryptocurrency as a currency because it contains elements of *gharar* (uncertainty) and *dharar* (harm), and contradicts existing laws and regulations. As a digital asset, cryptocurrency is also haram if traded because it contains *gharar*, *dharar*, and *qimar* (gambling), and does not meet the requirements of *sil'ah* (a tradable good) in sharia, such as having a physical form and a certain value. However, cryptocurrency as a commodity or asset that fulfills the requirements of *sil'ah* and has clear benefits is permissible to be traded. Therefore, the use of cryptocurrency as a medium of exchange in Indonesia is considered to contain uncertainty (*gharar*) due to its unstable and often unpredictable price fluctuations, and can cause harm (*dharar*).

Meanwhile, from an Islamic economic perspective, the use of cryptocurrency as currency is deemed *haram* because it contains elements of *gharar*, *dharar*, and excessive speculation (*qimar*). However, cryptocurrency may be traded as a commodity if it fulfills Sharia principles such as clarity of utility, ownership, value, and being free from fraud and excessive uncertainty.

Overall, cryptocurrency is a digital financial phenomenon that offers significant innovation opportunities but also carries economic risks and legal challenges. Therefore, its utilization requires strong regulatory frameworks and comprehensive Sharia understanding to prevent potential harm to society. In the context of Islamic economics, prudence and the principle of balancing benefits and risks must serve as the main foundation in assessing and using cryptocurrency.

REFERENCES

- Al-Amine, M. A. M. (2018). Bitcoin: A Shari'ah Analysis. *International Journal of Islamic Economics and Finance Studies*, 4(2), 1-15.
- Antoni, S. (2020). *Hukum Cryptocurrency dalam Perspektif Ekonomi Syariah*. Deepublish.
- Antonio, M. S. (2001). *Bank Syariah: Dari Teori ke Praktik*. Jakarta: Gema Insani.
- Ascarya. (2016). *Akad dan Produk Bank Syariah*. Jakarta: Rajawali Pers.
- Badan Pengawas Perdagangan Berjangka Komoditi (Bappebti). (2019). *Peraturan Bappebti No. 5 Tahun 2019 tentang Ketentuan Teknis Penyelenggaraan Pasar Fisik Aset Kripto di Bursa Berjangka*.
- Bank for International Settlements (BIS). (2021). *Annual Economic Report*. Chapter III: Central bank digital currencies.



- Bank Indonesia. (2017). *Peraturan Bank Indonesia No. 19/12/PBI/2017 tentang Penyelenggaraan Teknologi Finansial*.
- Bappebti. (2022). *Daftar Pedagang Aset Kripto yang Terdaftar di Indonesia*.
- Bappebti. (2022). *Peraturan Bappebti tentang Penyelenggaraan Perdagangan Aset Kripto*. Kementerian Perdagangan RI.
- Baur, D. G., Hong, K., & Lee, A. D. (2018). Bitcoin: Medium of Exchange or Speculative Asset? *Journal of International Financial Markets, Institutions and Money*.
- Catalini, C., & Gans, J. (2016). Some Simple Economics of the Blockchain. *MIT Sloan Research Paper*.
- Catalini, C., & Gans, J. S. (2016). *Some Simple Economics of the Blockchain*. NBER Working Paper No. 22952. National Bureau of Economic Research.
- Chaum, D. (1983). Blind Signatures for Untraceable Payments. *Advances in Cryptology*.
- Dewan Syariah Nasional Majelis Ulama Indonesia (DSN-MUI). (2017). *Fatwa DSN-MUI No. 116/DSN-MUI/IX/2017 tentang Uang Elektronik (Electronic Money) Berdasarkan Prinsip Syariah*.
- DSN-MUI. (2017). *Fatwa DSN-MUI No. 116/DSN-MUI/IX/2017 tentang Uang Elektronik Syariah*.
- DSN-MUI. (2021). *Ketetapan Ijtima Ulama Komisi Fatwa MUI ke-7 tentang Hukum Cryptocurrency*.
- Financial Action Task Force (FATF). (2021). *Updated Guidance for a Risk-Based Approach to Virtual Assets and Virtual Asset Service Providers*.
- International Monetary Fund (IMF). (2020). *Digital Money and Central Banks*.
- Karim, A. A. (2010). *Ekonomi Mikro Islami*. Jakarta: RajaGrafindo Persada.
- Karim, A. A. (2019). *Ekonomi Syariah: Teori dan Aplikasinya dalam Keuangan Modern*. PT RajaGrafindo Persada.
- Keynes, J. M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.
- Majelis Ulama Indonesia (MUI). (2021). *Fatwa Hasil Ijtima Ulama Komisi Fatwa Se-Indonesia VII tentang Cryptocurrency*.
- Mansori, S., & Ali, A. M. (2020). Cryptocurrency from Islamic Perspectives: A Guide for Halal Investment. *Journal of Islamic Finance*, 9(1), 1-12.
- Nakamoto, S. (2008). *Bitcoin: A Peer-to-Peer Electronic Cash System*.
- Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and Cryptocurrency Technologies*. Princeton University Press.
- Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). *Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction*. Princeton University Press.
- Obaidullah, M. (2018). Islamic Finance and Cryptocurrency: An Assessment. *Islamic Economic Studies*, 26(2), 1-14.
- Peraturan Bank Indonesia Nomor 17/3/PBI/2015 tentang Uang Elektronik.
- Pigou, A. C. (1950). *The Veil of Money*. London: Macmillan.
- Robertson, D. H. (1922). *Money*. London: Nisbet & Co.
- Sayers, R. S. (1938). *Modern Banking*. Oxford: Oxford University Press.
- Swan, M. (2015). *Blockchain: Blueprint for a New Economy*. O'Reilly Media.



- Tapscott, D., & Tapscott, A. (2016). *Blockchain Revolution*. Penguin.
- Thomas, R. G. (1963). *Our Modern Banking*. London: T. Nelson.
- U.S. Securities and Exchange Commission (SEC). (Various Years). *Statements and Regulations on Digital Assets*.
- Undang-Undang Republik Indonesia Nomor 7 Tahun 2011 tentang Mata Uang.
- Yermack, D. (2015). Is Bitcoin a Real Currency? An Economic Appraisal. In *The Economics of Digital Currencies* (pp. 31-43). Springer, Berlin, Heidelberg.
- Yermack, D. (2015). Is Bitcoin a Real Currency? *NBER Working Paper No. 19747*.