

CRYPTOCURRENCY: AN ISLAMIC FINANCE PERSPECTIVE

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Abstract: The popularity of virtual currencies has increased markedly in recent years. Seminars and conferences have explored the properties and sustainability of cryptocurrencies. Some argue that an alternative to the current fiat currency system would be beneficial, as it would not mandate using a bank account, tax payments, or audits as do the said cryptocurrencies. Alternative payment methods, aside from those commonly accepted cash, checks, and DD, have been claimed to enable tax and auditing avoidance. However, this view has been contested, given the potential negative impact on the economy and the government budget. The present study addresses the challenges and limitations in considering halal bitcoins. It has been determined that cryptocurrencies are not considered Halal in Islam because they lack intrinsic value and are subject to significant regulatory oversight.

Abstrak: Popularitas mata uang virtual telah meningkat pesat dalam beberapa tahun terakhir. Seminar dan konferensi telah mengeksplorasi properti dan keberlanjutan mata uang kripto. Beberapa orang berpendapat bahwa alternatif dari sistem mata uang fiat saat ini akan bermanfaat, karena tidak mengharuskan penggunaan rekening bank, pembayaran pajak, atau audit seperti halnya mata uang kripto. Metode pembayaran alternatif, selain dari yang umum diterima seperti uang tunai, cek, dan DD, telah diklaim memungkinkan penghindaran pajak dan audit. Namun, pandangan ini telah diperdebatkan, mengingat potensi dampak negatifnya terhadap ekonomi dan anggaran pemerintah. Penelitian ini membahas tantangan dan keterbatasan yang terlibat dalam mempertimbangkan bitcoin sebagai sesuatu yang halal. Telah ditetapkan bahwa mata uang kripto tidak dianggap halal dalam Islam karena tidak memiliki nilai intrinsik dan tunduk pada pengawasan regulasi yang signifikan.

Keywords: cryptocurrency, bitcoin, Islamic finance, virtual currencies

A. INTRODUCTION

Cryptocurrency has emerged as one of the most revolutionary financial products of the twenty-first century. It represents a fundamental shift in how we think about and use money. Unlike traditional fiat currencies, cryptocurrencies are decentralized, digital assets that rely on blockchain technology for secure and transparent transactions. Bitcoin, the first and most well-known cryptocurrency, introduced the concept of a peer-to-peer electronic cash system, challenging traditional banking and financial systems. This innovation has paved the way for a plethora of other cryptocurrencies, each with its unique features and use cases.¹

The impact of cryptocurrency extends beyond finance, with implications for various industries, including fintech, remittances, and even global economics. Cryptocurrencies offer opportunities for financial inclusion, cross-border transactions, and financial innovation. However, they also raise regulatory and security concerns that need to be addressed. As we move further into the twenty-first century, the role of cryptocurrency in shaping the future of finance and economics is undeniable, making it one of the most revolutionary financial products of our time.²

Cryptocurrencies are built upon the foundation of blockchain technology, serving as the backbone of digital currencies like Bitcoin and Ethereum. A blockchain is a distributed, decentralized ledger that records all transactions across a network in a secure and transparent manner. It consists of a chain of blocks, each containing a set of transactions. The key feature of blockchain technology is its decentralized nature. Unlike traditional financial systems, where transactions are processed by central authorities, blockchain relies on a network of nodes (computers) that validate and record transactions. This decentralization ensures transparency, immutability, and security of the data on the blockchain, making it a robust platform for digital currencies.

¹ Dapp, M.M. (2021). From Fiat to Crypto: The Present and Future of Money. In: Dapp, M.M., Helbing, D., Klausner, S. (eds) Finance 4.0 - Towards a Socio-Ecological Finance System. SpringerBriefs in Applied Sciences and Technology. Springer, Cham. https://doi.org/10.1007/978-3-030-71400-0_1

² Eduardo Salcedo, Manjul Gupta. The effects of individual-level espoused national cultural values on the willingness to use Bitcoin-like blockchain currencies. *International Journal of Information Management*, Volume 60, 2021, 102388. ISSN 0268-4012, <https://doi.org/10.1016/j.ijinfomgt.2021.102388>.

Moreover, the blockchain's decentralized architecture eliminates the need for intermediaries, reducing transaction costs and increasing efficiency. It ensures the integrity of the transaction history, making it virtually tamper-proof. The transparency of the blockchain allows anyone to view the entire transaction history, fostering trust among users. Furthermore, the technology's potential extends beyond cryptocurrencies, with applications in various industries such as supply chain management, healthcare, and voting systems. The blockchain's ability to revolutionize the way data is stored, shared, and secured makes it a pivotal technology in the modern era of finance and beyond.³

Without the involvement of banks, financial organizations, or the government, cryptocurrency transfers happen directly between peers. This peer-to-peer (P2P) nature of cryptocurrency transactions is a fundamental characteristic that sets digital currencies apart from traditional financial systems. In a decentralized cryptocurrency network, participants can engage in transactions without relying on intermediaries. Each transaction is recorded on a blockchain, a distributed ledger technology, ensuring transparency and immutability.

This direct peer-to-peer approach enhances privacy, reduces transaction costs, and accelerates the speed of transfers, making it an attractive option for users seeking financial independence. Moreover, P2P exchanges and platforms have gained prominence, offering individuals the freedom to choose their trading partners, further promoting decentralization in the world of finance. The absence of a central authority in cryptocurrency transactions not only empowers individuals but also introduces a level of trust and security, ultimately reshaping the financial landscape in the digital age.⁴

The "miners" record transactions in the blockchain stop double spending of bitcoin and confirm the transactions. Although there are more than 2000 cryptocurrencies in use, Bitcoin and Ethereum are the two most popular ones (Coinmarketcap.com). Bitcoin, Ethereum, Bitcoin Cash, Litecoin, Dogecoin, and Ripple XRP are the most widely used cryptocurrencies. It should be highlighted that cryptocurrencies, like

³ <https://www.simplilearn.com/tutorials/blockchain-tutorial/blockchain-technology>

⁴ <https://www.techopedia.com/cryptocurrency/best-p2p-crypto-exchange>

existing digital fiat currencies, are accepted as a form of payment and a store of value within a community.

However, they are recognized as tokens with digital signatures rather than paper money or actual coins. Technology advancements that have made digital fiat money more widely accepted as well as the fact that fiat money has not been able to control inflation since the end of the gold standard have encouraged the growth and spread of numerous cryptocurrencies.

Globally, there are numerous companies offering cryptocurrency platforms, however, these platforms have several drawbacks, including a lack of regulatory support, poor strategic planning, unpredictability, and a lack of actual assets as backing, instead relying solely on assumptions. Through a trading platform or through cryptocurrency brokers, who function similarly to a foreign exchange dealer, cryptocurrency may be purchased and sold.⁵

B. THEORETICAL BASIS

Key cryptocurrencies’ Market cap and Volume

Table 1 shows the market capitalization and price details of major cryptocurrencies.

Table: 1 Key cryptocurrencies’ Market cap and Volume

No	Name	Symbol	Price (In USD)	Market Capitalisation (In USD)	Supply in Circulation
1	Bitcoin	BTC	22860.02	436.94 BN	19,111,950
2	Ethereum	ETH	1622.23	197.47 BN	121,823,914
3	BNB	BNB	300.06	48.42 BN	161,337,261
4	Ripple	XRP	0.3698	17.88 BN	48,343,101,197
5	Cardano	ADA	0.501	17.00 BN	33,934,048,406
6	Solana	SOL	38.86	13.48 BN	346,652,152

⁵ Mohammed Nabeel K and M Sumathy, “Issues and Risks of Cryptocurrencies – A Case of Bitcoin” 2, no. 2 (2022): 2016–2019; Mohammed Nabeel K, “Crypto Currency - Investor ’ s Awareness in India,” no. 88 (n.d.): 286–291.

7	Polkadot	DOT	8.06	8.89 BN	1,103,105,142
8	Dogecoin	DOGE	0.066	8.83 BN	132,670,764,300
9	Dai	DAI	0.9995	7.41 BN	8,034,803,943
10	Polygon	MATIC	0.887	7.14 BN	8,034,803,943

Source: Coinmarketcap.com, Price as of 04-08-2022, Price in US\$

Based on the provided table of major cryptocurrency market capitalizations and price details, it is evident that these digital assets exhibit significant variations. **Bitcoin (BTC):** Bitcoin, the pioneer of cryptocurrencies, commands a substantial market capitalization of \$436.94 billion with a price of \$22,860.02 per unit. Its limited supply of 19,111,950 BTC contributes to its scarcity and robust market position.

Ethereum (ETH): Ethereum follows as the second-largest cryptocurrency with a market capitalization of \$197.47 billion. It is priced at \$1,622.23 per unit, reflecting its strong presence in the blockchain and smart contract ecosystem. The circulating supply is significantly larger than Bitcoin, with 121,823,914 ETH. **BNB (Binance Coin):** Binance Coin, often used on the Binance exchange, has a market capitalization of \$48.42 billion and is priced at \$300.06. It has 161,337,261 BNB in circulation, and its value is supported by its utility within the Binance ecosystem.

These figures demonstrate the diversity in the cryptocurrency market, where Bitcoin stands out as the dominant player, while other cryptocurrencies like Ethereum and Binance Coin hold substantial market capitalizations and are actively traded. The variations in market capitalization and price reflect the differences in adoption, utility, and investor sentiment among these digital assets.

The mass spread of cryptocurrencies is closely related to cryptocurrency exchanges. Cryptocurrency exchanges play a crucial role in the digital asset ecosystem, facilitating the trading and management of cryptocurrencies. These platforms serve several key functions:

1. **Trading Hub:** Cryptocurrency exchanges function as primary marketplaces for buying, selling, and trading various digital assets.

Users can exchange cryptocurrencies for other cryptocurrencies (crypto-to-crypto) or fiat currencies (crypto-to-fiat). These exchanges provide a wide range of trading pairs, enabling users to access a diverse portfolio of cryptocurrencies.

2. **Price Discovery:** Cryptocurrency exchanges contribute to price discovery by providing real-time price information for various digital assets. The prices quoted on these platforms are influenced by market supply and demand dynamics, helping establish reference prices for the entire crypto market.
3. **Liquidity Providers:** Major exchanges enhance liquidity in the cryptocurrency market, ensuring that traders can execute their orders promptly and with minimal slippage. High liquidity is essential for the efficient functioning of the market and for accommodating large trading volumes.
4. **Security and Custody:** Top-tier exchanges prioritize the security of users' assets by implementing robust security measures, including cold storage for digital assets and two-factor authentication. They safeguard users' funds and personal information against cyber threats and hacking attempts.
5. **Market Access:** These exchanges grant access to a broad user base, making it easy for both retail and institutional investors to participate in the cryptocurrency market. Many offers user-friendly interfaces and educational resources to accommodate users of all levels of expertise.
6. **Innovation:** Major exchanges often lead the industry in terms of innovation. They introduce new products, services, and financial instruments, such as margin trading, futures contracts, staking, and lending programs, contributing to the development and maturation of the crypto market.
7. **Compliance:** Leading cryptocurrency exchanges adhere to regulatory standards and compliance requirements in the regions where they operate. This fosters trust and confidence among users and regulators.

In summary, major cryptocurrency exchanges serve as vital gateways to the world of digital assets, offering users access to a variety of cryptocurrencies, establishing price benchmarks, enhancing liquidity, and providing secure and innovative trading environments. Their roles are crucial to the growth and development of the cryptocurrency market, as outlined in the table below.

Table: 2 Major Cryptocurrency Exchanges

No	Name	Volume
1	Binance	13313989333
2	Coinbase	1860611320
3	FTX	1697324924
4	Kraken	525266150
5	KuCoin	946895104
6	Binance.US	417128377
7	Gate.io	898678850
8	Bitfinex	301224785
9	Huobi Global	816333491
10	Gemini	69125882

Source: Coinmarketcap.com, Volume as on 04-08-2022

Since cryptocurrencies were introduced in 2016, Bitcoin has been the most valuable and expensive cryptocurrency. Its prominence in the cryptocurrency space can be attributed to several key factors. First and foremost, Bitcoin was the pioneering digital currency, introduced in 2009 by an anonymous entity known as Satoshi Nakamoto. This early-mover advantage allowed it to establish itself as the poster child of the crypto world.

Additionally, Bitcoin's limited supply cap of 21 million coins creates a sense of scarcity, enhancing its value proposition. The decentralized nature of Bitcoin, with no central authority or government control, aligns with the fundamental principles of blockchain technology, further bolstering its appeal. Its global recognition and adoption, both as a digital

asset and a store of value, have made it a household name in the financial world.

Furthermore, Bitcoin's price history has been marked by significant fluctuations, driving both excitement and skepticism. Its price surges and subsequent corrections have consistently captured media attention, making it a hot topic of discussion among investors and the general public. Bitcoin's resilience and continued dominance as the most valuable cryptocurrency showcase its resilience and lasting impact on the evolving landscape of digital finance.

With a market capitalization of 436 billion US dollars and around 45 percent of the whole cryptocurrency market, Bitcoin has the biggest market cap among the top 10 cryptocurrencies. Among the major crypto exchanges, Binance is having highest volume of transactions

C. RESEARCH METHOD

A literature review was conducted to examine cryptocurrency. The aim is to review the existing literature on cryptocurrency, Islamic finance and legality of cryptocurrency in Islam. The sources used in this research are academic references as well as essential information and data extracted from high quality website, online news and blogs.

D. DISCUSSION

Cryptocurrency and Islamic Finance

In Islam, money holds a distinct and multifaceted role that transcends its economic utility. It is considered a means to foster socio-economic justice and contribute to the welfare of the broader society. This perspective is deeply rooted in Islamic teachings and principles, emphasizing that wealth and resources should not be hoarded or exploited for personal gain but should be utilized to address societal imbalances and uplift the underprivileged.

Islamic finance is a financial system that originates from the Al-Quran and Sunnah, as well as from the interpretations of scholars regarding these revealed sources. Islamic finance institutions and ethical investment frameworks further underline the significance of using money for the greater good. These financial systems are designed to ensure that capital is

directed towards projects and endeavors that align with ethical and social values, avoiding harmful or exploitative practices. The overarching aim is to harness the potential of money to advance socio-economic justice, harmony, and well-being for the entire society, reflecting the foundational principles of Islam.⁴⁹

Abu Bakar underscores a fundamental perspective on money in the context of Shariah, the Islamic legal framework. According to this viewpoint, money is regarded as having no intrinsic value. In other words, money itself is not considered a commodity with inherent worth but rather serves as a tool or medium through which value is measured and exchange transactions are facilitated.⁵⁰

This concept aligns with Islamic economic principles, which emphasize that wealth and resources should not be hoarded or considered an end in themselves. Instead, they are meant to be utilized for productive purposes that benefit society. In the case of money, it is seen as a means to measure and facilitate the exchange of goods and services, fostering economic activity and trade within an ethical and socially just framework.

Islamic finance and economic systems often reflect this perspective, with practices such as Zakat, which mandates the distribution of a portion of one's wealth to help the less fortunate, reinforcing the idea that money should be channeled for the greater good and socio-economic justice. This view emphasizes that money's true value lies in its ability to contribute to the well-being of society and advance economic equity, rather than in its own intrinsic worth.

Islam's perspective on money and commodities is indeed distinct, with several key arguments supporting this viewpoint. Firstly, in Islamic economic thought, money is not considered a commodity itself but serves as a medium of exchange and a store of value. This differentiation is

⁴⁹ Ihsan, Akmal, Shadriyah, Shadriyah, and Andiansyah, Farma. "MONEY IN ISLAM: ECONOMIC AND SOCIAL" *Jurnal Ilmiah Al-Tsarwah* [Online], Volume 6 Number 1 (25 September 2023). 16-32.

⁵⁰ Abu Bakar, N., Rosbi, S., & Uzaki, K. (2017). Cryptocurrency Framework Diagnostics from Islamic Finance Perspective: A New Insight of Bitcoin System Transaction. *International Journal of Management Science and Business Administration*, Vol. 4, No. 1, 2017. 19–28. <https://doi.org/10.18775/ijmsba.1849-5664-5419.2014.41.1003>

significant, as it distinguishes money from commodities like gold or food items, which have intrinsic value. Money, in Islam, does not possess inherent worth but rather acts as a tool for trade and a unit of account.

Secondly, Islamic principles emphasize the concept that "Barter is not allowed" (known as "*bai' as-sarf*") to ensure fairness and prevent exploitation. This principle implies that using money solely for personal accumulation is discouraged, and money should be actively utilized for productive purposes to benefit society. Money should be a means to foster economic activity, and social welfare, and uphold principles of socio-economic justice.⁵¹ In this way, Islam encourages the transformation of money into a commodity, such as goods and services, to fulfill the needs of individuals and society at large.

These arguments collectively emphasize that in Islam, money is not an end in itself but a means to advance socio-economic justice and the greater good of society through productive and ethical utilization.

Islamic law stipulates stringent guidelines regarding the acceptance of items as money within the Islamic economic framework. In accordance with these principles, only items possessing intrinsic worth are considered acceptable as money in Islam. Such items include gold (known as Dinar), silver (referred to as Dirham), and basic commodities such as rice, dates, wheat, barley, and salt. These commodities have inherent value and serve as the foundation for the Islamic monetary system.

The significance of these commodities lies in their ability to act as currency within Islamic finance. If paper money or electronic forms of currency are backed by one of these commodities at a predetermined exchange rate, they can be employed as a medium of exchange in Islamic transactions. This backing by tangible assets aligns with the Islamic concept of real value, ensuring that the currency in circulation is rooted in commodities with intrinsic worth, thereby enhancing economic stability and fairness.

⁵¹ Asadov, Alam. " MONEY IN ISLAM: A SOCIAL CONTRACT PERSPECTIVE" *International Journal of Islamic Economics* [Online], Volume 2 Number 01 (11 July 2020). 39-53.

This approach also underscores the importance of maintaining the value of money and preventing undue inflation, as the value of paper money is directly tied to the underlying commodity. By adhering to these principles, Islamic finance aims to create a monetary system that promotes stability, fairness, and economic justice in accordance with Islamic law.

Gold and silver were widely used as money and a means of exchange during the dawn of Islam. Those were the days of the Dinar (made of gold) and Dirham (made of silver). Gold and silver were also allowed as forms of payment by the Holy Prophet (PBUH).

Additionally, Roman, and Persian gold and silver coinage were utilized for trade throughout his reign. Islam disapproves of treating money as a commodity. Money can be used to facilitate transactions, but it cannot be regarded as an object in and of itself, making it impossible to trade on its own. The rationale for such a strict prohibition is because trading in money in the absence of any economic activity might result in interest.

Cryptocurrency is a technology that utilizes blockchain, one of which is digital money, electronic money, or virtual money that is in common with money in this world and this money has no physical form.⁵² So, the word Cryptocurrency means a virtual currency that has no physical form, and Cryptocurrency also means that the transaction currency cannot be seen and is safe. By using this blockchain technology can make all transactions that occur become very transparent and every existing data will relate to one another, and every existing data has one user within the scope of the cryptocurrency system

The legitimacy of cryptocurrencies in Islamic finance is a topic of continuing discussion among academics and Shariah experts. We must understand the monetary operations of all cryptocurrencies and how they comport with Shariah regulations on money to comprehend the legal situation. If we concentrate on the qualities of cryptocurrencies concerning money, we can see that most cryptocurrencies match modern definitions of a currency, including being a unit of account that can be quantified and a

⁵² Izwan Amsyar et al., "The Challenge of Cryptocurrency in the Era of the Digital Revolution: A Review of Systematic Literature," *Aptisi Transactions on Technopreneurship (ATT)* 2, no. 2 (2020): 153–159.

means of exchange for buying and selling. Cryptocurrencies are also portable, resilient, and divisible, which makes them comparable to currencies.

Legality of Cryptocurrency in Islam

It is evident that there are diverse schools of thought within Islam, and this will also be reflected in the legitimacy of cryptocurrencies under Shariah law. The debate centers on whether Bitcoins and other recognized cryptocurrencies are financial assets, commodities, or money or currency. However, there doesn't seem to be any disagreement on the Shariah-compliant permissibility of the blockchain technology, the platform on which they are formed. The unit of account that money serves should have worth or be supported by something with genuine value, such as precious metal, according to the Islamic Monetary Theory Value (IMTV). Since it only exists in digital form, bitcoin has no intrinsic value, no physical form, and is neither issued by a firm nor is it under the jurisdiction of one.⁵³ Anything must have an inherent worth from which one might profit in it to be considered a commodity, and Bitcoin does not meet this requirement.

Due to the speculative character of cryptocurrencies like Bitcoin, the government and academics have taken the position that individuals should refrain from investing in them to avoid any losses. This is the fundamental justification for the argument against the use and prohibition of cryptocurrencies. Understanding cryptocurrency mining and trading is essential to determining if digital currencies are permitted in Islamic finance, which is why we have seen the birth of Shariah-compliant crypto in some form; this will be covered in the next section.

Arguments against the cryptocurrency

Due to three factors, cryptocurrencies are regarded as being against halal law. The first is the lack of inherent worth. The price of any cryptocurrency is determined by the activities taking place throughout the

⁵³ Housseem Bedoui and Aroua Robbana, *Halal Cryptocurrency Management, Halal Cryptocurrency Management* (Springer International Publishing, 2019).

globe. Like gold or silver, it doesn't have inherent worth. As a result, trading in cryptocurrencies is ideal for speculative purposes. The anonymity that cryptocurrency provides its owner is the second argument against it. Nobody is aware of who is carrying cryptocurrency or how much of it they have. As a result, using cryptocurrency as a safe haven for unexplained funds seemed ideal. The price fluctuation is the third point. When compared to equities or derivatives, cryptocurrencies are quite volatile.⁵⁴

The Way ahead

It is intriguing to watch how the world of cryptocurrencies is evolving and how Shariah-compliant asset-backed or asset-based cryptocurrency is growing. The recent emergence of cryptocurrencies offers an alternative to the long-established fiat currency paradigm, but they still face several challenges before becoming a widely accepted method of payment, particularly in the context of Islamic banking. The chapter's closing portion will examine some of the difficulties that cryptocurrency applications in Islamic finance encounter.

E. CONCLUSION

To govern the production of money and to verify the flow of cash, cryptocurrency is a means of exchange that is produced and kept electronically in the blockchain. This essay examines how the Bitcoin system functions from the standpoint of Islamic finance. The goal of this study is to assess if the bitcoin system complies with Islamic finance regulations. In the long term, cryptocurrencies may even be endorsed by the government. However, before they can be recognized in the mainstream of Islamic finance, they must overcome stigmas associated with their high volatility, usage in fraud, and lack of regulation from both financial law and Shariah law. Some schools of Islamic thinking support the idea that trading cryptocurrencies is acceptable as long as there is no element of speculation involved. Regulating cryptocurrencies shouldn't be done with the intention of limiting their potential, but rather to encourage their development as a part of the financial and economic systems. It will be interesting to see if

⁵⁴ K and Sumathy, "Issues and Risks of Cryptocurrencies – A Case of Bitcoin."

cryptocurrencies may be included into Islamic finance in the coming days to encourage greater financial inclusion.

REFERENCES

- Amsyar, Izwan, Ethan Christopher, Arusyi Dithi, Amar Najiv Khan, and Sabda Maulana. "The Challenge of Cryptocurrency in the Era of the Digital Revolution: A Review of Systematic Literature." *Aptisi Transactions on Technopreneurship (ATT)* 2, no. 2 (2020): 153–159.
- Arafah, Muh. "Sistem Keuangan Islam: Sebuah Telaah Teoritis." *Al-Kharaj: Journal of Islamic Economic and Business* 1, no. 1 (2019): 56–66.
- Bedoui, Housseem, and Aroua Robbana. *Halal Cryptocurrency Management. Halal Cryptocurrency Management*. Springer International Publishing, 2019.
- K, Mohammed Nabeel. "Crypto Currency - Investor's Awareness in India," no. 88 (n.d.): 286–291.
- K, Mohammed Nabeel, and M Sumathy. "Issues and Risks of Cryptocurrencies – A Case of Bitcoin" 2, no. 2 (2022): 2016–2019.
- Dapp, Marcus M., Helbing Dirk, and Klauser Stefan. *Towards Finance System: A Participatory Framework to Promote Sustainability*, 2021.
- Salcedo, Eduardo, and Manjul Gupta. "The Effects of Individual-Level Espoused National Cultural Values on the Willingness to Use Bitcoin-like Blockchain Currencies." *International Journal of Information Management* 60, no. June (2021): 102388. <https://doi.org/10.1016/j.ijinfomgt.2021.102388>.
- <https://www.simplilearn.com/tutorials/blockchain-tutorial/blockchain-technology>
- <https://www.techopedia.com/cryptocurrency/best-p2p-crypto-exchange>
- Ihsan, Akmal, Shadriyah, and Farma Andiansyah. "MONEY IN ISLAM: ECONOMIC AND SOCIAL" 6, no. 1 (2023): 16–32.
- K, Mohammed Nabeel, and M Sumathy. "Issues and Risks of Cryptocurrencies – A Case of Bitcoin" 2, no. 2 (2022): 2016–2019.
- Bedoui, Housseem, and Aroua Robbana. *Islamic Social Financing Through Cryptocurrency Housseem. Halal Cryptocurrency Management*. Springer International Publishing, 2019. http://dx.doi.org/10.1007/978-3-030-10749-9_16.

- Asadov, Alam I. "MONEY IN ISLAM: A SOCIAL CONTRACT PERSPECTIVE" 02, no. 01 (2020): 39–53.
- Abu Bakar, Nashirah, Sofian Rosbi, and Kiyotaka Uzaki. "Cryptocurrency Framework Diagnostics from Islamic Finance Perspective: A New Insight of Bitcoin System Transaction." *International Journal of Management Science and Business Administration* 4, no. 1 (2017): 19–28.
- Salcedo, Eduardo, and Manjul Gupta. "The Effects of Individual-Level Espoused National Cultural Values on the Willingness to Use Bitcoin-like Blockchain Currencies." *International Journal of Information Management* 60, no. June (2021): 102388. <https://doi.org/10.1016/j.ijinfomgt.2021.102388>.