Shirkah: Journal of Economics and Business
Vol. 11, No. 2 (2026), page 375-397
p-ISSN: 2503-4235 e-ISSN: 2503-4243
Journal homepage: http://shirkah.or.id/new-ojs/index.php/home

Research Paper

Exploring the Social Media Wave of Halal Cryptocurrency Sentiment: A Natural Language Processing Approach

Ahmad Tibrizi Soni Wicaksono[a,1*], Umrotul Khasanah[a,2], Alif Muhamad Anaksa Moreno[a,3], Ade Suherlan[b,4]

[a] Faculty of Economics, Universitas Islam Negeri Maulana Malik Ibrahim Malang, Indonesia
[b] Western Sydney University
[1] tibrizisony@uin-malang.ac.id*, [2] um_amana@pbs.uin-malang.ac.id, [3] alifmoreno05@gmail.com
[4] 20681685@student.westernsydney.edu.au

*Corresponding author

ARTICLE INFO

Keywords
Halal Cryptocurrency, Social Media, Sentiment Analysis, Natural Language Processing

Article history
Received: 14 November 2025
Revised: 21 June 2026
Accepted: 19 August 2026
Available online: 19 September 2026

To cite in APA style
Wicaksono, A. T. S., Khasanah, U., Moreno, A. M. A. & Suherlan, A. (2026). Exploring the social media wave of halal cryptocurrency sentiment: A natural language processing approach. *Shirkah: Journal of Economics and Business, 11*(2), 375-397.

ABSTRACT

Cryptocurrency's popularity is primarily driven by user trends and Central Bank Digital Currency initiatives. However, specific Islamic communities identified vary in comprehension of halal and haram due to level and Shariah compliance discrepancies. This study seeks to understand the Muslim community's perspective on halal cryptocurrency on X, Instagram, Facebook, TikTok, and YouTube. This study has gathered and studied 11,059 comments based on a Natural Language Processing (NLP) approach. This study also uses data triangulation, achieved by intercoder agreement and with a series of complementary studies: word clouds, tree maps, Sankey diagrams, and sentiment layers using the ATLAS software. The results demonstrated that, on social media, issues and terms related to crypto have a high frequency of pronunciation and interpretation. Based on sentiment analysis, 76.92% of comments expressed a negative sentiment, and 23.08% of comments expressed a positive sentiment toward halal cryptocurrency. The research also focuses on the intersection of sentiment analysis and other models and theories of new technology acceptance. This research has its constraints with regard to social media.

Introduction

The financial sector has evolved rapidly in recent years (Stetsenko et al., 2023). Consumers value prompt and efficient service when they interact with banks (Wicaksono et al., 2023). Meanwhile, financial technologies have unearthed constraints and opportunities that can disrupt banking activity in the long run (Othman et al., 2019). With the new technologies, consumers have the liberty to choose from a variety of transaction patterns. These include transactions conducted in a centralised financial system (Cong et al., 2023) and transactions in a decentralised financial system that are done transparently without bank intermediation (Choi & Kim, 2024). The new technology has also had a negative view of fiat money due to its propensity to lose value and sustain price stability (Jaffar et al., 2017). Fiat money is characterized by high government dependence (Yamin et al., 2024) and was initially a virtue of banknotes, while technology has made cryptocurrencies cheaper. In addition, the increase in cyberattacks and disruptions in the provision of banking services has raised concerns about the safety of storing money in banks (McPhilemy & Moschella, 2019). In contrast, owning cryptocurrencies offers users the security of value and transparency of transactions recorded on the blockchain (N. Lee, 2023; Perepelitsa et al., 2018).

While many investors consider some cryptocurrencies attractive for investment and hedging (Horta et al., 2022; Letho et al., 2022), the use of cryptocurrency in Muslim countries has raised concerns regarding the halal status, uncertain loss, gambling, and high volatility (Fad & Imron, 2022; Selcuk & Kaya, 2021). Some cryptocurrencies have attempted to settle the issue by introducing Sharia-compliant cryptocurrencies which incorporate the physical value of gold, metals, commodities and currency in a certain country to offer low volatility (Manzli, 2024; Trichilli & Boujelbène, 2022). Further, the adoption of cryptocurrency has improved the efficiency and transparency of zakat, cash waqf, and asset waqf in many Muslim countries (Wardoyo & Hapsari, 2023; Wiwoho et al., 2024). It is evident that many Muslim countries, including Indonesia and Malaysia, have a rising public interest in cryptocurrencies (Jailani, 2023). In addition, Pakistan, Nigeria, and Indonesia, as Muslim countries, have been some of the most active countries adopting cryptocurrencies (Chainalysis, 2025). There is a ban on conducting cryptocurrency transactions in the country, defined by a fatwa (Abu-Bakar, 2018; Khan, 2023). An even greater number of people, around 716 million, use cryptocurrencies globally (a16zcrypto, 2025), including the 42% who consider cryptocurrency a likely means of future transactions (Visa's Global Crypto & Fintech, 2025).

The phenomenon of Muslims countries' acceptance of cryptocurrency has resulted in the formation of halal-labelled cryptocurrency projects (Sukumaran et al., 2022). However, such labels do not necessarily ensure full Sharia compliance, for which purpose they are primarily used as sham labels to manipulate the public's perception (Paramole & Sanni, 2022). Given the volatile nature of the cryptocurrency market, public sentiment can drive the formation of pervasive, informal regulations (Diaconaşu et al., 2022; Öget, 2022). Thus, assuming halal cryptocurrencies are financial instruments that contradict Sharia principles will likely result in a loss of confidence and value (Daana & Yeşilada, 2025). Muslim countries also have the right to develop formal regulations to prohibit the use of said cryptocurrencies (Mustafa et al., 2020). On the other hand, if there is a positive public perception of halal cryptocurrencies, there will be a strong market need for their regulation

(Wiwoho et al., 2024). The importance of understanding public sentiment stems from the increased usage of cryptocurrencies as payment systems and investment channels in Muslim countries.

The study of public sentiment has broad applications (Antypas et al., 2023; Hannum et al., 2019; Yu et al., 2022). Social media has added a new dimension of accessible data to study and interpret people's opinions, emotions, behaviours, and preferences (Chandrasekaran et al., 2022; Rizki, 2023; We Are Social, 2024). Social media has almost 5.22 billion, or 63.8% of the world's population, users (Chandrasekaran et al., 2022; Rizki, 2023; We Are Social, 2024). Additionally, sentiment analysis of social media has been successful in understanding under-expressed public sentiments (Asare et al., 2023; Zhou et al., 2021). Furthermore, using social media for sentiment analysis can help determine the desires of crypto market investors and can be used to analyze the attitude of the Muslim community toward the burgeoning crypto market (Alipour & Charandabi, 2023; Chahooki et al., 2023; Girsang & Stanley, 2023; Li et al., 2019).

Abdeldayem et al. (2021) utilized a qualitative approach to study the perception of ulema on halal cryptocurrency. Results indicated that existing cryptocurrencies do not conform to Sharia principles, and it is justified to establish a new halal cryptocurrency. Following this, Bekiroğlu et al. (2025) and Wiwoho et al. (2024) framed a structure and regulation system for halal cryptocurrency with affiliated approaches of legislation, comparative, and conceptual. On the other hand, Nabeel & Sumathy (2023) articulated obstacles and restricted fields in line with the consideration for halal cryptocurrency through a literature survey and generated findings that bitcoin and similar digital money can not be regarded as halal, as they possess no objective value. Rapi et al. (2025) employed a method of natural language processing (NLP) to map sentiment among Muslim scholars regarding cryptocurrency. They found that the dominant sentiment was positive at around 59%. Mnif & Jarboui (2022) examined the effect of monetary policy on the price movements of halal (OneGram and Hello Gold) and conventional cryptocurrencies (Bitcoin, Ethereum, and Binance) using regression analysis and psychological tests. The conventional cryptocurrencies studied were found to be very sentiment-driven with respect to monetary policy. In contrast, cryptocurrencies within the framework of Halal criteria were found to be unaffected.

Previous studies suggest that among academics, there is a lack of consensus with respect to halal cryptocurrencies. Abu-Bakar (2018) and Selcuk & Kaya (2021), in their respective studies, argued that cryptocurrencies are considered prohibited financial instruments in Egypt, Turkey, Palestine, and the UK due to ambiguity in the existing laws, as well as uncertain ownership and exposure to criminal activities. Additionally, Parnes & Parnes (2025) and Teichmann (2018) believe that cryptocurrency has a bad reputation due to its relationship with terrorist groups like Al-Qaeda, the Taliban, Al-Shabaab, Boko Haram, the Houthis, and ISIS for raising funds. Meanwhile, Faizi (2023) is critical of scholars for issuing fatwas against cryptocurrency without considering the advantages of this technology. On the other hand, some studies, such as Izadin et al. (2025), show that cryptocurrencies with real-world asset backing and reduced uncertainty can be a halal portfolio. Additionally, Muneeza et al. (2023) and Aloui et al. (2021) in their studies show that, if the religious authorities allow, cryptocurrencies that comply with Sharia principles can be used for zakat and investment.

The aim of this study is to analyze the public perception on social media towards halal cryptocurrency, since previous studies focus on halal and haram aspects of cryptocurrency. Also, some studies focus on developing frameworks for the usage of halal cryptocurrency as a payment and investment tool. However, neglect has been shown towards the public perception of halal cryptocurrency. This study uses an NLP approach to analyze 11,059 comments posted on X, Instagram, Facebook, TikTok, and YouTube. Sentiment analysis mapping can provide an opinion for the stakeholders in formulating rules, and cryptocurrency can also be developed in accordance with the prevailing sentiment.

Method

This research utilises NLP to analyse public opinion towards halal cryptocurrency on social media. NLP performs computational linguistic analytics and semantics to extract public opinion from across the Internet through text, images, and web structures. In addition to analytics, NLP has facets of machine translation, word comparison, tagging, labelling, and text sentiment analysis (Mao et al., 2019). NLP has shown a 90% upper limit for measuring the expression of word meanings (Boon-Itt & Skunkan, 2020; Floyd et al., 2021). Importantly, NLP also has the capacity to analyze several types of language (including but not limited to) idioms, colloquialisms, and informal speech (Alita et al., 2019). Further, NLP can analyze words with large volumes of data. The following figure demonstrates the architectural NLP framework.

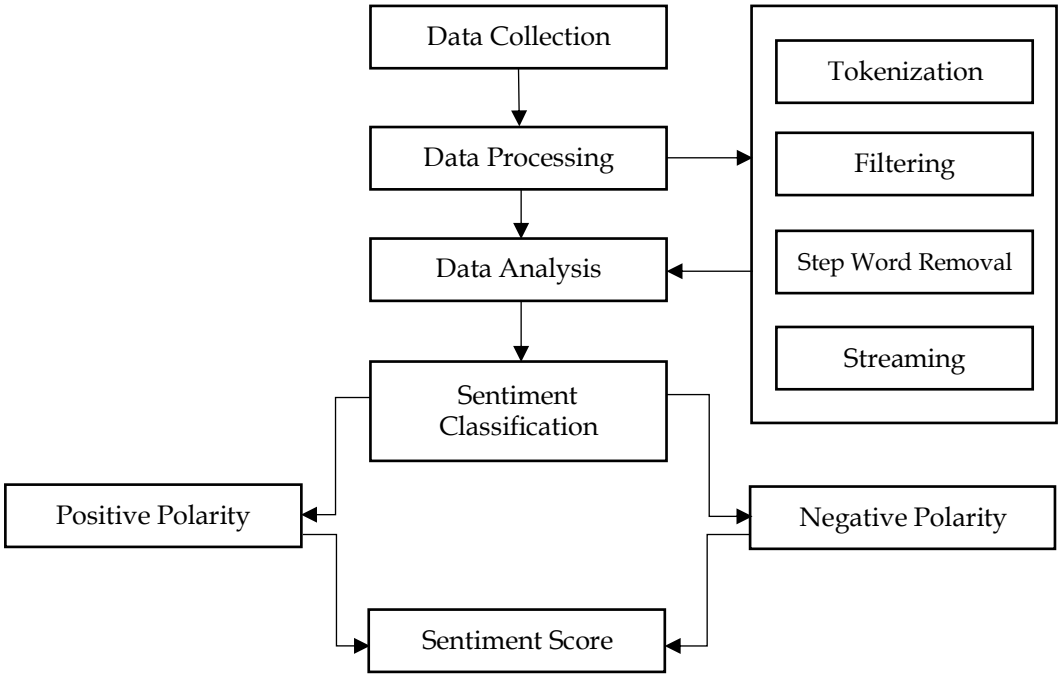

Figure 1. NLP framework
(Source: Verma & Thakur (2018))

First, the NLP technique includes the collection of user interactions via 11,059 comments on social media (X, Instagram, Facebook, TikTok, and YouTube) on halal

cryptocurrencies (Wicaksono & Soetjipto, 2025). The second phase is data processing, consisting of tokenization, filtering, stop word removal, and streaming. Tokenization is the division of raw data into words (Rangarjan et al., 2024). Filtering ignores data that is not in the context of the analysis, such as promotional data and data that is automatically posted (Lee et al., 2020). In addition, the removal of stop words is the elimination of general words that have no sentiment meaning (Wicaksono & Sudarmiatin, 2025). Streaming is the classification of the sentiment of the data in real time based on the polarisation of positive and negative sentiments (Ilk & Fan, 2022). This study uses ATLAS. ti as analysis software because it can identify the most used words (Santoveña-Casal et al., 2021), examine text and visual content (Rahbari, 2025), and identify themes with sentiment in digital text (Bisht & Parihar, 2023).

This study utilised purposive sampling to analyse comments and the sources from which the comments were made. Sampling criteria were social media platforms X, Instagram, Facebook, TikTok and YouTube; content on the halal status of cryptocurrency; posts on official accounts; posts with a minimum of 100 comments; and posts made in the last 6 months. Afterwards, this study used a data triangulation methodology and measured the percentage through intercoder agreement.

Data processing was used to gauge result similarity at different times and by many researchers. This was done to ensure data reliability and consistency during the coding process. The analysis used word cloud techniques to pinpoint social media posts that contain sentiments. Jadeja and Shah, 2015; Long et al., 2017). This study also used tree mapping to analyze social media posts about halal cryptocurrencies to describe the dominant social media topics concerning halal cryptocurrencies. Further, this study conducted data analysis with Sankey diagrams to describe the relationships and contributions of emotions as well as the dominance of sentiments on several social media platforms (de-Córdoba & Molinari, 2022; Riehmann et al., 2005). In the final stage of the analysis, this study used a sentiment score analysis to analyze code documents by assessing the sentiments of social media users and determining the sentiments that are dominant across all social media platforms. This analysis also determined the sentiments that are most dominant across all social media platforms to help researchers understand the complexity of sentiments that are posted on social media (Friese, 2012; Soratto et al., 2017).

Results

First, the study conducted an analysis to assess the affordability of social media comments that contain negative and positive sentiments to determine Intercoder agreement. The intercoder agreement measures the reliability of the data by evaluating the consistency of researchers in sentiment encoding of comments across different platforms.

Table 1. Intercoder Agreement

Code	Units	Total Units	Total Coverage	Percent Agreement
Sentiment: Negative	397805	1590476	25.01%	100%
Sentiment: Positive	159946	1590476	10.06%	

(Source: Data is processed in ATLAS. ti)

Negative sentiment constituted 25.01% of the total social media user comments on the topic of halal cryptocurrency. It accounted for 397,805 words out of a total of 1,590,476 words. Conversely, positive sentiment constituted 10.06% of comments and included 159,946 words. Additionally, content agreement analysis affirms that the data are reliable, with a 100% agreement percentage (Roaché, 2017). It means that 100 out of 100 comments were coded in the same way by the researchers. Thus, the data are consistent (Khasanah et al., 2025). In this study, 5,456 sentiment codes were applied to social media comments for the first time. It presents some tentative findings regarding the criticism of different types of halal cryptocurrency studies that can be found on social media. This is based on the fact that the majority of the community has not accepted and/or recognized that cryptocurrency can be Sharia-compliant (Sholeh et al., 2022). Besides, fatwas by ulema and governmental decrees consider cryptocurrency illegal because it is volatile (Abdeldayem et al., 2021). This study did a word cloud analysis to provide a portrait of the most frequent terms that represent comments on halal cryptocurrency (DePaolo & Wilkinson, 2014). This study also illustrates the attitude of social media users towards halal cryptocurrency (M. J. Lee et al., 2020), which is shown below.

Figure 2. Word Cloud Analysis
(Source: Data is processed in ATLAS. ti)

Figure 2 shows that users of social media posts repeatedly use several key terms in response to halal cryptocurrency. These terms are "crypto," "money," "bitcoin," "halal," "haram," "Islam," "trading," and "value." Of these, some are used frequently and dominate the comment sections. This shows us that social media users are more concerned about financial and religious issues and thereby add value to their posts and comments (Anwar & Mujib, 2022; Israni et al., 2023). The appearance of the key terms "halal" and "haram" also shows social media users' curiosity to understand the concerns related to halal crypto (Asyiqin et al., 2024; Hassan et al., 2025). The dominance of the two terms demonstrates the divergence of public opinion and is shown by the use of large font (some terms are used

more than others). The term "halal" represents social media users' belief in the transformational quality of halal crypto in the spirit of Sharia and at the same time allowing for the flexibility of innovation and technology (Naz, 2024). The term "haram" shows social media users' doubts related to the halal nature of crypto in the spirit of Islamic finance and avoiding gambling and uncertainty (Hassan et al., 2025; M. R. Rahman et al., 2024). Overall, social media users demonstrate their concern for financial and religious issues in order to understand the halal nature of crypto. In addition, users are interested in the halal and haram aspects of the crypto market and the impact of cryptocurrency on the economy.

Currently, public opinion on the halal status of cryptocurrency is also impacted by government and ulema opinions, as there is no stipulated law on their halal status. In addition, it is commonly agreed upon by the government and ulema that cryptocurrencies should not be used, as they have the potential for high volatility and are risky to users. A tree map analysis has been conducted to display the main issues that concern users in the context of halal cryptocurrency. It allows for a block representation to show the frequency of the issues in social media comments (Jadeja & Shah, 2015; Long et al., 2017). To complement the word cloud analysis, this method captures the main issues that users are concerned about in the context of halal cryptocurrency. It adds depth to the sentiment of the public.

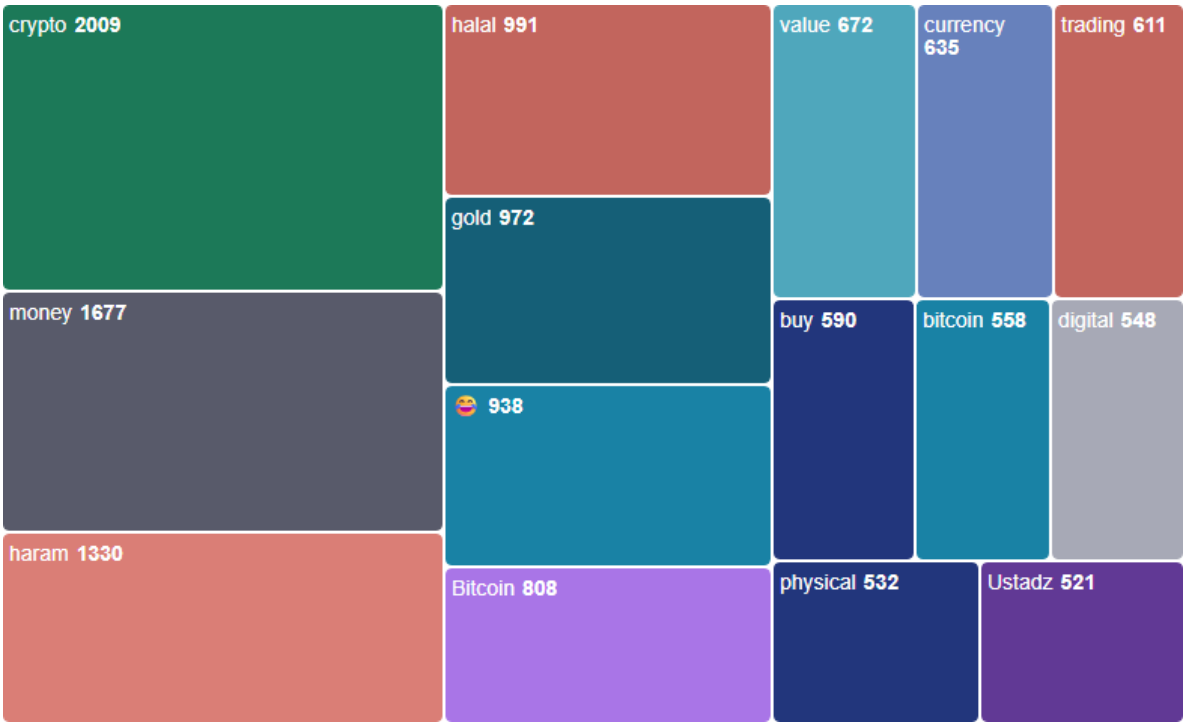

Figure 3. Tree Map Analysis
(Source: Data is processed in ATLAS. ti)

Figure 3 demonstrates an overwhelming trend for social media comments on halal crypto. Five issues appear over 200 times. These are crypto issues appearing 2009 times, money 1677 times, haram 1330 times, halal 991 times, and gold 972 times. Crypto issues show comments by social media users on issues of crypto when this technology is used

extensively (Jahanbin et al., 2024; Qureshi & Zaman, 2023). Further, the discussion includes the classification of cryptocurrency. Cryptocurrencies include digital assets and digital money (Kinateder & Choudhury, 2022; White et al., 2020). With regard to money and haram, social media users focus on the medium of exchange and prohibition in the context of Islam (Hassan et al., 2025; Mancini, 2024). The halal issue complements the haram issue in that there are fewer halal issues than haram issues. So, although some social media users believe halal crypto is an instrument in accordance with Sharia, most are not convinced and strongly believe that halal crypto violates Sharia (Kirchner, 2020; Khan, 2023; Siswantoro et al., 2020). Gold is another issue where social media users discussed similarities between halal crypto and gold as a limited asset (Abdeldayem et al., 2021).

Some users consider gold the best option for Sharia compliance (Juisin et al., 2023; Rusmita et al., 2024). Thus, gold is used in transactions or as an investment (Gulseven & Ekici, 2021; Olorogun & Abdul Aziz, 2021). The overwhelming majority of users in the social media space have concluded that cryptocurrencies are halal. Some aspects of cryptocurrency are building a case for cryptocurrency being considered haram. Gold, therefore, is the preferred investment choice by many. Cryptocurrency, on the other hand, contains a number of assets as well as benefits and is anticipated to retain its value. The author assesses the Sankey diagram and describes social media users' sentiments about halal cryptocurrencies across different social media websites (Wicaksono & Soetjipto, 2025). This work adds to the research on the classification of social media users and their perception of halal cryptocurrencies (Wicaksono & Sudarmiatin, 2025). This assessment and classification are based on sentiment analysis.

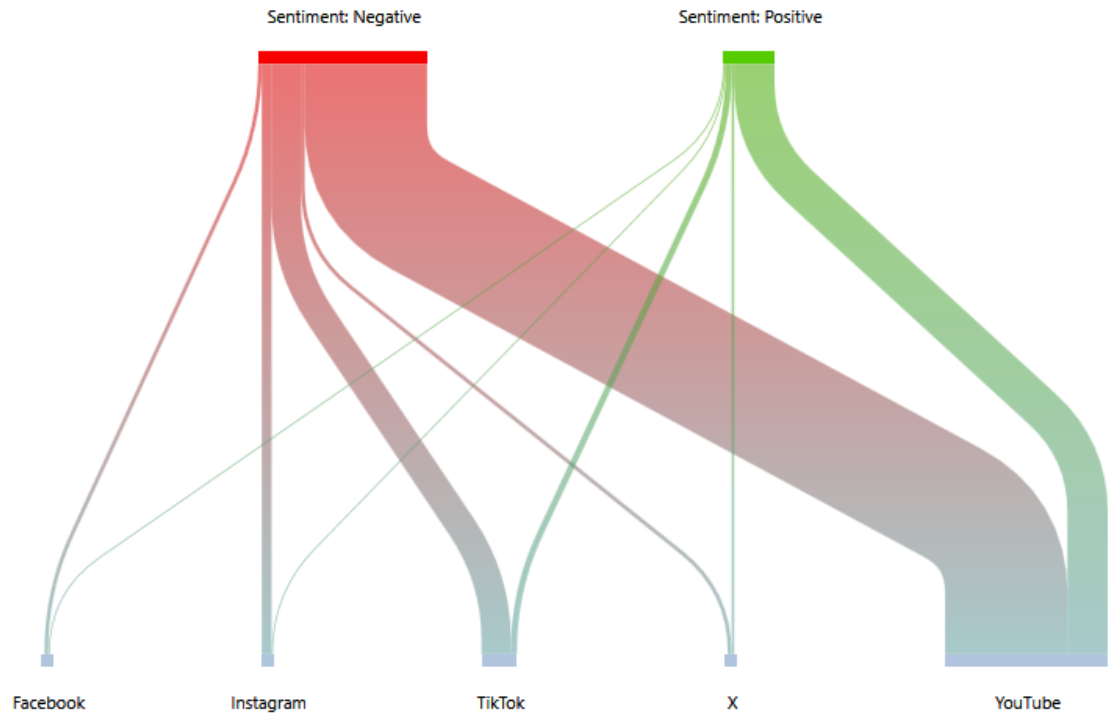

Figure 4. Diagram Sankey Analysis
(Source: Data is processed in ATLAS. ti)

Figure 4 shows that social media users have predominantly negative perceptions toward cryptocurrency labelled as Halal. Among the various social media platforms, YouTube has the highest concentration of users' comments and has the most expansive streams of sentiment distribution. This indicates that Users of YouTube are most likely to engage in the discussion of cryptocurrency as compared to other social media. YouTube has the advantage of allowing the posting of longer videos than other social media. Therefore, the information available from numerous sources such as scholars, financial experts, and members of the legal profession can be posted in detailed and lengthy videos (Malli, 2024; Thakur, 2025). However, the users of YouTube have concentrated their views along negative and positive polarised sentiments. In the last phase of this research, the sentiment scores of the distributions of sentiment on Facebook, Instagram, TikTok, X, and YouTube were analyzed. Absolute and relative table indicators are both employed to quantify the number of distributions and the segments of sentiment presented on social media, and to analyze them both in an isolated and integrated manner. In addition, this analysis is intended to complement the earlier work and to fulfil the research gap regarding understanding sentiment distribution and scoring on the topic of cryptocurrency and Halal.

Table 2. Sentiment Analysis Score

Social Media	Indicator	Negative	Positive	Totals
Facebook	Absolute	98	20	118
	Table-relative	1.80%	0.37%	2.16%
Instagram	Absolute	235	39	274
	Table-relative	4.31%	0.71%	5.02%
TikTok	Absolute	735	151	886
	Table-relative	13.47%	2.77%	16.24%
X	Absolute	103	60	163
	Table-relative	1.89%	1.10%	2.99%
YouTube	Absolute	3026	989	4015
	Table-relative	55.46%	18.13%	73.59%
Totals	Absolute	4197	1259	5456
	Table-relative	76.92%	23.08%	100.00%

(Source: Data is processed in ATLAS.ti)

The analysis of the distribution of sentiment on social media was also done. In this case, analysis of the sentiment of the social media data showed that, for negative sentiment, it was recorded at 4,197 (76.92%), while for positive sentiment it was recorded at 1,259 (23.08%). This means that, across each of the social media platforms, negative sentiment prevailed among the users. However, the positive sentiment of the perception of cryptocurrency as halal was low and expressed by only a few. The analysis of the sentiment of all the platforms, except YouTube, showed that negative sentiment prevailed. Along with the sentiment of YouTube, negative sentiment prevailed to the extent that out of the total of 4,015 (73.59%), negative sentiment was recorded at 3,026 (55.46%), while positive sentiment was at 989 (18.13%). After YouTube, TikTok showed negative sentiment at 735 (13.47%), while positive sentiment was at 151 (2.77%). Instagram showed negative sentiment of 235 (4.31%), while positive sentiment was at 39 (0.71%). X also showed negative sentiment of

103 (1.89%), while positive sentiment was 60 (1.10%). While engagement on Twitter is at 4.57% (1456 sentiments), with 4.34% (1276 sentiments) of those being negative and 0.23% (70 sentiments) being positive, engagement on Facebook is at 2.16% (118 sentiments), with 1.80% (98 sentiments) of negative sentiments and 0.37% (20 sentiments) of positive sentiments.

The public is generally negative towards the halal status of cryptocurrency, since it is not in a physical form and, therefore, transactions are more speculative compared to an investment. There is also an element of instability in the value of cryptocurrencies, combined with a high risk of fraud and criminal activities. Also, the regulations of most Muslim-majority countries do not support crypto-based transactions. Most of the ULEMA (religious scholars) also do not support using cryptocurrencies for transactions or investments. Besides general public confusion about too many types of cryptocurrencies, all of them are perceived to be the same.

Discussion

The initial analysis from the word cloud shows that the negative terms dominantly describe social media users' perceptions about halal cryptocurrency. Terms such as 'haram' and 'lost' show that social media users feel that halal cryptocurrency does not conform to the Islamic principles of religion and finance (Siswantoro et al., 2020) because it exposes users to high risk and volatility (Khan, 2023). Current regulations about cryptocurrencies are also inadequate (Tauda et al., 2023) and, in the future, will be detrimental to users (Andrade & Newall, 2023). From the standpoint of financial, religious, social and economic criteria, this analysis shows that a halal view of cryptocurrencies is the most profound among these criteria.

Some social media users have begun to think about how halal cryptocurrency might operate inside the financial system, though most users have yet to accept it. This study finds that social media users' discussion of halal cryptocurrency reflects their concern for religious values. The presence of haram (1330), halal (991), and ustadz (521) indicates that social media users use religious values to understand halal cryptocurrency. The dominance of the Haram issue over the Halal issue indicates that some users do not have a proper understanding of halal cryptocurrency from a religious perspective (Khan, 2023). In addition, the terms halal and haram are cited through the explanations offered by ustadz in various social media videos. (Lupu & Donoiu, 2025; Nizzoli et al., 2020). Regarding bitcoin, social media users are also concerned because of its ease of use, growing investments, and its role as a modern payment system in various countries (Yoo et al., 2020). However, for Muslims, the use of Bitcoin is still a controversial issue (Baker & Semai, 2020). The Sankey chart illustrates that most Instagram users have negative sentiments when they regard cryptocurrency as being halal. Instagram has a large user base and allows users to post short and long videos. Users can also post pictures with descriptions. Because of these features, Instagram is better suited to influence its users' thought processes when interpreting a given theme based on norms, ethics, social and religious frameworks (Febrian, 2024). Facebook and X demonstrated that the predominance of negative sentiment was observed with a small stream, indicating user engagement was limited (Ahmadi et al., 2023).

Additionally, Facebook and X users preferred to engage with social concerns, as opposed to financial and technology concerns (Oz et al., 2024; Spiliotopoulos & Oakley,

2020). Negative sentiment distribution across all the platforms is dominated by Islamic content that is based on different aspects of cryptocurrency and related instruments. In addition, the sentiment stream is fractured, indicating that there is give-and-take, as evidenced by the distribution on YouTube and TikTok. YouTube has the ability to express sentiment about halal cryptocurrency more than other social media. This is due to the nature of video uploads, which each group of users, such as influencers, academics, financial practitioners, and even contemporary scholars, can use to post videos, thereby creating a lot of views for YouTube users when they criticize a conventional theme from a religious perspective (Chamadi et al., 2023). Moreover, social media users' perception of halal cryptocurrency is also based on investors' experience in using cryptocurrency tools (Hadan et al., 2024). Additionally, the live broadcast of the agreement among the ulema regarding the status of cryptocurrency is also an important aspect of the sentiment of social media users, where users will form polarised perceptions, either positive or negative, on the basis of the understanding that each of them has regarding the agreement.

The dominance of negative sentiment on TikTok can be attributed to its algorithm that makes certain viral content appear on users' homepages, or 'For You Pages' (FYP), and encourages engagement without consideration for the depth of financial and religious literacy. Likewise, negative sentiment is prevalent in the discourse surrounding halal cryptocurrency on Instagram, since the platform offers numerous features that incentivize public discourse among its users and, consequently, develop high critical power (Trifiro & Prena, 2021). Instagram is also noted for its ability to draw the interest of various generations of content creators (W. N. A. Rahman et al., 2022), thereby providing a wealth of content across numerous fields, including finance, investment, social, and religious studies (Kertamukti, 2022; Varni et al., 2024). Indeed, the use of cryptocurrencies, which are accepted as a means of payment and investment instruments whose existence and creation are dubious, can be deemed to have reached a level of prevalence. The sentiment analysis results have shown that there are very strong opinions for and against halal cryptocurrencies. First, cryptocurrencies present opportunities that did not previously exist for transactions and investments (Hossain, 2021; Titov et al., 2021). However, most users of social media have expressed their opinion that the use of cryptocurrencies is in violation of Sharia standards (Kirchner, 2020). In addition, the great majority of cryptocurrencies are highly volatile and are risky (Özdemir, 2022). Although some cryptocurrencies are considered stablecoins (Jarno & Kołodziejczyk, 2021; Kochergin, 2020), users of social media have been unable to accept this fact (Ferretti & Furini, 2024).

Additionally, cryptocurrencies have a negative connotation because they are primarily used for funding criminal activities (Anggriawan & Susila, 2024; Kethineni & Cao, 2020). However, several users of social media think that some cryptocurrencies can be used within the framework of Sharia, since there are such cryptocurrencies where the value is represented by real currency or commodity that can be physically traded (Iman & Samsuri, 2022; Podder, 2023). This expertise is limited to a small group of social media users who have a high level of knowledge of religion and finance. This study indicates that Aristotelian, rationalist, and constructivist theories, among others, cannot explain acceptance of halal cryptocurrencies. Theories of Planned Behaviour, Technology Acceptance Model, and Unified Theory of Acceptance and Use of Technology describe attitude toward behaviour, perceived subjective norms, perceived behavioural control, perceived ease of use, perceived usefulness, and other factors (Davis, 1989; Ajzen, 1985;

Venkatesh et al., 2003). Such theories do not incorporate religiosity (Ashraf, 2022; Bananuka et al., 2019), which, however, is critical in the evaluation of halal cryptocurrencies by the general public. Sholeh et al. (2022) state that the general public context and how scholars perceive the new concept is more important most of the time than the three aforementioned theories. Indeed, there exist several cryptocurrencies that have clear issuers, clear benefits, and/or underlying assets, a stable value, faster transactions, greater transparency, and are related to commodities, thus providing a strong basis for investment (Manzli, 2024; Trichilli & Boujelbène, 2022). Nonetheless, adherence to religious teachings is the main basis for the acceptance of any technology.

Conclusion

Users of social media concentrate on issues of a religious nature. Cryptocurrencies, money, haram, halal and gold dominate discourses. YouTube has the widest range of comments and the most distributed sentiment streams. There is a substantial difference in the sentiment analysis score across social media. Negative sentiment prevails, with a ratio of 3:1, over the positive sentiment of the public towards the halal cryptocurrency. The study recommends that this negative sentiment adds to the existing literature on Islamic marketing and finance. The negative sentiment is a consequence of the absence of legal clarity. Theoya Tismisani, who enforces the view that cryptocurrencies are neither halal nor haram, has been subject to criticism. There are no standards by which one can decide whether a cryptocurrency is halal or haram, which makes the understanding of such financial instruments ambiguous.

This study shows a theoretical contribution by stating that religiosity is important in the acceptance of Islamic finance products. New technology is more accepted when members of the public take into account not only attitudes and norms and the ease of use and benefits of the product, but also strictly follow religious teachings. Hence, religiosity can be incorporated into some of the models and theories, such as TPB, TAM, and UTAUT, in the prediction of new technology acceptance. In addition, the development of public trust in halal cryptocurrency is described as an issue. This is addressed by some educational activities that enhance Islamic digital financial literacy and encourage the public to participate. This study has some limitations due to the use of X, Instagram, Facebook, TikTok, and YouTube. Future studies can address these by including other reviews that are Google reviews of crypto exchange platforms. Some additional reviews can include cryptocurrencies that consider themselves to be halal and other platforms with customers all around the world to map the perception of halal cryptocurrency internationally.

Authors' Declaration

The authors made substantial contributions to the conception and design of the study. The authors took responsibility for data analysis, interpretation and discussion of results. The authors read and approved the final manuscript.

Conflict of Interest

The authors declare that they have no conflicts of interest related to the research, authorship, or publication of this article.

AI Use Declaration

Artificial intelligence (AI) tool was used solely to assist with language enhancement, including improving grammar, clarity, readability, and academic expression. AI tools were not used to generate, analyze, or interpret the research data, determine the findings, or make substantive research decisions. The authors remain fully responsible for the content, accuracy, interpretation, and conclusions of the manuscript.

Acknowledgements

The authors want to express sincere appreciation to Universitas Islam Negeri Maulana Malik Ibrahim Malang and the Faculty of Economics for their moral support and encouragement in publishing this research.

Funding

This work was supported by the Ministry of Religious Affairs and Universitas Islam Negeri Maulana Malik Ibrahim Malang through the LITAPDIMAS program (grant number: 887 of 2025), which provided financial support for this research.

ORCID

Ahmad Tibrizi Soni Wicaksono https://orcid.org/0000-0001-8643-1351
Umrotul Khasanah https://orcid.org/0000-0001-5412-5800
Alif Muhamad Anaksa Moreno https://orcid.org/0009-0008-6700-570X
Ade Suherlan https://orcid.org/0009-0006-0848-0012

References

a16zcrypto. (2025). *State of Crypto 2025*. https://dwt2zme5yrom6.cloudfront.net/uploads/2025/10/State-of-Crypto-2025-a16z-crypto.pdf

Abdeldayem, M. M., Al Dulaimi, S. H., & Al Dulaimi, F. H. (2021). A qualitative approach to evaluate the reconciliation of GOLDX and OneGram in Islamic Finance. *Zbornik Radova Ekonomskog Fakulteta u Rijeci: Časopis Za Ekonomsku Teoriju i Praksu/Proceedings of Rijeka Faculty of Economics: Journal of Economics and Business*, *39*(1), 113–134. https://doi.org/10.18045/zbefri.2021.1.113

Abu-Bakar, M. M. (2018). Shariah Analysis of Bitcoin, Cryptocurrency, and Blockchain. In *Blossom*. https://blossomfinance.com/bitcoin-working-paper

Ahmadi, I., Waltenrath, A., & Janze, C. (2023). Congruency and Users' Sharing on Social Media Platforms: A Novel Approach for Analysing Content. *Journal of Advertising*, *52*(3), 369–386. https://doi.org/10.1080/00913367.2022.2055683

Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behaviour. In *Action Control* (pp. 11–39). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-69746-3_2

Alipour, P., & Charandabi, S. E. (2023). Analyzing the Interaction between Tweet Sentiments

and Price Volatility of Cryptocurrencies. *European Journal of Business and Management Research*, *8*(2), 211–215. https://doi.org/10.24018/ejbmr.2023.8.2.1865

Alita, D., Priyanta, S., & Rokhman, N. (2019). Analysis of Emoticon and Sarcasm Effect on Sentiment Analysis of Indonesian Language on Twitter. *Journal of Information Systems Engineering and Business Intelligence*, *5*(2), 100. https://doi.org/10.20473/jisebi.5.2.100-109

Aloui, C., Hamida, H. ben, & Yarovaya, L. (2021). Are Islamic gold-backed cryptocurrencies different? *Finance Research Letters*, *39*, 101615. https://doi.org/10.1016/j.frl.2020.101615

An, J., Lee, C. C., & Kwak, N. (2023). A Study On Content Creator Competencies Influencing YouTube Channel Loyalty And Viewing Satisfaction. *Journal of Organisational Computing and Electronic Commerce*, *33*(1–2), 70–95. https://doi.org/10.1080/10919392.2023.2249785

Andrade, M., & Newall, P. W. S. (2023). Cryptocurrencies as Gamblified Financial Assets and Cryptocasinos: Novel Risks for a Public Health Approach to Gambling. *Risks*, *11*(3), 49. https://doi.org/10.3390/risks11030049

Anggriawan, R., & Susila, M. E. (2024). Cryptocurrency and its Nexus with Money Laundering and Terrorism Financing within the Framework of FATF Recommendations. *Novum Jus*, *18*(2), 249–277. https://doi.org/10.14718/NovumJus.2024.18.2.10

Antypas, D., Preece, A., & Camacho-Collados, J. (2023). Negativity spreads faster: A large-scale multilingual Twitter analysis on the role of sentiment in political communication. *Online Social Networks and Media*, *33*, 100242. https://doi.org/10.1016/j.osnem.2023.100242

Anwar, K., & Mujib, A. (2022). Islamic Faith-Based Content and Religious Social Media Motives. *Journal of Ethnic and Cultural Studies*, *9*(1), 19–38. https://doi.org/10.29333/ejecs/1024

Asare, A. O., Sarpong, E. O., Truong Holds, N., Osei-Bonsu, P., Ahado, S., & Mensah, W. G. (2023). COVID-19 pandemic and African innovation: Finding the good from the bad using Twitter data and a text mining approach. *International Social Science Journal*, *73*(250), 959–978. https://doi.org/10.1111/issj.12386

Ashraf, M. (2022). Theory of Islamic planned behaviour: applying to investors' Sukuk purchase intention. *Journal of Islamic Accounting and Business Research*, *14*. https://doi.org/10.1108/JIABR-03-2021-0096

Asyiqin, I. Z., Akbar, M. F., & Beltrán Genovés, M. (2024). Cryptocurrency as a Medium of Rupiah Exchange: Perspective of Sharia Islamic Law and Jurisprudential Analysis. *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 227–292. https://doi.org/10.24090/volksgeist.v7i2.10975

Atenstaedt, R. (2012). Word cloud analysis of the BJGP. *British Journal of General Practice*, *62*(596), 148–148. https://doi.org/10.3399/bjgp12X630142

Baker, M., & Semai, M. (2020). The Legal Cause of "Holding Value" and Its Impact on Islamic Provisions Regarding Virtual Currencies. *Religions*, *11*(7), 339. https://doi.org/10.3390/rel11070339

Bananuka, J., Kasera, M., Najjemba, G. M., Musimenta, D., Ssekiziyivu, B., & Kimuli, S. N. L. (2019). Attitude: mediator of subjective norm, religiosity and intention to adopt Islamic banking. *Journal of Islamic Marketing*, *11*(1), 81–96. https://doi.org/10.1108/JIMA-02-2018-0025

Bekiroğlu, A. M., El Amri, M. C., & Mohammed, M. O. (2025). Empirical validation of a framework for Fiqh analysis of crypto assets. *Qualitative Research in Financial Markets*, 1–26. https://doi.org/10.1108/QRFM-03-2025-0075

Bisht, S., & Parihar, T. S. (2023). Digital news platforms and mediatization of religion: Understanding the religious coverage in different 'News Frames.' *Comunicação Mídia e Consumo*, *20*(59). https://doi.org/10.18568/cmc.v20i59.2896

Boon-Itt, S., & Skunkan, Y. (2020). Public Perception of the COVID-19 Pandemic on Twitter: Sentiment Analysis and Topic Modelling Study. *JMIR Public Health and Surveillance*, *6*(4), e21978. https://doi.org/10.2196/21978

Boulianne, S., & Hoffmann, C. P. (2022). The Social, Civic, and Political Uses of Instagram in Four Countries. *Journal of Quantitative Description: Digital Media*, *2*, 30. https://doi.org/10.51685/jqd.2022.001

Chahooki, M. A. Z., Jahanbin, K., & Sutikno, T. (2023). Cryptocurrency investment framework using sentiment analysis of Twitter influencers. *Indonesian Journal of Electrical Engineering and Computer Science*, *30*(2), 1068. https://doi.org/10.11591/ijeecs.v30.i2.pp1068-1079

Chainalysis. (2025). *The 2025 Geography of Crypto Report: What regional trends reveal about what is next in crypto*. https://www.chainalysis.com/wp-content/uploads/2025/10/the-2025-geography-of-crypto-report-release.pdf

Chamadi, M. R., Kuntarto, K., Musmuallim, M., & Baedowi, M. (2023). The Phenomenon of Religious Activities in the Digital Era: Studies on Indonesian Students. *Al-Balagh : Jurnal Dakwah Dan Komunikasi*, *8*(1), 169–194. https://doi.org/10.22515/albalagh.v8i1.6215

Chandrasekaran, G., Antoanela, N., Andrei, G., Monica, C., & Hemanth, J. (2022). Visual Sentiment Analysis Using Deep Learning Models with Social Media Data. *Applied Sciences*, *12*(3), 1030. https://doi.org/10.3390/app12031030

Choi, M., Hong, Y., & Kwon, H. (2025). Identifying Instagram user profiles: Who uses Instagram to get current public issues? *Atlantic Journal of Communication*, *33*(2), 295–310. https://doi.org/10.1080/15456870.2024.2431288

Choi, N., & Kim, H. (2024). Decentralized Exchange Transaction Analysis and Maximal Extractable Value Attack Identification: Focusing on Uniswap USDC3. *Electronics*, *13*(6), 1098. https://doi.org/10.3390/electronics13061098

Cong, L. W., Li, X., Tang, K., & Yang, Y. (2023). Crypto Wash Trading. *Management Science*, *69*(11), 6427–6454. https://doi.org/10.1287/mnsc.2021.02709

Daana, A. A. N. N., & Yeşilada, F. (2025). Diffusion of Cryptocurrency Among Arab Adopters: How Are Digital Technostress, Ethical Concerns, and Government Regulations Interconnected? *Sage Open*, *15*(3). https://doi.org/10.1177/21582440251357552

Davis, F. D. (1989). Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, *13*(3), 319. https://doi.org/10.2307/249008

de-Córdoba, G. F., & Molinari, B. (2022). Sankey Diagrams for Macroeconomics: A Teaching Complement Bridging Undergraduate and Graduate Macro. *Heliyon*, *8*(9), e10717. https://doi.org/10.1016/j.heliyon.2022.e10717

DePaolo, C. A., & Wilkinson, K. (2014). Get Your Head into the Clouds: Using Word Clouds for Analysing Qualitative Assessment Data. *TechTrends*, *58*(3), 38–44. https://doi.org/10.1007/s11528-014-0750-9

Diaconaşu, D.-E., Mehdian, S., & Stoica, O. (2022). An analysis of investors' behaviour in the Bitcoin market. *PLOS ONE*, *17*(3), e0264522. https://doi.org/10.1371/journal.pone.0264522

Dizaji, A., & Dizaji, A. (2023). Feasibility of Spot Currency Trading Unified with Fiat Currencies and Its Challenges - An Educational Process for Stakeholders. *Conhecimento & Diversidade*, *15*(36), 306. https://doi.org/10.18316/rcd.v15i36.10797

Fad, M. F., & Imron, A. (2022). Halal Cryptocurrency Model Under the Maqashid Al-Shari'ah Scheme. *Journal of Islamic Economics Lariba*, *8*(1), 229–241. https://doi.org/10.20885/jielariba.vol8.iss1.art14

Faizi. (2023). Are Cryptocurrencies Haram? A Critical Analysis toward MUI's Fatwa. *AL-IHKAM: Jurnal Hukum & Pranata Sosial*, *18*(2), 420–442. https://doi.org/10.19105/al-lhkam.v18i2.8290

Febrian, H. (2024). Visualising Authority: Rise of the Religious Influencers on Instagram. *Social Media + Society*, *10*(4). https://doi.org/10.1177/20563051241286850

Ferretti, S., & Furini, M. (2024). Cryptocurrency Turmoil: Unravelling the Collapse of a Unified Stablecoin (USTC) through Twitter as a Passive Sensor. *Sensors*, *24*(4), 1270. https://doi.org/10.3390/s24041270

Floyd, C., Gulavani, S. S., Du, J., Kim, A. C. H., & Pappas, J. (2021). A Tale of Two Cities: COVID-19 and the Emotional Well-Being of Student-Athletes Using Natural Language Processing. *Frontiers in Sports and Active Living*, *3*(August), 1–7. https://doi.org/10.3389/fspor.2021.710289

Friese, S. (2012). Embarking on a journey – coding the data material. In *Qualitative Data Analysis with ATLAS.ti* (pp. 91–132). SAGE Publications Ltd. https://doi.org/10.4135/9781529799590.n6

Friese, S. (2021). *Atlas.ti Qualitative Data Analysis: User Manual*. ATLAS.ti Scientific Software Development GmbH.

Girsang, A. S., & Stanley. (2023). Hybrid LSTM and GRU for Cryptocurrency Price Forecasting Based on Social Network Sentiment Analysis Using FinBERT. *IEEE Access*, *11*, 120530–120540. https://doi.org/10.1109/ACCESS.2023.3324535

Gulseven, O., & Ekici, O. (2021). The role of real estate and gold as inflation hedges: the Islamic influence. *International Journal of Islamic and Middle Eastern Finance and Management*, *14*(2), 391–408. https://doi.org/10.1108/IMEFM-01-2019-0038

Hadan, H., Zhang-Kennedy, L., Nacke, L., & Mäkelä, V. (2024). Comprehending the Crypto-Curious: How Investors and Inexperienced Potential Investors Perceive and Practice Cryptocurrency Trading. *International Journal of Human–Computer Interaction*, *40*(19), 5675–5696. https://doi.org/10.1080/10447318.2023.2239556

Hannum, C., Arslanli, K. Y., & Kalay, A. F. (2019). Spatial analysis of Twitter sentiment and district-level housing prices. *Journal of European Real Estate Research*, *12*(2), 173–189. https://doi.org/10.1108/JERER-08-2018-0036

Hassan, M. K., Muneeza, A., & Mohamed, I. (2025). Cryptocurrencies from an Islamic perspective. *Journal of Islamic Accounting and Business Research*, *16*(2), 390–410. https://doi.org/10.1108/JIABR-09-2022-0238

Horta, N., Dias, R., Revez, C., Alexandre, P., & Heliodoro, P. (2022). Do cryptocurrencies and G7 capital markets integrate in periods of extreme volatility? *Journal of Process Management and New Technologies*, *10*(3–4), 121–130. https://doi.org/10.5937/jouproman2203121H

Hossain, M. S. (2021). What do we know about cryptocurrency? Past, present, future. *China Finance Review International*, *ahead-of-p*(ahead-of-print. https://doi.org/10.1108/CFRI-03-2020-0026

Ilk, N., & Fan, S. (2022). Combining Textual Cues with Social Clues : Utilizing Social Features to Improve Sentiment Analysis in Social Media. *Decision Sciences*, *53*(2), 320–347. https://doi.org/10.1111/deci.12490

Iman, A. K. N., & Samsuri, A. (2022). Cryptocurrency: Financial Risk And Shariah-Compliant Alternative Concept. *Equilibrium: Jurnal Ekonomi Syariah*, *10*(1), 109. https://doi.org/10.21043/equilibrium.v10i1.13278

Israni, A., Hui, J., & Dillahunt, T. R. (2023). Opportunities for Social Media to Support Aspiring Entrepreneurs with Financial Constraints. *Proceedings of the ACM on Human-Computer Interaction*, *7*(CSCW1), 1–27. https://doi.org/10.1145/3579619

Izadin, A. A. I., Mohd. Yusof, R., & Mazlan, A. R. (2025). The integration of Maqasid Shariah in evaluating stablecoins and traditional cryptocurrencies for Islamic portfolio diversification. *International Journal of Islamic and Middle Eastern Finance and Management*, *18*(3), 577–597. https://doi.org/10.1108/IMEFM-08-2024-0380

Jadeja, M., & Shah, K. (2015). Tree-map: A visualization tool for large data. *CEUR Workshop Proceedings*, *1393*(January 2015), 9–13.

Jaffar, S., Abdullah, A., & Meera, A. K. M. (2017). Fiat money: from the current Islamic finance scholars' perspective. *Humanomics*, *33*(3), 274–299. https://doi.org/10.1108/H-01-2017-0013

Jahanbin, K., Chahooki, M. A. Z., Yazdian-Dehkordi, M., & Rahmanian, F. (2024). Database comments on Telegram channels related to cryptocurrencies with sentiments. *BMC Research Notes*, *17*(1), 135. https://doi.org/10.1186/s13104-024-06778-9

Jailani, M. A. (2023). Crypto Assets: The Need for Shariah Screening Criteria for Digital Assets in Malaysia. *International Journal of Islamic Economics and Finance Research*, *1*, 27–47. https://doi.org/10.53840/ijiefer111

Jarno, K., & Kołodziejczyk, H. (2021). Does the Design of Stablecoins Impact Their Volatility? *Journal of Risk and Financial Management*, *14*(2), 42. https://doi.org/10.3390/jrfm14020042

Juisin, H. A., Mohd Sayuthi, M. A. S., Amin, H., & Shaikh, I. M. (2023). Determinants of Shari'ah gold investment behaviour: the case of Penang, Malaysia. *Journal of Islamic Marketing*, *14*(12), 3228–3246. https://doi.org/10.1108/JIMA-11-2021-0360

Jun, S.-H. (2022). Why Do People Post Photos on Instagram? *Sustainability*, *14*(19), 12648. https://doi.org/10.3390/su141912648

Kertamukti, R. (2022). Instagram Religious Moderation Dialogue Space for Generation Z. *Nyimak: Journal of Communication*, *6*(2), 229. https://doi.org/10.31000/nyimak.v6i2.6670

Kethineni, S., & Cao, Y. (2020). The Rise in Popularity of Cryptocurrency and Associated Criminal Activity. *International Criminal Justice Review*, *30*(3), 325–344. https://doi.org/10.1177/1057567719827051

Khan, S. N. (2023). The legality of cryptocurrency from an Islamic perspective: a research note. *Journal of Islamic Accounting and Business Research*, *14*(2), 289–294. https://doi.org/10.1108/JIABR-02-2022-0041

Khasanah, U., Wicaksono, A. T. S., & Rahmawati, A. (2025). Ijarah Asset Contract: A Product Innovation for Islamic Microfinance. *Jurnal Ekonomi Dan Bisnis Islam (Journal of Islamic Economics and Business)*, *11*(1). https://doi.org/10.20473/jebis.v11i1.68167

Kinateder, H., & Choudhury, T. (2022). Guest editorial: Cryptocurrencies: current trends

and future perspectives. *Studies in Economics and Finance*, *39*(3), 345–346. https://doi.org/10.1108/SEF-06-2022-522

Kirchner, I. K. F. (2020). Are Cryptocurrencies ḥalāl? On the Sharia-Compliance of Blockchain-Based Fintech. *Islamic Law and Society*, *28*(1–2), 76–112. https://doi.org/10.1163/15685195-BJA10005

Kochergin, D. A. (2020). Economic Nature and Classification of Stablecoins. *Finance: Theory and Practice*, *24*(6), 140–160. https://doi.org/10.26794/2587-5671-2020-24-6-140-160

Lee, M. J., Lee, T. R., Lee, S. J., Jang, J. S., & Kim, E. J. (2020). Machine Learning-Based Data Mining Method for Sentiment Analysis of the Sewol Ferry Disaster's Effect on Social Stress. *Frontiers in Psychiatry*, *11*. https://doi.org/10.3389/fpsyt.2020.505673

Lee, N. (2023). The Relationship between a Company's Cryptocurrency Holdings and Its Sustainable Performance—With a Focus on External and Internal Financial Issues and Cash. *Sustainability*, *15*(23), 16188. https://doi.org/10.3390/su152316188

Letho, L., Chelwa, G., & Alhassan, A. L. (2022). Cryptocurrencies and portfolio diversification in an emerging market. *China Finance Review International*, *12*(1), 20–50. https://doi.org/10.1108/CFRI-06-2021-0123

Li, T. R., Chamrajnagar, A. S., Fong, X. R., Rizik, N. R., & Fu, F. (2019). Sentiment-Based Prediction of Alternative Cryptocurrency Price Fluctuations Using Gradient Boosting Tree Model. *Frontiers in Physics*, *7*. https://doi.org/10.3389/fphy.2019.00098

Lim, H., & Childs, M. (2020). Visual storytelling on Instagram: branded photo narrative and the role of telepresence. *Journal of Research in Interactive Marketing*, *14*(1), 33–50. https://doi.org/10.1108/JRIM-09-2018-0115

Long, L. K., Hui, L. C., Fook, G. Y., & Wan Zainon, W. M. N. (2017). A Study on the Effectiveness of Tree-Maps as Tree Visualisation Techniques. *Procedia Computer Science*, *124*, 108–115. https://doi.org/10.1016/j.procs.2017.12.136

Lupu, R., & Donoiu, P. C. (2025). Sentiment Matters for Cryptocurrencies: Evidence from Tweets. *Data*, *10*(4), 50. https://doi.org/10.3390/data10040050

Malli, G. (2024). Guiding the Pious Self: Morality and Affect in Muslim Instructional YouTube Videos. *Journal of Religion, Media and Digital Culture*, *13*(2), 198–221. https://doi.org/10.1163/21659214-13021250

Mancini, C. (2024). From Likes to Losses: A Call for Regulatory Action in the Domain of Social Media and Cryptocurrency. *University of Pittsburgh Law Review*, *85*(4). https://doi.org/10.5195/lawreview.2024.1022

Manzli, Y. S. (2024). Connectedness Between Gold-Backed Cryptocurrencies and the G7 Stock Market Indices During Global Crises: Evidence From the Quantile Vector Autoregression Approach. *Journal of Alternative Finance*, *1*(2), 131–157. https://doi.org/10.1177/27533743241259496

Mao, X., Chang, S., Shi, J., Li, F., & Shi, R. (2019). Sentiment-Aware Word Embedding for Emotion Classification. *Applied Sciences*, *9*(7), 1334. https://doi.org/10.3390/app9071334

McPhilemy, S., & Moschella, M. (2019). Central banks under stress: Reputation, accountability and regulatory coherence. *Public Administration*, *97*(3), 489–498. https://doi.org/10.1111/padm.12606

Mnif, E., & Jarboui, A. (2022). Resilience of Islamic cryptocurrency markets to Covid-19 shocks and the Federal Reserve policy. *Asian Journal of Accounting Research*, *7*(1), 59–70. https://doi.org/10.1108/AJAR-01-2021-0004

Möller, A. M., Vermeer, S. A. M., & Baumgartner, S. E. (2024). Cutting Through the

Comment Chaos: A Supervised Machine Learning Approach to Identifying Relevant YouTube Comments. *Social Science Computer Review*, *42*(1), 162–185. https://doi.org/10.1177/08944393231173895

Muneeza, A., Bin-Nashwan, S. A., Abdel Moshin, M. I., Mohamed, I., & Al-Saadi, A. (2023). Zakat payment from cryptocurrencies and crypto assets. *International Journal of Islamic and Middle Eastern Finance and Management*, *16*(3), 482–497. https://doi.org/10.1108/IMEFM-12-2021-0487

Musleh, D. A., Alkhwaja, I., Alkhwaja, A., Alghamdi, M., Abahussain, H., Alfawaz, F., Min-Allah, N., & Abdulqader, M. M. (2023). Arabic Sentiment Analysis of YouTube Comments: NLP-Based Machine Learning Approaches for Content Evaluation. *Big Data and Cognitive Computing*, *7*(3), 127. https://doi.org/10.3390/bdcc7030127

Mustafa, Khan, S., & Eleftherios. (2020). FinTech, Blockchain and Islamic Finance: An Extensive Literature Review. *International Journal of Economics and Business Administration*, *VIII*(Issue 2), 65–86. https://doi.org/10.35808/ijeba/444

Nabeel, M., & Sumathy, M. (2023). Cryptocurrency: An Islamic Finance Perspective. *Al-Muhasib: Journal of Islamic Accounting and Finance*, *3*(1), 55–69. https://doi.org/10.30762/almuhasib.v3i1.237

Naz, S. (2024). Examining the Adoptability of Cryptocurrency in the Islamic Financial System: Perspectives from Sharīʿah Scholars. *Journal of King Abdulaziz University: Islamic Economics*, *37*(2), 75–98. https://doi.org/10.4197/Islec.37-2.4

Nizzoli, L., Tardelli, S., Avvenuti, M., Cresci, S., Tesconi, M., & Ferrara, E. (2020). Charting the Landscape of Online Cryptocurrency Manipulation. *IEEE Access*, *8*, 113230–113245. https://doi.org/10.1109/ACCESS.2020.3003370

Öget, E. (2022). The Effect of Positive and Negative Events on Cryptocurrency Prices. *Ekonomi, Politika & Finans Araştırmaları Dergisi*, *7*(1), 16–31. https://doi.org/10.30784/epfad.1011204

Olorogun, L., & Abdul Aziz, A. (2021). Critical Evaluation of the Contemporary Scholars' Fatwas on Substitution of Gold Dinar for Banknotes. *International Journal of Islamic Thought*, *20*. https://doi.org/10.24035/ijit.20.2021.215

Othman, A. H. A., Alhabshi, S. M., Kassim, S., & Sharofiddin, A. (2019). The impact of cryptocurrency market development on banks' deposit variability in the GCC region. *Journal of Financial Economic Policy*, *12*(2), 161–184. https://doi.org/10.1108/JFEP-02-2019-0036

Oz, M., Shahin, S., & Greeves, S. B. (2024). Platform affordances and spiral of silence: How perceived differences between Facebook and Twitter influence opinion expression online. *Technology in Society*, *76*, 102431. https://doi.org/10.1016/j.techsoc.2023.102431

Özdemir, O. (2022). Cue the volatility spillover in the cryptocurrency markets during the COVID-19 pandemic: evidence from DCC-GARCH and wavelet analysis. *Financial Innovation*, *8*(1), 12. https://doi.org/10.1186/s40854-021-00319-0

Pandey, K. K., Thorat, M., Joshi, A. D. S., Hussein, A., & Alazzam, M. B. (2023). Natural Language Processing for Sentiment Analysis in Social Media Marketing. *2023 3rd International Conference on Advanced Computing and Innovative Technologies in Engineering (ICACITE)*, 326–330. https://doi.org/10.1109/ICACITE57410.2023.10182590

Paramole, K. O., & Sanni, M. O. (2022). Islamic Legislation on Wealth Acquisition: A Critical Examination of Cryptocurrency. *Millah: Journal of Religious Studies*, *21*(3), 771–796. https://doi.org/10.20885/millah.vol21.iss3.art6

Parnes, D., & Parnes, S. S. (2025). Terrorism financing and cryptocurrencies. *Journal of Financial Economic Policy*, 1–48. https://doi.org/10.1108/JFEP-07-2025-0277

Perepelitsa, D. G., Galanov, V. A., Galanova, A. V., Badalov, A., & Markov, M. A. (2018). Cryptocurrencies on the Eeu Market. *International Journal of Engineering & Technology*, *7*(3.14), 398. https://doi.org/10.14419/ijet.v7i3.14.17033

Podder, B. (2023). Cryptocurrency and central bank digital currency: an insight from the regulatory perspective. *International Journal of Financial Studies, Economics and Management*, *2*(3), 25–35. https://doi.org/10.61549/ijfsem.v2i3.116

Qureshi, K., & Zaman, T. (2023). Social media engagement and cryptocurrency performance. *PLOS ONE*, *18*(5), e0284501. https://doi.org/10.1371/journal.pone.0284501

Rahbari, L. (2025). 'Zionism as the Legacy of Cyrus': (Online) Proxy Nationalism of Diasporic Iranians. *Nations and Nationalism*, *31*(4), 907–917. https://doi.org/10.1111/nana.13103

Rahman, M. R., Naeem, M. A., Yarovaya, L., & Mohapatra, S. (2024). Unravelling systemic risk commonality across cryptocurrency groups. *Finance Research Letters*, *65*, 105633. https://doi.org/10.1016/j.frl.2024.105633

Rahman, W. N. A., Mutum, D. S., & Ghazali, E. M. (2022). Consumer Engagement With Visual Content on Instagram. *International Journal of E-Services and Mobile Applications*, *14*(1), 1–21. https://doi.org/10.4018/IJESMA.295960

Rangarjan, P. K., Gurusamy, B. Mohan, Muthurasu, G., Mohan, R., Pallavi, G., Vijayakumar, S., & Altalbe, A. (2024). The social media sentiment analysis framework: deep learning for sentiment analysis on social media. *International Journal of Electrical and Computer Engineering (IJECE)*, *14*(3), 3394. https://doi.org/10.11591/ijece.v14i3.pp3394-3405

Ranjan, M., Tiwari, S., Sattar, A. M., & Tatkar, N. S. (2024). A New Approach for Carrying Out Sentiment Analysis of Social Media Comments Using Natural Language Processing. *RAiSE-2023*, 181. https://doi.org/10.3390/engproc2023059181

Rapi, M. Z. H., Hanif, M. F., Rohman, G. D., & Siraj, M. A. (2025). Decentralized finance (DeFi) for financial institutions: A sentiment analysis and Islamic perspective. *Journal of Islamic Marketing*, 1–23. https://doi.org/10.1108/JIMA-08-2024-0393

Riehmann, P., Hanfler, M., & Froehlich, B. (2005). Interactive Sankey diagrams. *IEEE Symposium on Information Visualisation, 2005. INFOVIS 2005.*, 233–240. https://doi.org/10.1109/INFVIS.2005.1532152

Rizki, J. (2023). Social Media Sentiment Analysis to Understand Agricultural Market Trends and Consumer Preferences. *Jurnal Minfo Polgan*, *12*(2), 1734–1743. https://doi.org/10.33395/jmp.v12i2.12970

Roaché, D. J. (2017). Intercoder Reliability Techniques: Per cent Agreement. In *The SAGE Encyclopedia of Communication Research Methods*. SAGE Publications, Inc. https://doi.org/10.4135/9781483381411.n260

Rusmita, S. A., Filianti, D., Mayasani, E. N., & Samad, K. A. (2024). Gold characteristics as a haven and asset diversification for Sharia stocks in Indonesia. *Journal of Islamic Accounting and Business Research*. https://doi.org/10.1108/JIABR-11-2021-0302

Saldana, J. (2013). *The Coding Manual for Qualitative Researchers* (J. Seaman (ed.); Second Edi). SAGE Publications Ltd.

Santoveña-Casal, S., Gil-Quintana, J., & Ramos, L. (2021). Digital citizens' feelings in national # Covid-19 campaigns in Spain. *Heliyon*, *7*(10), e08112. https://doi.org/10.1016/j.heliyon.2021.e08112

Schafer, J. S., Denton, A., Seelhoff, C., Vo, J., Garcia, L., Madan, I., Mudbhary, A., Tang, R., & Starbird, K. (2025). "I Blow Up": Understanding TikTok Users' Reactions to Sudden Social Media Attention. *Proceedings of the ACM on Human-Computer Interaction*, *9*(2), 1–31. https://doi.org/10.1145/3711001

Selcuk, M., & Kaya, S. (2021). A Critical Analysis of Cryptocurrencies from an Islamic Jurisprudence Perspective. *Turkish Journal of Islamic Economics*, *8*(1), 137–152. https://doi.org/10.26414/A130

Sholeh, M. A. N., Faiz, M. F., & Anwar, M. M. (2022). A Critical Analysis of Islamic Law and Fatwa of MUI (Majelis Ulama Indonesia) & NU (Nahdlatul Ulama) on A Gold-Backed Cryptocurrency (OneGram). *AL-IHKAM: Jurnal Hukum & Pranata Sosial*, *17*(2), 506–530. https://doi.org/10.19105/al-lhkam.v17i2.6511

Siswantoro, D., Handika, R., & Mita, A. F. (2020). The requirements of cryptocurrency for money: an Islamic view. *Heliyon*, *6*(1), e03235. https://doi.org/10.1016/j.heliyon.2020.e03235

Soratto, J., Pires, D. E. P. de, Trindade, L. L., Oliveira, J. S. A. de, Forte, E. C. N., & Melo, T. P. de. (2017). Thematic content analysis using ATLAS.ti software: Potentialities for research in health. *Texto & Contexto - Enfermagem*, *26*(3). https://doi.org/10.1590/0104-07072017002500016

Spiliotopoulos, T., & Oakley, I. (2020). An exploration of motives and behaviour across Facebook and Twitter. *Journal of Systems and Information Technology*, *22*(2), 201–222. https://doi.org/10.1108/JSIT-12-2019-0258

Stetsenko, B., Babiak, N., & Haponiuk, M. (2023). Innovation and knowledge coordinates of modern financial market development. *Ukrainian Journal of Applied Economics and Technology*, *8*(4), 189–193. https://doi.org/10.36887/2415-8453-2023-4-30

Sukumaran, S., Bee, T. S., & Wasiuzzaman, S. (2022). Cryptocurrency as an Investment: The Malaysian Context. *Risks*, *10*(4), 86. https://doi.org/10.3390/risks10040086

Tabares, L. (2019). Professional Amateurs: Asian American Content Creators in YouTube's Digital Economy. *Journal of Asian American Studies*, *22*(3), 387–417. https://doi.org/10.1353/jaas.2019.0029

Tauda, G. A., Omara, A., & Arnone, G. (2023). Cryptocurrency: Highlighting the Approach, Regulations, and Protection in Indonesia and the European Union. *BESTUUR*, *11*(1 (August)), 1. https://doi.org/10.20961/bestuur.v11i1.67125

Teichmann, F. M. J. (2018). Financing terrorism through cryptocurrencies – a danger for Europe? *Journal of Money Laundering Control*, *21*(4), 513–519. https://doi.org/10.1108/JMLC-06-2017-0024

Thakur, D. N. S. (2025). The Role of Social Media in Shaping Personal Finance Habits. *International Scientific Journal of Engineering and Management*, *04*(06), 1–9. https://doi.org/10.55041/ISJEM04387

Titov, V., Uandykova, M., Litvishko, O., Kalmykova, T., Prosekov, S., & Senjyu, T. (2021). Cryptocurrency Open Innovation Payment System: Comparative Analysis of Existing Cryptocurrencies. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(1), 102. https://doi.org/10.3390/joitmc7010102

Trichilli, Y., & Boujelbène, M. (2022). Regime-Specific Spillover Between Dow Jones Islamic Market World Index, Islamic Gold-Backed Crypto Currencies and the Blockchain Halal Index. *International Journal of Islamic and Middle Eastern Finance and Management*, *16*(3), 464–481. https://doi.org/10.1108/imefm-09-2021-0395

Trifiro, B. M., & Prena, K. (2021). Active Instagram use and its association with self-esteem and well-being. *Technology, Mind, and Behaviour*, *2*(3), 1–5. https://doi.org/10.1037/tmb0000043

Varni, A., Thai, C. L., & Jamaleddine, S. (2024). Using an Instagram campaign to influence knowledge, subjective norms, perceived behavioural control, and behavioural intentions for sustainable behaviours. *Frontiers in Psychology*, *15*. https://doi.org/10.3389/fpsyg.2024.1377211

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User Acceptance of Information Technology: Toward A Unified View. *MIS Quarterly*, *27*(3), 425–478. https://doi.org/10.2307/30036540

Verma, B., & Thakur, R. S. (2018). *Sentiment Analysis Using Lexicon and Machine Learning-Based Approaches: A Survey* (pp. 441–447). https://doi.org/10.1007/978-981-10-8198-9_46

Visa's Global Crypto & Fintech. (2025). *The Crypto Phenomenon: Consumer Attitudes & Usage*. https://usa.visa.com/dam/VCOM/regional/na/us/Solutions/documents/the-crypto-phenomenon-technical-paper.pdf

Wardoyo, Y. P., & Hapsari, D. R. I. (2023). Cryptocurrency assets as physical collateral in Indonesia. *Legality : Jurnal Ilmiah Hukum*, *31*(1), 59–71. https://doi.org/10.22219/ljih.v31i1.24190

We Are Social. (2024). *Digital 2024: Global Overview Report*. https://datareportal.com/social-media-users

White, R., Marinakis, Y., Islam, N., & Walsh, S. (2020). Is Bitcoin a currency, a technology-based product, or something else? *Technological Forecasting and Social Change*, *151*(November 2019), 119877. https://doi.org/10.1016/j.techfore.2019.119877

Wicaksono, A. T. S., Mufraini, A., Miranti, T., & Muttaqien, M. K. (2023). Bitcoin vs Gold: Which One is the Most Powerful in Boosting the Shariah Equity Index? Global Evidence. *Studies in Business and Economics*, *18*(1), 5–36. https://doi.org/10.2478/sbe-2023-0001

Wicaksono, A. T. S., & Soetjipto, B. E. (2025). Uncovering the Perception of Digital Gold as Islamic Investment. *Maliki Islamic Economics Journal*, *5*(1), 17–38. https://doi.org/10.18860/miec.v5i1.33080

Wicaksono, A. T. S., & Sudarmiatin, S. (2025). Social Media Sentiment Analysis: Customer Perception of Digital Marketing. *Asian Journal of Applied Business and Management*, *4*(2), 437–450. https://doi.org/10.55927/ajabm.v4i2.187

Wiwoho, J., Trinugroho, I., Kharisma, D. B., & Suwadi, P. (2024). Islamic crypto assets and regulatory framework: evidence from Indonesia and global approaches. *International Journal of Law and Management*, *66*(2), 155–171. https://doi.org/10.1108/IJLMA-03-2023-0051

Yamin, R., Arshed, N., & Aslam, E. (2024). Asset-Based Money Systems in a Global Context: Implications for Social Inclusion and Economic Development. *International Journal of Management Research and Emerging Sciences*, *14*(1). https://doi.org/10.56536/ijmres.v14i1.539

Yoo, K., Bae, K., Park, E., & Yang, T. (2020). Understanding the diffusion and adoption of Bitcoin transaction services: The integrated approach. *Telematics and Informatics*, *53*, 101302. https://doi.org/10.1016/j.tele.2019.101302

Yu, W., Chen, N., & Chen, J. (2022). Characterizing Chinese online public opinions towards the COVID-19 recovery policy. *The Electronic Library*, *40*(3), 140–159.

https://doi.org/10.1108/EL-09-2021-0174

Zhang, M., & Liu, Y. (2021). A commentary on TikTok recommendation algorithms in MIT Technology Review 2021. *Fundamental Research*, *1*(6), 846–847. https://doi.org/10.1016/j.fmre.2021.11.015

Zhou, J., Yang, S., Xiao, C., & Chen, F. (2021). Examination of Community Sentiment Dynamics due to COVID-19 Pandemic: A Case Study from a State in Australia. *SN Computer Science*, *2*(3), 201. https://doi.org/10.1007/s42979-021-00596-7