A Sentiment Analysis on Bitcoin

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The purpose of this study is to analyze the sentiment generated from researchers' opinions through published articles related to bitcoin. Bitcoin is related to financial operations, online monetary transactions, electronic transactions, financial control, electronic payments and electronic money. Others, bitcoin is an electronic payment tool with a peer-to-peer concept that allows users to transact with each other without the intermediary of financial institutions. The data analyzed consisted of 99 research articles indexed by Scopus in 2022. The method used is a qualitative approach with descriptive statistics from the study of bitcoin-themed literature. The results showed that neutral sentiment was the highest result with a percentage of 48% followed by negative sentiment of 23%, positive sentiment 22%, high positive sentiment 4%, and high negative sentiment 3%. The diversity of sentiment results is obtained because of the pros and cons of bitcoin's existence.

Keywords: Bitcoin, Sentiment, Cryptocurrency

INTRODUCTION

In this modern era, the emergence of advanced technology in transactions in all fields has attracted the attention of many people. The first is the sophistication of buying and selling transactions using the internet. The many conveniences offered by the online world make people feel spoiled by technology. With the development of online transactions or digital transactions in this modern era, a digital currency called bitcoin has emerged.

Since 2008, the number of new virtual currencies, as well as the consumer base and frequency of transactions, have all increased dramatically. However, policymakers, economists and entrepreneurs face significant difficulties and opportunities as a result of monetary market turmoil. The evolution also requires stakeholders to reconsider their basic assumptions about the capabilities that money should have. The first step in any analysis is to determine the type of financial asset bitcoin is, as this will determine what position it plays in the market.

Scholars and practitioners have classified bitcoin as a currency in terms of value, using various words to describe the type of currency. Terms used in bitcoin-related literature include virtual cryptography, digital, private, online, or electronic currency (Dyhrberg, 2016). Others associate it with money or a type of money, such as digital money (Baur et al., 2018). Others associate it with money or a type of money, such as digital money (Baur et al., 2018), information commodities as money or units of value, units of account, or means of trade (Bojanova, 2014). Because it has no real counterpart to the status of a legal currency, its market price or value varies widely (Böhme et al., 2015).

Bitcoin has also been considered a software application or technology. Bitcoin is related to financial operations, online monetary transactions, electronic transactions, financial control, electronic payments and electronic money (Bouri et al., 2017). Others, bitcoin is an electronic payment tool with a peer-to-peer concept that allows users to transact with each other without the intermediary of financial institutions. It is also known as a blockchain-based open-source software platform (Karalevicius, 2018). However, bitcoin can also be stored as an asset. The number of potential users and investors will determine the high value of the virtual currency as a means of exchange. Whether bitcoin is a currency or a financial asset, its influence on economic development still depends on the development of bitcoin or other similar virtual currencies. Baur, et al (2017) found that bitcoin is currently used more as an investment because its valuation is still unstable.

Despite its extreme volatility, few researchers have studied Bitcoin or attempted to explain its price movements. Researchers have recently looked at Bitcoin's volatility and market microstructure (Urquhart, 2016), as well as how the introduction of Bitcoin Futures or other cryptocurrencies has affected Bitcoin's value (Dyhrberg, 2016). (Dyhrberg, 2016). Economists are interested in Bitcoin because it is virtual money that has the potential to disrupt established payment and monetary systems. Even at this early stage, virtual currencies provide a wealth of information regarding market design and the behavior of buyers and sellers. The pros and cons of using bitcoin as a transaction tool do not only occur in Indonesia, but also in other countries. Bitcoin is not a currency issued by the state and is not governed by regulations from any financial institution. In terms of form, bitcoin is not in the form of coins, paper, gold or silver.

The use of bitcoin as a currency is also interesting to review from an Islamic perspective. Phenomena in the economic sphere must certainly be followed by conformity to Islamic law because they relate to *muamalah* among humans. (Fitriani, 2018). As explained in the Qur'an, Allah says: "then We made you on a law (regulation) of affairs (religion), so follow that law and do not follow the lusts of those who do not know" (QS. Al-Jaasiyah: 18).

Bitcoin analysis has recently received a lot of attention. This is due to its revolutionary features, simplicity, transparency and growing popularity (Urquhart, 2016), while it has presented significant challenges and opportunities for policymakers, economists, entrepreneurs and consumers since its inception (Dyhrberg, 2016b). Bitcoin is a successful virtual currency scheme that is also seen as controversial today (ECB, 2012, p. 21). This study aims to analyze the sentiment generated from researchers' opinions through published articles related to bitcoin. The data analyzed consists of 99 research articles indexed by Scopus in 2022. The data will be processed and analyzed using SentiStrength software to determine the sentiment value related to bitcoin.

LITERATURE REVIEW

Bitcoin is the first digital currency and has no physical form. It works on a peer-to-peer concept. The currency was first introduced in 2009 by a person using

the pseudonym Satoshi Nakamoto. The specialty of bitcoin is confidentiality, as there is no central bank that regulates the functioning or transactions involving bitcoin. All transactions are recorded in a system called "blockchain" and verified by "nodes". (Jain, 2019).

The nature of bitcoin exchange is different from traditional money. About one-third of bitcoins are held by investors, while a minority use bitcoins as a medium of exchange. This implies that bitcoins are currently used for investment purposes and not for currency transactions. However, if the acceptance of bitcoin and virtual currencies increases significantly at the global level, it could affect the value of fiat currencies and change the relevance of monetary policy (Baur, et al., 2017).

Compared to conventional payment systems, Bitcoin has no governance structure other than its software. There are several implications for the functioning of the system. First, Bitcoin does not require any financial institutions, payment processes, or other intermediaries to confirm the identity of users or check restricted lists or countries. Second, Bitcoin does not prohibit the sale of certain items; for example, credit cards typically do not allow all unlawful transactions at the point of sale. Finally, bitcoins already paid cannot be refunded because there is no way in the protocol for the payer to reverse an accidental or unwanted purchase, whereas other payment platforms, such as credit cards, already include such procedures. This design concept was created intentionally with the aim of siloing the bitcoin platform and reducing the presence of intermediaries in transactions, although it may raise concerns among users (Böhme, et al., 2015).

In Huwaida and Hidajat's research (2020) explains how the bitcoin mechanism is obtained. Bitcoin is obtained by mining, exchanging, and providing bitcoin. This mining mechanism is quite complicated because miners must solve the algorithm in a limited time. If miners can solve the algorithm, they will get a reward in the form of bitcoin. The second way to get Bitcoin is through exchanges. Bitcoin exchange is an easy way. The buying and selling of Bitcoin is done through online exchanges. In Indonesia, buying and selling Bitcoin and other cryptocurrencies can be done through Indodax. The third way is through a bitcoin provider. Some sites provide Bitcoin for free, by fulfilling specific tasks or requirements, such as watching advertisements, answering surveys to download applications.

When viewed in terms of shar'i law, as an investment instrument and business transaction, bitcoin contains maysir (gambling / betting). It is said to be maysir because in it there is high speculation and is luck so that Bank Indonesia calls it a gambling transaction. This is heavier than playing foreign exchange, because in foreign exchange there is an underlaying asset and there is a guarantor authority institution. From the explanation above, the use of bitcoin as an investment instrument is haram lighairihi, or haram because of external factors (gharar and maysir). (Ausop & Aulia, 2018).

Research conducted by Fitriani (2018) suggests that the implications of bitcoin for financial regulation in Indonesia are illegal actions when transactions such as money laundering due to high speculation. The absence of an authority that oversees bitcoin requires users to be more careful so as not to suffer losses. In addition, in sharia, the madharat of bitcoin is greater than the benefits considering that first the value of bitcoin tends to fluctuate. The second contains speculative elements, the third money must have an underlaying asset to be used as a basis for transactions, and the fourth is a large systemic risk.

METHODOLOGY

This study uses data in the form of 99 research articles published in 2022. All of these articles are bitcoin-themed and indexed by Scopus. The method used is a qualitative approach with descriptive statistics from the study of bitcoin-themed literature.

The approach used in this research is sentiment analysis or opinion development. Sentiment analysis is a commonly used research to measure public sentiment about a theme. Sentiment analysis is a branch of research that began to be widely used in early 2002. Sentiment analysis is a commonly used research to measure public sentiment on a theme. Researchers use SentiStrength software which is widely used in sentiment analysis research.

Sentiment analysis, also known as opinion mining, is a natural language processing technique used to determine the sentiment or opinion expressed in a piece of text. It involves analyzing and identifying the subjective information conveyed within the text to categorize it as positive, negative, or neutral.

It's worth noting that sentiment analysis may not always be perfectly accurate, as language is nuanced and context-dependent. Ambiguity, sarcasm, irony, and cultural nuances can make it challenging for algorithms to accurately interpret sentiment in some cases.

Therefore, continuous refinement and improvement of algorithms are essential in enhancing the accuracy of sentiment analysis systems.

RESULT AND DISCUSSION

Meta Analysis

This section discusses the number of article publications used for analysis in this study. The data consists of 99 Bitcoin-themed articles. All articles were published in 2022 and indexed by Scopus. They are articles published by reputable authors and journals.

Sentiment Analysis

This research tries to analyze sentiment in the publication of articles that discuss bitcoin. Sentiment analysis is research that aims to determine public sentiment on a theme. This research was conducted with the help of SentiStrength *software* as a tool for processing data from scopus indexed journals. The results of this analysis are classified into 5 levels, namely: high positive (very good), positive (good), neutral (neutral), negative (bad), high negative (very bad). The results of sentiment analysis on the bitcoin theme can be seen in the following figure.
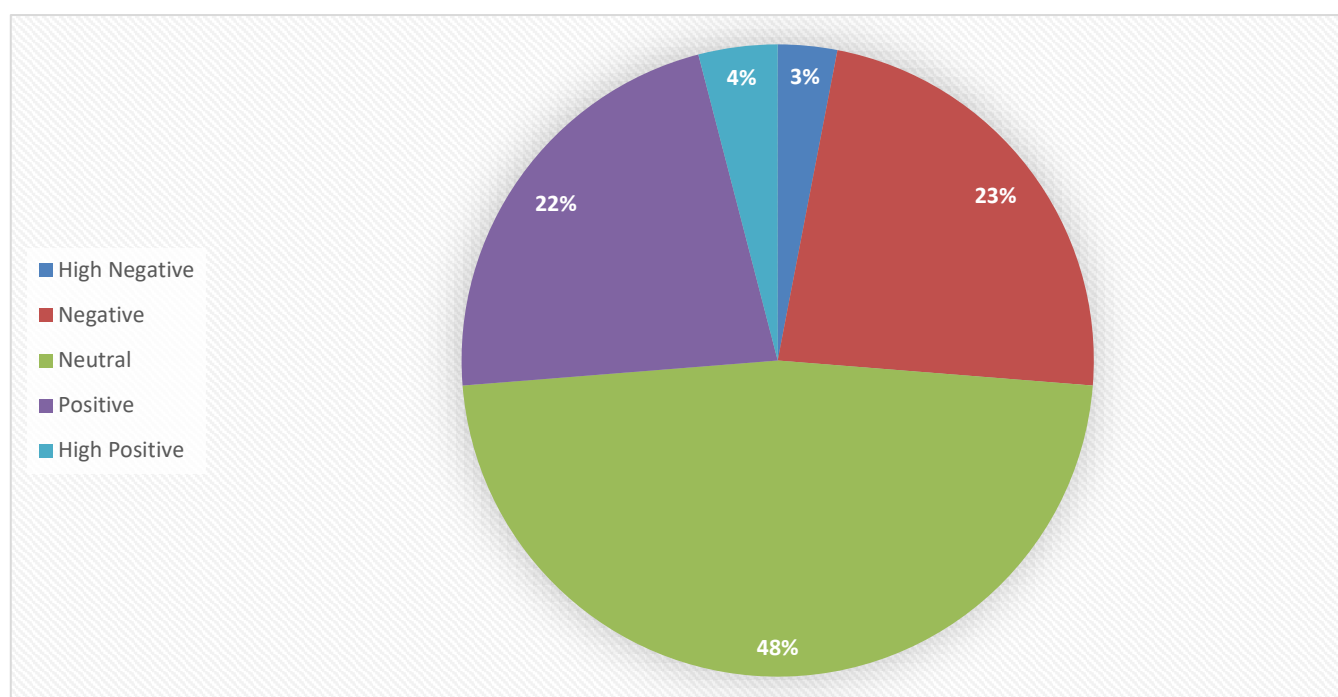

Figure 1. Sentiment analysis

From the diagram above, the existence of Scopus indexed bitcoin articles in 2022 is quite a lot. The article produces a variety of sentiments. Based on the type, for the very good category (high positive) as much as 4%, then the positive category as much as 22%, neutral as much as 48%, negative as much as 23%, and high negative as much as 3%.

Sentiment results are obtained from the researchers' opinion statements written in their research. Then each word from the writing is grouped and scored using SentiStrength *software* with the results of the level from very negative (-5) to very positive (5). A score of 0 is interpreted as neutral. Positive sentiment is a result that shows the positive opinion of researchers in responding to bitcoin by supporting the

development of bitcoin. While negative sentiment is the negative opinion of researchers who criticize the development of bitcoin.

The data above shows that most researchers have more neutral sentiments in responding to the existence of bitcoin. The sentiment with the second highest number is negative sentiment. Then the third largest category is positive sentiment.

FINDINGS

The following table summarizes the results of the research covering the causes of positive and negative public sentiment. Based on data from 99 bitcoin articles in 2022, the following results were obtained.

Table 1. Debate on bitcoin (Pros and Cons)

Positive	Negative
1. High earning potential 2. Anonymous transactions can reduce identity theft and credit card fraud 3. Free from government interference and manipulation 4. Users can have their own financial system - developers can integrate Bitcoin servers directly into their apps	1. High risk 2. Volatile valuation 3. No regulations to protect users 4. Encourage illegal activities such as *money laundering,* tax evasion and illicit trade.

The results of this study found the level of sentiment in articles that discuss bitcoin. The results show that neutral sentiment is the most prevalent sentiment with a percentage of 48%. Bitcoin can be seen as the first widely used tool to ensure absolute scarcity of money supply (Kher et al., 2020). Then sentiment analysis also shows a negative sentiment of 23% and a high negative 3%. This causes debate and creates pros and cons. The negative perception of bitcoin arises because of the high risk and lack of protective regulations.

Positive sentiment ranks fourth with a percentage of 22% and high positive 4%. This is due to the high earning potential of bitcoin. Bitcoin provides new currency to private parties at a predetermined rate to encourage them to follow its accounting system, which includes checks on the legality of transactions. Some of them own bitcoins regardless of the high risk involved (Hurlburt & Bojanova, 2014).

Research reviewing bitcoin has been conducted by many researchers around the world. In its existence, there are pros and cons from the public regarding the bitcoin system. The sentiment analysis results show a high negative sentiment of 3% and a negative sentiment of 23%. This negative perception arises because there is too high a risk in bitcoin. Bitcoin has no centralized authority to distribute coins or keep track of who owns coins by design (Fosso Wamba et al., 2020). As a result, creating currency and verifying transactions is much more complicated than in traditional bookkeeping systems. In line with the negative side, from a sharia review, bitcoin contains more madharat than benefits because its valuation is volatile, contains speculative elements, and high risk. (Fitriani, 2018). Bitcoin investment is also profit and loss so that raises the elements of *gharar* and *maysir* which makes bitcoin law haram (Ausop & Aulia, 2018).

The acceptance of Bitcoin and other cryptocurrencies within Islam is a subject of debate among scholars, and opinions vary regarding its permissibility (halal) or prohibition (haram) according to Islamic principles.

Here are some key considerations and viewpoints regarding Bitcoin in Islam: Interest (Riba) and Speculation. Islamic finance prohibits the charging or paying of interest (riba) as it is considered exploitative. Some scholars argue that Bitcoin does not involve interest-based transactions and therefore might not violate this principle.

Undefined Nature: Bitcoin's decentralized and digital nature raises questions about its intrinsic value, which is a concern in Islamic finance. Some scholars argue that as it's not backed by tangible assets or a central authority, its value is uncertain, and investing in it could be akin to speculation, which is discouraged in Islam.

Uncertainty (Gharar): Islamic finance also discourages transactions involving excessive uncertainty (gharar). The highly volatile nature of Bitcoin's price raises concerns about its compliance with this principle.

Legality and Regulation: The permissibility of Bitcoin in Islam may also depend on its legal status and compliance with local regulations. If it violates legal frameworks or is used for illegal activities, it might be considered impermissible in Islam.

Use Cases and Intent: Some scholars differentiate between using cryptocurrencies for legitimate purposes, such as transferring value or conducting business transactions, and using them for purposes for unlawful activities. The intention and purpose behind the use of Bitcoin might influence its permissibility.

Given these varying viewpoints and considerations, there is no universal consensus among Islamic scholars regarding the permissibility of Bitcoin in Islam. Some consider it permissible for certain use cases, while others caution against its use due to potential violations of Islamic finance principles.

Individuals seeking to adhere to Islamic principles when dealing with cryptocurrencies like Bitcoin are advised to consult with knowledgeable scholars or experts well-versed in Islamic finance to make informed decisions based on their personal circumstances and the prevailing interpretations of Islamic law.

CONCLUSION

This study aims to analyze the sentiment of researchers' responses to the existence of bitcoin. Based on the results of sentiment analysis, the assessment of bitcoin derived from Scopus indexed articles obtained neutral sentiment results of 48%, then 23% showed negative sentiment, and 22% showed positive results. Meanwhile, the high positive and high negative results show 4% and 3% respectively. This shows a wide range of sentiments generated from bitcoin literature with the dominance of sentiment that is neutral, then followed by negative sentiment, positive sentiment, high positive sentiment, and finally high negative sentiment.

The benefits of this research are as literacy and consideration materials related to bitcoin. The limitation of this research is that the data taken is only articles published in 2022. This research was also conducted with meta-analytics indicators and sentiment analysis so that readers can get a general representation of significant data. However, the results produced are very dynamic and can change as the economy, technology, and other variables develop.

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