

Sentiment Analysis of Islamic Fintech: Uncovering the Pulse of Twitter Post-Covid-19

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ABSTRACT

Twitter user attitude towards sharia fintech research provides an intriguing glimpse into perceptions and responses to sharia-based financial innovation. According to an analysis of 2,131 tweets, the bulk of attitudes were neutral (80.8%), followed by positive sentiments (16.2%), and the least were negative sentiments (3%). These findings paint an intriguing picture of how users react to sharia-compliant fintech concepts. The predominance of neutral attitude may indicate that the majority of Twitter users are not yet completely engaged with or have a neutral opinion of sharia fintech. This could be due to a lack of knowledge about the concept or a lack of direct connection with Islamic financial channels. The presence of strong positive sentiment, on the other hand, suggests interest in and support for this endeavour. There may be a view that sharia fintech can give a more ethical and in line with Islamic financial principles alternative. The unfavourable mood that has evolved, however, cannot be disregarded. Opinions opposing sharia fintech can stem from a variety of sources, including questions about its compatibility with authentic sharia principles or concerns about the hazards and security of its use. It is critical to understand the causes of unfavourable attitude and to improve education and transparency about sharia fintech. Overcoming questions and fears may necessitate an all-inclusive strategy to regulation, outreach, and risk management. In this approach, it can increase user trust and knowledge of the existence and benefits of sharia fintech in the current financial environment.

Keywords: FinTech, FinTech Syariah, Sentiments

INTRODUCTION

The COVID-19 pandemic has spurred a rise in technology-driven economic engagement. Social distancing measures have prompted a shift towards online transactions to avoid direct physical contact. Consequently, there's been a surge in the prevalence of virtual business activities. Information Technology (IT) becomes pivotal in facilitating these activities while adhering to health regulations in Indonesia and globally during the pandemic. IT has significantly transformed operations across various sectors, playing a crucial role in numerous industries (L. A. Abdillah et al., 2020).

The advent of online business models has prompted stakeholders to adopt electronic payment systems (L. Abdillah, 2020). Traditionally, payments were handled conventionally, but a shift toward digital payment systems has emerged, especially within electronic commerce (e-commerce, m-commerce), leveraging technology like e-wallets, e-payments, and Financial Technology (FinTech) (L. Abdillah, 2019, 2020).

In Indonesia, FinTech is gaining attention as a significant technological innovation in the financial sector. Bank Indonesia defines FinTech as technology's utilization in finance, leading to new products, services, and business models impacting monetary and financial system stability, as well as payment system efficiency, security, and reliability. The National Digital Research Centre (NDRC) elaborates that FinTech represents a fusion of finance and technology, denoting innovative financial services using modern technology (Sukma, 2016).

This evolution from traditional to digital payment systems in electronic commerce underscores the integration of technology into financial services, emphasizing innovation and efficiency. The surge of FinTech in Indonesia aligns with this transition, representing a pivotal stride toward modernizing and enhancing financial processes through technology-driven advancements.

FinTech harnesses technology for streamlined financial transactions, encompassing digital services like payment channels, digital banking, online insurance, P2P lending, and crowdfunding. This technological integration aims to enhance operational efficiency and service quality. In Indonesia, with its vast Muslim population, the potential for a flourishing sharia FinTech industry is promising. Shariah FinTech combines financial and technological innovations to simplify Shariah-compliant transactions and investments (Mukhlisin, 2019).

Sharia FinTech, as per Achmad (2018), stands as a technology-driven financial innovation rooted in Islamic law, offering access to financial services unavailable through traditional means. The Indonesian Ulema Council released Fatwa No: 111/DSN-MUI/II/2018, affirming Shariah-compliant Information Technology-Based Financing Services. Twitter, a prominent social platform, boasts 69.3 million users globally, with 14.05 million in Indonesia, often used for Islamic economic research. Despite this, no prior studies have explored public sentiments on sharia FinTech through Twitter data.

This study aims to analyze Twitter users' sentiment regarding Shariah FinTech. Data comprises 2,131 tweets with the hashtag #fintechsharia. The research framework includes contextual background, relevant literature review, methodology detailing data and model creation, findings, and discussion, concluding with research outcomes.

Literature Review:

Financial Technology (FinTech)

FinTech is described as "Innovation Financial Services" by The National Digital Research Centre (NDRC), which is financial sector innovation employing current technologies. Payments, investments, transfers, borrowing money, comparing financial goods, and financial plans are all examples of financial transactions in FinTech (Ernama Santi, 2017).

Another definition of FinTech is the use of technology in the financial system that produces new products, services, technology, or business models and can have an impact on monetary stability, financial system stability or efficiency, smoothness, security, and reliability of the payment system, according to Bank Indonesia regulation No.19/12/PBI/2017 concerning the Implementation of Financial Technology (Bank Indonesia, 2017a).

FinTech is defined as a digital technology-based solution that addresses financial intermediation issues (Aaron et al, 2017). Furthermore, FinTech can be defined as a sector comprised of enterprises that employ technology to improve the efficiency of financial systems and services (Muzdalifa et al., 2018).

Globally, the Fintech industry is quickly developing and growing. This is demonstrated by the creation of FinTech startup companies and the significant amount of worldwide investment in this space. Globally, FinTech is advancing rapidly in a variety of sectors, including lending, finance, remittances, retail investment, financial planning, and so on (Muzdalifa et al., 2018).

This business is quickly developing in Indonesia, attracting daily business people in the country (Muzdalifa et al., 2018). FinTech in Indonesia has enormous promise since it can solve urgent demands that traditional financial institutions cannot meet. Aside from that, the country's high level of cellular penetration has created numerous prospects for the FinTech business to grow (Rusydiana, 2019)

The Role of Financial Technology (FinTech)

The presence of financial technology has an impact on economic society's lifestyle, particularly in Indonesia. In general, the combination of technology with efficacy has a good impact on society. FinTech can assist in the growth of developing technology businesses, which will, in turn, increase economic growth and job possibilities. This economic expansion will undoubtedly benefit people's living conditions as well as

the macroeconomy (Prima, 2019).

Not only that, but FinTech may help MSME finances better, and their development in Indonesia has highly promising market chances. The huge geography, significant middle-class growth, and relatively low penetration of financial products all combine to offer a strong market for fintech development in Indonesia (Rohmatun, 2019). FinTech offers the ability to contact potential debtors, particularly in the MSME and agricultural sectors, where existing financial industry players do not have access (Wulandari, 2017; Zetzsche et al., 2018).

Currently, the Indonesian government regards the FinTech market as having the ability to assist MSMEs who do not yet have access to banks (Minerva, 2016). Sharia FinTech is an inseparable component of the

National FinTech business, and it plays an important role in promoting the growth of MSMEs in Indonesia. FinTech financial services such as money transfer services, crowdsourcing, and mobile payments are generating a revolution in startup enterprises. For example, by using crowdfunding, a person/institution can easily get funds from all across the world. Aside from that, FinTech enables global money transfers and automatic currency conversion rates. Another purpose of FinTech is to modify consumer behaviour and expectations, such as:

1. having easy access to information or data at any time and from any location
2. Balance small and large enterprises such that they have high expectations even if the business is still tiny and new.

Advantages and Disadvantages of Financial Technology (FinTech)

Financial Technology has various advantages and downsides that are tied to the financial benefits of technology. For starters, FinTech can help Indonesians who have been unable to be served by the traditional financial industry due to severe banking restrictions and the traditional banking industry's limits in serving people in particular places. Second, it can be an alternate funding source to typical financial industry services if people require more democratic and transparent financing.

Although FinTech offers many benefits, it also has drawbacks, such as a lack of restrictions when compared to the regulations of conventional financial institutions (Hiyanti et al., 2020; Prestama et al., 2019; Rusydiana, 2019). Similarly, sharia norms still require numerous modifications to the rules (Ulya, 2018). Another issue is the scarcity of human resources in supporting the advancement of sharia FinTech (Hiyanti et al., 2020; Rusydiana, 2019). Then there are other FinTechs that do not have a physical office as a security precaution and to ensure product integrity. Finally, from literacy or public knowledge of sharia FinTech (Hiyanti et al., 2020) to the possibility of financial crimes that damage the name of sharia FinTech (Mukhlisin, 2019).

Sharia FinTech

Sharia FinTech Sharia FinTech is a technology-based business with innovative financial services and uses sharia schemes. Sharia FinTech promotes responsible finance, provides opportunities and is ethical in influencing all forms of finance globally (Rusydiana, 2019). MUI National Sharia Council Fatwa No. 117/DSN-MUI/II/2018 defines sharia FinTech as the provision of financial services based on sharia principles that bring together or connect financing providers with financing recipients in order to carry out financing contracts through an electronic system using the internet network.

Sharia FinTech aims to help micro, small and medium enterprises (MSMEs) gain access to funding more quickly, cheaply and efficiently. Apart from that, another aim of sharia FinTech must of course be in line with the aim of the transaction, namely bringing about and maintaining benefit (goodness) and avoiding evil (damage) both in this world and in the hereafter (Shidik, 2016).

Sharia FinTech encourages the distribution of sharia-based funding in various regions in Indonesia whose customers are almost all MSMEs (Prestama et al., 2019). In this way, sharia FinTech plays a role in increasing financial inclusion by meeting the needs of unbankable market segments. Sharia FinTech provides solutions in reducing inequality between financial institutions and parties who need financing (Mukhlisin, 2019).

Indonesia, with a Muslim majority (Hiyanti et al., 2020), represents a huge opportunity for the development of Sharia FinTech in stimulating the growth of MSMEs in Indonesia. Sharia FinTech in Indonesia has gained significant public attention, particularly since the establishment of the Indonesian Sharia Fintech Association (AFSI) Institute, which regulates sharia fintech in Indonesia. In terms of rules, FinTech has a considerably better possibility of getting legitimacy from the government (OJK) than traditional financial organisations (Hiyanti et al., 2020).

Despite its many benefits, Sharia FinTech does have some drawbacks. For starters, it is still difficult for FinTech to attract investors (lenders). Unlike banks, which have deposit guarantee organisations, FinTech does not have lender guarantors. The second issue is one of socialisation and promotion. Hiyanti et al (2020), Minerva (2016), Muzdalifa et al (2018), and Prestama et al (2019) did study on the low level of literacy and inclusion of the community and sharia financial institutions, particularly sharia FinTech, as a result of a lack of socialisation and marketing (Hiyanti et al., 2020; Minerva, 2016; Muzdalifa et al., 2018; Prestama et al., 2019). The third drawback is the lack of sharia FinTech-supporting facilities and infrastructure, according to (Muzdalifa et al., 2018), who found that the development of sharia FinTech is still restricted by infrastructural issues. The fourth sharia FinTech vulnerability is a lack of managerial expertise, which is exacerbated by a shortage of human resources who understand transaction contracts based on sharia principles (Hiyanti et al., 2020).

METHOD

This research utilized Twitter communication data, specifically 2,131 tweets related to sharia-compliant fintech, gathered using Snsrape—a Python tool for extracting Tweets without Twitter API. Employing a qualitative approach, descriptive statistics were applied to gauge public sentiment toward sharia fintech among Twitter users.

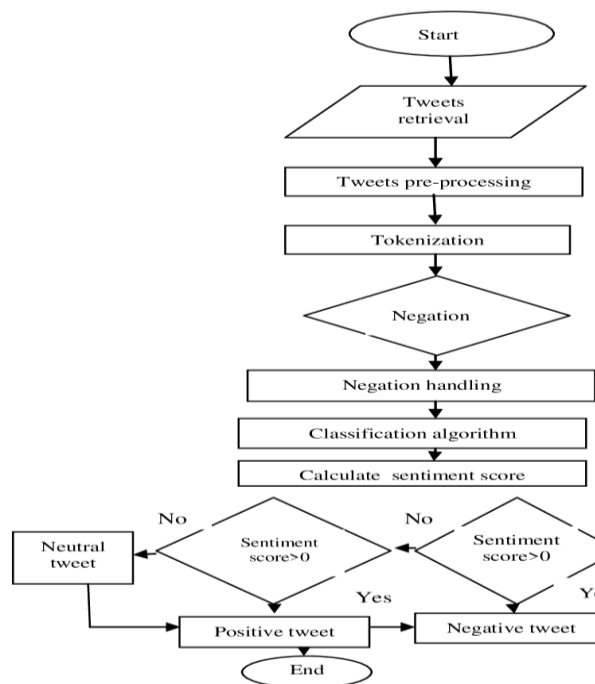


Figure 1. Research Process Diagram

Sentiment analysis, using the VADER Python module, categorized the sentiment of these tweets. VADER, designed for social media content, simplifies sentiment analysis beyond the tech realm (Hutto & Gilbert, 2014). Preprocessing included language filtering and removing hashtags, mentions, and links to refine the dataset for analyzing opinions, emotions, and attitudes concerning sharia fintech. The study aims to delve into public perception, feelings, and judgments about sharia-compliant financial technology, leveraging tweets as a source of unstructured text. This analysis helps decode sentiments—positive, negative, or neutral—regarding sharia fintech, offering insights into how this niche is perceived and discussed within the Twitter sphere.

RESEARCH RESULTS AND DISCUSSION

Sentiment Analysis

This study utilized the VADER Python library to assess sentiments among Twitter users regarding Sharia FinTech. VADER employs a value-based system, categorizing tweets as positive, negative, or neutral, facilitating the analysis of sentiment dynamics surrounding Sharia-compliant financial technology. The classification of tweets based on their assigned values offered insights into public opinions on this subject within the Twitter sphere. By examining these sentiment patterns, the research aimed to provide a comprehensive overview of how Sharia FinTech is perceived and discussed among users. This analytical approach helped unveil prevalent attitudes, enabling a nuanced understanding of the sentiment landscape and shedding light on the perceptions surrounding this innovative financial sector development within the digital realm.

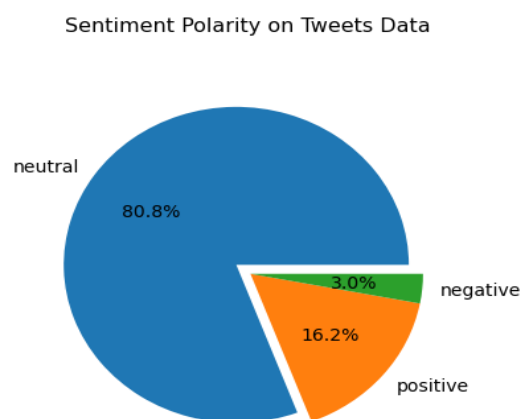


Figure 2. Sentiment Analysis on Tweet Data

As per the illustration, the majority of tweets discussing Sharia FinTech between January 1, 2019, and March 28, 2022, were neutral, comprising 80.8% of the dataset. Positive tweets constituted 16.2% of the content related to Sharia FinTech, while negative sentiments were observed in 3.0% of the collected data.

Findings

From an analysis of 2,131 tweets about Sharia FinTech until March 28, 2022, contrasting sentiments emerged. The study aimed to gauge the sentiment levels within these tweets, unveiling distinctive patterns. The findings reveal a hierarchy in sentiment distribution: negativity constituted the smallest fraction, at 3%, while neutrality dominated significantly with 80.8%. Positive sentiments followed at 16.2%. These results signify the existence of diverse opinions and perspectives concerning Sharia FinTech, reflecting a spectrum of viewpoints within the tweet data.

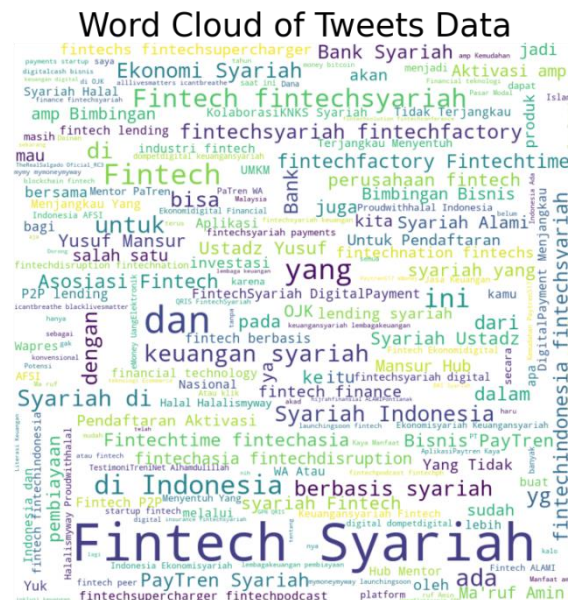


Figure 4. Word Cloud Twitter Data

The word cloud in Figure 3 represents Twitter user tweet data that has been analysed and categorised as neutral sentiment. The neutral sentiment category includes many tweets, as shown in the word cloud.

1. Some argue that Indonesian banks are actively pursuing digital transformation in the Islamic money market, which involves transitioning from traditional banking to digital platforms and fostering collaboration between banks and FinTech companies.
2. FinTech has the potential to promote accessibility to Sharia-compliant financial services, according to some.
3. The utilisation of FinTech has the potential to stimulate the expansion and enhance the economic resilience of small and micro sharia business players, according to some.
4. The utilisation of FinTech technology is believed by some to be accompanied by innovation and measures to alleviate security risks.
5. Some argue that FinTech platforms that follow sharia principles can function as both lenders and investors in peer-to-peer lending.
6. Some individuals doubt whether FinTech peer-to-peer (P2P) financing now incorporates sharia principles and has obtained a fatwa from the Indonesian Ulema Council (MUI).
7. Some individuals argue that the areas with the greatest prospects include halal food, sharia-compliant FinTech, and halal pharmaceuticals.

Financial services have a crucial role in stimulating economic expansion. Being a standalone country alone is inadequate when it comes to serving as a benchmark for judging the success of the financial industry. Demirgüç-Kunt et al. (2008) argue that financial services play a vital role in promoting economic growth and creating job chances for those in poverty. Promoting and assisting the growth of the MSME sector could result in the creation of job opportunities. Sharia FinTech has three primary opportunities, one of which is its significant market share in financing the MSME sector. This advantage allows the sharia FinTech industry to secure customers for financing, while other financial institutions struggle to do so. According to (Haris, 2020) research, the comprehensive market share of MSME financing remains unexplored.

The presence of Micro, Small, and Medium Enterprises (MSMEs) in a nation has been empirically demonstrated to effectively address economic challenges, including unemployment reduction, poverty

alleviation, income augmentation, inequality reduction, equitable income distribution, and enhancement of societal well-being (Indika & Marliza, 2019; Krisnawati & Hussein, 2016; Sarfiah et al., 2019; Setiawan, 2017; Tambunan, 2012).

Disruptive innovation as a result of technical advancements has also aided the rise of the FinTech industry in the financial services industry. According to Maier (2016), FinTech is a blend of finance and technology that enables creative solutions and long-term business strategies. Then, according to (Leong & Sung, 2018) FinTech is an innovative notion for improving financial service operations by delivering technological solutions tailored to company settings. FinTech is defined as the use of technology in the financial system that produces new products, services, technology, and/or business models and can have an impact on monetary stability, financial system stability, and/or the efficiency, smoothness, security, and reliability of the payment system (Bank Indonesia, 2017b)

Alternative Sharia FinTech products simplify business operations, address financial problems, and serve as extra references for business players (Wijayanti & Pradipta, 2017). The existence of FinTech is also in accordance with Islamic law, as it can decrease leverage (Alaa Alaabed & Mirakhor, 2017; Firmansyah & Anwar, 2019). FinTech (sharia) has various advantages over other financial institutions, including convenience, quickness, and reach (Mukhlisin, 2019; Prestama et al., 2019).

Sharia FinTech has the potential to optimise the technology it owns, which is one of the primary drivers for stimulating the growth of MSMEs in Indonesia (Hiyanti et al., 2020; Prestama et al., 2019; Rusydiana, 2019). Waiting periods, transaction volume, and transaction queues can all be reduced as technology advances (Mukhlisin, 2019). The presence of technology accelerates, simplifies, and shortens all operations. It is expected that these benefits will serve as capital for the future of FinTech, allowing it to continue to grow and, in turn, have a favourable impact on the growth of MSMEs. According to (Minerva, 2016) one of the important success factors for FinTech in aiding MSMEs' growth is the usage of digital technologies.

Word Cloud of Positive Tweets Data



Figure 5. Word Cloud Twitter Data

Figure 4 shows supportive messages from Twitter users about the Sharia FinTech issue. Positive sentiment analysis from multiple tweets, including:

1. There is a payment system that fosters e-commerce, interlink, and FinTech integration.
2. The Sharia FinTech Association's Chair emphasised the need of utilising current technologies to support your company ideas.
3. MUI has created a Sharia FinTech Fatwa to make transactions more quiet and pleasant.
4. To promote financial inclusion, an ecosystem of FinTech businesses, Islamic banks, Islamic asset

managers, zakat, waqf, and alms is required.

To enable technology-based business activities, the existence of Information Technology is critical. With IT, these activities can take place without jeopardising the health regulations in place in Indonesia and around the world during the Covid-19 pandemic. Information Technology (IT) has altered every field, and IT now plays an important role in numerous sectors (L. A. Abdillah et al., 2020). With the rise of online/virtual-based business models in cyberspace, stakeholders have been urged to use electronic payment systems (L. A. Abdillah et al., 2020). Initially, the payment method was carried out in the traditional manner; however, it has recently been replaced by a digital payment system. Payment systems in electronic commerce mode (e commerce, mcommerce) can leverage information technology such as ewallets, e-payments, and even Financial Technology (FinTech) (L. Abdillah, 2019, 2020).

Furthermore, in order to support national financial inclusion, a relatively well-established ecosystem with collaboration or synergy between sharia FinTech and business actors, academics, government in an established ecosystem supported by adequate technology is required (Haris, 2020; Rusydiana, 2019). Then there is government assistance, which is equally crucial. The government's regulatory backing is a solid foundation for sharia FinTech in boosting funding distribution (Minerva, 2016)

Sharia FinTech in Indonesia has gained significant public attention, particularly since the establishment of the Indonesian Sharia FinTech Association (AFSI) Institute, which regulates sharia FinTech in Indonesia. In terms of rules, FinTech has a considerably better possibility of getting legitimacy from the government (OJK) than traditional financial organisations (Hiyanti et al., 2020). In addition, the MUI National Sharia Council Fatwa No. 117/DSN-MUI/II/2018 has been issued as a sharia FinTech guideline in order to avoid violating sharia principles. The location of Twitter users who send tweets about fintech is the next essential piece of information. Because not all users publish their location in their Twitter profiles or utilise non-specific locations such as Global, this analysis does not present all of the data.

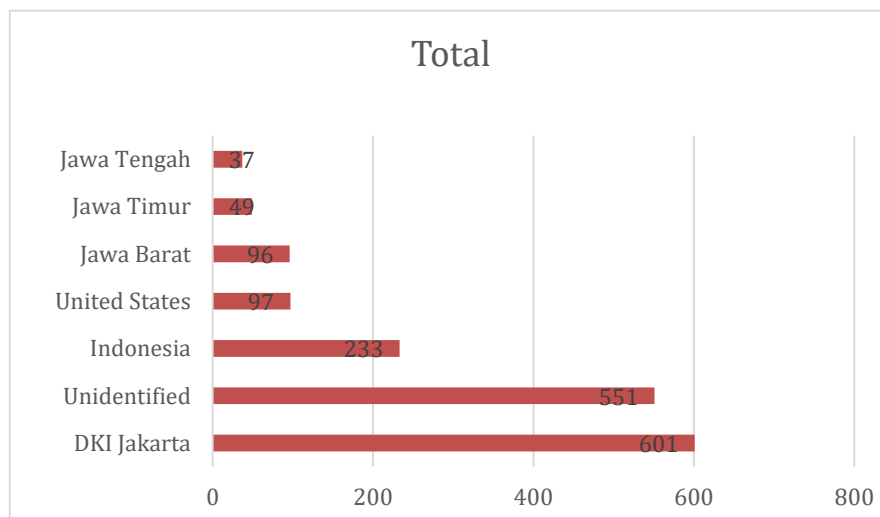


Figure 6. User Location Graph

Figure 5 demonstrates that Indonesia is the country with the most sharia fintech discussions on Twitter, and DKI Jakarta has the most (601). This corresponds to the number of tweets about Sharia FinTech issues in DKI Jakarta. With 551 tweets, the second most places could not be located. Aside from Indonesia, the United States of America has 97 Twitter conversations about Sharia FinTech. Based on these findings, we may conclude that Sharia FinTech has both advantages and disadvantages in Muslim-majority and non-Muslim-majority countries.

CONCLUSIONS

An examination of Twitter users' mood towards sharia FinTech reveals a fascinating portrayal of the varied reactions to this subject. The investigation revealed that the proportion of negative sentiment was under 3%, whilst the majority of sentiments were neutral, accounting for 80.8%, and positive sentiment constituted 16.2%. The diversity observed in social media captures the intricate range of ideas and reactions from users towards sharia FinTech.

The presence of a significant amount of neutral sentiment suggests that a large portion of Twitter users have not yet formed a definitive stance on this issue. This may be attributed to a dearth of knowledge or firsthand exposure to sharia-compliant financial technology (FinTech). Conversely, the large proportion of favourable attitude indicates enthusiasm and endorsement for the adoption of financial practises aligned with sharia principles.

Nevertheless, it is crucial to acknowledge that even a 3% unfavourable opinion still exerts influence. These beliefs may arise from a lack of trust in the adherence of Sharia FinTech to its guiding principles, or they may also be driven by concerns regarding security and risk factors.

This research has limitations due to its narrow data collection timeframe, spanning from January 1, 2019 to March 28, 2022, and consisting of only 2,131 tweets. The dynamic advancements in technology and developing perspectives on Islamic FinTech may undermine the representativeness of these findings.

This research remains significant in the realm of literacy and in relation to the considerations of Sharia-compliant financial technology (FinTech). Nevertheless, it is crucial to always enhance our expertise in tandem with the advancements in the field of Islamic finance to acquire a more thorough and pertinent comprehension.

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