

Shariah Fintech: An Analysis of Twitter Sentiment

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This research was conducted to review the perception of sharia fintech within the scope of the sharia economy from the perspective of sentiment research on Twitter social media users in response to the development of sharia fintech. The method used in this study is a qualitative approach with descriptive statistics from the literature study in the form of 2131 Twitter tweets. A Python library software called VADER (Valence Aware Dictionary and Sentiment Reasoner) is used to classify tweets. Sentiment analysis results tend to perceive neutral sentiment at 80.8%, positive sentiment at 16.2%, and negative sentiment at 3.0%. The diversity of sentiment results shows that there are pros and cons to the development of sharia fintech. The benefits of this research are literature and considerations related to the development of sharia fintech and efforts to identify weaknesses and threats in the form of negative perceptions of the implementation of sharia fintech. In addition, to find out positive perceptions, strengths, potential, and benefits of Islamic fintech. This research is the first comprehensive study to discuss sentiment analysis on sharia fintech themes with Twitter tweet data. Suggestions for further research and recommendations are listed.

Keywords: Sharia Fintech; Sentiment Analysis; Twitter

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INTRODUCTION

The fintech sector developed after the world financial crisis in 2008 (Gün, 2020), even more so during the Covid-19 pandemic, where social distancing policies were enforced so that financial transactions become more efficient when using fintech. This is a huge potential for the fintech industry worldwide (Syed et al., 2020). However, there are obstacles such as poor infrastructure and limited internet penetration (Alam et al., 2019). The fintech sector tries to connect the distance between the conventional banking sector and people who have not been touched by bank access while making the financial industry more efficient (Yahaya & Ahmad, 2018). In line with this goal, fintech companies must be careful in marketing strategies and implementing implementations in different countries (Ozili, 2018). The facts show that a weak distribution strategy can cause the presence of fintech to make progress in a country but can fail in other countries (Usanti et al., 2020).

Fintech is not only transforming in the conventional financial industry, but fintech is also in the Islamic finance industry (Miskam & Eksan, 2018). The Islamic finance industry, which is expected to have assets of US\$3.8 trillion by 2022, provides a major impetus for fintech start-up companies, especially in the area of crowdfunding and peer-to-peer financing (Alam et al., 2019). Meanwhile, blockchain-based opportunities have the potential to transform Islamic banking by aligning Islamic financial contract standards on smart contracts and cutting service costs by up to 95% with permanent records of ownership and assets (Rabbani et al., 2020). Currently the banking industry is also required to be more efficient and productive through the use of financial technology and technological change issues (Rani et al., 2017; Rusydiana et al., 2019).

Islamic fintech has changed the pattern of financial services for its users. The digital era brings disruption and creates cross-finance industries that allow sharia fintech companies to reach people who do not have access to banking. Digitization has also delivered digital financial services that provide financial technology innovations that offer more people access to financial products and services (Muchlis, 2018; Rusydiana, 2019). This phenomenon then raises the pros and cons, some support the development of fintech, especially sharia fintech, but some are still pessimistic about the implementation of fintech given the existence of banking as a major player in the financial market. Fintech has the advantage of always experiencing rapid updates to financial innovation and facilitating access to greater data, but this means that fintech will become a rival for banks, and it is feared that it could reduce the potential number of banking users.

From this background, the authors are interested in discussing the perception of sharia financial technology (Fintech) from secondary data of scientific literature, namely journals published for the last 5 years (2016-2020) and primary data on sentiments of Twitter social media tweets from January 1, 2019, to March 28, 2022. One of the benefits of this research is knowing the trend of public opinion in responding to current fintech developments. In addition, this study looks at bibliometric maps and sentiments related to sharia fintech perceptions and analysis.

LITERATURE REVIEW

According to the Oxford Dictionary, financial technology (fintech) is defined as computer programs and technology used to support or provide banking and financial services. Fintech consists of two words, Finance and Technology. In general, fintech

deals with financial services companies whose products or services are based on technology, many of which result in highly innovative, disruptive, and pioneering services. In general, fintech adds a new dimension to the financial industry and takes the industry to the next level. Fintech companies are trying to change the activities of the financial industry from physical buildings to cloud-based services to make efficient financial services accessible and available to everyone (Bakar & Rosbi, 2018; Galazova & Magomaeva, 2019).

Many financial institutions implement fintech solutions and technologies to improve and develop their services and gain a better competitive attitude. Another comprehensive definition for fintech is a new application, process, product, or business model in the financial services industry, which consists of one or more complementary financial services and is provided as an end-to-end process via the Internet (Abdullah et al., 2018; Naifar, 2019). These financial products and services can be categorized as loans, personal finance, retail and institutional investment, equity financing, consumer banking, etc.

Fintech has changed banks' financial products and services landscape, including Islamic banking. Sharia fintech is a financial technology service that complies with sharia principles (does not violate Sharia rules). Fintech is allowed and accepted in Islam and is only prohibited if an element is contrary to Sharia rules (Aziz, 2020; Usanti et al., 2020). The main goal of fintech is to develop technology-based solutions to make financial services accessible, cheaper, faster, and more efficient than traditional financial service models.

The factors behind the development of sharia fintech include technological advances, penetration of cellular usage, ease of internet access, the digitization process, and external factors such as banking services that are less

effective in terms of operational costs. Fintech utilizes digital technology to offer innovative business models and serves unbanked banking customers. The scope of fintech is expanding and is classified into key areas such as finance and investment, internal operations and risk management, payments and infrastructure, data security and monetization, and consumer interfaces (Barata, 2019; Md Husin et al., 2020). The products and services offered under the fintech platform serve various financial activities such as payments, remittances, crowdfunding, lending, investment, risk management, wealth management, analytics to Robo-advisors, and regulatory reporting.

METHODOLOGY

This study uses data in the form of secondary data. The methodology used in this study is a qualitative method approach with descriptive statistics on literature studies of 71 publications related to sharia fintech and 2131 Twitter social media tweets in the research period from January 1, 2019, to March 28, 2022.

The qualitative research method is based on the philosophy of post-positivism, which is used to examine the condition of natural objects (as opposed to experimentation) where the researcher is the key instrument. The data collection technique is done by triangulation (combined), the data analysis is inductive/qualitative, and the results of qualitative research emphasize meaning rather than generalization (Sugiyono, 2010).

Sentiment Analysis

Sentiment analysis (SA) or Opinion mining (OM) is a field of research that aims to evaluate a large number of unstructured texts, including views, feelings, judgments, and attitudes about targets such as products and services automatically (Cambria et al., 2013; Liu & Zhang, 2013; Ravi & Ravi, 2015; Vinodhini & Chandrasekaran, 2012).

To classify tweets, a Python library called VADER is used. VADER (Valence Aware Dictionary and Sentiment Reasoner) is a rules-based lexicon and sentiment analysis tool adapted to social media sentiment and works on texts from other domains. VADER makes the workings of sentiment analysis engines more accessible (and, therefore, more interpretable) to a wider human audience outside the computer science community by exposing rules-based lexicon and models (Liu, 2012; Prager, 2006).

$$Tweet_{sentiment} = \begin{cases} \text{positive if } CS_{tweet} > 0.05 \\ \text{negative if } CS_{tweet} < -0.05 \\ \text{neutral if } -0.05 > CS_{tweet} > 0.05 \end{cases}$$

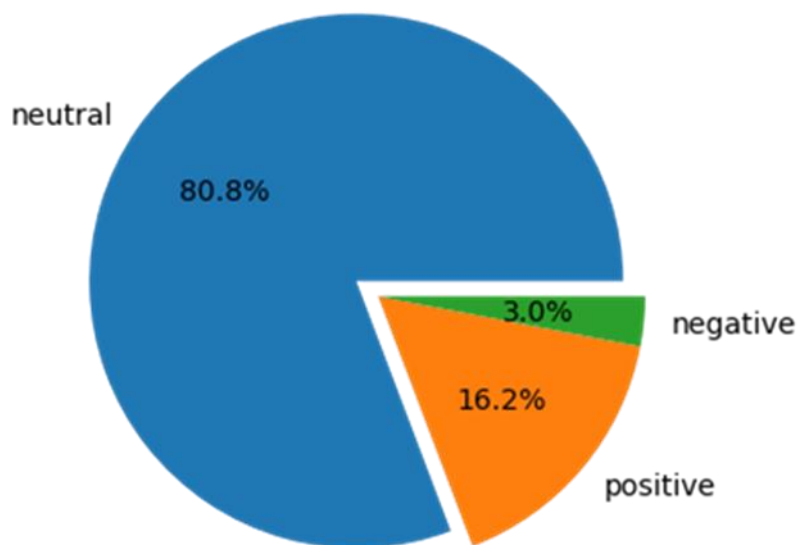
Vader will calculate a combined score, which will be used to classify tweets. The combined score is calculated by adding up the valence ratings of each word in the lexicon, adjusting them according to the rules, and then normalizing them to a range of -1 (most extreme negative) to +1 (most extreme positive). Positive tweets are tweets that have a combined score of greater than 0.05. Negative

tweets are tweets with a combined score of less than -0.05. Tweets with a combined score between -0.05 and 0.05 are neutral tweets (Pak & Paroubek, 2010).

RESULT AND DISCUSSION

This study tries to calculate the sentiment of Twitter tweets in the research period from January 1, 2019, to March 28, 2022, about Islamic fintech. As is well known, sentiment analysis is commonly used to measure public sentiment on a theme. As a secondary data source, research was conducted to search for Twitter tweets with the theme of sharia fintech. The tool used in this research is the Python programming language library, Vader.

Vader as a tool to process data is classified into 3 groups: positive, neutral, and negative. Classification is obtained by measuring the value of each tweet. Tweets are assigned a value which will then be classified into positive, negative, and neutral based on the value generated. The sentiment analysis results on the sharia fintech theme can be seen in the following diagram.

Figure 1: Sentiment Analysis

From the picture above, we can see that the existence of sharia fintech has a neutral sentiment of 80.8%, then positive sentiment of 16.2%, and negative sentiment of 3.0%. Sentiment results are obtained from tweets written by Twitter users, then the words conveyed in the form of written text are ranked from negative, neutral to neutral intervals.

Positive sentiment is the opinion of the tweets that is positive and tends to be optimistic in dealing with the existence of sharia fintech and supporting the development of sharia fintech. Meanwhile, negative sentiment is a tweet opinion that is negative and tends to be pessimistic in facing the future of sharia fintech

and states that sharia fintech cannot be applied inclusively for various reasons.

This data shows that most Twitter users are more neutral in responding to the existence of sharia fintech. However, it was also found that there were more positive responses than negative responses. Therefore, the potential for public acceptance shown by the tendency of positive perceptions must continue to be developed. The development of sharia fintech also needs to be supported by systems and education that follow the conditions of the community so that they are easy to understand and apply.

tweets use foreign languages and come from other countries.

FINDINGS

This difference of opinion shows the community's enthusiasm in responding to the existence of sharia fintech, which is relatively new compared to bank financial institutions. Based on neutral and positive responses and the literature review conducted, Islamic fintech has the opportunity to continue to develop itself (Nurfalah & Rusydiana, 2019) and innovate more broadly (Friantoro & Zaki, 2019). As for the negative response and literature review, Islamic fintech also needs to re-evaluate what needs to be improved (Aisyah, 2018) to provide a useful and friendly product for all people of all ages (Abidat et al., 2019; Miskam & Eksan, 2018).

Sharia fintech, which still tends to be new, does still cause contradictions and differences of opinion in society (Yuspita et al., 2019), both

in scientific research obtained from published papers and in sentiment from Twitter tweets. However, there are opportunities to continue to conduct further studies and research to produce higher quality sharia fintech is still very large (Niswah et al., 2019).

This is found from the results of sentiment analysis which shows that in sentiment trends, the community has a dominant neutral to positive tendency towards the development of sharia fintech, this community response can be an opportunity for sharia fintech stakeholders to continue to improve the quality and quantity so that the benefits can be felt inclusively by entire society (Cindy et al., 2019).

Research Implication

This study identifies several suggestions for researchers to develop writing articles in journals with sharia fintech themes. Table 1 shows the research possibilities and suggestions by topic and its references.

Table 1: Further Research

Topic	Further Research	References
Fintech Implement	Research using other methods on the theme of the role of fintech in accelerating risk-sharing finance	Author's Review
	Compare fintech adoption between ASEAN countries	Author's Review
	Consumer protection research with primary data	Author's Review
	Sharia crowdfunding sharia compliance research with qualitative methods	Author's Review
	Researching sharia fintech awareness in a country and compared to other countries	Author's Review
	Using more samples in testing people's perceptions of the use of fintech	(Yuspita et al., 2019)
	Conducting the latest testing on factors that affect investment in sharia fintech	Author's Review
	Research on fintech adoption by categorizing gender, age, or education level	(Tun-Pin et al., 2019)

	Do research with empirical evidence about the conceptual framework of financial crime in Islamic financial institutions	(Redzuan et al., 2019)
Islamic Financial Institution and Fintech	Further research on the role of Islamic financial standards institutions in hybrid product innovations such as fintech	Author's Review
	An expanded fintech case study in Islamic banking financing	Author's Review
	Each element of the SWOT data for fintech implementation is supported by previous research or expert opinion	Author's Review
	Data updates regarding the development of sharia fintech in Islamic countries	(Darussalam et al., 2019)
	Broader and relevant literature analysis, as well as more objective recommendations in the blockchain field	(Xu et al., 2019)
	Cryptocurrency research with a wider scope, using a theoretical and conceptual framework.	(Ajouz et al., 2020)
Fintech	Compare the application of fintech-based mutual funds between Malaysia and other countries	Author's Review
	Develop the use of IAP in fintech platforms other than SMEs	(Md Husin et al., 2020)
	Researching producer offerings and behavior in the fintech crowdfunding model	Author's Review
	Increase the number of Tweets in determining factors that affect the use of P2PL	Author's Review
	Practical advice for fintech companies in implementing cash waqf fundraising	Author's Review

CONCLUSION

Sharia fintech is one of the innovations that has begun to develop recently by collaborating financial technology with Islamic sharia rules so that it is friendlier to use by Muslim users, especially in Muslim-majority countries (Rusyiana, 2018). This study presents an overview of sentiment analysis, where the assessment of the sharia fintech system from Twitter tweets from various groups of people totaling 2131 tweets shows that there is a tendency of 16.2% of the public to show positive sentiment, 3.0% to show negative sentiment and 80.8% to show neutral sentiment. The keywords that appear the most include sharia fintech, Indonesia, sharia finance, finance, sharia banks, business, fintech

associations, halal, Paytren, Natural, and disruption.

It should be noted that the purpose of this research is to present an overview of the perception of sharia fintech, but the limitations are only in the last four years and 2131 tweets. Although research has been carried out using specific analytical sentiment indicators so that readers can get a general representation of the most important data, the results presented are still dynamic. These results may also change over time, with new trends emerging or variables increasing and decreasing in the future.

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