

# Sentiment Analysis of Peer-to-Peer (P2P) Lending: A Study of Scientific Publications

Syahdatul Maulida<sup>1</sup>, Handika Surbakti<sup>2</sup>

<sup>1</sup>TAZKIA Islamic University College, Indonesia

<sup>2</sup>AFSI Indonesia

The data used in this study includes 200 scientific publications collected during the period 2009 to 2023. The analysis process was carried out by utilizing SentiStrength software, and the results showed that neutral sentiment dominated with a percentage of 38%, followed by negative sentiment of 32%, and positive sentiment of 30%. In more detail, sentiment analysis on scientific publication data fluctuates every year. 2021 recorded the highest number of sentiments, namely 43 sentiments, with the dominance of neutral sentiments as many as 16 sentiments. These findings reflect the dynamics and complexity of views related to peer-to-peer lending in the academic literature. This research contributes to the understanding of how peer-to-peer lending is viewed from the perspective of published literature, by identifying changes in sentiment over time. The implications of these findings can serve as a foundation for further research, as well as provide insights to stakeholders regarding trends and changes in perceptions towards peer-to-peer lending in scholarly publications.

**Keywords: P2P Lending; Fintech; Sentiment Analysis**

## OPEN ACCESS

\*Correspondence:

Syahdatul Maulida

[syahdatulmaulida3@gmail.com](mailto:syahdatulmaulida3@gmail.com)

Received: 30 September 2023

Accepted: 1 December 2023

Published: 31 December 2023

(2023) Sentiment Analysis of Peer-to-Peer (P2P) Lending: A Study of Scientific Publications. Business and Sustainability. 2.2.

## INTRODUCTION

With the rapid expansion of the internet market and the development of small and medium-sized enterprises (SMEs), Financial Technology (Fintech) is pushing to innovate in funding and other financial activities (Suryono & Budi, 2020). The term Fintech, which consists of Finance and Technology, is basically understood as technology used to change and improve financial business models (Huang, 2018). By utilizing modern communication technologies, online lending can reduce certain transaction costs, making it economically feasible to raise funds through small contributions from a large number of investors. (Yang & Lee, 2016). As an attractive alternative to traditional bank financing, online lending has experienced exponential growth worldwide, since zopa.com, the world's first peer-to-peer lending platform, emerged in the UK in 2005 (Fong, 2015; Klafft, 2008; Li et al., 2016). In a short period of about 10 years, global online lending has reached more people than USD 100 billion by the end of 2015, and is projected to exceed USD one trillion by the end of 2025 (Huang, 2018). (Huang, 2018).

Peer-to-peer lending is a type of financial transaction that occurs directly between individuals without the intermediary of traditional financial institutions. (Lee & Lee, 2012; Luo et al., 2011). The development of the internet and improved forms of communication have enabled borrowers and investors to establish direct relationships unencumbered by multiple layers of intermediaries. The availability of loans to consumers is critical to the country's economic growth. Consumer credit encourages market transactions, which leads to employment and growth. It can also prevent consumers from bankruptcy due to liquidity or income instability, or provide an avenue for debt consolidation to improve finances (Fong, 2015).

Peer-to-Peer (P2P) lending, also known as crowdlending, is a method of lending money directly to individuals or businesses without using traditional financial institutions such as banks. In a P2P lending platform, individuals looking to borrow money are connected with investors willing to lend money. The entire lending process is facilitated by an online platform that acts as an intermediary, matching borrowers with lenders.

In practice, there are two types of peer-to-peer lending: conventional peer-to-peer lending and sharia peer-to-peer lending. Sharia peer-to-peer lending is a fintech service in the field of financial services that follows sharia principles, connecting the giver and recipient of financing through the establishment of a

sharia contract based on an electronic system connected to an interconnected network (internet). (Lova, 2021). The difference between the two lies in the terms of the transaction or contract used, the type of investment must not be in haram businesses that are prohibited by sharia. The existence of Islamic peer-to-peer lending is needed so that community transactions using sharia-based financial institutions can be fulfilled easily. (Rabbani et al., 2023). The development of Islamic financial technology can facilitate the liquidity of sharia money market players.

P2P lending provides an alternative to traditional banking channels and can offer benefits for both borrowers and lenders. Borrowers may have access to funds at potentially lower interest rates than traditional lenders, while investors can diversify their investment portfolios and potentially earn higher returns compared to traditional savings accounts or other investment options.

It's important to note that P2P lending carries risks, including the possibility of default by borrowers, lack of regulation, and potential liquidity issues. As with any investment, individuals considering P2P lending should carefully evaluate the risks and rewards and understand the terms and conditions of the platform they are using. Additionally, the regulatory environment for P2P lending varies by country, so it's important to be aware of the legal and regulatory framework in the relevant jurisdiction.

As an emerging investment market, peer-to-peer lending has great potential, providing new challenges in decision-making (Luo et al., 2011). It has been found that investors make different investment decisions, due to differences in knowledge structures, information sources, cognitive development, and behavioral preferences. In peer-to-peer lending markets, transaction costs are reduced by eliminating costly intermediaries, but the problem of information asymmetry is more severe than in traditional markets. This is because most individual lenders in peer-to-peer lending do not have financial expertise, and the lending experience takes place in an unfamiliar online environment. (Lee & Lee, 2012).

This challenge has led to a lot of sentiment among the public. Therefore, this research will take a closer look at the sentiments expressed in scientific publications related to Islamic peer-to-peer lending. Sentiment analysis or opinion mining is the process of understanding, extracting, and processing text data automatically to obtain sentiment from the information contained in opinion sentences. Sentiment analysis is

carried out to see the tendency of opinion or opinion on a problem or object by a person, whether it is negative or positive. (Rusydia, 2018). Research related to sentiment on peer-to-peer lending has been carried out by several studies, such as Suryono & Budi (2020) who examined the positive and negative sides of peer-to-peer lending on online news in Indonesia. This study tested the performance of four machine learning algorithms namely Naïve Bayes (NB), Logistic Regression (LR), Support Vector Machine (SVM), and Random Forest (RF) to classify peer-to-peer lending sentiment. The results showed that the Support Vector Machine (SVM) classification model achieved the highest accuracy score of 63.61% on TFIDF Unigram-Trigram features compared to other models. Niu et al. (2020) conducted web scraping to collect more than 240,000 comment text data. The results show that lenders have a positive attitude towards peer-to-peer lending, although this trend fluctuates downward over time. The safety, return rate and compliance of peer-to-peer lending are the issues that lenders are most concerned about. This study reveals the core areas of study that influence lenders' emotions and trust and provides a theoretical foundation and empirical reference for relevant platforms to improve their operational level while enhancing competitiveness and effectiveness.

Based on these studies, it can be concluded that to date, empirical studies have been conducted on sentiment analysis in the field of peer-to-peer lending. Therefore, this research attempts to analyze sentiment on the topic. The purpose of this research is to identify the extent of development and sentiment related to peer-to-peer lending through scientific journal publications. This research also aims to see what are the positive and negative issues regarding the topic. The data analyzed consists of 200 journals obtained through the Dimensions database from 2009 to 2023. Dimensions is one of the largest scientific literature databases outside of Scopus and Web of Science (WoS).

## RESEARCH METHOD

This research uses a qualitative research method sentiment analysis using secondary data sourced from various scientific publications during the period 2009 to 2023 with the theme "peer-to-peer lending". The sampling technique used in this research is purposive sampling method, which aims to fulfill certain information in accordance with the desired research objectives. Data retrieval is done by searching for

journals indexed in the Dimensions database by typing the keyword "peer-to-peer lending". After that, scientific articles or journals that are relevant to the research theme will be selected based on the publication data that has been collected. There are 200 scientific publications from the research theme "peer-to-peer lending" that are sampled. To see the sentiment in each journal related to "peer-to-peer lending", the author uses SentiStrenght software.

SentiStrenght is an opinion mining algorithm that uses a dictionary or lexicon-based approach that works by detecting each word or phrase from an abstract text by checking terms that contain sentiment and then the resulting output is the weight of the detected word or phrase. By utilizing lexical with a dual scale system, SentiStrength wants to show that humans can feel positive emotion and negative emotion simultaneously, to a certain extent independently. (Maulida & Rusydia, 2023).

Sentiment analysis, also known as opinion mining, is a natural language processing (NLP) technique that involves determining the sentiment or emotional tone expressed in a piece of text. The goal of sentiment analysis is to understand and categorize the subjective opinions, feelings, or attitudes expressed by individuals or groups towards a particular topic, product, service, or event.

Sentiment classes consist of high positive, positive, neutral, negative and high negative sentiments. Each sentiment class has a different score interval, high positive has a score of 3-5, positive has a score of 1-2, neutral score 0, negative score -1 to -2 and high negative has a score of -3 to -5. The sentiment score is then calculated by summing up the sentiment score of each sentence submitted by the researcher in the SentiStrength software. Positive sentiments are opinions from researchers that are positive and tend to be optimistic in responding to the theme raised. Meanwhile, negative sentiments are the opinions of researchers that are negative and tend to express criticism in examining the theme.

Several studies with similar sentiment analysis methods, for example, can be seen in the study conducted by Maulida & Hakim (2022), Maliha (2023), Rusydia & Marlina (2020), Isa & Suryomurti (2023) As-Salafiyah & Rusydia (2021), and Riani et al., (2022). The latest study examines waqf sentiment analysis. This study aims to analyze the sentiment generated from the social media 'Twitter' application regarding Islamic cash waqf.

## RESULT AND DISCUSSION

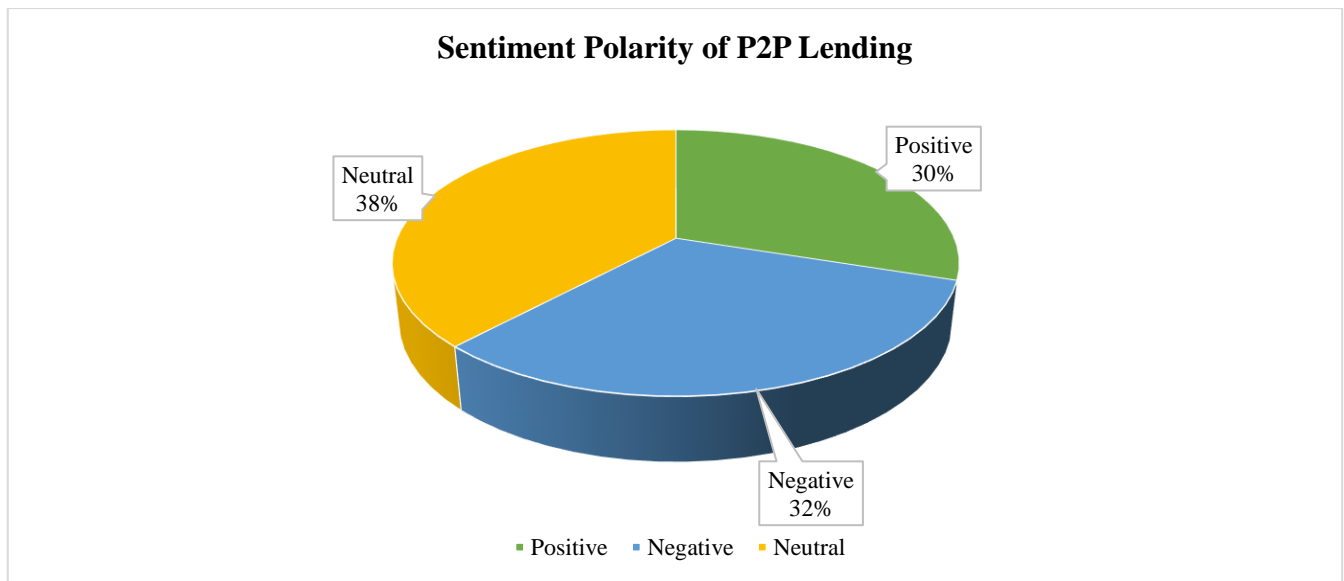


Figure 1. Sentiment Polarity of P2P Lending

The pie chart above provides a visual representation of how sentiment related to the topic of peer-to-peer lending is spread. From the data presented, it can be concluded that the majority of the sentiment is neutral, reaching 38%. This neutral sentiment indicates an impartial attitude, where information is conveyed without a clear opinion, focusing only on facts or data related to peer-to-peer lending. Negative sentiment came in second at 32%, indicating a critical or skeptical view of the topic. This could reflect disapproval or

concern over certain aspects of peer-to-peer lending practices. On the other hand, positive sentiment stands at 30%, indicating that there is a minority of opinions that positively welcome and support peer-to-peer lending. This may reflect an appreciation of the benefits or positive potential of this lending model. Overall, the sentiment polarity analysis provides a deeper understanding of the diverse views and attitudes that appear in published articles on peer-to-peer lending.

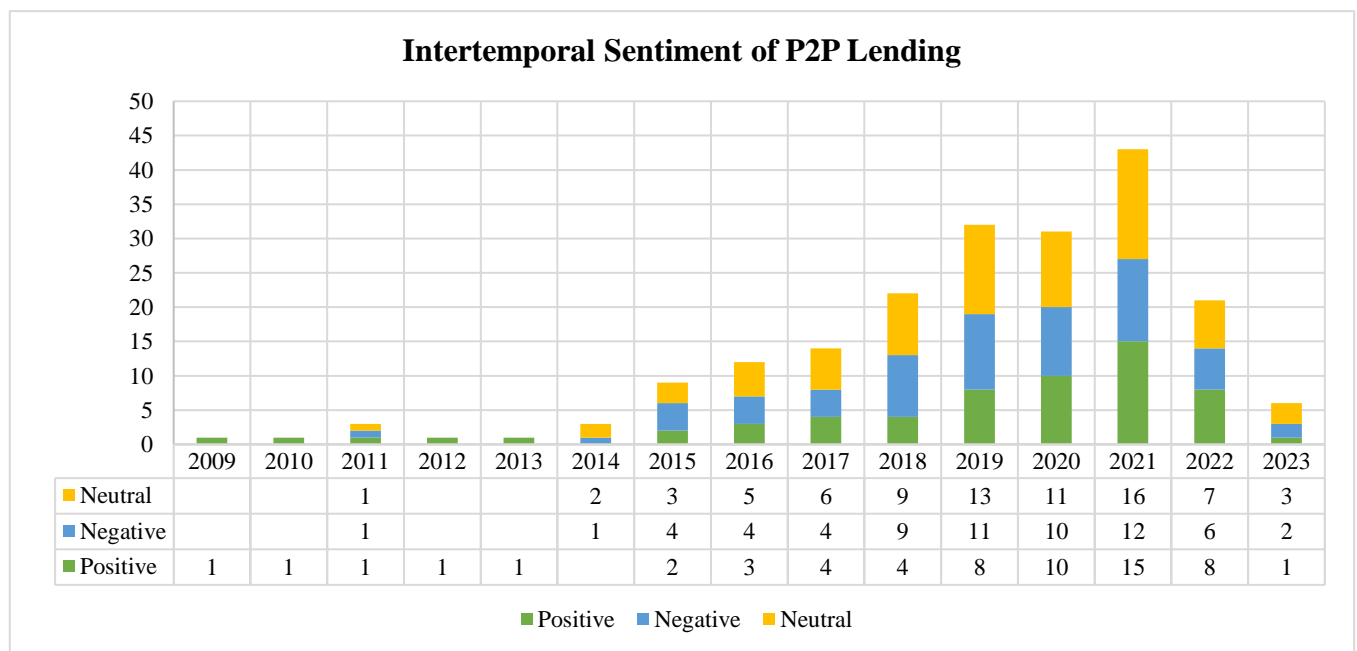


Figure 2. Intertemporal Sentiment of P2P Lending

The figure above is a graph of sentiment development on the topic of peer-to-peer lending. Based

on the figure, it is known that the number of sentiments fluctuated during the period 2009-2023. With the

number of sentiments experiencing variations, 2021 is the year with the highest number of sentiments, reaching 43 sentiments, which are dominated by neutral sentiments as many as 16 sentiments.

## Findings

A sentiment analysis of 200 published articles related to peer-to-peer lending revealed pros and cons

(both positive and negative) in the literature. Some of the issues raised reflect the complexity and variety of views on peer-to-peer lending practices. A summary of these issues may provide a clearer picture of the diversity of opinions that readers or researchers interested in this topic may encounter. Below is a summary of the issues raised in the publications analyzed.

Table 1. Positive and Negative Issues of Peer-to-Peer Lending

Positive	Negative
<b>Investors:</b>	
For investors, P2P lending provides an opportunity to diversify their portfolio by investing in small loans to a variety of borrowers (Luo et al., 2011; Verstein, 2011).	As with all forms of lending, there are risks associated with the inability of borrowers to repay funds. This can be a significant issue for peer-to-peer finance providers and investors alike (Fong, 2015; Freedman & Jin, 2012; Li et al., 2016).
P2P lending offers a relatively easy and fast investment process. Investors can easily make their investments online, monitor their portfolios, and view their investment returns transparently. (Rabbani et al., 2023).	
<b>Borrower:</b>	
Peer-to-peer lending can provide access to finance to individuals or businesses that may find it difficult to obtain support from conventional financial institutions. (Lee & Lee, 2012; Li et al., 2016; Xu et al., 2011).	One common negative sentiment is that the interest may be higher compared to traditional financing options. Borrowers may find the interest burden significant and difficult to repay the loan (de Roure et al., 2021; Tao et al., 2017).
	In some jurisdictions, consumer protection for P2P borrowers is less than in traditional financial institutions. This makes borrowers feel less legally protected (Fong, 2015).
<b>P2P Lending Platform</b>	
The lending process through P2P lending is faster and more efficient than through conventional financial institutions. Decisions can be made quickly, allowing for faster access to funds (Verstein, 2011).	Some P2P lending platforms may lack transparency in providing information related to risks, fees, and the financing process, which may cause confusion for borrowers and investors. (de Roure et al., 2021; Duan et al., 2009; Klafft, 2008; Xu et al., 2011).
	Some borrowers may feel that Islamic P2P lending in particular has limitations in the products and services offered, especially when compared to conventional financial institutions.
<b>External:</b>	
P2P lending can play a role in improving financial inclusion by expanding access to financial services to those previously overlooked by traditional institutions. (Fong, 2015).	P2P lending is vulnerable to market fluctuations and changes in economic conditions, which may affect the borrower's ability to repay the loan. (Herzenstein & Andrews, 2008).
	Although P2P lending can increase access to finance, not everyone has equal access to these platforms, especially those without internet access or adequate financial understanding. (Lee & Lee, 2012).

Furthermore, the study uncovered several findings that highlight the development of P2P lending. The first finding highlights the polarity of sentiment in peer-to-peer lending, which shows the dominance of neutral sentiment, followed by negative sentiment, and positive sentiment. This shows the complexity of people's views on these platforms. In this study, negative sentiment dominates over positive sentiment. This finding is different from the statement of [de Roure et al. \(2021\)](#) which states that peer-to-peer lending is experiencing a positive trend in the provision of loans and is successful in various countries. In addition, the findings of this study are also supported by a number of issues that arise from the perspectives of investors, borrowers, P2P lending platforms, and external or market factors. The findings also show that the trend of sentiment related to peer-to-peer lending has increased over the years. This finding is in line with the expanding development of the investment market, where peer-to-peer lending has great potential to grow in the market. [\(Luo et al., 2011\)](#). Therefore, the need for literacy through scientific publications related to peer-to-peer lending is becoming an urgent concern.

Peer-to-peer lending has become a rapidly growing financial instrument in recent years. This phenomenon has attracted significant attention from researchers [\(Lee & Lee, 2012\)](#). The development of peer-to-peer lending platforms not only opens up new financing channels for students, farmers, working-class individuals, and other groups not covered by the traditional financial system, but also provides convenience, low thresholds, and high rates of return. [\(Li et al., 2016\)](#). Peer-to-peer lending allows individuals to lend to each other directly through an Internet-based platform, without the intermediary of traditional financial institutions [\(Luo et al., 2011\)](#). While it provides borrowers with flexibility and gives investors access to a wide range of investment opportunities, the ease of use of peer-to-peer lending also poses challenges, particularly in terms of moral hazard and information asymmetry. These challenges often arise in digital lending. Unlike banks, which have strict supervision and monitoring processes for borrowers, with lower administrative costs, in peer-to-peer lending, it is difficult to effectively monitor individual borrowers. Hence, administrative costs in peer-to-peer lending tend to be higher [\(de Roure et al., 2021\)](#). These challenges underscore the importance of managing moral hazard and information asymmetries in order to sustain the positive development of peer-to-peer lending.

In its development, peer-to-peer lending has two types, namely conventional peer-to-peer lending and sharia-based peer-to-peer lending. This sharia fintech service offers and uses mechanisms based on sharia principles. Sharia peer-to-peer lending fintech is a fintech service in the field of financial services that follows sharia principles, connecting financing providers and recipients through the establishment of sharia contracts based on electronic systems connected to an interconnected network (internet). In the terminology of sharia peer-to-peer lending fintech, this system is designed with the concept of organizing digital-based financing transactions that comply with the principles of Islamic sharia, by avoiding practices that are contrary to Islamic sharia. [\(Baihaqi, 2018\)](#).

In general, the fundamental difference between conventional peer-to-peer lending fintech and sharia peer-to-peer lending fintech lies in the adoption of sharia principles in every transaction. These sharia principles include the prohibition of maysir (gambling), gharar (uncertainty or speculation), and riba (interest). Therefore, people can feel confident in transacting through sharia peer-to-peer lending because it does not involve the element of interest, unlike conventional fintech in general. [\(Lova, 2021\)](#). The existence of peer-to-peer lending, both conventional and sharia, provides additional options in the evolving world of finance, with their respective challenges and opportunities. In this context, this study contributes to broadening the horizons and financial literacy related to this trend.

## CONCLUSION

Based on the results of the research analysis, it can be concluded that neutral sentiments dominate perceptions related to "peer-to-peer lending" with a percentage of 38%. Negative sentiments followed with a percentage of 32%, while positive sentiments reached 30%. These findings illustrate the complexity and variety of views associated with these platforms in the published literature. In addition, the research highlighted that 2021 recorded the highest number of sentiments, 43, and neutral sentiments dominated within this number with 16. This dynamic shows the changing perception of peer-to-peer lending over time in the published literature. This research also examines the positive and negative issues of various related elements in the scientific literature, such as investors, borrowers, peer-to-peer lending platforms, and the market. The analysis of these issues provides deeper insights into the challenges and

potentials in the peer-to-peer lending ecosystem. The findings can serve as a basis for a more holistic understanding of the development of peer-to-peer lending.

## REFERENCES

- Assalafiyah, A., & Rusydiana, A. S. (2021). Professional Zakat. In *Indonesian Conference of Zakat-Proceedings* (pp. 15-22).
- Baihaqi, J. (2018). Sharia-based Financial Technology Peer-To-Peer Lending in Indonesia. *TAWAZUN: Journal of Sharia Economic Law*, 1(2), 116. <https://doi.org/10.21043/tawazun.v1i2.4979>
- De Roure, C., Pelizzon, L., & Tasca, P. (2021). How Does P2P Lending Fit into the Consumer Credit Market? *SSRN Electronic Journal*, 30. <https://doi.org/10.2139/ssrn.2848043>
- Duan, W., Gu, B., & Whinston, A. B. (2009). Informational cascades and software adoption on the Internet: An empirical investigation. *MIS Quarterly: Management Information Systems*, 33(1), 23-48. <https://doi.org/10.2307/20650277>
- Fong, A. (2015). Regulation of peer-to-peer lending in Hong Kong: State of play. *Law and Financial Markets Review*, 9(4), 251-259. <https://doi.org/10.1080/17521440.2015.1114248>
- Freedman, S., & Jin, G. Z. (2012). Do Social Networks Solve Information Problems for Peer-to-Peer Lending? Evidence from Prosper.com. *SSRN Electronic Journal*, November. <https://doi.org/10.2139/ssrn.1936057>
- Herzenstein, M., & Andrews, R. L. (2008). The democratization of personal consumer loans? Determinants of success in online peer-to-peer lending communities. *Boston University School of Management Research Paper*, 14(6), 1-45. <http://www.prosper.com/downloads/research/democratization-consumer-loans.pdf>
- Huang, R. H. (2018). Online P2P Lending and Regulatory Responses in China: Opportunities and Challenges. *European Business Organization Law Review*, 19(1), 63-92. <https://doi.org/10.1007/s40804-018-0100-z>
- Isa, M., & Suryomurti, W. (2023, June). Sentiment Analysis on the Perception of Sharia Fintech in Indonesia. In *4th International Conference on Islamic Economics, Business, Philanthropy, and PhD Colloquium (ICIEBP 2022)* (pp. 146-169). Atlantis Press.
- Klafft, M. (2008). Online peer-to-peer lending: A lenders' perspective. *Proceedings of the 2008 International Conference on E-Learning, e-Business, Enterprise Information Systems, and e-Government, EEE 2008, January 2008*, 371-375. <https://doi.org/10.2139/ssrn.1352352>
- Lee, E., & Lee, B. (2012). Herding behavior in online P2P lending: An empirical investigation. *Electronic Commerce Research and Applications*, 11(5), 495-503. <https://doi.org/10.1016/j.elerap.2012.02.001>
- Li, J., Hsu, S., Chen, Z., & Chen, Y. (2016). Risks of P2P Lending Platforms in China: Modeling Failure Using a Cox Hazard Model. *Chinese Economy*, 49(3), 161-172. <https://doi.org/10.1080/10971475.2016.1159904>
- Lova, E. F. (2021). Sharia Peer To Peer Lending Financial Technology: A Comparison and Analysis. *JebLR*, 1(2), 29-41. <https://jurnal.unej.ac.id/index.php/JEBLR/article/download/27732/10388>
- Luo, C., Xiong, H., Zhou, W., Guo, Y., & Deng, G. (2011). Enhancing investment decisions in P2P lending: An investor composition perspective. *Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, August, 292-300. <https://doi.org/10.1145/2020408.2020458>
- Maliha, H. (2023). Productive Zakat: An Intertemporal Sentiment Analysis. *Islamic Economics and History*, 2(1).
- Maulida, S., & Hakim, B. A. (2022). Twitter Sentiment Analysis on Green Finance. *Accounting and Sustainability*, 1(1).
- Maulida, S., & Rusydiana, A. S. (2023). Islamic Microinsurance: Problem, Future Prospect and Sentiment Analysis. *Tamkin Journal*, 2(1). <http://journals.smartinsight.id/index.php/TJ/index>
- Niu, B., Ren, J., Zhao, A., & Li, X. (2020). Lender trust on the P2P lending: Analysis based on sentiment analysis of comment text. *Sustainability (Switzerland)*, 12(8). <https://doi.org/10.3390/SU12083293>
- Rabbani, M. R., Khan, S., & Atif, M. (2023). Machine learning-based P2P lending Islamic Fintech model for small and medium enterprises in Bahrain. *International Journal of Business Innovation and Research*, 30(4), 565-579. <https://doi.org/10.1504/IJBIR.2023.130079>

- Riani, R., Rusydiana, A.S., & Ikhwan, I. (2022). Sentiment Analysis of Multilingual Tweets on Cash Waqf. *International Journal of Waqf*, 2(1).
- Rusydiana, A. S. (2018). Sentiment Analysis of Islamic Waqf: Evidence In Indonesia. *Maqdis: Journal of Islamic Economic Studies*, 3(2), 123-134. [https://www.academia.edu/download/57932430/2018\\_MAQDIS\\_Sentiment\\_analysis\\_of\\_Islamic\\_waqf\\_\\_Evidence\\_in\\_Indonesia.pdf](https://www.academia.edu/download/57932430/2018_MAQDIS_Sentiment_analysis_of_Islamic_waqf__Evidence_in_Indonesia.pdf)
- Rusydiana, A. S., & Marlina, L. (2020). Analisis sentimen terkait sertifikasi halal. *Journal of Economics and Business Aseanomics*, 5(1), 69-85.
- Suryono, R. R., & Budi, I. (2020). P2P Lending Sentiment Analysis in Indonesian Online News. 172(Siconian 2019). <https://doi.org/10.2991/aisr.k.200424.006>
- Tao, Q., Dong, Y., & Lin, Z. (2017). Who Can Get Money? Evidence from the Chinese Peer-To-Peer Lending Platform. *SSRN Electronic Journal*, 19, 425-441. <https://doi.org/10.2139/ssrn.2863360>
- Verstein, A. (2011). The Misregulation of Person-to-Person Lending. University of California, Davis, 45(445), 445-530.
- Xu, Y., Qiu, J., & Lin, Z. (2011). How does social capital influence online P2P lending? A cross-country analysis. *Proceedings - 2011 International Conference on Management of e-Commerce and e-Government, ICMecG 2011*, 238-245. <https://doi.org/10.1109/ICMeCG.2011.62>
- Yang, Q., & Lee, Y. C. (2016). Critical factors of the lending intention of online P2P: Moderating role of perceived benefits. *ACM International Conference Proceeding Series*, 17-19-August-2016(August). <https://doi.org/10.1145/2971603.2971618>