

The impact of Fintech on Islamic banking and the collaboration model: a systematic review studies in Indonesia

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Abstract

The Fintech company has raised its number significantly in Indonesia and threatened the banking sector as Islamic Banking is not the exception. Fintech can provide better financial services than Islamic Bank with its technological advantages. This research aims to observe the effect of Fintech's on Islamic banks and discover the collaboration model between Fintech and Islamic banks to improve financial services. The method was carried out by Systematic Literature Review (SLR), then analyzed using Nvivo 12 to quantify the words counted to the papers found. The result showed that there were 14 papers found to analyze in the systematic review. According to Nvivo 12 words counted result, the highest words counted was 'services' with 21%, followed by 'user' and 'customers' combined with 16%. Furthermore, Fintech acts as the disruptor for Islamic Banking, shown in its Return on Asset and its potential to take over the millennial customers segment. The collaboration can be done by sharing product marketing, loans, and transaction services. For the customer, big data analysis, the legal aspects, risk of human error, and data security protocol should be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled.

Keywords: *Collaboration model, Fintech, Islamic banking*

JEL Classification: G2, G3, G4

INTRODUCTION

A modern sector called the "Fintech industry" arose and exploded across the globe amid the digital revolution 4.0 (Ali et al., 2019a). Due to its similar yet disruptive financial services, Fintech is becoming a significant disruptor to the current banking and finance company (Daryanto et al., 2020; Vives, 2017). Islamic banking and finance industries are also subject to tremendous strain, in particular, because the cost of fees is higher in Islamic banks than in traditional banks. Fintech is inevitably circled the entire room of finance.

Fintech start-up has played and entered the financial sectors, which successfully attracts clients' attention, challenging traditionally established financial businesses (Kohardinata et al., 2020). Gomber et al. (2017) occurred due to the following factors; firstly, Fintech start-up businesses provide new services/products and solutions to meet customers' needs that incumbents have previously missed. Second, the implementation

of new concepts and technologies by Fintech start-up enterprises has created new prospects for promoting services and products. Last, information technology companies are better adapted to creating products and services in an exceptionally inventive environment. Companies must be creative and adaptable since development, information, and communication technology changes can be dynamic and fast. Fintech companies focus on low-cost internet-based business models, and they are innovative and agile enough to challenge incumbents.

Fintech has exploded in popularity due to the widespread use of digitization, which is critical to making information more accessible, faster, and less expensive than traditional methods (Hidajat, 2020). Buchak et al. (2018) measured that the increased regulatory burden on conventional banks (in terms of increased capital requirements and legal scrutiny) is estimated to explain approximately 55% of shadow bank growth in the period. However, the use of financial technology explains 35% of this dynamic. Global Fintech investment reached a new high of \$16.6 billion in 2017 compared to 2016 (\$13.3 billion) (CB Insights, 2018). Asia led fintech venture capital investment in 2018, with \$22.65 billion in 563 transactions. The US touched \$11.89 billion in 659 transactions, led by Asia. In 363 transactions, Europe hit \$3.53 billion (CB Insights, 2018).

Also, Fintech can potentially disrupt existing financial intermediaries and banks, particularly with the generation of new business models based on the use of big data (Thakor, 2020). Fintech facilities can help better determine loan applicants' creditworthiness when an institution screens them using big data, artificial intelligence, and computer learning and enhances the interface between financial clients and their service providers (Vives, 2017). For example, the US mortgage sector where shadow banks (non-bank lenders) nearly tripled their market share from 2007 to 2015. Fintech companies accounted for over a third of shadow bank loan originations by the end of the era (Buchak et al., 2018).

The competition in the banking sector has changed from the big and small banks dynamic towards the competition with Fintech (Kolesova. & Girzheva, 2018). As a result, FinTech firms are viewed as serious competitors to the traditional banking system (Al-Ajlouni & Al-Hakim, 2019). However, Islamic Bank is not the exception. Looking at Fintech with juggernaut potential, the Islamic bank has shown a rather pessimistic counter-back. Some studies observed that Islamic financial institutions' innovation levels are poor as the evolution of Islamic finance is considered a recent activity (Panjwani & Shili, 2020; Al-Salem, 2009). Besides, Abu Bakar et al. (2019) mentioned that the actual performance of 17 sharia compliance in the Malaysia stock market after IPO bounced back with MACAR Value -46% in 2014-2015, and the company performed less than the benchmark. The various factors need to be reviewed to understand Fintech's existence on Islamic banking.

Sharia principles, associated with certain ideological guidelines, gave rise to Islamic banking practices. The paradigm was first developed according to rewards and risk-sharing to promote social well-being (Hassan & Aliyu, 2018). In theory, Islamic banking eliminates interest and an opportunity for gambling, speculation, and unclear risk (*gharar*). Furthermore, illicit transactions, including pornography, cigarettes, short-selling, and other activities deemed to be harmful to society, are prohibited (Hassan & Aliyu, 2018; Ismail, Mohd Noor Azli Ali Khan & Azizi, 2011). Instead, the system condemns exploitation and concentrates on actual economic activities through stakeholders' rewards and risk-sharing of business outcomes. It also entails a stable financial, economic system (Schoon, 2008), and participate in sale and lease-based

(*Ijara*) contracts (which must be underlying by assets), benevolence finance (*Qard Hasan*), and pooling expertise (Aliyu & Bauchi, 2014)

Various research discussed the impact of Fintech on Banking sectors (Kolesova & Girzheva., 2018; Buchak et al., 2018; Vives, 2017; Phan et al., 2020; Daryanto et al., 2020). However, the area of research in discussing the impact of Fintech on Islamic Bank is explicitly still scarce. This paper contributes to the discussion related to the impact of Fintech's existence on Islamic bank performance and discovers the collaboration model between Fintech and Islamic banks to improve financial services.

METHODS

Systematic Literature Review (SLR) was used as a study method to identify, characterize, and assess the existing topic of Fintech and Islamic Banking performance. The SLR applies research questions, searching process strategy, inclusion and exclusion criteria, quality assessment, data collection, and data analysis (Hariyati, 2010). Furthermore, the research questions are as follows;

1. RQ 1: How does Fintech affect Islamic Banking?
2. RQ 2: How does the collaboration between Fintech and Islamic Banking benefit both parties?

Through February 2021, the studies were searched using boolean protocol through keywords (“Islamic Bank” OR “Sharia Bank”) AND (“Fintech” OR “Financial Technology) AND (“Performance” OR “Profitability”) AND (“Indonesia”) in Publish and Perish software with google scholar database. Furthermore, we reviewed the references in relevant studies to identify the additional eligible papers. The titles and abstracts were screened to eliminate the duplication and the irrelevant studies which did not include the Islamic Bank and Fintech information in their abstracts. Lastly, we reviewed the full text and filtered it using inclusion and exclusion criteria.

We included any type of studies with the published period's range of 2017 – 2021 (4 years). Furthermore, English and Indonesian language were included. We selected the outcome based on Islamic banking and Fintech in Indonesia and excluded other nationals except for the comparison study. Lastly, we had journal papers, conference papers, proceedings, and case reports, whereas review articles and bibliometric studies were excluded.

Two independent assessors conducted the quality assessment to select the studies for review by reading the full text. Any disagreement will be recorded using Cohen Kappa to evaluate agreement reliability between assessors. However, if the disagreement happened, the third consultant would decide the papers to reach a consensus.

By reviewing the studies' text, graphs, figures, and tables, two independent assessors extracted the study characteristic and outcomes. Also, we extracted the data of the first author's name, published year, type of paper, and finding. If the data were not available, we would contact the authors to obtain them. Furthermore, we focused on the Islamic bank performance and Fintech for the finding analysis.

RESULT AND DISCUSSION

Result

Figure 1 is the flowchart of the studies selection process adapted from PRISMA 2020 (Page et al., 2021). There are four stages of the studies collection process, namely 1) the searching process, which provides information of the total paper found based on the title filter in the database. Furthermore, if any duplicates were observed, the author

must remove them. 2) Exclusion and inclusion are the screening process of paper abstracts to select the relevant studies according to the criteria. 3) Quality assessment is done by reading the full text and yielding the included studies to review, whereas the excluded paper should be justified. Additionally, the agreement of paper final selection done by the author and the assessor should be analyzed by Kohen Kappa. 4) Final paper informs the total of the papers to review by the author.

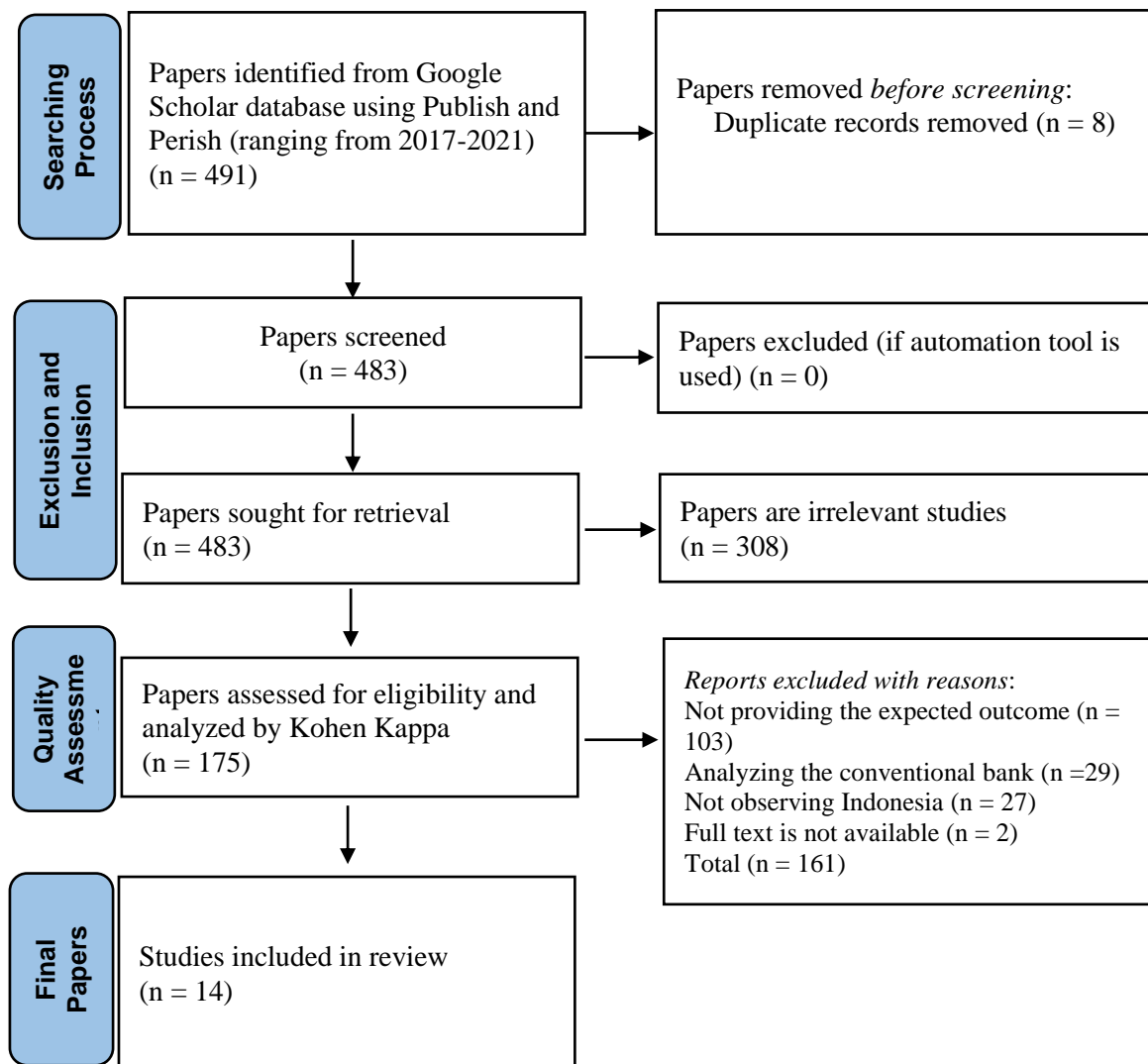


Figure 1. Studies selection process

The flowchart of studies selections are as follows; searching process (491 papers), duplicate found (8 papers), exclusion and inclusion (308 papers), quality assessment (175 papers), and final papers (13 papers)

Table 1. Cohen Kappa reliability result in quality assessment

	Value	Asymp.Std. Error ^a	Approx. T ^b	Approx. Sig.
Measure of Agreement Kappa	.894	.061	11.832	.000
N of Valid Cases	.175			

a. Not assuming the null hypothesis

b. Using the asymptotic standard error assuming the null hypothesis

Kohen Kappa Value on assessor agreement in the quality assessment process is 0.894 (high) and sig 0.00 < 0.05 (significant). In Table 2, 13 articles and 1 conference paper were retrieved to analyze our systematic review further. These studies discussed the impact of Fintech on Islamic banking in various aspects and predictors, particularly in the practice of religiosity and sharia compliance (Kusuma & Wibowo, 2020; Usman et al., 2021), the acceptance model, and the technology behavior of the user (Darmansyah et al., 2020; Suhartanto et al., 2021). Furthermore, constraints pointed out were poor IT infrastructure, geographical challenge (Ali et al., 2019b), and the lack of aggressivity of Islamic banking in competing with Fintech (Monika et al., 2021). Haris (2020) has studied a collaboration model that potentially attracts new market segments and increases Islamic bank competitiveness (Mazza Basya & Utami Silfia Ayu, 2020; Aisyah, 2018; Hidayah et al., 2020; Andri et al., 2020; Riza, 2019). However, the collaboration risks that have to be mitigated in the future were also mentioned, such as HR risk, operational risk, liquidity risk, and reputation (Hasan & Sunarti, 2019)

Table 2. Key findings of the Fintech and Islamic banks after quality assessment

No	Authors and Year	Document type	Finding
1	(Kusuma & Wibowo, 2020)	Article	The major factor of customer decision in using the Islamic Bank is to practice religiosity and expectancy of performance improvement while using technology-based services
2	(Darmansyah et al., 2020)	Article	The planned behavior, acceptance model, and use of technology have a significant impact on encouraging the behavior intention of using Islamic Financial technology in Indonesia
3	(Ali et al., 2019b)	Article	The Islamic financial inclusion in Indonesia (2014-2017) was very low due to the challenge of poor IT development, geographical expansion, and lack of infrastructure support.
4	(Monika et al., 2021)	Article	The development of Fintech had a negative effect on the ROA of state-owned Islamic banks due to its lack of aggressiveness and adaptability to technology. Thus, Fintech contributes as disruption to the state-owned Islamic Bank in Indonesia
5	(Mazza Basya & Utami Silfia Ayu, 2020)	Article	Based on SWOT analysis, the opportunity of Islamic banks in using Fintech may increase the market size by embracing the internet user in Indonesia and improve the financial service by collaborating with small fintech company
6	(Aisyah, 2018)	Article	The ease of financial transaction, user-friendly, and more convenient services by Islamic Bank can increase customer satisfaction and loyalty. Thus, collaboration with Fintech is considered necessary
7	(Hidayah et al., 2020)	Article	The use of information and technology has a significant impact on the sustainable competitive advantage of Islamic Bank
8	(Andri et al., 2020)	Article	The sharia innovation on technology and efficiency has a positive and significant effect on the sustainability of Bank Syariah Mandiri, Lampung.
9	(Suhartanto et al.,	Article	In millennial consumers, the attitude towards

No	Authors and Year	Document type	Finding
			artificial intelligence (AI) and trust in banking transactions increased the millennial loyalty in using Islamic Bank in Aceh.
10	(Riza, 2019)	Article	In millennial consumers, the perceived ease of use (PEOU) and perceived usefulness (PU) correlate to intending to use Islamic digital banking. Thus, the fintech integration may attract millennial segments in Indonesia.
11	(Usman et al., 2021)	Article	The sharia compliance (SC), the knowledge of SC, and the belief of SC have a significant impact on customer satisfaction in using digital Islamic bank
12	(Swastiratu et al., 2019)	Article	Based on SWOT analysis, the collaboration strategy (SO, ST, and WT) between Islamic banks and Fintech that can be implemented are as follows; 1) Optimization of data access of Islamic bank; 2) increasing the availability and adversity of Islamic bank products; 3) More competitive and efficient system enhancement; 4) Improving the customer experience in using Fintech in an Islamic bank.
13	(Haris, 2020)	Article	To develop synergy between Fintech and Islamic Bank in improving the medium-small enterprises in Indonesia, can be done as follows; 1) cross-selling scheme; 2) channeling and joint financing; 3) referral; 4) forming fintech consortium; 5) shadow investor collaboration, and 6) outsourcing platform
14	(Hasan & Sunarti, 2019)	Conference Paper	The risks of using Fintech in Islamic Banks in Indonesia are HR risks, operational risks, liquidity risks, legal risks, and reputation.

Note; Based on quality assessment using Kohen Kappa reliability analysis, 14 papers were summarized to answer the research questions.

Figure 2 showed that the words services (21%) are the most frequent word used in the 14 papers, followed by customers and users combined respectively (16%), financing (10%), fintech (10%), technology (10%), data (9%), sharia (8%), Islamic Bank (8%), and model (8%)

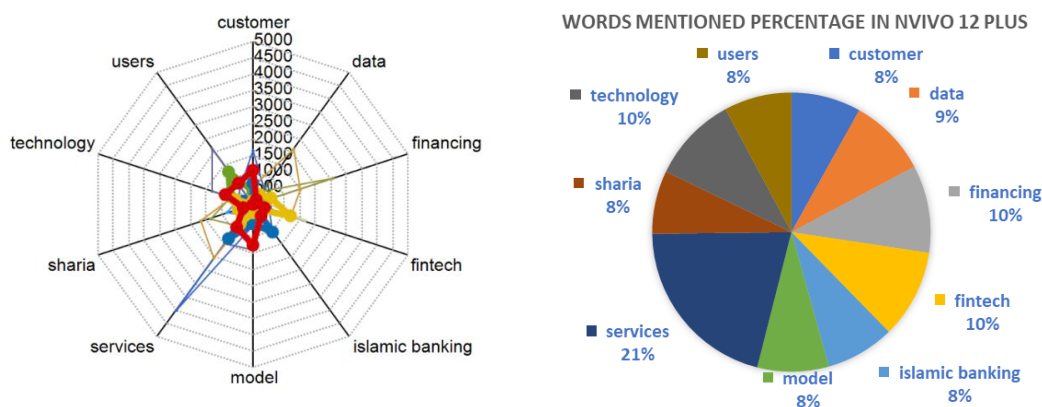


Figure 2. Words coding analysis using Nvivo 12 plus

Discussion

Due to the exponential growth of Fintech in Indonesia, which is expected to reach 149 fintech enterprises by December 2020 (OJK, 2021), previous research has revealed that Fintech may contribute as a disruptor for Islamic banks. In state-owned Islamic banks, the existence of Fintech had a negative effect on ROA (return on assets) (Monika et al., 2021). Furthermore, it appears that state-owned Islamic banks struggle hard to adapt to the technological advance of Fintech. Not to mention, an Islamic bank is considered to have a lack of aggressiveness in facing competition with Fintech. In the case of study research, the customer of state-owned Islamic Bank in south Jakarta felt dissatisfied with the services provided by Islamic Bank (Aisyah, 2018) due to the excessive queue, unclear standardization of branches, and the limited technology-based services. Therefore, Islamic banks should provide advanced technology and banking delivery systems to the customer.

The banking services in the digital era should not only focus on the tangible aspects of the business. Nowadays, the customers are reluctant to come and queue to conduct the transaction in the banking branch, yet, they would rather demand faster, more convenient, trustworthy, and advanced banking services. The increase of gadget users, improvement of internet bandwidth, growth of e-commerce in the market, and other online medium transaction inevitably change the nature of banking itself. In Islamic Bank in Lampung, Andri et al. (2020) suggested that technology innovation has a positive and significant effect on the bank sustainability and competitive advantage of state-owned Islamic banks (Hidayah et al., 2020). The huge shifting to the technology of everyday life has to be taken into account seriously by Islamic Bank in Indonesia to survive.

As a disruptor, Fintech closely approaches the existing customer in Islamic Bank and millennials as digital natives who are highly exposed to the mobile gadget. The technological advantages of Fintech may attract the internet user by constantly putting the advertisement of its product on social media. The social media users interested in financial services will be gathered and exposed to fintech companies promoting advertisement. The advertising algorithm creates traffic to promote fintech products on a bigger scale. This new technological advanced advertising method has gradually benefited Fintech in expanding customer segments more effectively.

On the contrary, Islamic banks did not aggressively promote their unique value proposition, relying on sharia compliance. According to Kusuma & Wibowo (2020), the Islamic Bank's major decision is to practice religiosity and prevent ones from *Riba* and *Gharar*. It may also contribute to customer satisfaction in using Islamic Bank (Usman et al., 2021). However, this research also emphasized that the customers expect the Islamic Bank to perform better by improving the technology-based services. Thus, Islamic bank needs to implement a technology-based strategy to improve the services, promotion, and products.

Fintech embraces the product of financial services from online payment services, peer-to-peer lending, and crowdfunding (Darmansyah et al., 2020) that closely embraces the whole banking services. As for the millennial segment, the Fintech and Islamic banks may share their financial services segment. As the credit card services would be disrupted by the pay later, which requires less bureaucracy, interbank money transfer would be replaced by e-money which charges less, peer to peer lending would be preferable instead of applying for the bank loan due to extreme floating rates, and crowdfunding services which defeats the banking sector to promote financial inclusion are arguably the major threat for Islamic Bank.

Furthermore, the studies conducted by Suhartanto et al. (2021) and Riza (2019) (2019) on millennials suggested that in using the Islamic Bank technology services like digital banking or mobile banking, the millennial perceived that it eased their transaction and found it useful. These studies confirmed that millennial has digital behavior and preferably use of which faster and more convenient for them in choosing transaction service method. Also, the words counted in 14 papers in this review showed supportive proof. The words ‘services’ appeared 21% followed by ‘customer’ and ‘user’ altogether 16% have demonstrated that the way fintech impacts the Islamic bank highly depends on the services provided and customers or users experiences.

In those aforementioned financial services, the existence of Fintech is a guerilla threat towards state-owned Islamic banks. On the contrary, Fintech is complementary to the private Islamic bank if we analyze the ROA (Monika et al., 2021). The exponential growth of FinTech companies has a positive effect on the ROA of private Islamic banks in Indonesia. In this scenario, because Fintech may harm the bank's dominating position, it encouraged private Islamic banks to use information technology and collaborate with Fintech peer-to-peer lending companies to run their operations more efficiently. This cooperation can generate profits by generating new client segments, products, and services using new technologies that provide new income opportunities and enhance efficiency. For Fintech, it gains more capital to provide financial services and obtain reputable-trustworthy as it attaches to the well-established brand of the bank as a national financial intermediary.

In promoting collaboration between Fintech and Islamic bank, SWOT analysis carried out by Swastiratu et al. (2019) showed that the strategy that can be implemented such as 1) optimization of data access of Islamic Bank; 2) increasing the availability and adversity of Islamic Bank products; 3) More competitive and efficient system enhancement; 4) Improving the customer experience in using Fintech in Islamic Bank. The benefits should be reciprocal and can be done by sitting together and discussing the strategy further in detail. Fintech acts as the newcomer, and the Islamic bank is unsure how much worth of investment put for this collaboration. Being fully aware of value prepositions is crucial in initiating the collaboration or conducting a merger if necessary.

However, the business structure differences of Fintech and Islamic Bank remain to be a challenge. Fintech, which is associated with technology-based financial services not necessarily solve the technology issue of Islamic Bank. It may work at ease for some areas like product promotion and marketing, loans, and transaction services. Still, the legal aspects, potentially human error, and data security protocol should be addressed further for the more sophisticated area related to the customer big data. Ignoring these aspects may lead to financial services errors which cause a bad reputation for the customer. As Hasan & Sunarti (2019) emphasized, this risk should be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled.

The collaboration between Fintech and Islamic banks may improve financial inclusion and play a big role in achieving the goal of SDGs. More importantly, it may empower the Micro, Small, Medium Businesses (MSMEs) in Indonesia. As Haris (2020) emphasized, the collaboration will ease financial access in proposing business

loans and *mudharabah*/risk-sharing investment for the MSMEs in Indonesia. MSMEs are not considered bankable as it does not provide a good company data record. With the help of Fintech, the MSMEs can be developed to be more bankable at a measurable scale. Thus, it may achieve more inclusive financial services in Indonesia.

CONCLUSION AND RECOMMENDATION

Conclusion

As the rapid growth of fintech companies in Indonesia, it acts as a disruptor for the state-owned Islamic Bank by affecting the ROA (Return on Assets) due to its lack of adaptability in facing the technological advance of Fintech. Fintech may disrupt not only millennial segments but also the whole gadget users who are constantly exposed to social media, thus making them the target of effective promotion in the digital era.

To compete with Fintech, the Islamic Bank should innovate and invest heavily in technology to improve sustainability and competitiveness. Also, Islamic Bank needs to focus more on the technology-based strategy to improve promotion and marketing, financial services products, and customer experiences to improve customer satisfaction.

For Islamic Bank, instead of treating the Fintech as a competitor, it is better to treat them as a partner by conducting collaboration which may generate profits by generating new client segments, products, and services using new technologies that provide new income opportunities by utilizing new technologies that can enhance efficiency. For Fintech, it gains more capital to provide financial services and obtain reputable-trustworthy as it attaches to the well-established brand of the bank as a national financial intermediary.

The collaboration challenge that may occur such as customer big data exploration, the legal aspects constraint, potentially human error, and data security protocol. It can be mitigated by tightening the registration system to minimize fraud, enhancing the internet server to prevent failure transactions, and closely cooperating with the Authority of Financial Service in Indonesia (OJK) to ensure the legal aspects are fulfilled

Recommendation

To provide a more comprehensive understanding regarding the impact and collaboration of Fintech and Islamic Bank, the review analysis can be broadened not only in Indonesia but also in ASEAN countries level. The exploration of the study finding will not be limited to either the fintech act as complementary or disruptor for the current banking (incumbent), but also understand how it interacts with existing Islamic Bank. Not to mention, each Islamic Bank's adaptability in ASEAN countries is a different one and another. Thus, the coping mechanism in facing Fintech can be adopted by the manager level of Islamic Bank in Indonesia.

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