THE EFFECT OF FINTECH AND BANK COLLABORATION ON BANKING PERFORMANCE IN INDONESIA MODERATED BY THE IMPLEMENTATION OF REGULATIONS

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ABSTRACT

This study aims to analyze the effect of bank and fintech collaboration on banking performance, as well as to analyze the effect of regulation implementation as a moderating variable on the effect of fintech and bank collaboration on banking performance. The sample data obtained as many as 170 through questionnaires. The data is processed using the structural equation modeling method using the Smart PLS 3.0 program. The results of this study have not been able to prove the effect of bank and fintech collaboration on banking performance and regulation implementation does not strengthen the influence of these two variables. The policy implication obtained from this research is the need for special regulations on fintech services, as well as regulations on collaboration between banks and fintech. The need for digital financial literacy for the community so that people are not harmed by illegal fintech. Also, the need for policies on customer data protection.

Keywords: bank and fintech collaboration, banking performance, implementation of regulations

INTRODUCTION

Across Asia, incumbent banks are partnering with fintech start-ups to promote digital payments, including Indonesia namely BRI (Bank Rakyat Indonesia) which has partnered with Alipay to expand acceptance of point-of-sale mobile payments for Chinese tourists visiting Indonesia (Dahl, Sengupta, & Ng, 2020). However, traditional banks have also launched independent digital banks such as YONO Bank Negara India, BTPN Jenius in Indonesia, and DBS digibank in India and Indonesia. This is one way to reach new markets and to acquire new customers at a lower cost.

The percentage of Indonesian banking consumers who are digitally active has grown 2.5 times since 2014 and now comprises 32 percent of the bank population based on a survey conducted by McKinsey in its 2019 report (Barquin, Gantès, HV, & Shrikhande, 2019). This segment of banking digitization is important for Indonesia's growing banks. This is supported by the condition of internet users in Indonesia, namely around 132 million internet users, with 178 million users accessing them via cellular and 120 million mobile social media users so that the banking industry is "forced" to create a special smartphone-based strategy for services to their customers (PWC, 2018). On the other hand, fintech companies in Indonesia are growing and experiencing rapid growth in the last 4 years. Bank Indonesia regulations categorize fintech into 4, namely crowdfunding and peer-to-peer lending, market aggregators, investment and risk management, and payment, settlement and clearing. Based on OJK data as of December 31, 2020, there are 149 registered fintech lending companies. Of these 149 companies, 37 have been licensed. Here are 37 fintech lending companies in Indonesia that have been registered and obtained operating licenses.

Table 1. Names of Fintech Lending Companies

Company Name	
PT Pasar Dana Pinjaman (Danamas)	PT Esta Kapital Fintek (Esta Kapital)
PT Investree Radhika Jaya (Investree)	PT Tri Digi Fin (KREDITPRO)
PT Amartha Mikro Fintek (amartha)	PT Fintegra Homido Indonesia (FINTAG)
PT Finansial Integrasi Teknologi (Pinjam Modal)	PT Kredit Utama Fintech Indonesia (RUPIAH CEPAT)
PT Creative Mobile Adventure (KIMO)	PT Artha Dana Teknologi (Indodana)
PT Toko Modal Mitra Usaha (TOKO MODAL)	PT Mediator Komunitas Indonesia (CROWDO)
PT Digital Alpha Indonesia (UangTeman)	PT Julo Teknologi Finansial (JULO)
PT Mitrausaha Indonesia Grup (modalku)	PT Progo Puncak Group (Pinjamwinwin)
PT Pendanaan Teknologi Nusa (KTA KILAT)	PT Layanan Keuangan Berbagi (DanaRupiah)
PT Kredit Pintar Indonesia (Kredit Pintar)	PT Indonusa Bara Sejahtera (Taralite)
PT Astra Welab Digital Arta (Maucash)	PT Indo Fin Tek (DOMPET Kilat)

PT Oriente Mas Sejahtera (Finmas)	PT Alami Fintek Sharia (ALAMI)
PT Aman Cermat Cepat (KlikACC)	PT Dana Kini Indonesia (Danakini)
PT Akseleran Keuangan Inklusif Indonesia (Akseleran)	PT Simplefi Teknologi Indonesia (AwanTunai)
PT Ammana Fintek Syariah (ammana)	PT Abadi Sejahtera Finansindo (Singa)
PT Dana Pinjaman Inklusif (PinjamanGo)	PT Intekno Raya (DANA MERDEKA)
PT Lunaria Annua Teknologi (KoinP2P)	PT Indonesia Fintopia Technology (EASYCASH)
PT Pohon Dana Indonesia (pohondana)	PT Pembiayaan Digital Indonesia (Adakami)
PT Mekar Investama Sampoerna (MEKAR)	

Source: OJK (2020)

Meanwhile, fintech payment companies that have been registered in Bank Indonesia include TokoPandai; Cashlez Mpos; Pay by QR; Bayarind Paymenet Gateway; YoOK Pay; Halomoney; Duithape; Saldomu; Disitu; PajakPay; Walezz; Lead Generation, Credit Scoring Check, Loan Market Place; Netzme; Mareco-Pay; dan iPaymu (Aldin, 2018). These companies could have the opportunity to collaborate with banks.

Several previous studies stated that collaboration between banks and fintech can increase banking profits (Putri, Nurwiyanta, Sungkono, & Wahyuningsih, 2019; Temelkov, 2018). FinTech innovation is evident from many companies in Indonesia that use such innovations to seek to increase their profitability (Putri et al., 2019). The collaboration between banks and fintech will complement each other's capabilities, namely: financial institutions can acquire fintech agility, a culture of innovation, human talent and expertise in technology, and, therefore, accelerate innovation. Meanwhile fintech gets access to the bank's customer base, financial resources and regulatory compliance experience. The bank and fintech partnership will result in simplified, agile, digitization and open business processes, better fulfill customer needs and close the gap between services offered by traditional banks and actual customer demands (Zalan & Toufaily, 2017). Banks have two options, namely: first, they try to maintain their market share despite changes in their current business processes. The second option is the possibility for banks to enter into strategic alliances with fintech companies (Temelkov, 2018). Banks in Indonesia are starting to collaborate with fintech companies. Many collaborations exist in the payment and financing system area. This collaboration is aimed at increasing financial inclusion, including economic inclusion, by reaching out to unbanked people and MSME players.

Based on the background that has been previously stated, the research question in this study are (1) does the collaboration of banks and fintech affect banking performance? (2) does the implementation of regulations strengthen the effect of bank and fintech collaboration on banking performance? The motivation for this research is to add regulation implementation as a moderating variable which is thought to strengthen the effect of fintech and bank collaboration on banking performance.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

According to Bank Indonesia Regulation Number 19/12/PBI/2017 concerning the Implementation of Financial Technology, financial technology is the use of technology in the financial system which results in new products, technology, services and / or business models and may have an impact on monetary stability, financial system stability, and / or efficiency, security, smoothness and reliability of the payment system. Financial technology operators are categorized into five, namely: payment systems; market support (financial technology that provides information on financial products and services to the public); investment management and risk management; loans, financing and provision of capital; and other financial services. Bank Indonesia classifies FinTech into four groups, namely:

1. Crowdfunding and peer-to-peer lending, is a marketplace that brings together people who are willing to lend with people who want to apply for loans.
2. Market aggregator, is a portal that provides users with various information about financial services. This information is used to compare financial products such as credit cards, insurance and investments. Users can learn the advantages and disadvantages of each product.
3. Risk and investment management, is a financial planning in digital form that can help users find out their financial conditions and carry out financial planning easily and quickly using only a smartphone.
4. Payment, settlement and clearing is a digital payment system service to simplify the online transaction process.

Some of the advantages of collaboration between fintech and banks are in the areas of fees and customer base (Temelkov, 2018). Collaboration will provide opportunities for reduced capital spending and lower costs of doing business activities. On the other hand, adverse effects can be disclosed in areas such as security, investment risk level, regulatory issues and compliance. Another advantage according to (Zalan & Toufaily, 2017) is that the collaboration between fintech and financial institutions is that financial institutions can acquire fintech agility, a culture of innovation, human talent and expertise in technology, and, therefore, innovation is accelerated. Meanwhile fintech gets access to the bank's customer base, financial resources and regulatory compliance experience. Therefore, this collaboration will realize simplified business processes, agility, digitization and openness, better fulfillment of customer needs and close the gap between services offered by traditional banks and actual customer demands.

(Saksonova & Kuzmina-merlino, 2017) conducted a survey and identification of financial services using innovative technologies offered by fintech companies in Latvia. They analyze the advantages and disadvantages of these services in comparison with those offered by traditional financial sector companies (banks, insurance companies, institutions involved in asset and investment management, etc.), and evaluate how ready consumers are to use fintech services. They believe that fintech together with banks is the basis for the formation of a new generation of digital financial companies. The bank has a large market, so the opportunity to attract large volume of transactions, and already has the trust of clients. The public hopes that fintech will change manual bank activities to adopt innovative IT and monitor the security of customer data.

There are five categories of strategies carried out by banks in response to digital disruption, namely pursuing sustainable innovation especially to meet the needs of millennials, deepening the company's digitalization capabilities, establishing their own fintechs, or collaborating with fintech (Zalan & Toufaily, 2017). The emergence of fintech can be a competitor, but it can become a partner. This depends on the decisions or steps taken by fintech and banking. If fintech and banks choose to collaborate, a synergistic effect will be formed. Both parties have their respective strengths. Fintech is based on leveraging technological innovations, they tend to be able to provide customized solutions for their customers. On the other hand, it may be a bit difficult for banks to offer customized products and services because banks lack flexibility. The strategic interests arising from potential partnerships and partnerships with fintech companies have been recognized by the bank. This is evident from the fact that many banks enter into partnerships or collaborations with fintech companies to increase profitability (Temelkov, 2018). Therefore, the collaboration between fintech and banks is expected to improve the performance of the financial industry, particularly banking.

H1: Collaboration between banks and fintech has a positive effect on banking performance.

Financial institutions can acquire fintech agility, a culture of innovation, human talent and expertise in technology. Meanwhile, fintechs gain access to the bank's customer base, financial resources, and regulatory compliance experience (Zalan & Toufaily, 2017). This collaboration will realize simplified, agile, digitization and open business processes, better fulfill customer needs and close the gap between services offered by traditional banks and actual customer demands. This collaboration will be even stronger if it is supported by clear regulations.
Several previous studies have proven that fintech can increase profitability (Putri et al., 2019; Temelkov, 2018). Meanwhile, regulation can improve performance (Barth, Lin, Ma, Seade, & Song, 2013; Triki, Ph, Kouki, Ph, & Ben, 2017; Yang, Gan, & Li, 2019).

H2: Implementation of regulation strengthens the effect collaboration between banks and fintech on banking performance

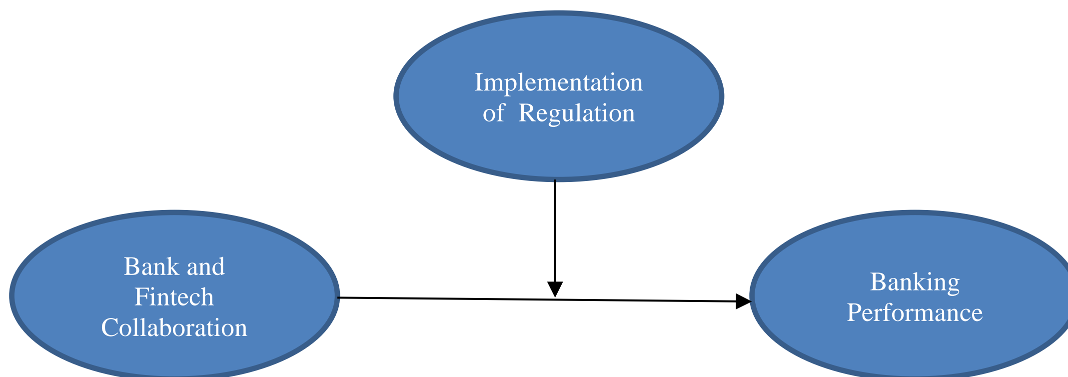

Figure 1. Research Framework

Figure 1 provides an explanation of the causal relationship between research variables. Where the variables of bank and fintech collaboration have a positive effect on banking performance and the variable implementation of regulations strengthens the effect of bank and fintech collaboration on banking performance.

RESEARCH METHOD

This research is a quantitative study that seeks to examine the causality relationship, namely the effect of fintech and bank collaboration on banking performance and implementation of regulations as a moderating variable. Primary data collection through distributing questionnaires to bank employees which collected a total of 170 respondents. Respondents are employees of senior level staff and above with a minimum work experience of 3 years. The data were processed using the Smart PLS 3.0 program.
This study consisted of the dependent variable, namely banking performance which was measured using 4 dimensions of the balanced scorecard, namely the dimensions of finance, customers, internal business processes, learning and growth. The independent variable is bank and fintech collaboration which is measured using 3 measurement dimensions, namely service, process, cost. The moderating variable is the implementation of regulations which is measured using 5 measurement dimensions, namely communication, resources, attitudes, external environment and problem characteristics. Each variable is measured using a 6-point Likert scale, namely points 1 – very strongly disagree, 2 - strongly disagree, 3 - disagree, 4 - agree, 5 - strongly agree, and 6 – very strongly agree.

RESULTS AND DISCUSSION

The following is a table of the results of hypothesis testing on the three variables in this study. The adjusted R square value in the hypothesis test results table below shows that the variation in company performance variables can be explained by the bank collaboration and fintech variables by 71.9% and the rest is explained by variables outside of this study.

Table 2. The Results of Hypothesis Testing

	Coefficient	p-value
FC → BP	0,040	0,289
IR*FC → BP	0,081	0,139
R square	0,724	
Adj R square	0,719	

Source: Output SmartPLS 3.0

Note:
BP : Bank Performance
FC : Bank and Fintech Collaboration
IR : Implementation of Regulation

The Effect of Fintech and Bank Collaboration on Banking Performance

Based on the table of hypothesis test results, the p-value of the Bank and Fintech Collaboration variable is 0.289> 0.05 with a coefficient value of 0.040. This indicates that the sample data does not succeed in proving the effect of the Bank and Fintech Collaboration on Banking Performance.

The collaboration of fintech and banks is the basis for the formation of a new generation of digital financial companies (Saksonova & Kuzmina-merlino, 2017). The bank has a large market and has the trust of clients, so the opportunity to attract transaction volume will be greater. On the other hand, the public hopes that fintech will change manual banking activities to adopt innovative IT and monitor the security of customer data. Fintech is based on leveraging technological innovations, they tend to be able to provide customized solutions for their customers. The positive collaboration between fintech and banks has been recognized by the bank. On the other hand, there are risks or concerns brought about by bank and fintech collaboration, including cultural incompatibility, cybersecurity issues, difficulties in qualified human resources for effective collaborations, high investment risks, legal/regulatory issues, and technical complexity (Korn, Miller, & Polsky, 2016).

Based on the results of this study, the sample data cannot prove the effect of bank and fintech collaboration on banking performance. Not all banks in this study have collaborated with fintech. Banks that have cooperation with fintech in this study are 67%. The collaborations that exist between fintech and banks in the respondents of this study include payment gateways, fund collection and credit distribution. This transaction has a smaller profit compared to loan interest rates offered by banks directly to customers, so that the impact on performance is very small or it is said to have no effect on performance, in this research period. Basically, the existence of a fintech company is to reach unbankable people. Meanwhile, banks, especially Bank Rakyat Indonesia (BRI), which quite dominated the sample in this study, focused on helping MSME funding so that they could be globally competitive. This is one of the reasons for the bank to collaborate with fintech. MSME players who are in unbankable areas can be reached by fintech. From this form of collaboration, banks get fee-based income. However, not all MSMEs are familiar with digital technology, so digital literacy is needed.

There is a need for education to customers about social engineering because the customers' low knowledge of threats to the use of financial technology leads to high fraud. It is also necessary to do digital literacy for people in areas who are not familiar with the use of technology. There is inconvenience due to annoying online loan sharks because they contact a relative or friend or someone closest to the borrower. There are weaknesses and constraints that occur in society so that the impact of bank and fintech collaboration cannot be felt for banks, especially in improving bank performance in terms of service to consumers.

Implementation of Regulation as a Moderating Variable of the Effect of Bank and Fintech Collaboration on Banking Performance

Based on the table of hypothesis test results, the p-value of the Bank and Fintech Collaboration variable is moderated by Implementation of Regulation 0.139 > 0.05 with a coefficient value of 0.081. This indicates that the sample data does not succeed in proving that the Implementation of Regulation variable strengthens the influence of the Bank and Fintech Collaboration variables on Banking Performance.

A collaboration will run smoothly if its implementation is clearly and properly regulated. Collaboration between banks and fintech is both positive. Banks can acquire a culture of innovation and fintech technology expertise. Meanwhile, fintechs gain access to the bank's customer base, financial resources, and regulatory compliance experience (Zalan & Toufaily, 2017). This collaboration will realize simplified, agile, digitization and open business processes, better fulfill customer needs and close the gap between services offered by traditional banks and actual customer demands so that bank performance improves. This collaboration will be even stronger if it is supported by the implementation of clear regulations.

Based on the results of this study, Implementation of Regulation does not strengthen the influence of Bank and Fintech Collaboration on Banking Performance. There has been previous research on the application of regulations which has an impact on weaknesses and threats to the banking sector. (Romānova, Grima, Spiteri, & Kudinska, 2018) examined the impact of the Payment Service Directive (PSD2) regulation, which allows non-financial companies to provide access to financial services for bank customers, encouraging the creation of innovative IT solutions for payments, savings, loans and other services usually covered by banks. This study was conducted on banks in Europe, stating that with the implementation of the PSD2 relocation there are several risks that weaken financial service providers, especially banks, namely:

1. Exert pressure on bank margins due to increased competition in the financial services industry and due to stringent regulatory standards;
2. The potential for loss of a portion of the market share particularly in loan and payment services;
3. Increasing dependence of banks on financial service technology solutions that require additional investment in the bank's internal IT infrastructure or require closer cooperation with financial technology developers.

In addition to these risks, (Romānova et al., 2018) also stated that the enactment of this regulation carries the following potential threats:

1. A bank must change its business model to allow innovation in line with changing conditions;
2. Operational risk increases due to the need for access to customer account information;
3. Security risks in sharing data with third party payment providers;
4. Risk of fraud; and
5. The need to continue to increase investment in core IT systems to minimize risks related to information and communication technology and data protection.

In other words, the implementation of regulations does not always have a positive impact, but also has weaknesses and threats. The forms of cooperation that exist in the bank which are used as the object of this research are payment gateways, fund collection and credit distribution. Regulations related to the financial system architecture that can reach fintech, including the payment system, have not been issued. Currently, OJK is in the stage of amending OJK Regulation Number 77 of 2016 concerning *Layanan Pinjam Meminjam Uang Berbasis Teknologi Informasi* (LPMUBTI) to become *Layanan Pendanaan Bersama Berbasis Teknologi Informasi* (LPBBTI). In this POJK draft, there are 11 points of change and 22 additional points in the previous POJK (Ihsan, 2020). The following are some of the changes: changes in definition, ownership, business activities, legal entity form, paid-up capital, limitations on lending funds, licensing, electronic signatures, reports, transitional provisions, and closing provisions. Apart from these changes, the following additions were also made: implementation based on sharia principles; corporate governance; human resources; fit and proper test; LPBBTI agreement; funding to productive sectors and recipients of funds outside Java; electronic system; risk mitigation; access and use of personal data; supervision; health level; partnership cooperation; branch office; amendments to the articles of association; fusion and merger; GMS approval of changes in ownership, consolidation, and merger; document authenticity; liquidation and bankruptcy; education and protection of users of information technology-based joint funding services; association; prohibition; and sanctions.

BI and OJK always encourage fintech to synergize with banks and always discuss with the Indonesian Fintech Association to discuss regulations. The formation of regulations does not only think about the fintech business, but also protects customers due to the emergence of cases of digital moneylenders. Regulations on payment systems (e-wallets, e-money) will be simplified.
Currently, Indonesia does not yet have a special fintech law (Kharisma, 2020). Fintech transactions are regulated in POJK and PBI which only regulate the technical aspects of the industry. OJK and BI have limited authority in making regulations and the resulting regulations cannot determine criminal law for consumer protection. In fact, a lot of illegal peer to peer lending, illegal investment and illegal pawn shops. The accumulation of online lending transactions increased by 259.56% in December 2019 from the previous year, which reached a total of IDR 81.5 trillion (Kharisma, 2020). This data is what makes the special fintech law an urgent matter. OJK and BI policies have also not touched on the non-peer to peer lending regulations. The law must be able to cover all types of fintech services ranging from peer to peer lending, electronic money, digital payments, market aggregators, and other types of fintech in Indonesia (Batunanggar, 2019). Four provisions according to (Kharisma, 2020) that have not been covered by the OJK and BI regulations include: (1) criminal provisions, (2) division of authority, coordination and synergy between OJK and BI in supervising and licensing fintech, (3) prevention and crisis management in the digital financial world, (4) consumer dispute resolution mechanisms and the Fintech Dispute Resolution Agency.

The results of this study prove that the implementation of regulations does not strengthen the effect of bank and fintech collaboration on improving bank performance. However, the government, in this case OJK and BI, supports the collaboration of banks and fintech so that they can both steps forward, not become competitors.

CONCLUSION

The following conclusions can be drawn from this research based on the formulation of the research question stated in the introduction to the article:

1. Collaboration between Bank and Fintech has no effect on Banking Performance. Respondents in this study did not all collaborate with fintech, namely 33%. The current form of cooperation has not yet seen a significant effect on

performance. Both institutions must have a compatible culture or unidirectional business strategy, supportive human resources. This agrees with (Korn et al., 2016) that there are risks that arise when banks collaborate with fintech.

2. Implementation of regulations does not strengthen the influence of Bank and Fintech Collaboration on Banking Performance. The most common forms of cooperation among respondents in this study are payment gateways. Meanwhile, regulations on bank and fintech collaboration in the form of payment gateways are not regulated in detail.

This research implies to the government that regulations are needed to regulate bank and fintech collaboration in several types of fintech services, where fintech is categorized by Bank Indonesia into 4 categories, namely crowdfunding and peer-to-peer lending, market aggregators, risk and investment management, payment, settlement and clearing. The government needs to provide digital education to the public, including about social engineering. Fintech services specific laws need to focus on protecting customer data. The current regulations are those issued by the OJK and BI which do not have the force of criminal law for illegal fintech companies (Kharisma, 2020).

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