The Effect of Digitalization of Banks and Fintech Peer to Peer Lending on Earning with Variable Intervening Liquidity Risk

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Abstract

The study aims to determine and analyze the effect of digitalization of banks and fintech Peer to Peer lending on earnings mediated by liquidity risk. The sample from this study is the monthly financial statement data of conventional commercial banks as well as the financial statements of fintech peer to peer lending in Indonesia during 2019-2021.data analysis using Smart PLS version 3.0. The results showed that bank digitalization has a significant effect on liquidity and earnings risks, but does not have a significant effect on earnings when mediated by liquidity risks. In contrast, Fintech Peer to peer lending does not have a significant effect on liquidity risk, but has a significant influence on earnings either directly or indirectly by being mediated by liquidity risk.

Keyword : ***Digitalization of Bank, ,Fintech Peer to Peer Lending, Earning, Liquidity Risk.***

INTRODUCTION

The development of financial technology over the last 10 years has received considerable attention among the business world, academics and policy makers. One of the business world that is very concerned about this development is financial institutions, especially banking. Fintech is an innovation in the

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financial services industry that utilizes the use of technology (OJK, 2017). Fintech products are usually in the form of a system built to carry out specific financial transaction mechanisms. Fintech innovations have added value to traditional banks to become banks that can be accepted by the wider community, including financing, asset management, payment services, and others (Dorfleitner et al., 2017). The use of fintech from the internal side of the company is known as bank digitization.

In Indonesia, over the last five years, the magnitude of the growth in the value of commercial bank transactions using digital bank facilities has fluctuated, but is in an increasing direction. In Figure 1, the highest spike in transaction value growth is in 2021. The positive growth in transaction value using digitalization of bank media shows that customers are increasingly finding it easier to make payment transactions in every economic activity.FinTech brings opportunities and benefits for market participants and customers but at the same time also carries risks that must be adequately & humanely assessed (Milena Vučinić, 2020).

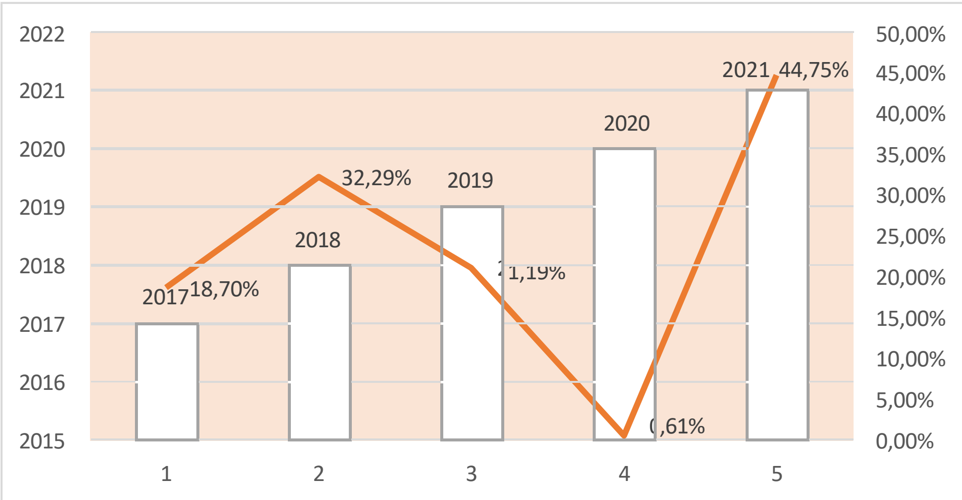

Figure 1. Growth Rate of Commercial Bank Digital Transaction Value in Indonesia

The growth rate of digital transaction value above, the largest contribution was provided through internet banking, followed by SMS/Mobile banking, and finally Phone banking. The high value of transactions through internet banking is due to the convenience of banking transaction services through the internet network. Customers can make payment transactions anywhere using a desktop computer, laptop, tablet or smartphone that is connected to the bank's internet network. In table 1.1. it can be seen that the largest transaction value is in the use of bank digital media.

Table 1. Value of Commercial Bank Digital Transactions in Indonesia during 2017-2022.

Transaction Value (million Rp)	2017	2018	2019	2020	2021
Total digital	17,078,108	22,593.258	27,379,756	27,547,295	39,874,256

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transactions					
Phone Banking	4.031	23.032	92.368	191,600	32.861
SMS/Mobile Banking	1,638,508	2,328,703	3,522.491	4,770,122	7,730,865
Internet banking	15,435,569	20,241,523	23,764,896	22,585,573	32,110,529

Source: Bank Indonesia SPIP Statistics, data processed, 2022

The speed of the community's need for the presence of a bank is sometimes higher than the bank's ability to meet the needs of the community, this is because businesses are increasingly open, opportunities to create new business opportunities are sometimes always impressed (Rivai, et al, 2013). This condition then gave rise to Fintech Lending or also called Fintech Peer-to-Peer Lending (Lending). Fintech P2P lending is an information technology-based financial service innovation for lending and borrowing transactions only. Financial P2P Lending in Indonesia is known as online loans. The development of P2P lending needs attention from banks, because its development is very significant in distributing credit to the public and in absorbing funds from the public. Based on data from the Indonesian Financial Services Authority, during 2018-2021, growth in lending to the public by P2P lending is very significant. From 2019, the growth rate was minus 49.34%, then increased to 26.47% in 2020 and 109.69% in 2021. The high increase in loan disbursement in 2020-2021 was possible during the covid 19 pandemic. in Indonesia. This condition has an impact on the economic problems of most Indonesian people in meeting their daily needs. The need for fresh funds can be obtained easily through online loans. This development supports the results of research (Majid, 2022), which states that fintech has opened up easier and faster access to business financing. Fintech is the biggest contribution to increasing financial inclusion in terms of access to financing for UMKM that have not been served before by banks. Online loans offer more competitive interest rates and fees based on modern credit risk analysis so the process is relatively easier and faster.

Digitalization of Bank and P2P lending fintech will greatly affect bank risk management, including bank liquidity risk. Likewise, digitalization of bank, fintech P2P lending also affects earnings. Bank liquidity risk is the risk caused by the bank not being able to meet the obligations that have matured (Rivai, et al, 2013). The condition of bank liquidity will determine the level of a bank's ability to cover its current liabilities. Bank liquidity risk management can be seen from the condition of the bank's financial ratios, namely from the condition of the loan to Deposit Ratio (LDR) and from the current ratio. LDR is a comparison between the amount of funds disbursed with funds that can be collected from the community (third party funds). Meanwhile, the current ratio shows the ratio of liquid assets to funding in the short term. According to the Indonesian Financial Services Authority, a healthy LDR generally ranges from 78% -92%. However, if the bank meets the requirements for Non-Performing Loans (NPL)

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and the MSME NPL is below 5%, then the LDR is relaxed to 94%. Meanwhile, according to central bank regulations, the LDR tolerance limit is 85% - 110%.

On the other hand, one approach to measure the soundness of a bank is earnings. The ability of banks to increase company profits can be interpreted as bank achievements that can be achieved. For shareholders themselves, the increase in company profits is one indicator to increase their confidence in the bank. Operationally, if the bank is able to channel its credit effectively, the higher the LDR ratio, the bank's profit will increase, and vice versa, the smaller the LDR, the lower the bank's profit. Thus, LDR has a direct relationship with bank profits. Research result(Abbas et al., 2021)strengthening the impact of liquidity on the profitability of large commercial banks is negative. While the research results(Peling & Sedana, 2018)shows that the liquidity risk indicated by the LDR has a positive and significant effect on ROA.

The existence of digitalization of bank is also expected to increase bank profits. Research result(Wadesango & Magaya, 2020)shows that online banking transactions are significantly and positively predicted ROA and that an increase in online banking transactions leads to an increase in ROA. Study(Khairina, 2022)shows the results that both the volume of digital transactions and digital infrastructure have a positive relationship with ROA. The results of the same study were also shown by (Jichang Donga, Lijun Yin, et all, 2020);Nikola Stefanovic,Lidija Barjaktarovic Alexey Bataev(2021). While the research results differ by(Phan et al., 2020); shows that FinTech negatively predicts bank performance; (Rozhkova et al., 2020)show pe-banking is an important part of the developmentindustry, however, no significant relationship was found between internet banking offerings and bank profitability. Research result(Original, 2022) show Digital banking has a positive and insignificant effect on the performance of commercial banks in Nigeria.

Inconsistent research result (Sari et al., 2020), shows that the growth of financial technology companies is seen from the number of companies, the number of lender accounts, the number of borrower accounts, the number of transactions. borrowers, and the number of lenders' transactions have a negative effect on banking performance as measured by various types of profitability ratios. Meanwhile, the results of research (tamara, et.al, 2021) during the pandemic show that P2P lending has a significant positive impact on small bank credit growth, and provides evidence of the complementary effect of P2P to small bank. Based on the reasons above, the purpose of this study is to determine the effect of digitalization of banks and fintech P2P lending on earnings with liquidity risk as the intervening variable.

HYPOTHESIS

Based on the background and objectives of this study, the hypotheses in this study are: 1) there is a significant effect of bank digitization, fintech P2P Lending and liquidity risk on bank earnings; 2) there is a significant effect of bank digitization and P2P lending fintech on bank earnings, and 3) liquidity risk

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mediates the significant effect of bank digitization and P2P fintech lending on bank earnings.

METHOD

This research approach is a quantitative research with explanatory research type. research variables include independent variables consisting of bank digitization variables (X1) which are proxied by the value of digital transactions and Fintech Peer to Peer Lending (Fintech P2P Lending/X2) variables which are proxied by the value of loans disbursed. The dependent variable is bank earnings (Y) which is proxied by the value of Return on Assets and Net interest margin. the mediating variable is the liquidity risk variable (Z) which is proxied by the value of the loan deposit rate. The type of data used is secondary data. Determination of the sample using purposive sampling in the form of monthly financial statements of conventional commercial banks for the years 2019-2022 and monthly reports of Financial Services Authority Fintech Lending Statistics. Thus the number of samples is 36 data. The data analysis model uses the Smart PLs SEM software version 3.0. The data analysis used descriptive analysis and inferential analysis. Based on the existing research objectives, the conceptual framework of the research can be made as follows:

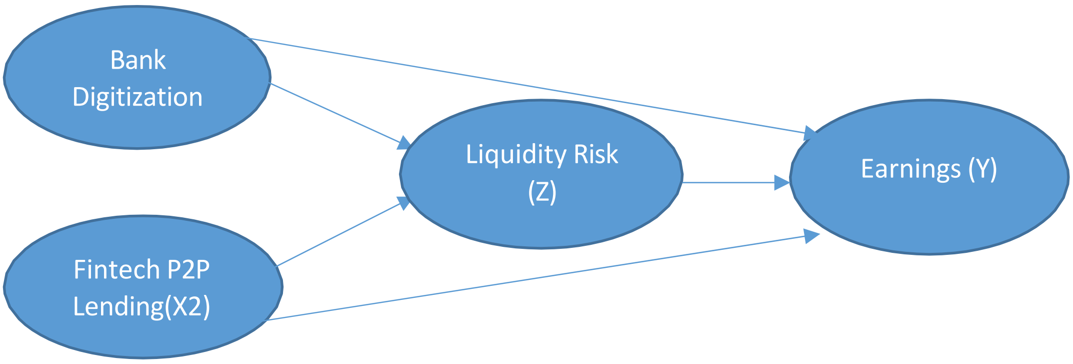

Figure 2. conceptual framework

RESULTS AND DISCUSSION

1. **An overview of bank digitization, fintech P2P Lending, Liquidity Risk and Earning.**

Based on the results of the descriptive analysis of the existing research variables, it can be presented in table 1.2. The average value of transactions made by customers using digital bank facilities is more than Rp. 26 trillion. However, it is still much lower than the maximum transaction value that has ever existed, which is more than Rp. 43 trillion, which occurred at the end of 2021. Directly proportional to the value of digital transactions, the highest loan disbursement provided by P2P lending fintechs with a value above 15 trillion occurred in 2021, namely in May 2021, with an average monthly loan disbursement of Rp. 8.04 trillion. The results of this description support the results of the studyresults (Tamara, et.al, 2021) which essentially states that P2P lending credit growth is complementary to credit growth at banks, especially small banks.

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Table 2. Description of variables

	No.	Missing	Mean	Median	Min	Max	Standard Deviation	Excess Kurtosis
Pinjaman	2	0	803487444444444.500	702051000000...	311607000000000.000	1570130000000000.000	400505624021647.400	-1.159
NTr	1	0	2660560262.500	2281646359.000	2209569874.000	4383590505.000	616246976.325	0.673
LDR	3	0	87.454	89.100	77.490	96.190	6.437	-1.771
NIM	4	0	4.675	4.600	4.400	4.900	0.188	-1.475
ROA	5	0	2.139	2.000	1.600	2.700	0.333	-1.534

Source: OJK SPIP, 2021, data processed

Judging from the loan deposit rate, on average it is still in a healthy condition because the value is still in the 78%-92% value range, which is 87.45%. Meanwhile, the net interest margin ratio value is around 4.67%. The average return on assets for 3 years each month is around 2.139%. Thus, for the year 2019-2021, even though it is in a COVID-19 pandemic condition, the NIM and ROA values are still in a healthy condition.

2. Evaluation of the Structural Model (Inner Model)

Based on the results of the data processing, the R-Square value is a goodness of fit test. These results show the R-Square value of the liquidity risk variable (Z) which is influenced by bank digitization (X1) and Fintech P2P lending (X2) which is 0.750 meaning that the exogenous latent variables in this study are able to affect liquidity risk by 75%. The result of the R-square value on the earning variable (Y) which is influenced by bank digitization (X1) and fintech P2P Lending (X2) is 0.827, meaning that the exogenous latent variables in this study are able to directly affect the earning value of 82.7%.

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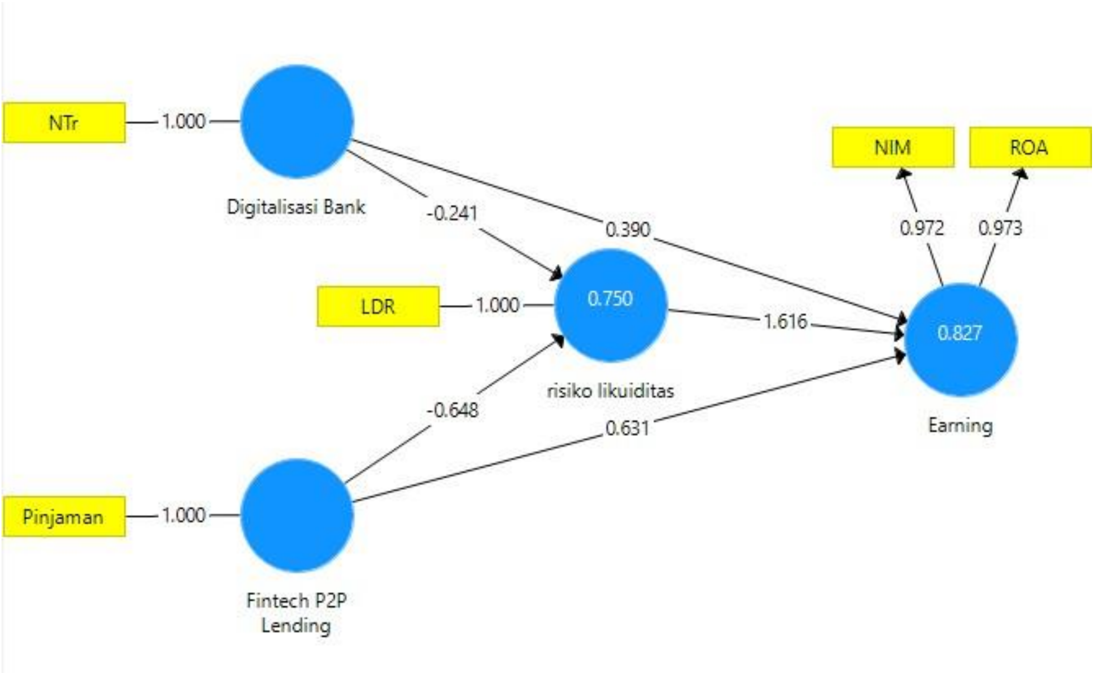

Figure 3. Inner Model
Source: Data processed with Smart PLs version 3.0

The goodness of fit assessment is known from the Q-square value. The Q-square value has the same meaning as the coefficient determination (R-square) in regression analysis, where the higher the Q-square, the better the model or the more fit the data. The results of the Q-Square calculation are as follows:

$$\begin{aligned} \textit{Q-square} &= 1- [(1-R^21) \times (1-R^22)] \\ &= 1- [(1-0.750) \times (1-0.827)] \\ &= 1- (0.250 \times 0.173) \\ &= 1 - 0.133 \\ &= 0.957 \\ &= \end{aligned}$$

Based on the calculation results above, the Q-square value is 0.957. This shows the magnitude of the diversity of research data that can be explained by the research model is 95.7%. While the remaining 4.3% is explained by other factors that are outside this research model. Thus, from these results, this research can be stated by having a good goodness of fit.

3. Hypothesis testing

Based on the data processing that has been done, the results can be used to answer the hypothesis in this study. Hypothesis testing in this study was conducted by looking at the value of T-statistics and the value of P_values. The research hypothesis can be declared accepted if the P_values <0.05. The following are the results of hypothesis testing used in this study through the inner model:

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Table 3. T-statistics and P_values

Hypothesis	Influence	Original Sample	T Statistics	P-Value	Results
H1	Bank digitization→ Liquidity Risk	0.374	2,585	0.010	Received
H2	*Fintech P2P Lending* →liquidity risk	-0.241	1,596	0.111	Rejected
H3	*Bank digitization*→Earnings	0.643	3.392	0.001	Received
H4	Fintech P2P lending →Earnings	-0.648	4.497	0.000	Received
H5	Liquidity risk-> Earning	1,612	11,013	0.000	Received
H6	Fintech P2P Lending→liquidity risk→earnings	-1.045	4.379	0.000	Received
H7	Bank Digitization→liquidity risk→earnings	-0.388	1.523	0.128	Rejected

Source: Analysis Results Using Smart PLS version 3.0

Based on the results of the hypothesis test above, it can be seen that: 1) digitalization of bank has a significant effect on bank liquidity risk and earnings because the value of-value <0.05;2) P2P lending fintech has no significant effect on bank liquidity risk because the value of-value > 0.05, but has a significant effect on earnings because the -value < 0.05; 3) liquidity risk has a significant effect on earnings because the value of-value < 0.05 ; 4) liquidity risk can mediate the influence of fintech P2P lending significantly on earnings with -value < 0.05; and 5) digitalization of bank has no significant effect on earnings when mediated by liquidity risk.

The effect of bank digitization on liquidity risk

Digitalization of bank is carried out by the banking industry in order to provide faster and easier services to customers. This includes facilitating the management of the bank's financial management itself. The significant influence of bank digitization with a positive direction of relationship indicates that the more transactions carried out by customers (the public) through digital media provided by the bank, the more banks will be able to collect funds from the public. Banks are able to provide more cash to provide loans to the public. Consequently, banks will also bear a fairly high liquidity risk, if the distribution of funds is not carried out effectively while still referring to the bank's prudential principles. Like what said(Romanova & Kudinska, 2016)that apart from being a challenge, the use of financial technologycan be turned into an opportunity as it

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provides more flexibility, better functionality across multiple areas, and service aggregation.

The influence of Fintech P2P lending on bank liquidity risk

The results of this study indicate that in 2019-2021, P2P lending fintech does not have a significant influence on bank liquidity risk. The direction of the relationship is negative, indicating that the larger the P2P lending fintech institution distributes loans to the public, the lower the liquidity risk that will be borne by the bank. This is because there is a distribution of liquidity risk that could previously be a burden on the bank, now it is distributed to P2P lending institutions.

The effect of bank digitization on earnings

Digitalization of bank is held as an effort from the banking industry to improve bank performance. one of which is increasing company profits. The results of this study indicate that digitalization of bank has a positive and significant effect on earnings. The more transactions made by customers using the bank's digital media, the bank's earnings will continue to increase. And vice versa. These results support the research resultsLi, Spigt and Swinkels (2017); Abdullai, Elyjoy, Micheni (2018); which results in the conclusion that there is a positive and statistically significant relationship between the growth of funding or fintech transactions with the performance of old banks. An interesting opinion was obtained from the results of Chieh Chen's research (2020) where in the FinTech era, Internet-only banking has a complete ecosystem with potential for future profitability development.

The influence of Fintech P2P lending on earnings

Fintech P2P lending has a significant influence on bank earnings. The direction of the relationship itself is negative. These results indicate that the greater the number of disbursement of loan funds to the public, it will only reduce the ability of the bank to increase company profits. This is because one of the company's income is obtained from interest on loans from customers. The results of this study support the research(Phan et al., 2020)which states that long-standing banks and state-owned banks are relatively more negatively affected by financial technology companies compared to small, relatively new and private banks.

Effect of liquidity risk on earnings

The results show that liquidity risk has a significant effect on earnings, with a positive irection meaning that the higher the liquidity risk, the higher the company's earning value. By seeing that the value of the bank's loan deposit ratio every month for the last 3 years is still in the healthy category, on average, if the bank dares to increase its lending, which means it also increases its liquidity risk, it will be able to increase the company's earnings. These results support the research results(Peling & Sedana, 2018)which shows that LDR has a significant positive effect on ROA.

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The influence of Fintech P2P lending on earnings through liquidity risk

The results show that liquidity risk is able to bridge the influence of fintech P2P lending significantly on earnings. The direction of the relationship is negative. These results indicate that the level of lending that continues to increase by P2P lending, if followed by stagnant liquidity risk conditions, means that banks are less willing to take liquidity risks by providing loans to customers up to the highest value allowed by Indonesian banks, so that will only reduce the company's earnings. This means that banks must be bolder in extending credit to the public, of course, by looking at the effectiveness of the loan. Because if the bank is not brave enough to also provide loans to customers, the funds that are not channeled will be more and more and it will cause interest costs for the bank.

The effect of bank digitization on earnings through liquidity risk.

The results showed that there was no significant effect, with a negative relationship direction. These results indicate that if the bank has digitized the bank but the bank is too careful in disbursing its loan funds to the public because to minimize the bank's liquidity risk, it is possible to reduce the expected earnings of the bank. But because it is not significant, then this is not a major problem that must receive special attention from the bank.

CONCLUSION

1. Digitalization of bank has a significant effect on bank liquidity risk, as indicated by-value <0.05.
2. Digitalization of bank has a significant effect on earnings because the value of-value <0.05
3. Fintech P2P lending has no significant effect on bank liquidity risk because the value-value > 0.05.
4. Fintech P2P lending has a significant effect on earnings because the -value < 0.05.
5. Liquidity risk has a significant effect on earnings because the value of-value < 0.05 .
6. Fintech P2P lending has a significant influence on earnings by mediated liquidity risk, indicated by the value of -value < 0.05.
7. digitalization of bank has no significant effect on earnings when mediated by liquidity risk.

WEAKNESS

The weakness of this research is that it only uses one indicator for each independent variable so that the discussion is only limited in terms of the amount of transaction value and the distribution of loan funds. Likewise, credit risk only looks at the size of the LDR ratio.

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FINDINGS

In this study, the findings obtained are by positioning liquidity risk as an intervening variable that bridges the effect of bank digitization and P2P lending fintech on earnings. Future researchers can develop it by adding other variables that are positioned as moderating or intervening variables, such as GCG, credit risk or operational risk.

REFERENCES

Dewi Tamara, Asnan Furinto, Andreas Hakim, Djury Santosa, (2021). P2p Lending: Complement or Substitute To Small Bank, Syntax Idea, 3(10).

Dinh Phan, Paresh Kumar Narayan, R. Eki Rahman, Akhis R. Hutabarat, (2019). Do financial technology firms influence bank performance?. *Pacific-Basin Finance Journal*,https://doi.org/10.1016/j.pacfin.2019.101210.

Dorfleitner, G., Hornuf, L., Schmitt, M., Weber, M., (2017). FinTech in Germany. Springer, Cham.

Farah, M.F., Hasni, M.J.S. and Abbas, A.K. (2018), "Mobile-banking adoption: empirical evidence from the banking sector in Pakistan", *International Journal of Bank Marketing*, Vol. 36 No. 7, pp. 1386-1413

Hussein M Abdullai, Elyjoy Muthoni Micheni, (2018).Effect of internet banking on operational performance of commercial banks in Nakuru County, Kenya, *International Journal of Economics, Finance and Management Sciences.*

Khairina, Chukwu, (2022). Effects of Digital Banking on The Performance of Commercial Banks in Nigeria 2010-2019, *International Journal of Multidisciplinary Research and Analysisinternational Journal of Multidisciplinary Research and Analysis*.

Phan, Narayan, R Rahman, Hutabarat. (2019). Do Financial technology Firm influencer bank performance? *Pacific Basin Journal FinanceJournal.*

Peling, Ida Ayu Adiatmayani, Sedana, Ida Bagus Panji, (2018). The Effect of LDR, NPL, and BOPO on Profitability at PT BPD Bali Period 2009-2016, *E-Journal of Management Udayana University*, 7 (6).

Romanova, Inna, Kudinska, Marina (2016). Banking and fintech: A challenge or opportunity?, *Contemporary Studies in Economic and Financial Analysis*.

Rozhkova, Darya,Rozhkova, Nadezhda,Tozhihonov, Saidvalikhon,(2020). Electronic banking and financial performance of the Russian Bank, *International Conference on Comprehensible Science.*

Rivai, V., Basir, S., Sudarto, S., & Veithzal, AP (2013). Commercial bank management: Banking management from theory to practice. Jakarta: PT. King Grafindo Persada.

Sari, Dyah Nikita, 2020. The Effect of the Growth of Financial Technology Companies Peer To Peer Lending on the Performance of Banking in, Bulletin of Fintech and Digital Economy.

DOI :
ISSN :

Stefanovic, N. (2021). Barjaktarovic, L.; Bataev, A. Digitainability and Financial Performance: Evidence from the Serbian Banking Sector. Sustainability 2021, 13, 13461. https://doi.org/ 10.3390/su132313461

Wadesango N, Magaya B, (2020). The Impact of Digital Banking Services on, *Journal of Management Information and Decision Sciences*.

Yinqiao Li,Renee Spigt&Laurens Swinkels, (2017).The impact of FinTech start-ups on incumbent retail banks' share prices, *Financial Innovation*, 3 (26).

DOI :
ISSN :