

---

---

## **Analysis of the Influence of Digital Banks on Bank Profitability**

**Johan Lazuardi<sup>1\*</sup>, Ali Muktiyanto<sup>2</sup>, Hety Budiyanti<sup>3</sup>**

[johanlazuardi1103@gmail.com](mailto:johanlazuardi1103@gmail.com)<sup>1\*</sup>

Universitas Terbuka<sup>1\*,2</sup>, Jl. Raya Panyileukan, Kec. Panyileukan, Kota Bandung, Jawa Barat, Indonesia  
Universitas Negeri Makasar<sup>3</sup>, Jl. AP Pettarani, Rappocini, Kota Makassar, Sulawesi Selatan, Indonesia

*Received Date* : 28.03.2023

*Revised Date* : 27.05.2023

*Accepted Date* : 14.06.2023

### **ABSTRACT**

This article aims to present an analysis of the influence of digital banks on bank profitability in Indonesia in 2013–2021. The research method used is a comparative causal method with secondary data from annual reports of sample banks taken purposively from banks in Indonesia that have provided digital bank transaction services and have gone public from 2013–2021. The results show that the number of digital bank transactions in the form of mobile banking (MB) has a positive effect on bank profitability by controlling liquidity (LDR). This happens because MB transactions are emergency and simple with smaller transaction limits so that the number of MB transactions is large and in line with increasing operational efficiency and bank profitability, and the number of digital bank transactions in the form of Internet banking does not affect bank profitability even though it has controlled liquidity (LDR). This is because IB transactions are complex with a nominal limit per transaction that is larger than MB, so the number of IB transactions is smaller than the number of MB transactions.

**Keywords** : **Digital Bank; Mobile Banking; Internet Banking; Liquidity; Profitability**

### **ABSTRAK**

*Artikel ini bertujuan menyajikan analisis pengaruh dari bank digital terhadap profitabilitas bank di Indonesia pada tahun 2013–2021. Metode penelitian yang digunakan adalah metode kausal komparatif dengan data sekunder dari laporan tahunan bank sampel yang diambil secara purposive pada bank di Indonesia yang telah memberikan layanan transaksi bank digital dan telah go public dari tahun 2013–2021. Hasil penelitian menunjukkan jumlah transaksi bank digital berupa mobile-banking (MB) berpengaruh positif terhadap profitabilitas bank dengan mengontrol likuiditas (LDR). Hal ini terjadi karena transaksi MB bersifat darurat dan simpel dengan limit pertransaksi yang lebih kecil sehingga jumlah transaksi MB banyak dan selaras dengan peningkatan efisiensi operasional dan profitabilitas bank, dan jumlah transaksi bank digital berupa internet banking tidak berpengaruh terhadap profitabilitas bank walaupun sudah mengontrol likuiditas (LDR). Hal ini karena transaksi IB bersifat kompleks dengan limit nominal pertransaksi yang lebih besar dari MB, sehingga jumlah transaksi IB lebih kecil dari jumlah transaksi MB.*

**Kata Kunci** : **Bank Digital; Mobile Banking; Internet Banking; Likuiditas; Profitabilitas**

## INTRODUCTION

Banks as business institutions certainly aim to earn profits, in which the ability to earn profits is measured by the level of profitability. Profitability in this study is the dependent variable (Y), using the ROA (return on assets) ratio shown in Table 1.

**Table 1. ROA of 7 Sample Banks 2013–2021**

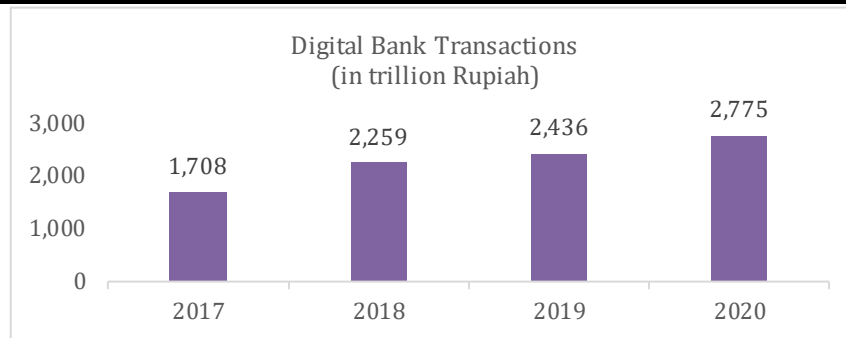
ROA	2013	2014	2015	2016	2017	2018	2019	2020	2021
MANDIRI	3,66	3,57	3,15	1,95	2,72	3,17	3,03	1,64	2,53
BRI	5,03	4,74	4,19	3,84	3,69	3,68	3,50	1,98	2,72
BCA	3,80	3,90	3,80	4,00	3,90	4,00	4,00	3,30	3,40
BNI	3,40	3,50	2,60	2,70	2,70	2,80	2,40	0,50	1,40
MAYB	1,74	0,68	1,01	1,60	1,48	1,74	1,45	1,04	1,32
CIMB	2,76	1,44	0,24	1,09	1,70	1,85	1,99	1,06	1,88
MEGA	1,14	1,16	1,97	2,36	2,24	2,47	2,90	3,64	3,73

Source: Mandiri, BRI, BCA, BNI, MAYB, CIMB, Mega Annual Reports for 2013-2021. (Independent, 2013-2021) (BNI, 2013-2021) (BCA, 2013-2021) (BRI, 2013-2021) (Indonesia, Annual Report, 2013-2021) (CIMB, 2013-2021) (Mega, 2013-2021)

Table 1. shows that the sample banks have good profitability, and although they fluctuate somewhat, they show an upward trend. The Covid-19 pandemic generally had an impact on reducing the profitability of sample banks in 2020 but could rebound again in 2021. Bank Mega became a sample bank whose profitability continued to increase despite the Covid-19 Pandemic conditions. This condition shows that banking conditions in Indonesia are performing well.

The development of technology 4.0 in the form of Internet-based technology or the Internet of things has pushed banks to become digital banks, namely banks that provide banking services electronically/digitally. The definition of a digital bank is an Indonesian legal entity bank that provides and carries out business activities mainly through electronic channels without a physical office other than the head office (KP) or can use very limited physical resources (OJK, 2021). So it can be concluded that a digital bank is not one type of bank, but rather a type of bank activity that provides services digitally. Digital banking creates efficiency in the form of reducing error processes, eliminating repetitive processes, and efficiency in the use of space and time, and human labor, which has an impact on reducing bank operational costs and increasing profitability (Wijaya, 2021). Digital banks include ATMs, branchless banking, Electronic Data Capture, Electronic Money, Mobile Banking, Internet Banking, and Electronic channels. Banks currently facing business competition must choose whether to switch to digital banks or remain conventional banks.

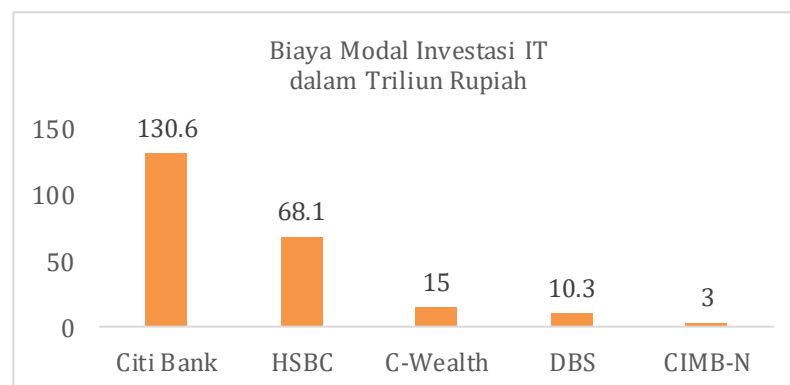
This article focuses on 2 (two) digital bank transactions that are currently booming, namely Mobile Banking (MB) and Internet Banking (IB) because bank customers can do it anywhere and anytime. The conditions of the Covid-19 pandemic which severely limited human mobility have added to the rapid development of digital banks lately. In addition, the development of electronic trade transactions (e-commerce) by local market players such as Tokopedia, Shopee, and Bukalapak has added to the fact that digital bank transactions are increasingly widespread because they are in line with the current shopping lifestyle trend in Indonesia. The development of e-commerce has also increased digital bank transactions from businesses related to electronic commerce, such as payments for online package courier delivery transactions (such as JNE, Tiki, and JNT), goods insurance premiums, and so on.



Source: *Banking Digital Blueprint, 2021*

**Figure 1. Digital Bank Transactions**

Figure 1 shows the trend of rapid development of digital banks from 2017 to 2020. Digital bank transactions increased rapidly by 37.35% during the Covid-19 pandemic in 2020 (Ariesta, 2021).



Source: *Banking Digital Blueprint, 2021*

**Figure 2. Cost of Bank Investment Capital in 2019**

In Figure 2. it can be seen that the cost of bank IT investment capital in 2019 requires a large nominal, even Citi Bank incurs very large IT costs reaching IDR 130.6 trillion. Given this, banks must make wise calculations before investing in IT, so that the benefits obtained are greater than the investment costs incurred. Therefore this study focuses on analyzing the influence of digital banks, namely MB and IB on bank profitability (ROA) with liquidity (LDR) as the control variable.

The results of previous research that is pro with digital bank research having a positive effect on bank profitability are researched by Aduda & Kingoo (2012) that electronic banking has a strong and significant effect on the profitability (ROA) of banks in Kenya because electronic banking facilitates banking transactions and improves the performance of the banking industry in Kenya. Gap research with the results of Morindu's research (2020) that digital banks (SMS, MB,IB) partially do not affect the profitability of BNI banks in 2013-2019.

Mobile Banking, abbreviated as m-banking (MB), is banking transactions electronically through mobile devices, using the default MB application for HP or downloading the MB application from the bank concerned. Security for MB transactions is the User ID and Password/PIN. MB transactions are incidental, simple and have a smaller daily transaction nominal limit, for example for MB BCA the daily transaction limit for silver customers is IDR 50 million/day. MB transactions include balance checks,

transfers, payments to marketplaces, credit purchases, and so on. This study uses the number of MB transactions in determining the MB variable units (OJK, 2021).

Internet Banking, abbreviated as i-banking (IB), is banking transactions through the Internet, using laptops, desktop computers, and cell phones connected to the bank's website. IB transactions have a daily transaction nominal limit that is much larger than MB, for more complex daily transactions, for example for IB BCA (Click BCA) a nominal limit of IDR 500 million/day. Examples of IB transactions are payments for purchases of raw materials for business actors, payments for property purchase transactions, and so on. For this reason, IB security is higher than MB transactions, namely: User ID, Password/PIN, and Token. In this study, the number of IB transactions is used as an IB variable unit (OJK, 2021).

The control variable is usually in the form of company demographics which can be company size (assets, sales value, company age, capital structure, liquidity). The control variables include the independent variables used to improve the initial model, namely increasing the coefficient of determination between the independent variables and the dependent variable, but the control variables are not hypothesized (Ghozali, 2016).

The control variable in this study is Liquidity in the form of LDR (Loan to Deposit Ratio) which is a comparison between loans or credit provided with funds received from third parties. The greater the LDR ratio, the greater the bank's profitability, assuming that the bank can channel its credit properly/the number of problem loans is very small (Kasmir, 2016). The LDR formula is shown in Formula 1.

$$LDR = \frac{KYD}{DPK} \quad (1)$$

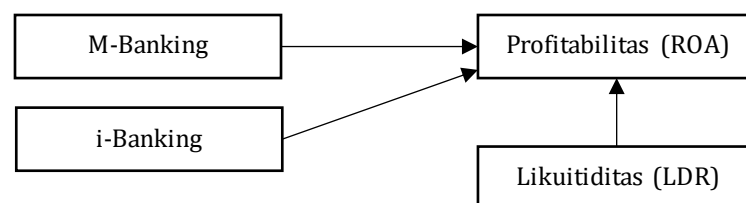
Where LDR is the loan to deposit ratio, while KYD is the amount of credit extended and DPK is funds obtained from third parties. According to the 2019 BI Regulations, LDR is in the range of 84% - 94% (PBI No.21/12/PBI/2019).

Profitability is the company's ability to generate profits. Profitability ratios are used as a measuring tool to determine a company's ability to generate profits within a certain period of time, for example in one year. The profitability ratio in this article is ROA (Return on Assets), because ROA indicates the company's profitability of all company assets. The greater the ROA ratio, the higher the company's profitability. The ROA formula (Lutfi & Hendrian, 2020) is shown in Formula 2.

$$ROA = \frac{NPBT}{Assets} \quad (2)$$

ROA is return on assets, while NPBT is net profit before tax or net profit before tax, and assets are total assets owned by a company/bank.

Based on the background that has been described, a framework is developed that explains the effect of digital banking transactions in the form of MB, IB on profitability (ROA) by controlling the liquidity variable (LDR) as shown in Figure 3. framework.



Source: Processed data, 2023

**Figure 3. Framework for the Effect of Digital Transactions on Profitability**

## RESEARCH METHOD

This study uses a quantitative research method with a descriptive and associative approach used to analyze the effect of digital banks (MB, IB) on bank profitability by controlling LDR liquidity. The population in this study are banks in Indonesia that have gone public and are listed on the Stock Exchange in Indonesia for the period 2013 to 2021. The sample was taken purposively, namely 7 (seven) banks including Bank Mandiri, BCA, BNI, BRI, Bank Mega, Bank CIMB Niaga, and Maybank Indonesia.

This study uses secondary data in the form of annual reports for 2013-2021 from 7 sample banks to obtain the number of MB transactions, the number of IB transactions, LDR, and ROA. The analysis technique in this study used the panel data regression method. The independent variables used are the number of MB transactions (X1), the number of IB transactions (X2), and LDR Liquidity (X3) as control variables. The dependent variable is bank profitability (Y).

Panel data regression combines cross-sectional/inter-individual data with times series/time range, to obtain a higher degree of freedom and a smaller risk of losing variables. The panel data regression formula is as shown in Formula 3.

$$Y = a + b_1X_{1it} + b_2X_{2it} + b_3X_{3it} + e \quad (3)$$

Where Y is the dependent variable ROA, while a is a constant, namely the value of Y outside the influence of the variables X1, X2, X3 or if X1, X2, X3 = 0, while b1, b2, b3 are the regression coefficients, while X1 is the number of mobile banking transactions, X2 is the number of internet banking transactions, X3 is the liquidity control variable (LDR), e = error term, that is, other independent variables other than X1, X2, X3, t is time, and i is the bank.

## RESULT AND DISCUSSION

Table 2. shows descriptive statistics processed from the annual reports of the research sample banks.

**Table 2. Descriptive Statistics**

	<i>ROA (%)</i>	<i>MB (unit)</i>	<i>IB (unit)</i>	<i>LDR (%)</i>
N	63	63	63	63
Minimum	0,24	152.277	414.814	55,35
Maksimum	5,03	10.100.000.000	4.250.000.000	99,46
Mean	2,58	656.000.000	525.000.000	82,75
Median	2,70	131.000.000	26.100.000	85,60

*Source: Sample Bank Annual Report 2013-2021*

Table 2. presents descriptive statistics processed from the annual reports of research sample banks, the average ROA is quite good at 2.58%, the average MB transaction is 10,100 million transactions, more than the average IB transaction is 4,250 million transactions, the average LDR liquidity pretty good 82.75%.

Based on data processing using statistical software Eviews, the output of the panel data regression equation fixed effect model is obtained, as shown in Table 3.

**Table 3. Fixed Effect Model Regression**

Variable	Coefficient	Std Error	t-Statistics	Prob/t-Test
C (Constant)	0.316872	0.665420	0.476198	0.6360
Log MB (X <sub>1</sub> )	0.309423 (b <sub>1</sub> )	0.078748	3.929290	0.0003
Log IB (X <sub>2</sub> )	0.024132 (b <sub>2</sub> )	0.074906	0.322168	0.7486
LDR (X <sub>3</sub> )	-0.045422 (b <sub>3</sub> )	0.006843	-6.637284	0.0000
ROA (Y)				
Fixed Effect (Period)				
Adjusted R <sup>2</sup>		0,711711		
Prob (F-Statistic)/F-Test		0,000000		

Source: output fixed effect model with Eviews program version 12

From the regression output of the fixed effect model, the regression equation shown in Formula 4. is obtained.

$$Y = 0.316 + 0.309 X_1 + 0.024 X_2 - 0.045 X_3 \quad (4)$$

Where Y is ROA, X<sub>1</sub> is the number of mobile banking transactions, X<sub>2</sub> is the number of internet banking transactions, and X<sub>3</sub> is LDR liquidity.

### Classical Assumptions Test and Panel Data Regression Analysis

A good regression model must meet the classical assumptions so that the resulting regression BLUE (Best Linear Unbias Estimator)/is not biased. The results of the classical assumption test show normal data, no autocorrelation, multicollinearity, or heteroscedasticity.

From 3 (three) panel data regression approach models: Common Effect Model, Fixed Effect Model, and Random Effect Model, based on the Chow Test and Hausman Test, the best model obtained is the Fixed Effect Model.

### Model Reliability Test (F Test), Regression Coefficient Test (t-Test), and Coefficient of Determination

The F test is to determine whether the estimated regression model is feasible or not. If the calculated prob F value  $< \alpha = 0.05$ , then the estimated regression model is feasible (Pandoyo & Sofyan, 2018). The calculated prob F value =  $0.0000 < \alpha = 0.05$  indicates a feasible estimation model.

The t-test in panel data regression is to test the regression coefficient/slope of the independent variable partially to the dependent variable. If the calculated prob t value (indicated by prob) is smaller than the error rate ( $\alpha = 0.05$ ) then the variable is said to have a significant effect on the dependent variable (Pandoyo & Sofyan, 2018). The calculated prob t value of the independent variable MB =  $0.0003 < \alpha = 0.05$ , so that the MB variable has a significant effect on the dependent variable ROA at  $\alpha$  5% or with a confidence level of 95%. The value of t count/prob IB = 0.7486 is greater than  $\alpha = 0.05$  so the IB variable does not affect the ROA dependent variable. The value of t count/prob LDR =  $0.0000 < \alpha = 0.05$  so that the independent variable LDR has a significant effect on the dependent variable ROA.

The adjusted R<sup>2</sup> value (adjusted R<sup>2</sup> value is used because the number of independent variables  $> 1$ ) is 0.711711, meaning that the proportion of the influence of the independent variables MB, IB, and LDR on the dependent variable ROA = 71.17%, while the remaining 28.83% is influenced by variables that are not examined in this study.

---

### **Effect of Mobile Banking Transactions on Bank Profitability.**

The results of the fixed effect regression model show a correlation coefficient of MB of 0.309 and with a value of  $t = 0.0003$  on ROA, indicating that MB transactions have a significant positive effect on bank profitability/ROA, by controlling for LDR. This shows a unidirectional and significant relationship between MB transactions and ROA, that is, an increase in the number of MB transactions will increase ROA, and vice versa.

MB transactions are incidental and simple, with a smaller daily nominal limit, so MB transactions are far more than IB transactions, and this study uses transaction amount units, not transaction nominal.

Digital bank transactions increase automation, minimize repetitive processes, and reduce errors. According to a McKinsey report, the bank digitization process can save costs by around 40% (Wijaya, 2021). Cost savings will increase the profit earned, thereby increasing the bank's profitability (ROA).

This is following the results of research (Bett & Bogonko, 2017), namely MB partially had a positive effect on bank profitability in Kenya in 2017. Muchlis, et.al (2021) stated that M-Banking transactions had a positive and significant effect on bank profitability in Indonesia in 2016- 2019. This study differs in direction from the research of Peter & Steven (2016), namely MB has a negative and insignificant effect on the ROA of banks in Nigeria in 2016 because at that time banks in Nigeria had just implemented MB transactions, so the profits earned were still absorbed by high costs. digital banking technology investment. Likewise, it is contrary to the results of Morindu's research (2020), namely MB transactions have a negative and insignificant effect on BNI profits due to doubts and inconvenience by BNI customers in using MB. This is different from the results of this study because the regression model used by Morindu is multiple linear regression with only one BNI research object and a shorter period, namely 4 years (2016-2019). This study uses a panel data regression model that combines cross-sectional data from 7 (seven) banks (BNI, BRI, Mandiri, BCA, Mega, CIMB Niaga, and Maybank Indonesia) and a longer period of 9 (nine) years (2013- 2021) to produce a higher degree of freedom and be able to overcome the loss of variables and data limitations (Basuki, Panel Data Analysis in Economics and Business Research, 2021).

### **Effect of Internet Banking Transactions on Bank Profitability**

The fixed effect regression model obtained a regression coefficient for Internet Banking of 0.024 and a value of  $t = 0.7486$ , indicating that IB transactions do not affect bank profitability (ROA), even though they have controlled for LDR ( $\text{prob } t > \alpha = 0.05$ ).  $\text{Prob } t \text{ LDR} = 0.0000$  (Table 2. Panel Data Regression)  $< \alpha 0.005$  so that the LDR variable also has a significant effect on the Y variable (ROA). So even though the IB variable does not affect ROA, by controlling the LDR of bank liquidity (the average liquidity of the sample bank's LDR = 82.75% = good) it gives a positive regression direction (+ 0.024) to bank profitability.

IB transactions for more complex banking transactions, with a larger daily transaction nominal limit. For example, for purchases of raw materials for the business world, and purchases of land & buildings, the number of IB transactions is smaller than MB transactions. In this study, the number of IB transaction units is used, not the transaction nominal, so IB transactions do not affect bank profitability (ROA).

This is under the results of research by Khrawish & Al-Sa'di (2011) IB transactions did not have a significant effect on the ROA & ROE of banks in Jordan in 2011, because they had only conducted IB transactions for under 2 years, so bank profitability was eroded by IB investment costs. This result is different from the research by Margaretha (2014), namely, IB has an influence on the ROA of banks in Indonesia in 2013. It is also different

---

from the results of research by Tunay et.al (2015), namely IB has a significant and unidirectional influence on the performance of banks in the European Union, also with ROA. a commercial bank in Nigeria.

### **The Effect of LDR Control Variables on Bank Profitability**

The fixed effect regression model produces a regression coefficient of LDR (loan to deposit ratio)  $-0.045422$  with  $\text{prob } t = 0.0000 < \alpha 0.005$ , indicating that the LDR control variable has a significant negative effect (different direction) on ROA profitability, ie each addition of one unit of LDR variable will reduce ROA profitability by 0.045 units, and vice versa. In theory, LDR, which is a comparison between loans provided by banks and funds obtained from third parties, has a positive regression with profitability, the higher the LDR ratio, the higher the bank's profitability, provided that the bank can channel its credit properly, according to the 2019 POJK LDR ratio a good 84%-94%. The results of the research on the control variable LDR have a negative regression on ROA because from the descriptive statistics Table 2 the maximum LDR value is 99.46% (greater than the POJK maximum limit = 94%) so there are several banks whose liquidity is disrupted.

The results of this study are under Sari & Endri's research (2019) that LDR has no impact on ROA, and gap research with research by Dewi & Badjra (2020) and Amalia & Nugraha (2021) which shows LDR has a significant positive correlation with ROA.

### **CONCLUSION**

This article concludes that Mobile Banking transactions have a significant positive effect on profitability (ROA) by controlling for LDR. Conversely, Internet Banking transactions have no effect (positive correlation sign, but not significant) on profitability even though they have controlled for LDR.

This happens because the number of MB transactions is greater than the number of IB transactions, because the nominal limit for daily MB transactions is much smaller than the nominal limit for daily IB transactions, and MB transactions are incidental and simple, and this research uses transaction amount units instead of a nominal transaction.

### **RECOMMENDATION**

This article has limitations in discussing the digital bank dependent variable on the number of mobile banking transactions, internet banking, and liquidity control variables as well as the profitability dependent variable in the form of ROA, so this article provides a recommendation that for further research you can use other digital bank transaction independent variables (such as clever behavior, EDC/Electronic Data Capture, e-money), using control variables in the form of assets, company age, and using profitability-bound variables other than ROA (GPM, ROE, NPM, NIM), and using transaction volume/nominal as bank transaction parameters digital.

Recommendations that banking policymakers can increase the Mobile Banking information technology investment budget because it increases bank profitability. As well as recommendations for Managers or Bank information and communication technology policy authorities to be able to create Internet Banking systems/applications that are more familiar and user-friendly, to increase Internet Banking transactions.



---

**REFERENCES**

- Aduda, J., & Kingoo, N. (2012). The Relationship between Electronic Banking and Financial Performance among Commercial Banks in Kenya. *Journal of Finance and Investment Analysis*, 99-118.
- Amalia, S., & Nugraha, N. M. (2021). The Impact of Financial Ratio Indicators on Banking Profitability in Indonesia. *Turkish Journal of Computer and Mathematics Education*, 580-588.
- Ariesta, A. (2021). OJK Sebut Transaksi Digital Meningkatkan Pesat 37,35 Persen di Tengah Pandemi. Retrieved from IDX Channel: <https://www.idxchannel.com/economics/ojk-sebut-transaksi-digital-meningkat-pesat-3735-persen-di-tengah-pandemi>. Jakarta: IDX Channel.
- Basuki, A. T. (2021). Analisis Data panel Dalam Penelitian Ekonomi Dan Bisnis. Yogyakarta: Universitas Muhammadiyah Yogyakarta.
- Basuki, A. T. (2021). Analisis Data Panel Dalam Penelitian Ekonomi Dan Bisnis. Yogyakarta: Universitas Muhammadiyah Yogyakarta.
- BCA. (2013-2021). Laporan Tahunan. Jakarta: BCA.
- Bett, F. C., & Bogonko, J. B. (2017). Relationship Between Digital Finance Technologies and Profitability of Banking Industry in Kenya. *Economy International and Finance Academy*, 34-56.
- BNI. (2013-2021). Laporan Tahunan. Jakarta: BNI.
- BRI. (2013-2021). Laporan Tahunan. Jakarta: BRI.
- CIMB. (2013-2021). Laporan Tahunan. Jakarta: CIMB.
- Dewi, N. C., & Bajra, I. B. (2020). The Effect of NPL, LDR and Operational Cost of Operational Income on ROA. *American Journal of Humanities and Social Sciences Research*, 171-178.
- Ghozali, I. (2016). Desain Penelitian Kuantitatif & Kualitatif untuk Akuntansi, Bisnis dan Ilmu Sosial Lainnya. Semarang: Yoga Pratama.
- Indonesia, M. (2013-2021). Laporan Tahunan. Jakarta: Maybank Indonesia.
- Indonesia, M. (2013-2021). Laporan Tahunan. Jakarta: Maybank.
- Kasmir. (2016). Analisis Laporan Keuangan. Jakarta: Rajawali Persada.
- Khrawish, H. A., & Al-Sa'di, N. M. (2011). The Impacts of E-Banking on Bank Profitability: Evidence from Jordan. *Finance and Economic Middle East*, 142-158.
- Kristiyana, H., Supangat, T., & Herlianto, A. (2021). Cetak Biru Transportasi Digital Perbankan. Jakarta: OJK.
- Lutfi, M., & Hendrian. (2020). Manajemen Investasi. Tangerang Selatan: Universitas Terbuka.
- Mandiri, B. (2013-2021). Laporan Tahunan. Jakarta: Bank Mandiri.
- Margaretha, F. (2015). Dampak Electronic Banking Terhadap Kinerja Perbankan Indonesia. *Jurnal Keuangan dan Perbankan*, 514-524. <https://doi.org/10.26905/jkdp.v19i3.49>
- Mega. (2013-2021). Laporan Tahunan. Jakarta: Mega.
- Morindu, I. (2020). Pengaruh Digital Banking Terhadap Nilai Perusahaan Perbankan. *Jurnal Riset Akuntansi Politala*, 67-73. <https://doi.org/10.34128/jra.v3i2.50>
- Muchlis, Wahono, B., & Mustapita, A. F. (2021). Pengaruh Electronic Money (E-Money), Electronic Banking (E-Banking), dan Branchless Banking Terhadap Profitabilitas Perbankan Periode 2016-2019. *Jurnal Riset Manajemen*, 87-97.
- OJK. (2021, 03). POJK 12/POJK 03. Jakarta: OJK.
- Pandoyo, & Sofyan, M. (2018). Metodologi Penelitian Keuangan Dan Bisnis. Bogor: In Media.

- Peter, E. G., & Steven, E. (2016). Electronic Banking and Profitability of Commercial Banks in Nigeria. *Journal of Finance and Economic Research*, 202-222.
- Sari, F. N., & Endri, E. (2019). Determinants of Return on Assets (ROA) On Coventional Banks Listed On Indonesian Stock Exchange (IDX) Period 2013-2017. *IOSR Journal of Business and Management*, 52-62.
- Tunay, K. B., Tunay, N., & Akhisar, I. (2015). Interaction Between Internet Banking and Bank Performance: The Case of Europe. *Procedia - Social and Behavioral Sciences* 195, 363-36. <https://doi.org/10.1016/j.sbspro.2015.06.335>
- Wijaya, K. (2021). Digital Banking VS Digital Bank. Retrieved from Serial Berbagi. Jakarta: