

**FINANCIAL PERFORMANCE ANALYSIS IN THE BANKING SECTOR: BEFORE AND AFTER FINANCIAL TECHNOLOGY REGULATION IN INDONESIA (CASE STUDY OF BUKU-IV IN INDONESIA FOR PERIOD 2013-2019)**

Wiwiek Mardawiyah Daryanto  
Faisal Akbar  
Faisal Angga Perdana

**ABSTRACT**

The banking sector is considered as an important sector for financial system stability with banks playing a major role such as investing in economic growth, business and household financing, and in the payment system. Banking stability itself is described by a healthy banking condition and as a picture of overall bank performance. The purpose of this study is to measuring and analyzing financial performance using Banks categorized in BUKU-IV such as Bank Rakyat Indonesia, Bank Mandiri, Bank Central Asia, Bank Negara Indonesia, Bank CIMB Niaga, and Bank Panin before (2013-2015) and after (2016-2019) the government issued the regulation about financial technology (Fintech). The challenges created against banks from new entrants to the financial industry through Fintech can affect bank performance because they compete with banks in their core business. This study analyzed banks level of financial health performance with RBBR approach to examines Current Account and Saving Account (CASA) Ratio, Loan to Deposit Ratio (LDR), Non-Performing Loan (NPL), Return on Asset (ROA), Net Interest Margin (NIM), and Capital Adequacy Ratio (CAR). It shown by almost all variables from that banks categorized as very healthy performance. Using Fixed Effect Model to see the effect of CASA, LDR, NPL, NIM, CAR, and dummy Fintech to ROA, the result are independent variables give a significant impact on ROA, but only only LDR does not have a significant impact on the profitability of the banks. There is indication that the fintech policy during the study period gave its effect on increasing bank profitability in BUKU-IV.

*Keywords:* Bank Performance, Risk-Based Bank Rating, Fixed Effect Model, BUKU-IV, Financial Technology.

**1. INTRODUCTION**

The banking sector has a dominant share in the financial system in Indonesia, reaching 76.9% in 2012 (Gunadi, Taruna, & Harun, 2013), therefore failures in the banking sector can cause instability and disrupt the economy. There is support from Wijaya, Utama, & Kusuma (2015), banks generally dominate the financial sector, so that the problems experienced by banks are very easy to spread to problems in the financial sector which can lead to problems for the whole economy. Banking stability itself is described by a healthy banking condition and as a picture of overall bank performance. Bank performance can be seen from several aspects such as efficiency, asset quality, liquidity, and profitability.

According to Bank Indonesia (2013) which stated that one of the main functions of Indonesian banking is to collect and channel public funds to support national development in order to improve development equity. If a bank fails to perform its function, the impact will be affecting the decisions of customers, other depository institutions, and real sector activities. Otoritas Jasa Keuangan (OJK) as an institution that regulates and oversees all activities in the banking sector, capital market, and financial services sector in Indonesia has the responsibility to create a healthy performance of financial institutions, especially banks. Based on OJK regulation Number 4/POJK.03/2016 about Health Level Assessment of Commercial Bank, said that all banks are required to do the self-assessment of the health level of financial health using Risk-Based Bank Ratings (RBBR) approach.

Fintech has become a special concern for the OJK with the issuance of OJK's Regulation Number 77/POJK.01/2016 about Information Technology-Based Lending and Borrowing Services, where the OJK in accordance with its authority to prepare regulations to oversee the development of financial services sector businesses. On the other hand, advances in digital technology have made Fintech startups increase. Financial technology can replace the role of commercial banks in terms of payment systems, such as being a payment aid, settlement/clearing; risk mitigation from conventional payment systems and borrow funds. The challenges created by Fintech in the financial industry are against banks that they compete with banks in their core business, i.e. credit, these global widespread electronic platforms became a countable rival for the traditional banks in providing credit especially at the personal and household level.

As in accordance with some of the results of research conducted by previous studies using similar independent variables:

No	Variable	Name and Year of Research	Result
1.	Loan to Deposit Ratio (LDR)	Khalifaturofi'ah & Nasution (2016)	Significant (-)
		Lukitasari & Kartika (2015).	Significant (+)
		Yudiartini & Dharmadiaksa (2016).	Not Significant (-)
2.	Non-Performing Loan Ratio (NPL)	Lukitasari & Kartika (2015).	Not Significant (-)
		Yudiartini & Dharmadiaksa (2016).	Not Significant (-)
		Khalifaturofi'ah & Nasution (2016)	Significant (-)
3.	Net Interest Margin (NIM)	Mahardian (2008)	Significant (+)
		Ardiansyah & Mawardi (2017).	Not Significant (-)
4.	Capital Adequacy Ratio (CAR)	Lukitasari & Kartika (2015).	Not Significant (-)
		Khalifaturofi'ah & Nasution (2016)	Significant (-)
		Yudiartini & Dharmadiaksa (2016).	Significant (-)

### Research Formulation:

Does Current Account and Saving Account, Loan to Deposit Ratio, Non-Performing Loan, Net Interest Margin, Capital Adequacy Ratio, and before after Fintech Policy affect to Return on Asset on BUKU-IV in Indonesia?

### Research Objective:

Research related to the impact of financial technology on banking performance is still very limited. Based on the background, the authors's research purpose is to empirically analysis of Current Account and Saving Account, Loan to Deposit Ratio, Non-Performing Loan, Net Interest Margin, Capital Adequacy Ratio, and before after Fintech Policy affect to Return on Asset on BUKU-IV in Indonesia.

## 2. LITERATUR REVIEW

### Bank Performance

According to Swamy (2014), there are four indicators that describe bank performance, such as efficiency, asset quality, liquidity, and profitability. Research from Mahardian (2008) to test the factors of financial ratios to financial performance in the banking sector listed on the Indonesia Stock Exchange 2002-2007. With the results of research that CAR, NIM, and LDR have a significant effect, while the BOPO variable has no significant effect on ROA. Research from Dasih (2014) using a random effect model (REM), with the result that CAR and LDR have a significant effect, while BOPO and NPL has no significant effect on ROA.

### Risk-Based Bank Rating Approach

The better performance of banks, which is determined by efficiency, asset quality, profitability, and liquidity, will support banking stability. All banks are required to do the self-assessment of the health level of financial health using the RBBR approach based on OJK's regulation Number 4/POJK.03/2016. The scope of the risk assessment can be seen from factors such as risk profile; good corporate government (GCG) profitability (earnings); and capital. This research from Anangadipa & Daryanto (2018) has a purpose to measure the differences of financial performance between the BNI, BRI, Bank Mandiri, and BCA against the national condition using Risk-Based Bank Rating (RBBR) method in the last five years (2012-2016) and they found that the financial performance of those banks is good and include in ideal and very healthy condition especially in CAR, LDR, and ROA.

### Financial Technology to Banking Performance

Based on research by Vives (2017), which says that Fintech as competitors are putting pressure on the traditional business model of banks. This is because banks are generally focused on their product, while Fintech as a new entrant is more focused on customers. On the other hand, the research of Kemboi (2018) aims to see the relationship between financial technology and the bank's financial performance in Kenya. The payments and digital lending space in Kenya show that there is a lot of business that has been taken away from traditional banking by financial technology. Fintech can affect performance in the banking sector well because financial technology was positively correlated with financial performance.

## 3. RESEARCH METHODS AND OBJECTS

### RESEARCH METHODS

#### Analysis Technique

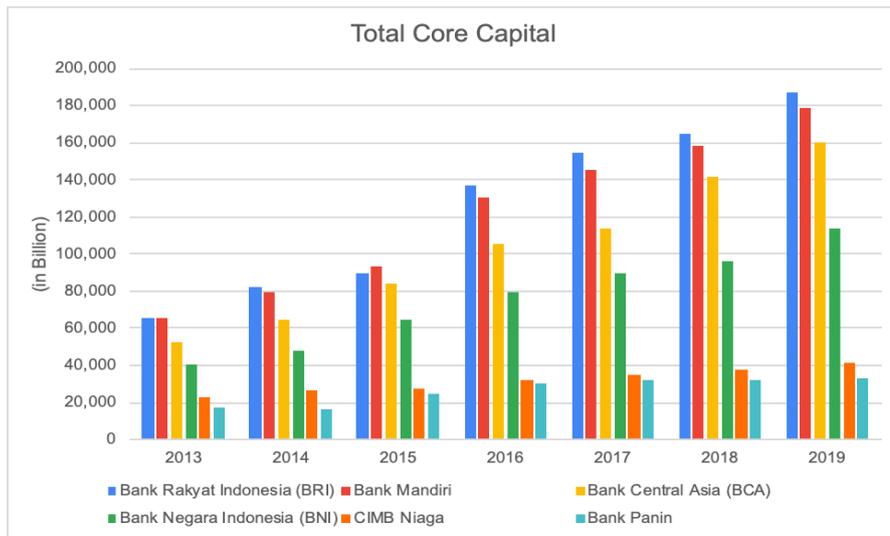
In this research the authors using panel data regression analysis techniques. In panel data regression, three estimation methods can be used such as Common Effect Model (CEM), Fixed Effect Model (FEM) and Random Effect Model (REM). To choose the best model, the Redundant Fixed Effect test and the Hausman test will be conducted. Dummy variables are used to change qualitative data (financial technology policy) into quantitative variables in the form of numbers 0 and 1.

#### Data

The data used are annual data derived from the annual report of each commercial bank every year from 2013 until 2019. Dependent variable on this research is ROA, with independent variable are Current Account and Saving Account (CASA) ratio, Loan to Deposit Ratio (LDR), Non-Performing Loan (NPL), Net Interest Margin (NIM), Capital Adequacy Ratio (CAR), and dummy Financial Technology regulation in Indonesia (dFintech).

Seen from **Figure 1**, that there are 6 banks and have different results. Where these results show the results of Core Capital, there are several banks that are buffered from failures or losses due to assets funded by their own capital going well. Since 2016, Bank CIMB Niaga and Bank Panin are included in the BUKU-IV category with a total core capital of Rp32,421 Billion and Rp30,654 Billion in the same year. In general, the total core capital of banks in BUKU-IV has increased every year.

Figure 1. The total core capital in the BUKU-IV category (2013-2019) in Billion IDR



Sources: Idx (2020).

### Research Model

The authors build the hypothesis that CASA, LDR, NPL, NIM, CAR, and dFintech have a significant influence on bank performance (ROA). The empirical model used by the authors is as follows:

$$ROA_{it} = \beta_0 + \beta_1CASA_{it} + \beta_2LDR_{it} + \beta_3NPL_{it} + \beta_4NIM_{it} + \beta_5CAR_{it} + \beta_6dFintech + \varepsilon_{it}$$

Where:

$ROA_{it}$  = banking profitability  
 $CASA_{it}$  = total transaction account balance  
 $LDR_{it}$  = banking liquidity  
 $NPL_{it}$  = the quality of banking assets  
 $NIM_{it}$  = generate net interest income from productive assets  
 $CAR_{it}$  = risk management through banking capital

$dFintech$  = dummy variable Indonesian Financial Technology policy (0 = before the Fintech policy (2013-2015), 1 = after the Fintech policy (2016-2019))  
 $\beta_0$  = as a constant  
 $\beta_1 + \beta_2 + \dots + \beta_6$  = regression coefficient  
 $\varepsilon_{it}$  = banking term error  
 $i$  = cross-section of banks on BUKU-IV  
 $t$  = annual period from 2013 - 2019

### RESEARCH OBJECTS

#### Commercial Banks on BUKU-IV in Indonesia

According to Bank Indonesia's regulation Number 14/26/PBI/2012 about Business Activities and Office Networks Based on Core of Bank's Capital. Banks in Indonesia are categorized into four *Bank Umum berdasarkan Kegiatan Usaha* (BUKU), and BUKU-IV is the category with banks with total core capital between above IDR 30 Trillion, such as Bank Rakyat Indonesia (BRI), Bank Mandiri, Bank Central Asia (BCA), Bank Negara Indonesia (BNI), Bank CIMB Niaga, and Bank Panin

#### Current Account and Saving Account (CASA) Ratio

CASA Ratio aims to show the composition of third-party funds and how much deposits are in banks in current and savings accounts, ideal conditions for CASA are at 60% and 40% for time deposits.

$$CASA = \frac{\text{Current Account} + \text{Saving Account}}{\text{Total Third Parties Funds}} \times 100\%$$

#### Loan to Deposit Ratio (LDR)

LDR is to measure the level of banking expansion in terms of borrowing, if the measurement of this ratio is lower, than the bank functions better in terms of intermediation. The parameter criteria for LDR are for the Very Healthy category =  $LDR \leq 75\%$ ; Healthy category =  $75\% < LDR \leq 85\%$ ; Quite Healthy category =  $85\% < LDR \leq 100\%$ ; Less Healthy category =  $100\% < LDR < 120\%$ ; and for Unhealthy category =  $LDR > 120\%$  (Bank Indonesia, 2011).

$$LDR = \frac{\text{Credit}}{\text{Total Bank Deposits}}$$

**Non-Performing Loan (NPL) Ratio**

NPL ratio aims to measure the risk of default (debt) on the Bank, if the value of this ratio increases, the Bank must have a larger capital reserve. The parameter criteria for NPL are for the Very Healthy category =  $NPL < 2\%$ ; Healthy category =  $2\% \leq NPL < 5\%$ ; Quite Healthy category =  $5\% \leq NPL < 8\%$ ; Less Healthy category =  $8\% \leq NPL < 12\%$ ; and for Unhealthy category =  $NPL \geq 12\%$  (Bank Indonesia, 2011).

$$NPL = \frac{\text{Bad Loans}}{\text{Total Credit}}$$

**Net Interest Margin (NIM)**

NIM ratio aims to measure the net interest income owned by the company, calculated from all assets that generate income in any form. The parameter criteria for NIM are for the Very Healthy category =  $NIM > 3\%$ ; Healthy category =  $2\% < NIM \leq 3\%$ ; Quite Healthy category =  $1.5\% < NIM \leq 2\%$ ; Less Healthy category =  $1\% < NIM \leq 1.5\%$ ; and for Unhealthy category =  $NIM \leq 1\%$  (Bank Indonesia, 2011).

$$NIM = \frac{\text{Net Interest Income}}{\text{Productive Asset}} \times 100\%$$

**Return on Asset (ROA)**

ROA aims to measure earnings income at the Bank, if profitability decreases, the banking industry is required to make higher prices. The parameter criteria for ROA are for the Very Healthy category =  $ROA > 1,5\%$ ; Healthy category =  $1,25\% < ROA \leq 1,5\%$ ; Quite Healthy category =  $10,5\% < ROA \leq 1,25\%$ ; Less Healthy category =  $0\% < ROA \leq 0,5\%$ ; and for Unhealthy category =  $ROA \leq 0\%$  (Bank Indonesia, 2011).

$$ROA = \frac{\text{Profit Before Tax}}{\text{Total Assets}} \times 100\%$$

**Capital Adequacy Ratio (CAR)**

CAR ratio aims to show the ability of the Bank in terms of providing funds for business development needs and handle the loss ratio (credit risk). The parameter criteria for CAR are for the Very Healthy category =  $ROA CAR > 12\%$ ; Healthy category =  $19\% \leq CAR < 12\%$ ; Quite Healthy category =  $8\% \leq CAR < 9\%$ ; Less Healthy category =  $06\% < CAR \leq 8\%$ ; and for Unhealthy category =  $CAR \leq 6\%$  (Bank Indonesia, 2011).

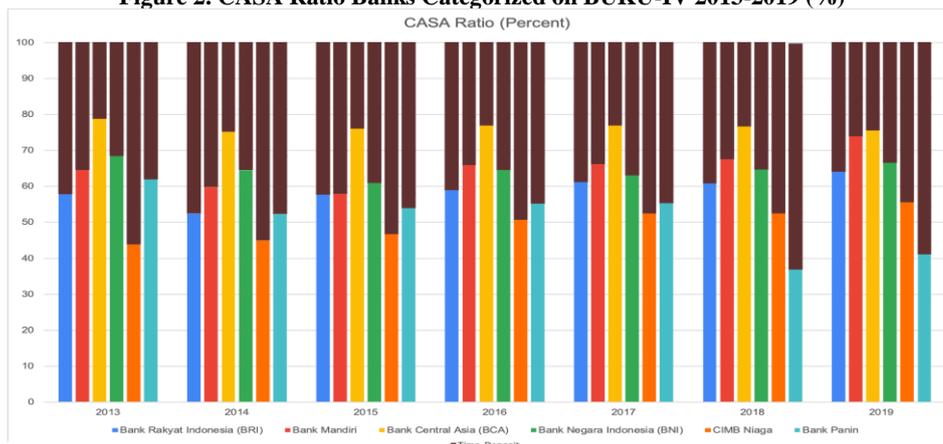
$$CAR = \frac{\text{Tier 1 Capital} + \text{Tier 2 Capital}}{\text{Risk Weight Exposures}}$$

**4. RESULTS AND DISCUSSION****4.1 Risk-Based Bank Rating Approach****Current Account and Saving Account (CASA) Ratio**

**Figure 2.** Shows the CASA ratio of banks categorized on BUKU-IV in Indonesia for seven years period 2013 to 2019. The average CASA ratio from all of the banks over seven years shows the ideal conditions that 61.06% and time deposit shows that 38.94%. BCA had the highest average CASA that 76.64%, followed by other banks, Mandiri had 65.21%, BNI had 64.74%, BRI had 59.09%, Panin had 51.05%, and at the last CIMB Niaga had 49.62%. CIMB Niaga and Panin should increase their performance to grow the CASA to achieve the ideal ratio of 60% and ideal time deposit 40%.

A higher ratio means a larger portion of a bank's deposits are in current and savings accounts, rather than term deposit accounts. This is beneficial to a bank because it gets money at a lower cost. Therefore, the CASA ratio is an indicator of the expense to raise funds and, therefore, is a reflection of a bank's profitability or likelihood of generating profit.

Figure 2. CASA Ratio Banks Categorized on BUKU-IV 2013-2019 (%)



Sources: Annual Report each bank, processed (2013-2019).

### Loan to Deposit Ratio

Table 1 shows that BCA is the only bank that is categorized as healthy in the term of LDR with average LDR of 82.19. While, on the other hand, BRI, Mandri, BNI, CIMB Niaga, and Panin were categorized as quite healthy. It means all the banks have to must be careful in calculating liquidity, because it will impact the availability of credit for consumers.

Table 1. Loan to Deposit Ratio Banks Categorized on BUKU-IV 2013-2019 (%)

No.	BUKU-IV	2013	2014	2015	2016	2017	2018	2019	Average	Category
1	BRI	88.54	81.68	86.88	87.77	88.13	89.57	88.64	87.32	Quite Healthy
2	Mandiri	82.97	82.02	87.05	85.86	90.04	90.0	93.74	87.38	Quite Healthy
3	BCA	75.40	76.80	92.10	90.70	78.20	81.60	80.50	82.19	Healthy
4	BNI	85.30	87.80	87.80	90.40	85.60	88.80	91.50	88.23	Quite Healthy
5	CIMB Niaga	90.34	95.62	97.98	98.38	96.24	94.82	93.45	95.26	Quite Healthy
6	Panin	87.71	90.51	92.22	90.07	92.1	104.15	104.1	94.41	Quite Healthy
Average		85.04	85.33	90.67	90.53	88.39	91.49	91.99	89.13	Quite Healthy

Sources: Annual Report each bank, processed (2013-2019).

### Non-Performing Loan

Table 2 shows an NPL of banks categorized on BUKU-IV in Indonesia for seven years period 2013 to 2019. BRI and BCA were categorized as very healthy with an average NPL ratio of 1.16% and 1.03%, respectively which is below 2%. The other banks were categorized as healthy performances that each bank had an average NPL ratio above 2%. This condition shows that NPL risk transfers and securitization transactions can benefit banks in terms of funding, liquidity management, specialization, and efficiency.

Table 2. Non-Performing Loan Banks Categorized on BUKU-IV 2013-2019 (%)

No.	BUKU-IV	2013	2014	2015	2016	2017	2018	2019	Average	Category
1	BRI	0.31	0.36	1.22	2.03	2.10	0.92	1.20	1.16	Very Healthy
2	Mandiri	1.60	1.66	2.60	3.96	3.45	2.80	2.30	2.62	Healthy
3	BCA	0.40	0.60	0.70	1.30	1.50	1.40	1.34	1.03	Very Healthy
4	BNI	2.17	1.96	1.96	3.0	2.60	2.40	2.60	2.38	Healthy
5	CIMB Niaga	2.23	3.90	2.0	9.35	2.59	3.89	2.90	3.84	Healthy
6	Panin	2.13	2.01	2.44	2.81	2.84	3.04	3.03	2.61	Healthy
Average		1.47	1.75	1.82	3.74	2.51	2.41	2.23	2.28	Healthy

Sources: Annual Report each bank, processed (2013-2019).

**Net Interest Margin (NIM)****Table 3. Net Interest Margin Banks Categorized on BUKU-IV 2013-2019 (%)**

No.	BUKU-IV	2013	2014	2015	2016	2017	2018	2019	Average	Category
1	BRI	8.55	8.51	8.13	7.87	7.78	7.61	7.02	7.92	Very Healthy
2	Mandiri	5.68	5.94	5.90	6.29	5.80	5.66	5.56	5.83	Very Healthy
3	BCA	6.20	6.50	6.72	6.81	6.20	6.20	6.20	6.40	Very Healthy
4	BNI	6.10	6.20	6.40	6.20	5.50	5.31	4.85	5.79	Very Healthy
5	CIMB Niaga	5.34	5.36	5.21	5.64	5.60	5.25	4.86	5.32	Very Healthy
6	Panin	4.90	3.06	4.61	5.03	4.68	4.84	4.44	4.51	Very Healthy
<b>Average</b>		6.13	5.93	6.16	6.31	5.93	5.81	5.49	5.96	Very Healthy

Sources: Annual Report each bank, processed (2013-2019).

**Table 3.** shows a NIM ratio of banks categorized on BUKU-IV in Indonesia for seven years period 2013 to 2019. The average NIM ratio of each bank on BUKU-IV from 2013 to 2019 showed very healthy performance with an average NIM ratio of 5.96%. BRI had the best NIM ratio that is 7.92% and followed by other banks. That means the banks in BUKU-IV are using investment strategy to pay more interest than it costs despite the rising interest rate as a result of tight liquidity.

**Return on Asset**

**Table 4.** Shows the ROA ratio of banks categorized on BUKU-IV in Indonesia for seven years period 2013 to 2019. The average ROA ratio of each bank on BUKU-IV is categorized as a very healthy performance with a ratio above 1.5% and CIMB Niaga has the smallest ROA ratio of 1.57%. That shows banks in BUKU-IV were effective in converting money that it invested in net income.

**Table 4. Return on Asset Banks Categorized on BUKU-IV 2013-2019 (%)**

Return on Asset (ROA)										
No.	BUKU-4	2013	2014	2015	2016	2017	2018	2019	Average	Category
1	BRI	5.03	5.03	2.32	3.3	3.69	3.68	2.45	3.64	Very Healthy
2	Mandiri	3.66	3.57	3.15	1.95	2.45	2.97	2.92	2.95	Very Healthy
3	BCA	3.80	3.90	3.80	4.0	3.90	4.0	4.0	3.91	Very Healthy
4	BNI	6.20	3.49	2.60	2.70	2.76	2.80	2.50	3.29	Very Healthy
5	CIMB Niaga	2.76	1.44	0.24	1.20	1.67	1.69	1.97	1.57	Very Healthy
6	Panin	1.85	1.79	1.31	1.69	1.61	2.16	1.94	1.76	Very Healthy
<b>Average</b>		3.88	3.20	2.24	2.47	2.68	2.88	2.63	2.86	Very Healthy

Sources: Annual Report each bank, processed (2013-2019).

Capital Adequacy Ratio

Table 5. Capital Adequacy Ratio Banks Categorized on BUKU-IV 2013-2019

Capital Adequacy Ratio (CAR)										
No.	BUKU-IV	2013	2014	2015	2016	2017	2018	2019	Average	Category
1	BRI	16.99	18.31	20.59	22.69	22.84	21.21	22.55	20.74	Very Healthy
2	Mandiri	14.93	16.60	18.60	21.36	23.18	20.98	23.38	19.86	Very Healthy
3	BCA	15.70	16.90	18.70	21.90	23.10	23.4	23.80	20.50	Very Healthy
4	BNI	15.10	16.20	19.50	19.40	23.20	23.0	23.90	20.04	Very Healthy
5	CIMB Niaga	15.36	15.58	16.28	17.96	18.60	19.66	21.21	17.81	Very Healthy
6	Panin	15.32	17.30	20.13	20.49	21.99	23.33	23.89	20.35	Very Healthy
Average		15.57	16.82	18.97	20.63	22.15	21.93	23.12	19.88	Very Healthy

Sources: Annual Report each bank, processed (2013-2019).

Table 5. Shows CAR of banks categorized on BUKU-IV in Indonesia for seven years period 2013 to 2019. The average CAR of each bank on BUKU-IV showed very healthy performance, which above standard ratio of 12%. The CAR of each bank's steady increase every year. That shows the banks could provide a considerable amount of capital to anticipate the risk.

4.2 Regression Analysis

Fixed Effect Model (FEM) Result

The best regression model in this research is Fixed Effect Model (FEM) based on Redundant test result. The result shows F-test and chi square significantly (P-Value 0.0027 and 0.0004 < 5%) so that  $H_0$  is rejected and  $H_1$  is accepted. On the other hand, the provisions of the random effect model are that cross-section data is more than the independent variable so that it cannot perform the Hausman, so the authors are using FEM. The result of the FEM equation:

$$ROA_{it} = 8.395414 - 0.036198CASA_{it} - 0.006625LDR_{it} - 0.159451NPL_{it} + 0.223347NIM_{it} - 0.212008CAR_{it} + 0.893401dFintech + \epsilon_{it}$$

(0.000)                      (0.0014)                      (0.5584)                      (0.0004)                      (0.0386)  
 (0.0000)                      (0.0000)

\*R-squared ( $R^2$ )= 0.833832

F-Stat = 26.26447 (0.0000)

$R^2$  is used to find out what percentage of the variation of independent variables which can explain the dependent variable. Based on FEM regression, the value of  $R^2$  is 0.833832 which means CASA, LDR, NPL, NIM, CAR variable, and dFintech can explain 83.38% of the profitability variable of the bank (ROA) and other 16.62% can explain by other variables outside this research.

4.3 Discussion

Based on the result of the Fixed Effect Model test, show that CASA, NPL, NIM, CAR, and dummy Fintech variables have a significant impact on ROA, whereas only LDR does not have a significant impact on the profitability of the banks. The constant value (P-Value = 0.000) of this model is 8.395414 which means that the CASA, NPL, LDR, NIM, CAR, and dFintech variables have a significant effect on the profitability of banks in BUKU-IV.

The LDR variable (P-Value = 0.5584) as a liquidity proxy that is not significant at  $\alpha = 10\%$  has a negative impact on bank profitability with a coefficient of -0.006625. This indicates that changes in liquidity of banks do not have an impact on bank profitability. The other indications that the average liquidity ratio of the banks tends to rise, but cannot conclude give effect to the bank profitability. This assumption can be supported based on Table 1 which shows the average bank in BUKU-IV shows "Quite Healthy", banks need to be careful in lending because it can encourage liquidity risk.

The CASA variable (P-Value=0.0014) gives a significant impact to  $\alpha = 1\%$  with a coefficient -0.036198. The value of the coefficient means that if the total transaction account balance is increasing by 1% so that the profitability of the bank will decrease by 0.036198 percent. The increase of the CASA ratio because there is a growth in savings deposits and demand deposits. CASA itself means one of the sources from third parties and another source is from the deposit (long-term). This negative effect can be assumed because the CASA ratio is a picture of demand deposits and savings (low-cost funds) that can be withdrawn at any time and banks are required to provide savings or checking customer funds if needed. If the bank is unable to provide the money withdrawn by the savings and current account customer, then the bank experiences default (lack of liquidity).

The specified time period can also be short-term or long-term, so there may be a mismatch regarding the period of fulfillment by the bank.

Increasing the banking CASA ratio is also difficult because not all people use savings products. People who have large funds prefer to use deposits in order to get a greater deposit interest compared to savings or current accounts. On the other hand, the main contributor to CASA is the people who use the bank for their daily activities by depositing funds in the bank for less than Rp10 million. In improving services and being able to reach the entire community, banks need to carry out strategies by improving facilities and infrastructure, as well as competitive interest. However, banks require large costs so that they will potentially reduce the profits to be obtained. Therefore, it is necessary to conduct further research related to the short-term and long-term effects between these variables, as well as adding sources from third parties variables as a comparison.

The NPL variable (P-Value= 0.0004) gives the significant on  $\alpha = 1\%$  with coefficient -0.159451 which means if the NPL ratio is increasing by 1% that will reduce the profitability of the bank by 0.159451 percent. This shows that when banks default risk is increased, it will affect the return on assets of the bank. If the NPL ratio is increased, it will affect the bank's operational activities because the funds are held by the customer. The increase in the NPL ratio will cause the banks to become less stable. This is supported by the statement of Retnadi (2006) that an increase in NPL will result in a decrease in interest income that will be received by banks and if bad loans occur will affect bank profitability. Moreover, research from Agustami & Wirekso (2017) also concluded that the NPL ratio has a negative effect on bank profitability.

The NIM variable (P-Value = 0.0386) has a significant effect on  $\alpha = 5\%$  with a coefficient value of 0.223347, which means when the NIM ratio increases by one percent, it affects the increase in Return on Assets by 0.223347 percent. The interpretation of these results is the ratio that compares net interest income with the average earning asset. The higher the NIM will affect the increase in bank profitability. That is because of the ability of banks to generate net interest income by placing productive assets owned by companies. Net interest income is deducted by interest expense borne by the bank. Productive assets are all assets that generate income in the form of lending, securities, investments, and other investments.

Variable CAR (P-Value = 0.0000) has a significant effect at  $\alpha = 1\%$  with a coefficient value of -0.212008 which means that an increase in CAR ratio of one percent will negatively affect the reduction in ROA by 0.212008 percent. This can be interpreted that the level of profitability of banks is not affected by the amount of CAR. This negative effect is also allegedly due to the main function of banks as intermediary institutions to collect funds and channel them back in the form of credit so that the size of the profits obtained is based on the size of the funds that have been collected and channeled back to get the spread. In addition, it can be assumed if there is an increase in profitability and is followed by an increase in the need to establish reserves to anticipate an increase in capital risk for asset productivity. Unlike the case with non-bank business activities that rely on capital to get profits. On the other hand, government policies governing minimum capital obligations also have the potential to reduce bank profitability because funds that should be used for business activities such as increasing credit or foreign exchange transactions must be limited to meet CAR obligations by 8%.

The dFintech variable (P-Value = 0.0000) as a dummy proxy for Financial Technology policies in Indonesia significantly at  $\alpha = 1\%$  has a positive effect on bank profitability with a coefficient value of 0.893401. This positive impact can explain that there are significant differences in the profitability of banks after the Fintech policy in Indonesia. The fintech policy that occurred during the study period (2013-2019) gave its effect on increasing bank profitability in BUKU-IV. The differences that occur are indicated because banks continue to experience developments to be able to meet the needs of the community and drive the economy. The developments that occur encourage banks to innovate so they can compete in this technology era. Financial technology is certainly expected to create a more effective and efficient transaction process.

## 5. CONCLUSION AND RECOMMENDATION

Based on the objective of this research that is to measure the performance of banks in BUKU-IV (BRI, Mandiri, BCA, BNI, CIMB Niaga and Panin) with RBBR and analyze the impact before and after the financial technology policy using RBBR variable in Indonesia, from the results we know that the Average of Current Account and Saving Account (CASA) ratio of all banks has the ideal conditions that 61.06% and time deposit shows that 38.94%. All banks have healthy and quite healthy performances in which the Loan Deposit Ratio (LDR) is ranging from 82% to 100%. Non-Performing Loan (NPL) of banks have a ratio of 1% - 4% which means categorized healthy and quite healthy. The average of Net Interest Margin (NIM) ratio of each bank also showed very healthy conditions, which are above 3% of standard ratio. All banks in this research categorized as very healthy performance, with an average Return on Assets ratio above 1.5%. The average Capital Adequacy Ratio of every bank showed very healthy performance, which has a ratio of 12% above the standard ratio. All of those ratios according to the Circular Letter of Bank Indonesia No.13/24/DPNP 2011.

The result from the Regression by using Analysis Fixed Effect Model test, show that almost all variable such as CASA, NPL, NIM, CAR, and dummy Fintech variables give a significant impact on Return on Asset (ROA), whereas only LDR does not have a significant impact on the profitability of the banks. CASA, NPL, and CAR variables show a negative effect on ROA, meanwhile, NIM and dFintech show a positive effect to ROA. There is a significant difference in the profitability of banks in BUKU-IV after the existence of financial technology policies in Indonesia.

### Recommendation

In this study, for the RBBR approach, the authors only use risk factors, income, and profitability. For further research, we recommend using good corporate governance factors to make it more ideal in measuring the health-level performance of a bank. The research method is also expected to use a longer period of time and see the effects in the short and long term. Also, for more specific analysis we recommend using a dummy variable as a comparison, for example comparing each bank on BUKU-IV or other categorized.

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Wiwiek Mardawiyah Daryanto  
Sekolah Tinggi Manajemen IPMI  
Email: [wiwiek.daryanto@ipmi.ac.id](mailto:wiwiek.daryanto@ipmi.ac.id)

Faisal Akbar  
Sekolah Bisnis dan Manajemen, Insitut Teknologi Bandung  
Email: [faisal\\_akbar@sbm-itb.ac.id](mailto:faisal_akbar@sbm-itb.ac.id)

Faisal Angga Perdana  
Sekolah Bisnis dan Manajemen, Insitut Teknologi Bandung  
Email: [faisal\\_perdana@sbm-itb.ac.id](mailto:faisal_perdana@sbm-itb.ac.id)