

## The effect of loan-loss provision, non-performing loans and third-party fund on capital adequacy ratio

Mulyanto Nugroho<sup>a\*</sup>, Donny Arif<sup>b</sup> and Abdul Halik<sup>a</sup>

<sup>a</sup>Universitas 17 Agustus 1945 Surabaya, Indonesia

<sup>b</sup>Universitas Maarif Hasyim Latif, Indonesia

### CHRONICLE

### ABSTRACT

#### Article history:

Received: September 25, 2020

Received in revised format:

September 30 2020

Accepted: January 10, 2021

Available online:

January 11, 2021

#### Keywords:

*Loan-Loss Provisions*

*Non-Performing Loans*

*Third Parties Fund*

*Capital Adequacy Ratio*

*Banking*

This study aims to determine the effect of the independent variable of Allowance for Impairment Losses, Non-Performing Loan Ratio (NPL), and the amount of Third Party Funds (TPF) either partially or simultaneously on the dependent variable Capital Adequacy Ratio (CAR). IFRS carries the concept of Expected loss backup, which begins by acknowledging losses if there is a potential for payment failure even though it has not actually occurred, allowing banks to establish a larger allowance for loan losses. It is feared that the increase in the provision for credit losses and NPLs will affect bank capital. In this study, the samples are banks owned by the central government, namely Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara for the period 2011 to 2018. The data taken is time-series data on quarterly financial reports published by each online. The analysis used is multiple linear regression analysis. The results showed that the partial allowance for credit losses did not significantly affect the bank's capital adequacy ratio. Simultaneously, non-performing loans (NPL) and third-party funds (TPF) partially affected the bank's capital adequacy ratio. Simultaneously, the three independent variables significantly affect the dependent variable, namely the capital adequacy ratio (CAR).

© 2021 by the authors; licensee Growing Science, Canada

## 1. Introduction

In the era of globalization, it is marked by the increasing number of people who use bank services in economic activities and for the purpose of saving money. One primary function of banks is to provide methods of payment to facilitate transactions. For example, bank liabilities such as deposit claims and banknotes have been used either as a medium of exchange in retail markets or as collateral for secured credit in the interbank markets (Park, 2020). In buying and selling activities, the public uses bank services to facilitate the payment process if transactions are done remotely, both transactions between regions and transactions between countries. In addition, the bank also prepares various products to meet customers' financial needs (Nugroho et al., 2020). Given its tremendous potential in the financial sector and customers' key role in its success, many researchers have investigated customer adoption of mobile banking and payment services (Choi et al., 2020). UU No.10 of 1998 concerning Banking, a bank is a business entity that seeks to collect funds from the public in the form of deposits and channel them back to the community through credit to improve the living standards of the Indonesian people (Menteri Negara

\* Corresponding author.

E-mail address: [nugroho@untag-sby.ac.id](mailto:nugroho@untag-sby.ac.id) (M. Nugroho)

Sekretaris Negara, 1998). The main activity of the bank is raising funds and channeling funds from customers through lending. To ensure the safety of customer funds deposited at the bank, the bank must have good performance. The major role of banks is to play the financial intermediation function between funding needs and funding surpluses (Ozcalici & Bumin, 2020).

Customers can see the bank's performance by looking at the level of financial ratios presented in the financial statements published by each bank. In presenting financial statements, banks use the Guidelines for the Statement of Accounting Standards established by the Indonesian Institute of Accountants (IAI) and pay attention to the provisions relating to Government Regulations and Bank Indonesia Regulations (Arif et al., 2020). Banks measure and classify financial instruments according to the provisions of the Statement of Financial Accounting Standards (IFRS) 55. The Statement of Financial Accounting Standards (IFRS) 55 is adopted from the International Accounting Standards (IAS) 39 (Friedhoff et al., 2013). On October 24, 2016, the Financial Accounting Standards Board (DSAK) issued a Draft Statement of Exposure Statement on Financial Accounting Standards (IFRS) 71 replacing IFRS 55 to improve the concept of hedging (Hedging) and improve the concept of classification and measurement of financial instrument values. The Statement of Financial Accounting Standards (IFRS) 71 was adopted from the International Financial Reporting Standards (IFRS) No. 9 (Soans, 2018) and approved on July 26, 2017. IFRS 71 will begin to be used effectively in 2020. The calculation of *loan-loss provision* using the incurred loss method (Camfferman, 2015) used in IFRS 55 is carried out by recognizing losses when a default event occurs or a loss has actually occurred. However, the expected loss method that is adopted by IFRS 71 can begin to recognize losses if there is a risk of default even though failure has not actually occurred. This can allow the greater number of *loan-loss provision* formed by banks if using the expected loss reserve method.

Bank Indonesia Regulation Number 14/15 / PBI 2012, *loan-loss provision* is an allowance for funds that is formed if the carrying value of financial assets after impairment is less than the initial carrying amount (BI, 2012). *Loan-loss provision* is formed from the total non-performing loans. The level of problem loans can be indicated by the ratio of Non-Performing Loans (NPLs). If the bank fails to pay at a high rate, it is feared that when IFRS 71 is used effectively it can pose a risk of reducing the bank's Capital Adequacy Ratio (Capital Adequacy Ratio). The ratio of non-performing loans to gross loans (NPLs) from the euro area fell to 3.4% in 2019 Q3 following a downward trend since it peaked at around 8% in 2012. However, large dispersions remained throughout the euro area countries (NPLs) ratios ranging from 0.9% and 37.4%) place serious constraints on bank lending capacity, jeopardize financial stability and delay economic growth (Karadima & Louri, 2020).

The bank's capital adequacy ratio is a ratio that is highly considered because from this ratio the customer can consider the level of security and the bank's ability to return customers' funds. If bank regulations are effective, the depositing institution must be able to withstand unexpected losses. Bank capital plays an important role in achieving this goal. Bank capital contributes to financial market stability by protecting individual institutions from individual failures and reducing the risk of interbank spills (Baldwin et al., 2019). The improvements made in IFRS 71 are expected to improve the quality of lending, as well as make banks better prepared to deal with macroeconomic risks such as inflation and other risks. Banking regulation is mainly aimed at mitigating systemic risk resulting from bank failures, therefore, protecting the interests of savers and maintaining the overall health of the financial economy (Abou-El-Sood, 2016). In accordance with the background of the problems that have been described before, the purpose of this study is to determine the effect of partially or jointly (simultaneously) the independent variable *loan-loss provision*, Non-Performing Loans (NPLs) and Third-Party Fund (TPF) to the dependent variable Capital Adequacy Ratio (CAR). Variable *loan-loss provision* is determined in connection with the use of the expected loss method in IFRS 71 which allows the number of reserves to be higher (Engelmann, 2018). The Non-Performing Loans (NPLs) variable is determined because what can affect the amount of *loan-loss provision* is the number of problem loans that can be indicated by this ratio. The variable amount of Third Party Funds (TPF) is determined because from this source the bank gets funds to be channeled back through credit. While the Capital Adequacy Ratio (CAR) variable is determined to be the dependent variable because of the importance of this ratio level to show the performance of a bank (Mulyanto Nugroho & Pristiana, 2020). Capital Adequacy Ratio is a ratio that shows the level of ability of banks to cope with credit risk using their own capital. (Baldwin et al., 2019) CAR ratio can be calculated using the following formula:

$$CAR = \frac{\text{Bank Capital}}{\text{Total Risk-Weighted Assets}} \times 100\%$$

Bank Indonesia Regulation Number 15/12 / PBI 2013 (Bank Indonesia, 2013), banks must provide the minimum capital according to the risk profile as follows:

**Table 1****Level of Minimum Capital Provision Compared to Risk-Weighted Assets (RWA)**

Risk Profile	Minimum Capital Provision Compared to Risk-Weighted Assets (RWA)
I	8%
II	9% to <10%
III	10% to <11%
IV	11% to <14%
V	11% to <14%

Source : Bank Indonesia 2013

With the following conditions:

Risk Profile I: Strong

Risk Profile II: Good (Satisfactory)

Risk Profile III: Fair (Fair)

Risk Profile IV: Poor (Marginal)

Risk Profile V: Poor (Unsatisfactory)

*loan-loss provisions* is calculated by calculating reserves formed from the credit risk of securities instruments and other credit distribution compared to total productive assets. Meanwhile, to calculate the Non-Performing Loans (NPLs). (Boumparis et al., 2019) can be calculated using the following formula:

$$\text{NPLs} = \frac{\text{Total non-performing loans}}{\text{Total credit granted}} \times 100\%$$

Variable Third Party funds are calculated by increasing the number of demand deposits, savings and deposits because according to (Kasmir, 2014) the collection of funds by banks can be divided into 3 types. On this basis, including third-party reviews such as guarantees and commenting is one way to ensure the credibility of environmental reporting (Nishitani et al., 2019). To illustrate how this third-party fund calculation can be seen in the formula below:

$$\text{TPF} = \text{Demand Deposit Account} + \text{Savings} + \text{Deposit}$$

This study uses a sample of banks owned by the central government namely Bank Mandiri, Bank Negara Indonesia (BNI), Bank Rakyat Indonesia (BRI), and Bank Tabungan Negara (BTN). The sample of state-owned banks was chosen because these banks participated in helping government policies, one of which was the provision of people's business credit. This can increase the risk of increasing the level of NPLs because the provision of public business credit has a high risk of default if the people's business is not successful. This research is expected to provide useful information for subsequent research and related banks, especially to provide information on variables that need to be considered when IFRS 71 is used effectively. The formulation of the problem in this study are as follows:

1. Partially examined the effect of loan-loss provisions on the capital adequacy ratio at central government-owned banks from 2011 to 2018.
2. Partially test the influence of the Non-Performing Loans (NPLs) to the capital adequacy ratio (CAR) on state-owned banks in the period 2011 to 2018.
3. The effect of Third Party Funds (TPF) partially on the Capital Adequacy Ratio (CAR) on central government-owned banks from 2011 to 2018.
4. The effect of Loan-Loss Provisions, Non-Performing Loans (NPLs), and Third-Party Funds (TPF) simultaneously on the Capital Adequacy Ratio at Government Banks from 2011 to 2018.

Based on the background of the problems that have been described, the objectives of this study are as follows:

1. Partially test the effect of loan-loss provisions on the capital adequacy ratio at central government-owned banks from 2011 to 2018.
2. Partially test the effect of the Non Performing Loan Ratio (NPL) on the Capital Adequacy Ratio (Capital Adequacy Ratio) in central government-owned banks for the period 2011 to 2018.
3. Test the effect of third party funds (TPF) partially on the Capital Adequacy Ratio (Capital Adequacy Ratio) in central government-owned banks from 2011 to 2018.
4. Testing the effect of Loan-Loss Provisions, Non Performing Loan Ratio (NPL) and Third Party Funds (TPF) simultaneously on the Capital Adequacy Ratio (Capital Adequacy Ratio) in Government Banks from 2011 to 2018.

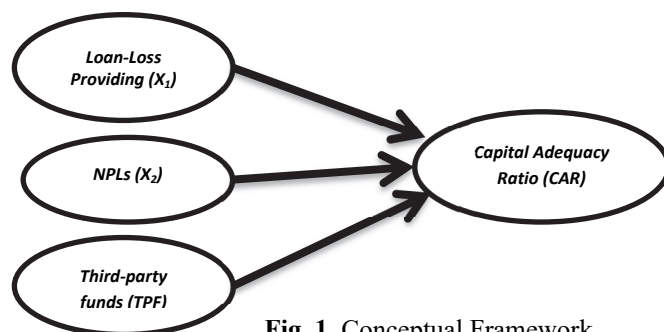


Fig. 1. Conceptual Framework

## 2. Method

This research is a study that uses quantitative data in the form of numbers. Quantitative methods are especially important to explore the extent and variation of change (within and across units) induced by the implementation strategies (Smith & Hasan, 2020). The data used are secondary data in the form of time series derived from financial statements published by each state-owned bank for the period 2011 to 2018. Data processing was performed by using multiple linear regression methods using SPSS version 21 and Microsoft Excel 2010 tools (Mulyanto Nugroho, 2020). Before testing partially or simultaneously each of the independent variables on the dependent variable, the classical assumption test is performed to ensure that the data in the linear regression model are normally distributed. The classic assumption test consists of a normality test, a multicollinearity test, an autocorrelation test, and a heteroskedasticity test (Das, n.d.). The normality test in this study was carried out by the Kolmogorov-Smirnov method and confirmed by the probability plot images. A multicollinearity test was carried out by the tolerance method and VIF. Autocorrelation test is done by looking at the Durbin Watson image, while for multicollinearity test using scatterplots heteroscedasticity test method. Partial test (t-test) is a test conducted to find out the partial significance of the independent variable Loan-Loss Providing, Non-Performing Loans (NPLs), and Third-Party Funds (TPF) on the dependent variable Capital Adequacy Ratio (CAR). The independent variable is said to have a significant effect on the dependent variable if the significance level of the count is smaller than the significance level of the confidence level that is equal to 5% or 0.05 and  $t\text{-value} < t\text{-table}$  (Landau & Crc, n.d.). Simultaneous tests are carried out to find out how much influence the independent variables together have on the dependent variable. The independent variable is said to have a significant simultaneous effect on the dependent variable if the significance value of the regression model is less than 0.05 and the calculated  $F\text{-value} > F\text{-table}$ .

## 3. Result

Loan-loss providing is calculated by finding backup data that is formed from securities, credit, and other instruments. Then to find out how much loan-loss providing, the total backup data of all financial instruments is multiplied by the number of productive assets owned by each bank and used as a percentage. Loan loss provisions (LLP) are a large and important bank accrual used as an adjustment to reserves for the future credit losses of loan portfolios. Because the assessment of future loan losses inevitably involves significant subjectivity, which leads to banks' discretion in determining LLP (Kim et al., 2019). Based on the calculation of the Loan-Loss Provisions from the sources of the four published financial statements, during the period of 2011 to 2018, the highest, lowest and average loan-loss provisions information was obtained from the banks that became the study sample. This information can be seen in Table 4 below:

**Table 2**  
Loans-Loss Provisions Government-Owned Banks (Period 2011 to 2018)

No	Bank Name	Highest Loan-Loss providing	Lowest bad credit provision	Mean Loan-Loss providing
1	Bank Mandiri	4,17% (Occurred in the 1 <sup>st</sup> quarter of 2017)	2,25% (Occurred in the 2 <sup>nd</sup> quarter of 2015)	3,21%
2	Bank Negara Indonesia	3,48% (Occurred in the 3 <sup>rd</sup> quarter of 2011)	1,74% (Occurred in the 4 <sup>th</sup> quarter of 2014)	2,50%
3	Bank Rakyat Indonesia	5,23% (Occurred in the 3 <sup>rd</sup> quarter of 2011)	2,37% (Occurred in the 4 <sup>th</sup> quarter of 2015)	3,33%
4	Bank Tabungan Negara	1,51% (Occurred in the 3 <sup>rd</sup> quarter of 2011)	1,01% (Occurred in the 4 <sup>th</sup> quarter of 2013)	1,21%

From the Table 2 The following can be seen that the maximum loan-loss provisions (LLP) value formed by four banks owned by the central government, namely Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and the State Savings

Bank during the study period was formed by Bank Rakyat Indonesia in the third quarter of 2011 amounting to 5.23% and the minimum loan-loss providing formation value from 4 banks during the study period was formed by the National Savings Bank in the fourth quarter of 2013 amounting to 1.01% of total productive assets. The average loan-loss providing formed by the fourth is 2.56%.

**Table 3**  
Government-Owned Bank NPLS for the Period of 2011 to 2018

No	Bank Name	Highest NPLs	Lowest NPLs	Mean NPLs
1	Bank Mandiri	1,38% (Occurred in the 4 <sup>th</sup> quarter of 2016)	0,37% (Occurred in the 4 <sup>th</sup> quarter of 2012)	0,70%
2	Bank Negara Indonesia	0,96% (Occurred in the 1 <sup>st</sup> quarter of 2013)	0,39% (Occurred in the 4 <sup>th</sup> quarter of 2014)	0,69%
3	Bank Rakyat Indonesia	1,22% (Occurred in the 1 <sup>st</sup> quarter of 2017)	0,31% (Occurred in the 4 <sup>th</sup> quarter of 2013)	0,69%
4	Bank Tabungan Negara	3,38% (Occurred in the 2 <sup>nd</sup> quarter of 2014)	1,66% (Occurred in the 4 <sup>th</sup> quarter of 2017)	2,72%

Table 3 provides the information that indicate the highest number of NPLs from the four banks sampled during the study period was 3.83% of the total loans provided by the State Savings Bank in the second quarter of 2014. While the lowest NPLs were achieved by Bank Rakyat Indonesia in quarter four of 2013 with a large ratio of 0.31% of the total loans distributed. The average NPLs at Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara during the period 2011 to 2018 amounted to 1.20% of the total loans extended by each bank.

**Table 4**  
Total Third Party Funds in four Government-Owned Banks for the 2011 to 2018 Period

No	Bank Name	Highest TPF (in million)	Lowest TPF (in million)	Mean TPF
1	Bank Mandiri	Rp 739.468.534 (Occurred in the 4 <sup>th</sup> quarter of 2018)	Rp 11.901.338 (Occurred in the 1 <sup>st</sup> quarter of 2012)	Rp 531.227.427
2	Bank Negara Indonesia	Rp 544.659.543 (Occurred in the 4 <sup>th</sup> quarter of 2018)	Rp 183.828.638 (Occurred in the 2 <sup>nd</sup> quarter of 2011)	Rp 323.991.407
3	Bank Rakyat Indonesia	Rp 898.032.054 (Occurred in the 4 <sup>th</sup> quarter of 2018)	Rp 294.626.099 (Occurred in the 4 <sup>th</sup> quarter of 2013)	Rp 557.917.627
4	Bank Tabungan Negara	Rp 211.469.536 (Occurred in the 4 <sup>th</sup> quarter of 2018)	Rp 46.117.480 (Occurred in the 1 <sup>st</sup> quarter of 2011)	Rp 110.128.764

From Table 4 above, it can be seen that the largest TPF amount collected by Bank Mandiri occurred in the fourth quarter of 2018 with a total of Rp.739,468,534,000,000 while the smallest TPF collected by Bank Mandiri occurred in the first quarter of 2012 with a total of Rp.11,901,338,000,000. The average amount of Third Party Funds (TPF) collected by Bank Mandiri during the study period was Rp.531,227,427,000,000. the largest TPF collected by Bank Negara Indonesia was Rp.544,659,543,000,000, which was obtained in the 4th quarter of 2018. While the smallest TPF collected during the study period was Rp.183,828,638,000,000 collected in the quarter to one the year 2011. The average TPF collected by Bank Negara Indonesia during the study period was Rp.323,991,407,000,000.

**Table 5**  
Capital Adequacy Ratio of Government-Owned Banks for the period of 2011 to 2018

No	Bank Name	Highest CAR	Lowest CAR	Mean CAR
1	Bank Mandiri	22,63% (Occurred in the 3 <sup>rd</sup> quarter of 2016)	14,93% (Occurred in the 4 <sup>th</sup> quarter of 2013)	18,31%
2	Bank Negara Indonesia	19,87% (Occurred in the 1 <sup>st</sup> quarter of 2016)	15,09% (Occurred in the 4 <sup>th</sup> quarter of 2013)	17,61%
3	Bank Rakyat Indonesia	22,96% (Occurred in the 4 <sup>th</sup> quarter of 2017)	14,79% (Occurred in the 2 <sup>nd</sup> quarter of 2011)	18,98%
4	Bank Tabungan Negara	22,07% (Occurred in the 2 <sup>nd</sup> quarter of 2016)	14,33% (Occurred in the 3 <sup>rd</sup> quarter of 2014)	14,33%

Based on the above data it can be obtained that the highest CAR ratio during the study period achieved by state-owned banks was obtained by Bank Rakyat Indonesia in the 4th quarter of 2017 with a ratio of 22.96%. While the lowest CAR ratio was experienced by the State Savings Bank in the third quarter of 2014 with a ratio of 14.33%.

#### 4.1 Partial Significance Test of Independent Variables against Dependent Variables

The partial test is conducted to find out whether or not there is a significant influence between the independent variables and the dependent variable partially (Nugroho et al., 2017). According to (Das, n.d.), an independent variable is partially said to have a significant effect on the dependent variable if the significant value of the test is less than 0.05. Meanwhile, according to

(Landau & Crc, n.d.), the independent variable is said to have a significant effect on the dependent variable if the value of  $t_{count} > t_{table}$ . The following are the results of the partial test calculations using SPSS version 21:

**Table 6**  
Coefficients

Model	t-Value	Significant
Loan-Loss Provisions	-1,217	0,226
NPLS	2,702	0,008
TPF	9,759	0,000

Basic decision making can be made by comparing t-value with t-table. The calculated t-value has been listed in the SPSS output. Whereas the t-table can be searched with the following formula to be further searched for the t-table:  $(\alpha/2 : n - k - 1) = 0,05/2 : 128 - 3 - 1 = 0,025 : 124$

So, the location of t-tables can be found at levels  $\alpha = 0.025$  and  $df = 124$  with the number of t-tables 1,979124. From the t-table calculation using SPSS version 21, the following information can be obtained:

- [1] The significance value of the independent variable loan-loss provisions partially to the dependent variable is 0.226, greater than 0.05. While t-value is -1.217 smaller than t-table with the amount of 1.979124.
- [2] The partial significance value of the Non-Performing Loans (NPLs) partially according to Figure 3.6 is 0.008 smaller than the 0.05 significance level. The t-value is 2.702 greater than t-table of 1.979124.
- [3] The significance value of the independent variable Third-Parties Funds (TPF) partially shows a result of 0,000 which is smaller than 0.05 and t-value from the partial test of Third Party Funds variables (TPF of 9.754 is greater than t-table 1.979124.

#### 4.2 Significance Test (F)

Testing (F) of the independent variable loan-loss provisions (LLP), Non-Performing Loans (NPLs), Third Party Funds (TPF) on the dependent variable bank capital adequacy ratio or Capital Adequacy Ratio (CAR) aims to find out how much influence the independent variable together with dependent variables. The independent variable is said to have a joint effect on the dependent if the significant value of the regression model is less than 0.05 or 5% and the calculated F-value is higher than the F-table. The F test calculation in this study uses SPSS version 21 tools. The results of the F test using SPSS can be seen in table 9 below:

**Table 7**  
ANOVA

Model	F-Value	R-Square	Significant
Regression	37,358	0,803	0,000

Based on the results of the F-value in the table. 9 above, information can be obtained that the significant value of the F-test is 0,000 which means it is smaller than the standard 0.05 or 5%. While the F count is 37,358 which can be compared to the F table. F tables can be known using the formula:

$$F\text{-table} = K: n-k = 3: 128- = 3: 125 = 2.128120$$

So that it can be seen the number of F-value 37.358 is greater than the F-table 2.128120. The statement above is supported by the value of R square which is close to number 1 (0.803), meaning that the variable x together has a significant effect on Y.

## 5. Conclusion and Discussion

1. t-test results, the loan-loss provisions variable shows that the t-value is -1.217 smaller than t table of 1.979124. The level of significance is at the point 0.226, smaller than 0.05, so it can be concluded that the loan-loss provisions variable partially has no significant effect on the Capital Adequacy Ratio (CAR) variable.
2. Non-Performing Loans (NPLs) partially have a significant effect on Capital Adequacy Ratio (CAR) because t-value shows a yield of 2.702 which is greater than t-table 1.979124 and a significant level of 0.008 which is smaller than 0.05.

3. In accordance with the results of the SPSS output to find out the significant effect of the variable Third Party Funds (TPF) partially on the Capital Adequacy Ratio (CAR), information can be obtained that the t-value for the third party variable of 9.754 is greater than the t-table of 1.979124. A significant value is at the point 0,000 which is smaller than 0.05. So it can be concluded that the variable Third Party Funds (TPF) partially significantly influence the Capital Adequacy Ratio (CAR).
4. Information that the results of the F test using SPSS version 21 shows the number of F-value of 37,358 which is greater than the F-table of 2.128120. The significance level of the F test is at a significant point of 0,000 which is smaller than 0.05. So it can be concluded that the loan-loss provisions, Non-Performing Loans and Third Party Fund variables together have a significant effect on Capital Adequacy Ratio (CAR).

Based on the results of the study using SPSS version 21, information can be obtained that the Non-Performing Loans (NPLs) have a significant effect both partially and simultaneously on the Capital Adequacy Ratio (CAR) variable. Therefore, Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, and Bank Tabungan Negara should continue to implement policies to control the level of repayment of loans extended. This is intended so that when the Statement of Financial Accounting Standards (IFRS) 71 has been used effectively, the level of LLP and CAR can be controlled. Because LLP is formed based on problem loans, and the CAR ratio is also influenced by the NPLs. Information that the lowest capital adequacy ratio during the study period was experienced by the National Savings Bank with a ratio of 14.33% of the total Risk-Weighted Assets (RWA), occurred in the third quarter of 2014. And the highest number of NPLs was experienced by the National Savings Bank in the second quarter of the year 2014 with NPLs of 3.83%. For this reason, the National Savings Bank should start controlling lending so that the funds channeled can be collected properly, because according to the results of the study in this thesis, that the Non-Performing Loans has a significant effect on the Capital Adequacy Ratio. According to the results of the t-test, it was concluded that the loan-loss provisions variable had no significant effect on the Capital Adequacy Ratio (CAR), while simultaneously it had a significant effect on the Capital Adequacy Ratio (CAR). This is possible because during the research period, 2011 to 2018, the incurred loss reserve method was still used. If IFRS 71 has been used in 2020, it is possible that this variable can have a significant effect on CAR. This is because in 2020 banks have used the expected loss reserve method, which allows for an increase in the number of reserves in the bank. Therefore, the next researcher is suggested to be able to make this variable as a variable in research with more data and with the right calculation in order to provide information that can help those who need related information.

## References

- Abou-El-Sood, H. (2016). Are regulatory capital adequacy ratios good indicators of bank failure? Evidence from US banks. *International Review of Financial Analysis*, 48, 292–302. <https://doi.org/https://doi.org/10.1016/j.irfa.2015.11.011>
- Arif, D., Yucha, N., Setiawan, S., Oktarina, D., & Martah, V. (2020). Applications of Goods Mutation Control Form in Accounting Information System: A Case Study in Sumber Indah Perkasa Manufacturing, Indonesia. *The Journal of Asian Finance, Economics and Business*, 7(8), 419–424.
- Baldwin, K., Alhalboni, M., & Helmi, M. H. (2019). A structural model of “alpha” for the capital adequacy ratios of Islamic banks. *Journal of International Financial Markets, Institutions and Money*, 60, 267–283. <https://doi.org/10.1016/j.intfin.2018.12.015>
- Bank Indonesia. (2013). Peraturan Bank Indonesia Nomor 15/12/PBI/2013 tentang kewajiban Penyediaan Modal Minimum Bank Umum. *Bank Indonesia*, 1–80. <https://doi.org/10.1017/CBO9781107415324.004>
- BI. (2012). Peraturan Bank Indonesia Nomor 14/15/PBI/2012 tentang Penilaian Kualitas Aset Bank Umum. *Bank Indonesia*.
- Boumparis, P., Milas, C., & Panagiotidis, T. (2019). Non-performing loans and sovereign credit ratings. *International Review of Financial Analysis*, 64(May), 301–314. <https://doi.org/10.1016/j.irfa.2019.06.002>
- Camfferman, K. (2015). The Emergence of the ‘Incurred-Loss’ Model for Credit Losses in IAS 39. *Accounting in Europe*, 12(1), 1–35. <https://doi.org/10.1080/17449480.2015.1012526>
- Choi, H., Park, J., Kim, J., & Jung, Y. (2020). Consumer preferences of attributes of mobile payment services in South Korea. *Telematics and Informatics*, 51(February), 101397. <https://doi.org/10.1016/j.tele.2020.101397>
- Das, P. (n.d.). *Econometrics in Theory and Practice*. *Dr.Kasmir-Bank-Dan-Lembaga-Keuangan-Lainnya-Edisi-Revisi-2014.-intro.pdf*. (n.d.).
- Engelmann, B. (2018). Calculating Lifetime Expected Loss for IFRS 9: Which Formula is Correct? *SSRN Electronic Journal*, August. <https://doi.org/10.2139/ssrn.3238632>
- Friedhoff, M., Berger, J., Friedhoff, M., & Berger, J. (2013). International Accounting Standard 39 Financial Instruments: Recognition and Measurement. *Financial Instruments*, 4(February), 57–117. [https://doi.org/10.1007/978-3-658-00607-5\\_3](https://doi.org/10.1007/978-3-658-00607-5_3)
- Karadima, M., & Louri, H. (2020). Economic policy uncertainty and non-performing loans: The moderating role of bank concentration. *Finance Research Letters*, 101458. <https://doi.org/10.1016/j.frl.2020.101458>
- Kim, J., Kim, M., & Hwan, J. (2019). The effect of TARP on loan loss provisions and bank transparency. *Journal of Banking and Finance*, 102, 79–99. <https://doi.org/10.1016/j.jbankfin.2019.03.006>

Landau, S., & Crc, H. (n.d.). *A Handbook of Statistical Analyses using SPSS*.

Menteri Negara Sekretaris Negara. (1998). Menteri Negara Sekretaris Negara. *Undang-Undang Republik Indonesia Nomor 10 Tahun 1998 Tentang Perubahan Atas Undang-Undang Nomor 7 Tahun 1992 Tentang Perbankan*, 63.

Nishitani, K., Haider, M. B., & Kokubu, K. (2020). Are third-party assurances preferable to third-party comments for promoting financial accountability in environmental reporting?. *Journal of Cleaner Production*, 248, 119199.

NUGROHO, M., HALIK, A., & ARIF, D. (2020). Effect of CAMELS Ratio on Indonesia Banking Share Prices. *The Journal of Asian Finance, Economics and Business*, 7(11), 101–106.

Nugroho, M., Moehaditoyo, S. H., & Anam, K. (2017). *The system of investment decision making through analysis of stock portfolio performance based single index model (Comparison study of shariah stocks and conventional stocks)*. 95, 1418–1431.

Nugroho, Mulyanto. (2020). Corporate governance and firm performance. *Accounting*, 7(1), 13–22. <https://doi.org/10.5267/j.ac.2020.10.019>

Nugroho, Mulyanto, & Pristiana, U. (2020). Analysis of manufacturing industry firm value listed on the Indonesian stock exchange. *International Journal of Innovation, Creativity and Change*, 11(8), 270–292.

Ozcalici, M., & Bumin, M. (2020). An integrated multi-criteria decision making model with Self-Organizing Maps for the assessment of the performance of publicly traded banks in Borsa Istanbul. *Applied Soft Computing Journal*, 90, 106166. <https://doi.org/10.1016/j.asoc.2020.106166>

Park, J. (2020). Inside money, business cycle, and bank capital requirements. *Review of Economic Dynamics*, 36(1990), 103–121. <https://doi.org/10.1016/j.red.2019.09.005>

Smith, J. D., & Hasan, M. (2020). Quantitative approaches for the evaluation of implementation research studies. *Psychiatry Research*, 283(August 2019), 112521. <https://doi.org/10.1016/j.psychres.2019.112521>

Soans, S. T. (2018). Understanding the Basics. *Indian Pediatrics*, 55(11), 941–942. <https://doi.org/10.1007/s13312-018-1414-1>



© 2021 by the authors; licensee Growing Science, Canada. This is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).