Impact of Credit and Liquidity Risk on Profitability: The Conventional Rural Banks in Riau Islands Province

Hesniati[1]
Ellen[2]
Dewi Khornida Marheni[3]

[1,2,3]Management, International Batam University, Indonesia
[1]Author's correspondence: hesniati@uib.edu

Abstract. The Covid-19 pandemic drastically changed the world economy, resulting in Indonesia experiencing an economic decline and deflation. The banking industry played a significant role in building the economy, so the financial services authority issued a circular letter regarding the provisions for implementing risk management for conventional rural banks and the new rules for implementing credit restructuring. This study analyzed the impact of credit and liquidity risk of conventional rural banks in the Riau Islands on profitability. Data were extracted from the financial services authority publication report of 42 conventional rural banks in Riau Islands during 2017-2021. The results of panel data analysis with the fixed effect model (FEM) showed that all risks were significantly associated with profitability (ROA), the authors found that the capital adequacy ratio had a positive significance, and the non-performing loan, liquid asset to total asset, loan to deposit ratio, and cash to deposit ratio harmed ROA. The results showed that bank risk management was needed to maintain the profitability of rural banks in Riau Islands Province.

Keywords: Conventional rural banks; Credit risk; Liquidity risk; Profitability.

Abstrak. *Pandemi Covid-19 secara drastis mengubah ekonomi dunia, menyebabkan Indonesia mengalami penurunan ekonomi dan deflasi. Industri perbankan memainkan peran penting dalam membangun ekonomi, sehingga Otoritas Jasa Keuangan (OJK) mengeluarkan surat edaran mengenai ketentuan pelaksanaan manajemen risiko bagi bank perkreditan rakyat konvensional dan peraturan baru mengenai restrukturisasi kredit. Penelitian ini bertujuan untuk menganalisis dampak risiko kredit dan likuiditas bank perkreditan rakyat konvensional di Kepulauan Riau terhadap profitabilitas. Data diambil dari laporan publikasi Otoritas Jasa Keuangan dari 42 bank perkreditan rakyat konvensional di Kepulauan Riau selama tahun 2017-2021. Hasil analisis data panel dengan model efek tetap menunjukkan bahwa semua risiko secara signifikan berhubung-an dengan profitabilitas (ROA). Penulis menemukan bahwa rasio kecukupan modal memiliki signifikansi positif, sementara kredit macet, aset lancar terhadap total aset, rasio pinjaman terhadap simpanan, dan kas terhadap simpanan merugikan ROA. Hasil*

penelitian menunjukkan bahwa manajemen risiko bank diperlukan untuk menjaga profitabilitas bank perkreditan rakyat di Provinsi Kepulauan Riau.

BACKGROUND

Covid-19 has led to a decline in financial performance for rural banks. It leads to higher credit risks and raises concerns about the customer's ability to repay existing loans and a potential increase in loan defaults. This can affect the interest income and profitability of banks and rural banks (Daniel, 2021). The level of rural bank performance can be seen from the profitability of the bank, which can be perceived through the profit generated in the company's financial statements. If customers experience difficulties fulfilling their obligations, as indicated by a high non-performing loan (NPL) ratio, bank profitability will not be satisfactory (Naim, 2019). Based on regulation number 15/POJK.03/2017 concerning "Implementation of Status and Follow-Up of Supervision of Commercial Banks," when a credit ratio problem exceeds 5 percent of total credit, the bank is considered unhealthy. The graph below illustrates rural bank profits in Riau Islands Province for the last five years, from 2017 to 2021.
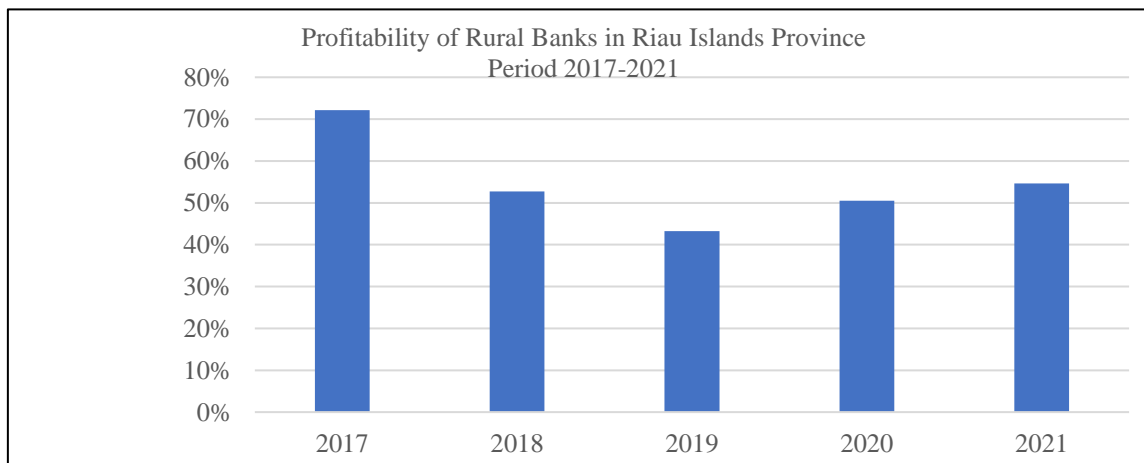
Figure 1. Profitability of Rural Banks in Riau Islands Province

In COVID-19, banks have implemented credit restructuring of up to a thousand trillion rupiah supported by POJK number 11/POJK.03/2020 concerning the national economic stimulus and POJK number 48/POJK.03/2020, so it has succeeded in channeling people's business credit 197,04 trillion rupiah in 2020, the government also plays a crucial role in providing adequate financial support and policies to help banks overcome the challenges they face (Hidayat, 2021). OJK (2022) made a policy to support rural banks to remain stable during a pandemic and encourage economic growth for

MSMEs by placing interbank funds excluded from the maximum credit lending limit (Wareza, 2021).

Circular of the financial services authority (OJK) of the Republic of Indonesia number 11/SEOJK.03/2022 is a guideline OJK issued regarding assessing the health level of rural banks (BPR). The assessment covers four aspects: liquidity, asset quality, risk management, and profitability. Banks are considered unhealthy when the credit ratio exceeds 5 percent of total credit. This policy aims to improve weaknesses in the quality of credit risk management implementation and reduce inherent credit risk exposure. The circular helps rural banks maintain liquidity health by providing clear guidelines, improving risk management, ensuring compliance, enhancing stability, and enabling regulatory oversight. Rural banks in the Riau Islands region achieved an average credit ratio of 6.82 percent after the first quarter of 2019 reached an alarming figure on the verge of a maximum of 5 percent, with a loan dept ratio (LDR) of 78.9 percent (Fatwa, 2019). In the next five years, there is a plan for the financial services authority to disband 600 rural banks on those in the unhealthy category (Prasetia, 2023). The purpose of this study is to analyze the management and status of credit and liquidity risks impact to profitability in conventional rural banks located in the Riau Islands province between 2017-2021, the findings from this research will serve as a benchmark for future decisions regarding the financial health of these banks.

THEORETICAL REVIEW

Managing credit risk is a significant challenge for regulators and fixed income portfolio managers, and credit risk can be measured by the capital adequacy ratio (CAR) and non-performing loan (NPL). Several researchers have developed models with credit risk ratios that have an influence on profitability in the banking sector, and there are some (Ekinci & Poyraz, 2019; Hunjra, Mehmood, Nguyen, & Tayachi, 2020) who conduct research on credit risk effect for bank deposits at Turkey, and the inverse relationship of NPL to profitability, so that the management need to be more vigilant (Hamza, 2017; Nwude & Okeke, 2018; Abdelaziz, Rim, & Helmi, 2020; Aliu & Collaku, 2021; AL-Husainy & Jadah, 2021; Bandara, Jameel, & Haleem, 2021).

The author uses three ratios to measure the liquidity risk, which are liquid assets to total assets (LATA), cash to deposit ratio (CDR), and loan to deposit ratio (LDR). Masood Javaria (2017) focuses on finding the liquidity risk and proves that banks can somewhat maintain their LATA ratio in global financial crises. Sathyamoorthi, Mapharing, and Dzimiri (2020) found out that current economic context in Botswana, it is advisable for banks to maintain a high liquidity ratio. Previous research analyzes the effect of LDR on several countries like Pakistan, India, Bangladesh, and Sri Lanka on ROA (Hunjra *et al*. 2020; Abdelaziz *et al*. 2020; Otwoko & Maina, 2021).

These fundamental studies show that the variation of results depends on the bank types and locations, and there are also external factors, such as changes in the macroeconomic environment, which may be beyond the control of conventional banks. Therefore, the author will analyze the relationship between credit risk measured by NPL and CAR among rural banks in Riau Islands Province.

H₁: **Capital adequacy ratio has a significant positive effect on profitability.**

The CAR is a ratio used to measure a bank's available capital, usually reported as a percentage of the bank's credit-weighted risk exposure. This metric is designed to guarantee that a bank possesses an ample amount of reserve funds to manage potential losses before the possibility of bankruptcy becomes a concern. CAR safeguards against market risk, and banks allocate a specific portion of their capital to reduce the likelihood of losses (Gallati, 2022). The higher the CAR, the better it is, as it shows a bank's ability to handle risky income-producing assets, resulting in higher profits and better bank performance (Anggari & Dana, 2020). A higher ratio indicates better financial health and lower risk for the bank (Majeed & Zainab, 2021). Hamza (2017) explains that a high CAR can increase a bank's asset returns and absorb losses resulting from credit risk, unexpected events, and lower funding costs, resulting in higher profits. Increasing capital requirements for credit risk and implementing strong credit controls will benefit a bank's profitability, and management is advised to use new credit risk mitigation strategies (Bandara *et al*. 2021). Karim *et al*. (2022) found that the crucial to maintain sufficient capital to satisfy depositor claims and protect customer interests even in the event of an economic downturn or unfavorable business conditions.

H2:   **Non-performing loans have a significant negative effect on profitability.**

The NPL, also known as bad loans or non-performing assets, refers to several loans or borrowings that are late in payment or repayment, potentially resulting in debtor default. High levels of bad loans are characteristic of a banking sector crisis (Ari, Chen, & Ratnovski, 2020). High levels of (NPLs) can damage a bank's balance sheet, suppress credit growth, and delay output recovery. Data limitations have hampered the analysis of NPL problems. NPLs serve as an indicator to assess the caliber of a bank's portfolio. They evaluate and compare the portfolio's quality, analyze lending strategies and effectiveness, ascertain bank equity, anticipate forthcoming risks, and establish models to sustain financial stability (Aliu & Collaku, 2021).

Indicating that the NPL ratio has a significant negative relationship with bank performance in commercial banks, a high NPL provision ratio can certainly lower bank performance. This study also concludes that banking management in developing countries, especially in South Asia, should examine credit risk to avoid bank failures and recommends that bank management ensures timely monitoring and controls long-term lending to recover loans on time (Hunjra *et al*. 2020). When borrowers cannot meet their commitments, banks become very tight in credit allocation, lowering interest income and, consequently, the bank's profitability (Abdelaziz *et al*. 2020). Through an increase in the amount of credit provided by banks and poor management in monitoring and screening credit risks, the loss that occurs in the relationship between these variables can be known due to the increase in unsecured assets that result in loss or no income (Ekinci & Poyraz, 2019). This study can help provide insights into credit risk procedures and policies that central banks will implement and monitor (Hamza, 2017; Candy & Suprapto, 2018; Aliu & Collaku, 2021).

H3:   **Liquid assets to total assets has a significant positive effect on profitability.**

Commonly known as liquid assets, these can be easily and quickly converted into cash and are considered the most liquid asset (Ari *et al*. 2020). The measurement used to assess the liquidity risk of a bank is the LATA ratio. This refers to the requirement imposed on banks to uphold a specific proportion of their overall deposits and specific liabilities by holding liquid assets (Doana & Buia, 2021). Some research investigated

relationship of LATA on profit (Chowdhury & Zaman, 2018; Mashamba, 2018; Abbas, Iqbal, & Aziz, 2019). The liquidity ratio, determined by the ratio of LATA, exhibits a substantial correlation with bank profitability, with a positive relationship indicating that the availability of liquidity leads to increased profits in commercial banks in developed Asian countries. Increasing liquidity risk will improve bank performance, but if the bank does not liquidate assets properly, there will be a liquidity threat. Research shows that this can cause losses and reduce bank performance, and there is a need to increase cash reserves to minimize risk (AL-Husainy & Jadah, 2021). For Sathyamoorthi *et al*. (2020), this implies that when the LATA ratio increases, the financial performance of commercial banks also increases.

H₄: **Cash to deposit ratio has a significant positive effect on profitability.**

The CDR measures liquidity risk, the amount of cash a bank holds alongside aggregate deposits, calculated as cash divided by total deposits (Khati, 2020). This ratio typically indicates how much financial institutions borrow from the mobilized deposits, showing how much funds are used for the primary banking activities. A higher or better ratio value can provide an overview of a bank's higher liquidity position, which can be beneficial in boosting depositor confidence (Masood & Javaria, 2017). Kajola, Sanyaolu, Alao, and Ojunrongbe (2019) studied liquidity risk, using CDR as one of the indicators and its relationship with bank profitability measured by return on assets. The study found a significant positive relationship between the two variables, as shown through regression results with a 5% significance level. This suggests that when a bank is liquid, it can meet its customer obligations, such as at maturity, and invest excess liquidity to generate additional income, as noted by (Pai & Chotia, 2019) and (Haralayya & Aithal, 2021).
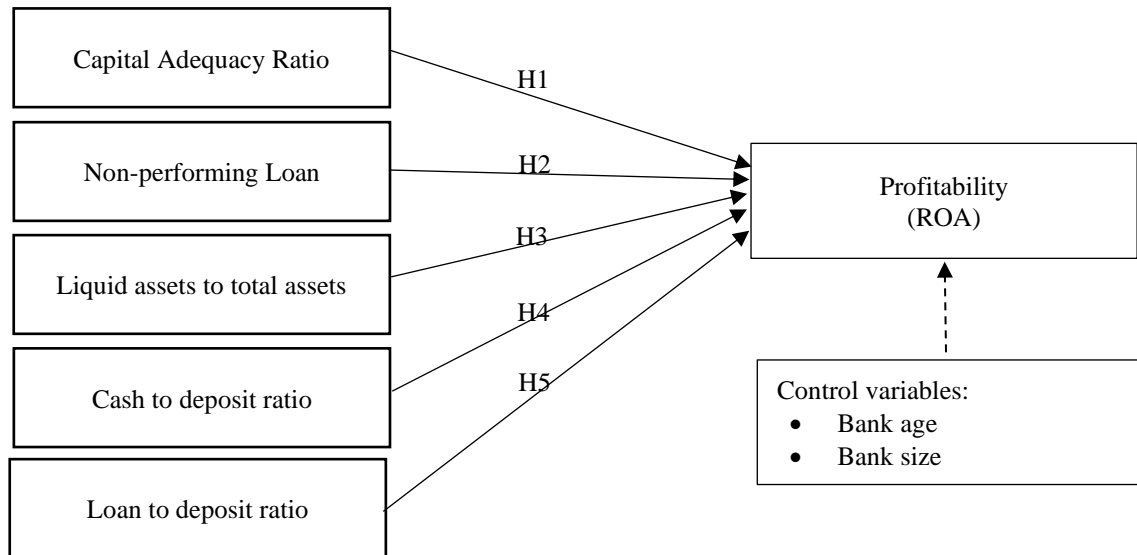
H₅: **Loan to deposit ratio has a significant positive effect on profitability**

The LDR, one of the ratios for measuring liquidity risk in the banking sector by comparing total bank loans to total deposits in a certain period, is usually expressed in percentages. A bank lacks liquidity to address unforeseen funding requirements if the ratio is excessively high. Conversely, if the ratio is meager, it will adversely impact the bank's income, reducing earnings (Doana & Buia, 2021). Alalade, Ogbebor, and Akwe (2020) state that effective liquidity management can substantially influence a bank's return on assets, positively affecting profitability and stability. An increase in the ratio of total loans to total deposits can lead to higher revenue along with a decrease in deposit mobilization costs, resulting in improved bank profitability. Therefore, the study suggests that the LDR should be kept at a moderate level, and banks should invest their loans in low-risk sectors sequentially to minimize liquidity risk and enhance profitability (Doana & Buia, 2021). A bank derives income from the interest rate differential between deposits, and when lending activities expand, there is potential for the bank to earn higher interest rates. However, excessive lending can increase the bank's risk, so banks must be selective in lending to avoid lousy credit risks or defaults (Nugraha *et al*. 2021).

RESEARCH METHODS

The researcher used a quantitative method in this study, which is appropriate for analyzing the research problem and hypothesis designed by the researcher. The research object for the study is the rural banks in the Riau Islands registered with the financial services authority (OJK) from 2017 to 2021, with a sample size of 42 conventional rural

banks. This study used the census sampling method by gathering data from all population members.

```
┌────────────────────────────┐
│   Capital Adequacy Ratio   │──────────H1─────────┐
└────────────────────────────┘                     │
┌────────────────────────────┐                     ▼
│     Non-performing Loan     │──────────H2──────► ┌──────────────────────┐
└────────────────────────────┘                    │    Profitability      │
┌────────────────────────────┐                    │        (ROA)          │
│  Liquid assets to total     │──────H3──────────► └──────────────────────┘
│          assets             │                              ▲
└────────────────────────────┘                              ┆
┌────────────────────────────┐                    ┌──────────────────────┐
│     Cash to deposit ratio   │──────H4──────────► │ Control variables:    │
└────────────────────────────┘                    │  • Bank age           │
┌────────────────────────────┐                    │  • Bank size          │
│     Loan to deposit ratio   │──────H5──────────► └──────────────────────┘
└────────────────────────────┘
```

Figure 2. Research Framework

This study used a panel data model, and it is a valuable tool for analyzing data with both cross-sectional and time-series dimensions. It enables researchers to understand the relationships between variables while controlling for individual and time-specific effects. It uses Gauss-Markov assumptions that do not require the error term to be normally distributed (Wooldridge, 2010).

The method in the panel data analysis is the fixed effect model (FEM) test, because panel data refers to data that combines the time dimension (a series of years or periods) with the individual dimension (observed units such as companies, countries, or individuals) (Hair, Celsi, Money, Samouel, & Page, 2016). The fixed effect model is appropriate for use when dealing with panel data. Data for the study was collected and analyzed using software called SPSS, which stands for Statistical Package Social Sciences, and Eviews for the result of each hypothesis. Below is the table of variables measurement.

RESULTS AND DISCUSSIONS

Descriptive statistics is a method of summarizing and describing the characteristics of a set of data, and this study includes measures of minimum, maximum, mean, and standard deviation, with a total of 210 sample data of 42 conventional rural banks from 2017-2021. The results of the descriptive statistical data can be seen in the following Table.

Table 1. Variables Measurement

Variable Type	Variables	Formulation	Source
Dependent Variable	Return on Assets (ROA)	$\dfrac{Net\ Income}{Total\ Asset}$	(Huong et al., 2021)
Independent Variable	Capital Adequacy Ratio (CAR)	$\dfrac{Bank\ Capital\ and\ Reserves}{Total\ Asset}$	(Gadzo et al., 2019)
	Non-Performing Loan (NPL)	$\dfrac{Non-Performing\ Loans}{Total\ Loans}$	(Gadzo et al., 2019)
	Liquid Assets to Total Assets (LA/TA)	$\dfrac{Liquid\ Assets}{Total\ Assets}$	(Doana & Buia, 2021)
	Loan to Deposit Ratio (LDR)	$\dfrac{Total\ Loans}{Total\ Deposits}$	(Doana & Buia, 2021)
	Cash to Deposit Ratio (CDR)	$\dfrac{Cash}{Total\ Deposits}$	(Zakhariah & Hesniati, 2022)
Control Variable	Bank Age	Number of years since the incorporation	(Karim et al., 2022)
	Bank Size	Logarithm of the total assets	(Saleh & Afifa, 2020)

Table 2. Descriptive Statistics

	n	Minimum	Maximum	Mean	Std. Deviation
ROA	210	-0.27000	0.05000	0.0129524	0.03568667
CAR	210	0.05000	0.72000	0.1586667	0.09226098
NPL	210	0.00000	49.72000	6.9482857	5.97491582
LATA	210	0.06000	0.97000	0.2579524	0.11608897
LDR	210	0.00000	1.73000	0.9402857	0.20576829
CDR	210	0.00000	0.03000	0.0038095	0.00616844
AGE	210	2.00000	30.00000	11.5238095	3.98104417
SIZE	210	6.57000	9.25000	8.0125714	0.47207782
Valid n (listwise)	210				

The results shown in the descriptive statistics table indicate that the conventional rural banks in Riau Islands province, with an average of ROA 1.3%, are in the third rank of bank health level based on the circular of the financial services authority Republic of

Indonesia number 11/SEOJK.03/2022 regarding the assessment of the health of conventional and sharia rural banks. The mean CAR of rural banks is 15.9%, which means the level is first, based on financial services authority and states that its CAR is at a reasonable level. The NPL average is 6.9%, which states that the NPL ratio of the rural banks is remarkably high because it has exceeded the minimum limit set by the financial services authority, which is 5%. The result showed that LATA of 25.8%. If the LATA ratio is high, the bank has high liquidity. LDR is at 94%. A bank with a low LDR holds more deposits than it is lending out, which is suitable for managing unexpected withdrawals. However, if the LDR is too low, the bank cannot use its funds effectively to make profits. CDR is 0.4%, meaning the bank is not holding much cash compared to its deposits. The average bank age of rural banks in Riau Islands province is 11 years, showing that the bank is stable enough for its operation and has a mean value of size 8.0125714.

Table 3. Chow Test

Effects test	Statistic	d.f.	Prob.
Cross-section f	25.327276	(41.161)	0.0000
Cross-section chi-square	421.719399	41	0.0000

The table of chow test results above shows that the probability values generated for cross-section f and cross-section chi-square are 0.0000. This result indicates that the researcher will use the fixed effect model because the probability value is smaller than the specified value of 0.05. Therefore, the researcher will use the fixed effect model, and the researcher needs to conduct further testing called the Hausman test.

Table 4. Hausman Test

Test summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.377193	7	0.0000

Based on the test results conducted by the researcher, it is shown that the resulting probability value is 0.0000. According to the criteria, since it is smaller than 0.05, the researcher will use the fixed effect model.

Table 5. F-Test Results

Dependent variable	Statistic	Prob.	Conc.
Return on Asset	86.46618	0.000000	Significant

From the f-test results table above, the resulting probability is 0.0000, where the value is smaller than 0.05, thus resulting in the conclusion that the independent variables have a significant simultaneous effect on the dependent variable in this study.

Table 6. R^2 Test

R-squared	0.962657
Adjusted R-squared	**0.951524**

The coefficient of determination test results shows that the adjusted *r*-squared in the FEM test results table is at 0.951524. This indicates that the dependent variable in this study, ROA, can be influenced or explained by the independent variables, namely CAR, NPL, LATA, CDR, and LDR, and is concluded to be 95%.

The *t*-test called the partial test, assesses an independent variable's specific or partial impact on the dependent variable. When conducting the *t*-test with a significance level threshold of 0.05, if the probability value exceeds 0.05, it indicates that the independent variable is not statistically significant about the dependent variable. On the other hand, if the probability value is less than 0.05, then the independent variable is significant to the dependent variable.

Table 7. *t*-test

Hypothesis	Coefficient	Std. Error	*t*-Statistic	Prob.	Conclusion
CAR -> ROA	0.213378	0.016300	13.09078	0.0000	Accepted
NPL -> ROA	-0.000377	0.000153	-2.467037	0.0147	Accepted
LATA -> ROA	-0.060136	0.013438	-4.475109	0.0000	Rejected
LDR -> ROA	-0.018148	0.007512	-2.415793	0.0168	Rejected
CDR -> ROA	-0.598345	0.299373	-1.998662	0.0473	Rejected
AGE -> ROA	-0.004050	0.000442	-9.164758	0.0000	Rejected
SIZE -> ROA	0.062075	0.009235	6.721912	0.0000	Accepted
(Constant)	-0.433359	0.072872	-5.946834	0.0000	
Prob < 0.05 = Significant, >0.05 = Unsignificant.					

Table 7 shows the results of the *t*-test with the fixed effect model (FEM) have shown that all risks are significantly associated with profitability (ROA), the authors find that the CAR has a positive significance, and the NPL, LATA, LDR, and CDR harms ROA. The regression model can be formed based on the regression coefficient values, which are as follows:

$ROA = -0.433359 + 0.213378\ X_1 - 0.000377\ X_2 - 0.060136\ X_3 - 0.018148\ X_4 - 0.598345\ X_5 - 0.004050\ Z_1 + 0.062075\ Z_2 + e$. The constant value of the ROA variable is -0.433359, indicating that when the independent variable value is zero, the ROA ratio value is -0.433359.

A higher CAR value indicates the bank's ability to manage capital and anticipate potential losses. A high CAR value will improve bank performance, resulting in increased profits. The results of this study are by the research that has been conducted by (Hamza, 2017; Anggari & Dana, 2020; Bandara *et al*. 2021; Majeed & Zainab, 2021; Karim *et al*. 2022) stated that the results of the CAR are significantly related and with a positive correlation to the dependent variable, namely ROA.

The result indicates that a higher NPL value means the bank is unhealthy because of many problematic loans. Furthermore, the correlation analysis shows that the ROA variable will increase if the NPL value is lower. The results of this research are in line with previous studies conducted by (Ekinci & Poyraz, 2019; Hunjra *et al*. 2020; Abdelaziz *et al*. 2020; Aliu & Collaku, 2021), which stated that the results showed a significant negative relationship.

High liquidity can cause banks to miss other business opportunities. The relationship between LATA and ROA indicates that a lower LATA value can benefit

ROA in certain situations. However, if unexpected economic conditions occur, it can lead to a lack of liquidity. The results of this study are consistent with the research conducted by (Doana & Buia, 2021), which showed a significant negative relationship between the LATA variable and ROA.

When a bank is more liquid, the available funds can be allocated for other investments besides fulfilling obligations if customers withdraw their deposits, thus generating income. Therefore, from the research findings, a smaller CDR provides a tremendous advantage for rural banks. This research result is consistent with researcher's findings (Kajola *et al*. 2019; Chong *et al*. 2019) who explained a significant negative relationship.

A lower LDR indicates that the rural banks are more liquid or have available funds or excess capacity to be channeled. Table 7 showed results, if the LDR value is higher, it can lower the bank's profitability because the rural banks cannot meet activities that require liquidity. It is recommended to maintain the LDR at a moderate level so that the bank can invest its deposits in less risky sectors to avoid increasing liquidity risk. The research conducted by this researcher is consistent with previous studies by Sathyamoorthi *et al*. (2020), where the results showed a significant negative sign.

The control variables used in this study are bank age and bank size, as indicated in the t-test table above. Bank age shows a probability value of 0.0000, indicating a significant negative relationship with the dependent variable ROA. As for the bank size variable, the probability value is 0.0000, demonstrating a significant positive relationship with the dependent variable ROA.

CONCLUSIONS AND RECOMMENDATIONS

The research in this study is about credit risk and liquidity measured by several variables on the profitability of conventional rural banks in the Riau Islands Province from 2017 to 2021. The study shows that the CAR correlates significantly and positively with return on assets (ROA). Meanwhile, NPL correlates significantly and negatively with ROA. The analysis also indicates that the LATA ratio, CDR, and LDR have a significant and negative correlation with ROA. Also, the results of the control variables bank age and bank size, which is bank age correlates a significant negative, and bank size a significant positive relate to ROA. Recommendations for the future research are as follows:

1. While conducting this research, always use good supporting journal sources, such as those with SINTA standards or international journals, as it will significantly help and influence the research results.
2. Conduct similar research by analysis of other cities of the conventional or sharia rural banks. So, it can be used as a comparison.
3. Conduct similar research by adding other risk variables, such as market risk and operational risk, or add mediating or moderating variables that trend on that time or situation.

REFERENCES

Abbas, F., Iqbal, S., & Aziz, B. (2019). The impact of bank capital, bank liquidity and credit risk on profitability in postcrisis period: A comparative study of US and Asia. *Cogent Economics and Finance*, *7*(1), 1–18. https://doi.org/10.1080/23322039.2019.1605683

Abdelaziz, H., Rim, B., & Helmi, H. (2020). The interactional relationships between credit risk, liquidity risk and bank profitability in MENA region. *Global Business Review*, *23*(1), 1–23. https://doi.org/10.1177/0972150919879304

AL-Husainy, N. H. M., & Jadah, H. M. (2021). The effect of liquidity risk and credit risk on the bank performance: empirical evidence from Iraq. *IRASD Journal of Economics*, *3*(1), 58–67. https://doi.org/https://doi.org/10.52131/joe.2021.0301.0025

Alalade, Y. S., Ogbebor, P. I., & Akwe, M. (2020). Liquidity risk and profitability of listed deposit money banks in Nigeria. *Research Journal of Finance and Accounting*, *11*(8), 126–139. https://doi.org/10.7176/rjfa/11-8-13

Aliu, M., & Collaku, B. (2021). Impact of non-performing loans on bank's profitability: empirical evidence from commercial banks in Kosovo. *Journal of Accounting, Finance and Auditing Studies (JAFAS)*, *7*(3), 226–242. https://doi.org/10.32602/jafas.2021.027

Anggari, N. L. S., & Dana, I. M. (2020). The effect of capital adequacy ratio, third party funds, loan to deposit ratio, bank size on profitability in banking companies on IDX. *American Journal of Humanities and Social Sciences Research*, *4*(12), 334–338. www.ajhssr.com

Ari, A., Chen, S., & Ratnovski, L. (2020). The dynamics of non-performing loans during banking crises: a new database. *European Working Paper 2020*. https://doi.org/https://doi.org/10.2866/174853

Bandara, H. M. K. S., Jameel, A. L. M., & Haleem, A. (2021). Credit risk and profitability of banking sector in Sri Lanka. *Journal of Economics, Finance and Accounting Studies (JEFAS)*, *3*(1), 65–71. https://doi.org/10.32996/jefas.2021.3.1.6

Candy, & Suprapto, Y. (2018). Peranan manajemen risiko kredit terhadap kinerja perusahaan BPR di Riau. *Seminar Nasional Cendekiawan*, *4*(2), 885–893. https://trijurnal.lemlit.trisakti.ac.id/semnas/article/view/3357

Chong, V. S. W., Lam, J. M. S., & Tan, S. H. (2019). The relationship of risk management and bank profitability performance between domestic and foreign Islamic banks in Malaysia. *Humanities and Social Sciences Reviews*, *7*(6), 411–415. https://doi.org/10.18510/hssr.2019.7666

Chowdhury, M. M., & Zaman, S. (2018). Effect of liquidity risk on performance of

Islamic banks in Bangladesh. *IOSR Journal of Economics and Finance*, *9*(4), 1–09. https://doi.org/10.9790/5933-0904010109

Daniel, W. (2021, August 8). *Ketua OJK ungkap kondisi sektor keuangan terkini saat pandemi*. CNBC Indonesia. https://www.cnbcindonesia.com/market/20210808155048-17-267008/ketua-ojk-ungkap-kondisi-sektor-keuangan-terkini-saat-pandemi

Doana, T. T. T., & Buia, T. N. (2021). How does liquidity influence bank profitability? a panel data approach. *Accounting*, *7*(1), 59–64. https://doi.org/10.5267/j.ac.2020.10.014

Ekinci, R., & Poyraz, G. (2019). The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, *158*, 979–987. https://doi.org/10.1016/j.procs.2019.09.139

Fatwa, A. M. (2019, May 24). Kredit macet BPR Kepri mengkhawatirkan. *ValidNews.Id*. https://www.validnews.id/ekonomi/Kredit-Macet-BPR-Kepri-Mengkhawatirkan-yBU

Gadzo, S. G., Kportorgbi, H. K., & Gatsi, J. G. (2019). Credit risk and operational risk on financial performance of universal banks in Ghana: A partial least squared structural equation model (PLS SEM) approach. *Cogent Economics and Finance*, *7*(1). https://doi.org/10.1080/23322039.2019.1589406

Gallati, R. R. (2022). *Risk management and capital adequacy*. https://doi.org/10.1036/0071425586

Hair, J. F., Celsi, M., Money, A., Samouel, P., & Page, M. (2016). Essentials of business research methods. In *Routledge* (Third). Routledge. https://doi.org/10.4324/9780429203374

Hamza, S. M. (2017). Impact of credit risk management on banks performance: a case study in Pakistan banks. *European Journal of Business and Management*, *9*(1), 57–64.

Haralayya, B., & Aithal, P. . (2021). Performance affecting factors of Indian banking sector: An empirical analysis. *George Washington International Law Review*, *07*(01), 607–621.

Hidayat, F. (2021, July 12). Peran Perbankan dalam Percepatan Pemulihan Ekonomi Nasional. *WartaEkonomi.Co.Id*.

Hunjra, A. I., Mehmood, A., Nguyen, H. P., & Tayachi, T. (2020). Do firm-specific risks affect bank performance? *International Journal of Emerging Markets*, *17*(3), 664–682. https://doi.org/10.1108/IJOEM-04-2020-0329

Huong, T. T. X., Nga, T. T. T., & Oanh, T. T. K. (2021). Liquidity risk and bank performance in Southeast Asian countries: a dynamic panel approach. *Quantitative Finance and Economics*, *5*(1), 111–133. https://doi.org/10.3934/qfe.2021006

Kajola, S. O., Sanyaolu, W. A., Alao, A., & Ojunrongbe, O. J. (2019). Liquidity and profitability dynamics: evidence from the Nigerian banking sector. *Accounting and Taxation Review*, *3*(2), 1–12.

Karim, S., Akhtar, M. U., Tashfeen, R., Raza Rabbani, M., Rahman, A. A. A., & AlAbbas, A. (2022). Sustainable banking regulations pre and during coronavirus outbreak: the moderating role of financial stability. *Economic Research-Ekonomsageka Istrazivanja*, *35*(1), 3360–3377. https://doi.org/10.1080/1331677X.2021.1993951

Khati, M. P. (2020). Impact of liquidity on profitability of Nepalese commercial banks. *IOSR Journal of Economics and Finance*, *11*(5), 26–33. https://doi.org/10.9790/5933-1105012633

Majeed, M. T., & Zainab, A. (2021). A comparative analysis of financial performance of Islamic banks vis-à-vis conventional banks: evidence from Pakistan. *ISRA International Journal of Islamic Finance*, *13*(3), 331–346. https://doi.org/10.1108/IJIF-08-2018-0093

Mashamba, T. (2018). The effects of Basel III liquidity regulations on banks' profitability. *Journal of Governance and Regulation*, *7*(2), 34–48. https://doi.org/10.22495/jgr_v7_i2_p4

Masood, O., & Javaria, K. (2017). Liquidity risk management and financial performance of Islamic banks: Empirical evidence from global Islamic banks. *Journal of Islamic Financial Studies*, *3*(2), 63–70.

Naim, Y. J. (2019, September 17). *Banyak yang nganggur, kredit macet BPR Kepri tembus 7,95 persen*. https://www.antaranews.com/berita/1066968/banyak-yang-nganggur-kredit-macet-bpr-kepri-tembus-795-persen

Nugraha, N. M., Nariswari, T. N., Yahya, A., Salsabila, F., & Octaviantika, I. Y. (2021). Impact of non-performing loans, loan to deposit ratio and education diverstiy on firm performance of Indonesia banking sectors. *Review of International Geographical Education*, *11*(3), 85–96. https://doi.org/10.33403/rigeo.800472

Nwude, C. E., & Okeke, C. (2018). Impact of credit risk management on the performance of selected Nigerian banks. *International Journal of Economics and Financial Issues*, *8*(2), 287–297. http:www.econjournals.com

OJK. (2022). *Bank Perkreditan Rakyat*. Otoritas Jasa Keuangan. https://www.ojk.go.id/id/kanal/perbankan/Pages/Bank-Perkreditan-Rakyat.aspx

Otwoko, B. E., & Maina, K. (2021). Effect of liquidity risk on the financial performance of deposit taking savings and credit cooperative organisations (SACCOs) in Kenya. *International Journal of Research in Business and Social Science (*, *10*(2), 203–211. https://doi.org/10.20525/ijrbs.v10i2.1056

Pai, R. J., & Chotia, V. (2019). Factors determining profitability of banks in UAE. *International Journal of Financial Services Management*, *9*(4), 386–407. https://doi.org/10.1504/ijfsm.2019.10024220

Prasetia, A. (2023, February 6). *OJK bakal bubarkan 600 Bank Perkreditan Rakyat dalam 5 tahun*. CNN Indonesia. https://www.cnnindonesia.com/ekonomi/20230206142203-78-909475/ojk-bakal-bubarkan-600-bank-perkreditan-rakyat-dalam-5-tahun

Saleh, I., & Abu Afifa, M. (2020). The effect of credit risk, liquidity risk and bank capital on bank profitability: Evidence from an emerging market. *Cogent Economics and Finance*, *8*(1). https://doi.org/10.1080/23322039.2020.1814509

Sathyamoorthi, C. R., Mapharing, M., & Dzimiri, M. (2020). Liquidity management

and financial performance: evidence from commercial banks in Botswana. *International Journal of Financial Research*, *11*(5), 399–413. https://doi.org/10.5430/ijfr.v11n5p399

Wareza, M. (2021). *OJK bikin aturan baru untuk BPR, biar bisa bantu UMKM*. CNBC Indonesia. https://www.cnbcindonesia.com/market/20210224170429-17-225925/ojk-bikin-aturan-baru-untuk-bpr-biar-bisa-bantu-umkm

Zakhariah, C., & Hesniati. (2022). Comparative analysis of islamic commercial banks and sharia business units in Indonesia. *Jurnal Ilmiah Ekonomi Islam*, *8*(02), 1393–1403. https://doi.org/http://dx.doi.org/10.29040/jiei.v8i2.4847 1.