THE INFLUENCE OF CAPITAL, CREDIT RISK, AND LIQUIDITY RISK ON FINANCIAL PERFORMANCE
(Case Study on Commercial Banks in the Core Capital Group (KBMI) 3 Listed on the Indonesia Stock Exchange for the Period 2019-2023)

Achmad Jaelani[1], Winaya Purwanti[2], Hastuti Indra Sari[3]

[1,2,3]Program Studi Manajemen, Institut Bisnis dan Komunikasi Swadaya, Jakarta, Indonesia

Abstract: This study aims to analyze the influence of capital, credit risk, and liquidity risk on the financial performance of conventional banking companies listed on the Indonesia Stock Exchange (IDX) during the period of 2015-2023. The population used in this study consists of 47 commercial banks listed on the IDX. The sample used in this study includes commercial banks categorized as KBMI 3 (Banks based on Core Capital), which are banks with core capital ranging from IDR 14 trillion to IDR 70 trillion, totaling 10 banks. The type of data used in this study is quantitative data, specifically secondary data from the annual financial reports of commercial banks listed on the IDX for the period 2015-2023. The analytical method used is multiple linear regression. The results of the study indicate that Capital (CAR) does not have a positive effect on financial performance (ROA), Credit Risk (NPL) has a negative effect on financial performance (ROA), and Liquidity Risk (LDR) has a negative effect on financial performance (ROA) in banking companies.

Keywords: Capitalization, Credit Risk, Liquidity Risk, Financial Performance.

INTRODUCTION

The banking industry plays a crucial role in a country's economy. This statement aligns with Siswanto et al. (2019), who stated that the banking sector and other financial institutions play a vital role in the economy as they provide financial services to support all economic sectors. Thus, it can be concluded that the higher the economic level in society, the greater the role of the banking sector.

Bank business activities are always faced with risks closely related to their function as financial intermediaries. With the issuance of the Financial Services Authority (OJK) Regulation No. 18/POJK.03/2016 on the Implementation of Risk Management for Commercial Banks, the external and internal environments of banking have rapidly developed, leading to increasingly complex risks for banking business activities. These complex risks necessitate good governance practices and effective risk identification, measurement, monitoring, and control functions. Therefore, banks are required to implement risk management for all risks inherent in their products and activities. There are eight types of banking risks that must be managed: credit risk, market risk, operational risk, liquidity risk, legal risk, compliance risk, reputation risk, and strategic risk. The risk management principles to be adopted and applied in Indonesian banking are directed in line with the recommendations issued by the Bank for International Settlements through the Basel Committee on Banking Supervision. These principles essentially provide standards for the banking world to operate more cautiously in the rapidly developing scope of banking business and operational activities. Through the implementation of risk management, banks are expected to measure and control the risks faced in their business activities more effectively. Furthermore, the risk management implementation by banks will support the effectiveness of the risk-based bank supervision framework conducted by the Financial Services Authority. The efforts to implement risk management are not only aimed at the interests of the banks but also for the interests of customers, including transparency of information related to bank products or activities.

In the Financial Services Authority Regulation No. 4/POJK.03/2016 on the Assessment of the Health Level of Commercial Banks, it is stated that banks are required to conduct an individual bank health assessment using a risk-based approach (Risk Based Bank Rating), which includes assessments of Risk Profile, Good Corporate Governance (GCG), Earnings, and Capital. The assessment of the Risk Profile factor is conducted on the eight types of risks as stipulated in OJK Regulation No. 18/POJK.03/2016 on the Implementation of Risk Management for Commercial Banks. The GCG factor assessment is conducted on the bank's management for the implementation of GCG. The earnings factor assessment is conducted on the profitability performance, sources of profitability, and sustainability of profitability. Meanwhile, the capital factor assessment is conducted on the adequacy of capital and capital management. Bank health is a reflection of the condition and performance of a bank, which serves as a tool for supervisory authorities to establish strategies and supervisory focus on banks. Moreover, bank health is also of interest to all related parties, including owners, management, and customers.

Credit risk is assessed using the credit risk ratio, which measures the risk of loans disbursed by comparing non-performing loans with loans disbursed (Kasmir, 2012). According to Marnoko (2011), Non-Performing Loans (NPL) reflect the credit risk faced by a bank. The smaller the NPL, the smaller the credit risk borne by the bank. Liquidity risk measures the risk faced by a bank if it fails to meet its obligations to depositors with the liquid assets it possesses (Kasmir, 2012).

According to Defri (2012), the Loan to Deposit Ratio (LDR) is a ratio used to measure the bank's ability to repay its debts and to depositors, as well as to meet loan demands. A higher LDR indicates a greater amount of funds disbursed to third parties in the form of loans, leading to higher interest income and ultimately improving the bank's profitability.

Furthermore, in addition to credit risk and liquidity risk, capital is an important factor as a source of operational funds for the bank. Without sufficient capital, the bank's operational activities will be disrupted. Kasmir (2012) stated that one of the methods for assessing a bank's capital is the capital adequacy ratio (CAR). According to Yuanjuan (2012), CAR reflects not only the bank's risk but also serves as a benchmark for asset-liability management compared to other banks. This view is supported by Wibowo (2013), who stated that CAR reflects the company's own capital to generate profits. The higher the CAR, the greater the opportunity for the bank to generate profits because, with larger capital, the bank's management can more freely invest in profitable activities.

According to Law No. 10 of 1998 on Banking, banks have two main business activities: raising funds and channeling funds to the public. Through these two main business activities, banks, like other service businesses, expect to earn revenue for the sustainability of their operational activities. Shihadeh et al. (2018) and Shiahdeh and Liu (2019) stated that banks increase their profits through the loans they provide and other financial services, where risks are inherent in these services that could potentially lead to losses. The current competition among banks is very tight in offering attractive deposit and loan services, allowing for a smooth flow of money within the bank. However, if loan disbursement is not accompanied by prudent principles in extending healthy credit, it will result in credit risk that could lead to losses and erode the bank's capital. In addition to credit risk, banks are also exposed to other risks. The experience of the monetary crisis in 1997-1998 in Indonesia, which, according to Tarmidi (1999), caused economic paralysis due to the closure of many businesses and increased unemployment. This crisis also led to the closure of 18 banks, as a step to restructure the banking sector. The closure of 16 banks was not accompanied by guarantees for depositors' funds in these banks, resulting in a rush money situation where depositors withdrew their funds massively, causing losses to these banks. It can be said that in such situations, banks face liquidity risk, where they experience difficulties in maintaining liquidity to meet large and sudden withdrawal demands from large depositors.

According to OJK Regulation No. 12/POJK.03/2021 on Commercial Banks, it is stated that to support economic growth and national stability, a strong and competitive banking system is needed, capable of anticipating business trends and developments in the banking industry, including technological advancements and innovations. To support the development of the banking sector, OJK issued a regulation on commercial banks that categorizes banks based on their core capital, known as KBMI, with four classifications: 1) KBMI 1: banks with core capital up to IDR 6 trillion; 2) KBMI 2: banks with core capital > IDR 6 trillion to IDR 14 trillion; 3) KBMI 3: banks with core capital > IDR 14 trillion to IDR 70 trillion; 4) KBMI 4: banks with core capital > IDR 70 trillion.

The financial performance of banks can affect overall financial stability. Capital, credit risk, and liquidity risk are the main factors determining a bank's financial performance. Capital reflects the bank's financial strength, credit

risk describes the quality of loans extended, and liquidity risk measures the bank's ability to meet short-term obligations. This study focuses on the influence of three factors: capital, credit risk, and liquidity risk on financial performance.

LITERATURE REVIEW

The Influence of Capital on Financial Performance

According to the Financial Services Authority Circular No. 4/POJK.03/2016 on the Assessment of the Health Level of Commercial Banks, it states that in assessing capital adequacy, banks must link capital adequacy with the bank's risk profile. Additionally, the OJK issued Regulation No. 11/POJK.03/2026 regarding the Minimum Capital Requirements for Commercial Banks, which regulates bank capital to ensure that banks have sufficient capital to cover risks. The regulation specifies that banks must provide minimum capital according to their risk profile. The minimum capital provision is calculated using the Capital Adequacy Ratio (CAR) from Risk-Weighted Assets (RWA). The CAR ratios are: 8% for risk profile rating 1 (Low Risk), 9%-<10% for risk profile rating 2 (Low to Moderate Risk), 10%-<11% for risk profile rating 3 (Moderate to High Risk), and 11%-14% for risk profile ratings 4 and 5 (Moderate to High Risk & High Risk). However, the OJK can set a higher minimum capital requirement if it assesses that the bank faces potential losses requiring more capital. From the explanation above, it can be stated that the higher the bank's risk, the more capital the bank needs to provide to anticipate such risks. In previous research, there were contradictions between studies such as Artha and Mulyana (2017), which proved that CAR had an insignificant and negative relationship with ROA. On the other hand, Prasteyo's (2018) research showed that CAR had a significant and positive relationship with ROA. Boreel et al. (2018) found that CAR had no significant effect on ROA. Referring to OJK regulations on the Assessment of Bank Health Levels and the Minimum Capital Requirements for Commercial Banks, banks must provide Minimum Capital according to their risk profile rating, which is at least 8%. Moreover, bank capital not only comes from shareholders and operational results but also from public deposits, which can be re-distributed as credit to generate profit. From the above explanation, the researcher formulates the hypothesis as follows:

H1: The Capital Adequacy Ratio (CAR) has a positive effect on financial performance.

The Influence of Credit Risk on Financial Performance

Credit risk in this study is proxied by the Non-Performing Loan (NPL) ratio, which describes the credit risk of a bank from lending and investment activities in different portfolios. Hussain and Al-Ajmi (2012) argue that credit risk and liquidity risk are the most dangerous risks faced by financial institutions. According to OJK Regulation No. 18/POJK.03/2016, credit risk arises from the failure of other parties to fulfill their obligations to the bank, including credit risk from debtor failure, credit concentration risk, counterparty credit risk, and settlement risk. According to Jin et al. (2012), credit risk occurs when debtors or counterparties are unable to meet their predetermined obligations due to changes in credit quality, which can harm the bank. Banks experience credit risk because most of their assets are in the form of loans that are relatively illiquid (Koch and MacDonald, 2000).

Previous research also showed contradictions. For example, Saputra et al. (2018) proved that NPL had no significant effect on ROA, while Prasetyo (2018) demonstrated that NPL had a significant and negative relationship with ROA. Similarly, Korompis et al. (2020) found that NPL significantly and negatively affected ROA. Theoretically, the higher the non-performing loans (NPL) at a bank, the greater the risk of default, leading to losses. From this explanation, the researcher formulates the hypothesis as follows:

H2: Credit Risk (NPL) has a negative effect on financial performance.

The Influence of Liquidity Risk on Financial Performance

The Loan to Deposit Ratio (LDR) is a ratio that shows the liquidity level of a bank. LDR also indicates the bank's ability to carry out its intermediary function/obligation to distribute third-party funds in the form of credit (Yuanto et al., 2019). In this context, LDR is an indicator used for liquidity risk. According to OJK Regulation No. 18/POJK.03/2016, liquidity risk arises from the bank's inability to meet maturing obligations from cash flow

sources and/or from high-quality liquid assets that can be used without disrupting the bank's activities and financial condition. In this study, LDR is used as an indicator for liquidity risk. A high LDR ratio indicates that a bank lends most of its funds, which may imply a lack of liquidity. Conversely, a low LDR ratio indicates that the bank is more liquid with excess funds ready to be loaned, but may not be as efficient in generating revenue from those funds (Latumaerissa, 2017).

Previous research also showed contradictions. For instance, Saputra et al. (2018) demonstrated that LDR had no significant effect on ROA. However, Prasetyo (2018) showed that LDR had a significant negative relationship with ROA, supported by Korompis et al. (2020), who found that LDR significantly and negatively affected ROA. Theoretically, the higher the amount of credit provided, the higher the LDR ratio, indicating that the bank is less liquid. From this explanation, the researcher formulates the hypothesis as follows:

H3: Liquidity Risk (LDR) affects financial performance.

RESEARCH METHODS

The type of data in this research is quantitative data, specifically secondary data from the annual financial statements of commercial banks listed on the Indonesia Stock Exchange (IDX). Quantitative research aims to measure things accurately and precisely (Sekaran and Bougie, 2017). The population used in this study comprises companies in the commercial banking sector listed on the IDX from 2015-2023, totaling 47 banks. The sample used is commercial banks with the category of Core Capital (KBMI) 3, which have Core Capital ranging from IDR 14 trillion to IDR 70 trillion during the 2015-2023 period, totaling 10 banks.

Financial Performance

In this research, the dependent variable used is financial performance proxied by Return on Assets (ROA). Financial performance is a representation of the results achieved by the banking industry by efficiently and effectively generating profits through various activities (Supriyono, 2011). ROA is calculated with the following formula:

$$\text{ROA} = \frac{\text{Profit Before Tax}}{\text{Average Total Assets}}$$

This calculation of ROA provides an overview of the bank's ability to generate profit and indicates the level of efficiency in asset management. The higher the ROA ratio, the better the bank's performance in generating profit and managing assets. Conversely, a lower ROA ratio indicates poorer bank performance in profit generation and asset management. The independent variables in this study are Capital Adequacy Ratio (CAR), Credit Risk (NPL), and Liquidity Risk (LDR).

Capital Adequacy Ratio (CAR)

CAR is a ratio that measures a bank's capital adequacy against the risks it faces. CAR is crucial for maintaining the stability and efficiency of the banking financial system, protecting depositors, and maintaining trust in the banking system (Hanafi & Imelda, 2020). CAR is calculated with the following formula:

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

In this CAR calculation, a higher CAR value indicates a stronger ability of the bank to bear the risks of each credit and risky productive asset. Conversely, a lower CAR ratio indicates a poorer ability of the bank to bear the risks of each credit. According to Financial Services Authority Regulation No. 11/POJK.03/2016, the minimum CAR that banks must provide is 8%.

Credit Risk

Non-Performing Loan (NPL) is a ratio that describes the credit risk in banks from lending activities and the bank's investment in different portfolios. This ratio indicates the bank's management ability to manage problematic loans. Problematic loans are defined as the risk of a client's inability to pay their obligations or the risk that a debtor cannot repay their debt (Hermina & Suprianto, 2014). The NPL formula is as follows:

$$NPL = \frac{\text{Non-Performing Loans}}{\text{Total Loans}} \times 100\%$$

If the NPL ratio is higher, it indicates poorer bank performance because the bank cannot manage problematic loans and address credit risks effectively. Conversely, a lower NPL ratio indicates better bank performance due to effective management of problematic loans.

Liquidity Risk

Loan to Deposit Ratio (LDR) is a ratio that shows the liquidity level of a bank. LDR also indicates the bank's ability to carry out its intermediary function (obligation) by distributing third-party funds in the form of credit (Yunanto et al., 2019). The LDR formula is as follows:

$$LDR = \frac{\text{Total Loans}}{\text{Total Third-Party Funds}} \times 100\%$$

A high LDR indicates that the bank lends most of its deposits, which, while potentially increasing interest income, also raises liquidity risk as the bank may struggle to meet withdrawal demands. Conversely, a low LDR indicates that the bank has more deposits than loans, meaning it is more liquid and can meet withdrawal demands but is less efficient in utilizing funds to generate income.

Data Analysis Techniques
The data testing in this study uses the SPSS program to determine the influence between independent and dependent variables using multiple linear regression. This regression goes through several stages such as classical assumption tests, which include normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. Then, the F-test is conducted to see the overall or simultaneous influence of the dependent variable on the independent variables, ensuring that the chosen model is appropriate. The t-test is used to examine the partial influence between the dependent and independent variables, providing the conclusive results of this study. The R2 coefficient of determination test measures how well the research model explains the variation in the dependent variable. The multiple linear regression model for this study is as follows:

$$Y = \alpha + \beta 1 CAR + \beta 2 NPL + \beta 3 LDR + e$$

Description:
- Y = Financial Performance (CAR)
- α = Constant
- β = Regression coefficient of the independent variables
- CAR = Capital Adequacy Ratio
- NPL = Credit Risk
- LDR = Liquidity Risk
- e = Error Term

RESULTS AND DISCUSSION

Descriptive Statistical Analysis

Descriptive statistics provide an overview and describe the variables involved in the study. The data is presented in the form of data count, mean, minimum, maximum, and standard deviation.

Table 1. Descriptive Statistical Analysis

Variable	N	Mean	Minimum	Maximum	Std. Deviation
Capital (CAR)	50	24.66	16.78	38.73	4.70
Credit Risk (NPL)	50	0.72	0.23	2.00	0.35
Liquidity Risk (LDR)	50	89.03	61.96	171.28	21.06
Financial Performance (ROA)	50	2.16	0.54	4.46	0.99

Source: Processed Data, 2024

Classical Assumption Tests

Classical assumption tests are a series of tests conducted in linear regression analysis to ensure that the model used meets certain assumptions required for valid and reliable analysis results. The primary purpose of these tests is to ensure that the parameter estimates in the regression model are unbiased, consistent, and efficient. The classical assumption tests used in this study are the Normality Test, Multicollinearity Test, Heteroscedasticity Test, and Autocorrelation Test.

Normality Test

The Normality Test is used to determine whether the data in the study are normally distributed. This test uses the residual values. The results of the Normality Test using Unstandardized Residuals in this study are as follows:

Table 2. Normality Test with Unstandardized Residuals

Kolmogorov-Smirnov Test	Unstandardized Residual
Test Statistik	0.115
Asymp. Sig. (2-tailed)	0.094

Source: Processed Data, 2024

The Normality Test results show that the Asymp. Sig. (2-tailed) value is above 0.05, indicating that the data are normally distributed. Thus, the data testing can proceed to the next stage.

Multicollinearity Test

The Multicollinearity Test examines whether there is a close relationship or correlation between the independent variables in the regression model. A good regression model should not have high correlations among the independent variables. Multicollinearity is indicated if the Variance Inflation Factor (VIF) is < 1 and the tolerance value is ≤ 0.10. The results of the Multicollinearity Test in this study are as follows:

Table 3. Multicollinearity Test

Variabel	*Tolerance*	*VIF*
Capital (CAR)	0.928	1.078
Credit Risk (NPL)	0.917	1.091
Liquidity Risk (LDR)	0.974	1.027

Source: Processed Data, 2024

The Multicollinearity Test results show that each independent variable has a tolerance value above 0.10 and VIF above 1, indicating that there is no multicollinearity among the variables.

Heteroscedasticity Test

The Heteroscedasticity Test examines whether there is a variance difference in the residuals from one observation to another in the regression test. The Glejser test can be used for this, by regressing the independent variables against the absolute residual values. If the significance value is greater than 0.05, there is no heteroscedasticity. The results of the Heteroscedasticity Test in this study are as follows:

Table 4. Heteroscedasticity Test

Variabel	Sig
Capital (CAR)	0.898
Credit Risk (NPL)	0.327
Liquidity Risk (LDR)	0.010

Source: Processed Data, 2024

The Heteroscedasticity Test results show that each independent variable has a significance value above 0.05, indicating no heteroscedasticity.

Autocorrelation Test

The Autocorrelation Test aims to determine whether there is a correlation between the error terms in period t and period t-1 (previous). Autocorrelation occurs if the deviation of one observation is influenced by the deviation of another observation. The Durbin Watson test is used to detect this. The results of the Autocorrelation Test in this study are as follows:

Table 5. Autocorrelation Test

Model	R	R Square	Adjusted R Square	Std.Error of the Estimate	Durbin Watson
1	0.395	0.156	0.101	0.94156	1.593

Source: Processed Data, 2024

The Durbin Watson (DW) value is 1.593. The table shows that the dL value is 1.4206 and the dU value is 1.6739. The formula 4-dW = 2.407, indicating no positive or negative autocorrelation.

F-Test

The F-Test is used to test the feasibility of the research model. The significance level used is 5%. The F-Test in this study examines the p-value (significance) in the Anova table. If the significance value is less than 0.05, the formed model is feasible. The results of the F-Test in this study are as follows:

Table 6. F-Test

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	2.610	3	.870	3.100	.036
Residual	12.909	46	.281		
Total	15.518	49			

Source: Processed Data, 2024

The F-Test results show a significance value of 0.036, which is less than 0.05, indicating that the regression model can predict the dependent variable, financial performance, with an F value of 3.100. The independent variables, Capital, Credit Risk, and Liquidity Risk, influence the dependent variable, financial performance.

Coefficient of Determination Test (Adjusted R2)

The Coefficient of Determination Test (Adjusted R2) measures how well the model explains the dependent variable. The Adjusted R2 value ranges from 0 to 1. If the Adjusted R2 value is closer to 1, it indicates that the independent variables explain most of the information needed to predict the dependent variable. The results of the Coefficient of Determination Test (Adjusted R2) in this study are as follows:

Table 7. Coefficient of Determination Test (Adjusted R2)

Model	R	R Square	Adjusted Square R	Std. Error of Estimate
1	0.395	0.156	0.101	0.94156

Source: Processed Data, 2024

The Adjusted R Square value is 0.101, indicating that the independent variables (Capital, Credit Risk, Liquidity Risk) explain the dependent variable (financial performance) by 10.1%, with the remaining 89.9% explained by other variables not included in this regression model.

t-Test

The t-Test is used to determine the influence of each independent variable on the dependent variable. If the p-value (significance) is less than α, the independent variable significantly influences the dependent variable. The results of the t-Test in this study are as follows:

Table 8. t-Test

Variabel	t	Sig.
Capital (CAR)	-1.913	0.062
Credit Risk (NPL)	-1.121	0.268
Liquidity Risk (LDR)	-2.348	0.023

Source: Processed Data, 2024

Based on Table 8, the t-Test results can be summarized as follows:

1. The Capital variable has a significance value of $0.062 > 0.05$ and a t value of -1.913, indicating that the Capital (CAR) does not have a positive influence on financial performance (ROA).
2. The Credit Risk variable has a significance value of $0.268 > 0.05$ and a t value of -1.121, indicating that Credit Risk (NPL) has a negative influence on financial performance (ROA).
3. The Liquidity Risk variable has a significance value of $0.023 < 0.05$ and a t value of -2.348, indicating that Liquidity Risk (LDR) has a negative influence on financial performance (ROA).

CONCLUSION

This study aims to analyze the influence of capital, credit risk, and liquidity risk on financial performance. The research focuses on commercial banks with core capital ranging from IDR 14 trillion to IDR 70 trillion listed on the Indonesia Stock Exchange from 2019 to 2023.

The study finds that capital, proxied by CAR, does not influence financial performance. This is because banks maintain capital stability per OJK regulations on Minimum Capital Adequacy Requirements based on risk profiles. Credit risk, proxied by NPL, negatively impacts financial performance (ROA). A high NPL ratio indicates many problematic loans, reducing interest income and increasing credit loss provisions, eventually eroding the bank's capital. Liquidity risk, proxied by LDR, negatively impacts financial performance. A high LDR ratio means most of the bank's deposits are given as loans, causing liquidity issues if there are massive withdrawals by customers.

When banks lack liquidity, they must sell assets at a discount or borrow funds at high costs, reducing profitability. The limitations of this study include examining only three independent variables and one dependent variable. Future researchers are advised to expand the sample size and include more variables such as operational risk, strategic risk, legal risk, and others. Additionally, future studies should extend the research period and include both Indonesian and international commercial banks. Researchers should also consider adding independent variables such as interest rates, exchange rates, and stock prices.

REFERENCES

1. Abbas, F. & Ali, S., 2021. Economics of loan growth, credit risk and bank capital in Islamic banks. *The moderating role of capital,* Issue Emerald Publishing Ltd..
2. Adalsteinsson, G., 2014. *The Liquidity Risk Management Guide: From Policy to Pitfalls.* s.l.:s.n.
3. Ali, M., & Laksono, R. (2017). Pengaruh Net Interest Margin (NIM), Biaya Operasional Terhadap Pendapatan Operasional (BOPO), Loan To Deposit Ratio (LDR) dan Non-Performing Loan (NPL) terhadap Return On Assets (ROA) pada Bank Umum Milik Negara (BNI, Mandiri, BTN,dan BRI) untuk periode. Jurnal Riset Akuntansi dan Keuangan.
4. Alshatti, A. S., 2015. The Effect of the Liquidity Management on Profitability in the Jordanian Commercial Banks. *International Journal of Business and Management,* Issue Canadian Center of Science and Education.
5. Alzorqan, D. S. T., 2014. Bank Liquidity Risk and Performance: An Empirical Study of the banking system in Jordan. *Research Journal of Finance and Accounting.*
6. Anon., n.d. *Undang-Undang Republik Indonesia No. 10 Tahun 1998.* [Online] Available at: https://www.bphn.go.id/data/documents/98uu010.pdf
7. Aprilia Louise Cardilla, M. M. D. R. R., 2019. Pengaruh arus kas operasi, umur perusahaan, dan ukuran perusahaan terhadap kinerja perusahaan perbankan yang terdaftar di Bursa Efek Indonesia periode 2011-2016. *Firm Journal of Management Studies.*
8. Boreel, J. T., Ariani, M., & Budiarto, B. (2018). Analisis Kinerja Keuangan Bank Umum Konvensional Dengan Aset Terendah Di Indonesia Periode 2014-2017. Jurusan Ilmu Ekonomi, Fakultas Bisnis dan Ekonomika, Universitas Surabaya , 19-28.
9. Capriani, N. W., & Dana, I. M. (2016). Pengaruh Risiko Kredit, Risiko Operasional, dan Risiko Likuiditas terhadap Profitabilitas BPR di Kota Denpasar. E-Jurnal Manajemen Unud, 1486-1512
10. Colombini, F. (2018). Raising Capital or Improving Risk Management and Efficiency. Departement of Economics and Management Univeristy of Piza, Italy, 49-50.
11. Dr. Supardi U.S. MM., M., 2011. *Aplikasi Statistika Dalam Penelitian.* I ed. Jakarta: PT. Ufuk Publishing House.
12. Duho, K. C. T. et al., 2020. Bank Risk, Profit Efficiency and Profitability. *Bank Risk, Profit Efficiency and Profitability in a Frontier Market.*
13. E. Hoseininassab, K. Y. N. M. R. K., 2013. Effects of risk parameters (credit, operational, liquidity and market risk) on banking system efficiency (studying 15 top banks in Iran). *Iranian Economic Review.*
14. Eneng Trisnawati Dewi, W. S., 2018. Pengaruh Risiko Kredit dan Risiko Likuiditas Terhadap Profitabilitas Bank: Studi Kasus pada Bank BUMN Periode 2008-2017. *Jurnal Ilmiah Manajemen Keuangan,* Issue STIE Kesatuan.
15. Ephias Munangi, A. B. S., 2020. An empirical analysis of the impact of credit risk on the financial performance of South African banks. *Academy of Accounting and Financial Studies Journal.*
16. Fan Li, Y. Z., 2014. *The Impact of Credit Risk Management on Profitability of Commercial Banks: A Study of Europe,* s.l.: s.n.
17. Fani Ramadanti, W. M., 2015. Analisis Pengaruh Risiko Likuiditas Terhadap Profitabilitas Perusahaan Perbankan di Indonesia. *Diponegoro Journal of Accounting,* pp. 1-10.
18. Ghenimi, A., Chaibi, H. & Omri, M. A. B., 2021. Liquidity risk determinants: Islamic vs conventional banks. *International Journal of Law and Management,* Vol. 63 No. 1(Emerald Publishing Limited), pp. 65-95.
19. Ghozali, I. (2016). Aplikasi Analisis Multivariate dengan Program IBM SPSS 23. Semarang: Badan Penerbit Universitas Diponegoro.
20. Hanafi, M. A., & Imelda, E. (2020). Faktor-Faktor Pengaruh Kinerja Keuangan Bank. Jurnal Multiparadigma Akuntansi Tarumanagara, 166-175.
21. Hardanto, S. S., 2006. *Manajemen Risiko Bagi Bank Umum.* Jakarta: PT Gramedia.

22. Hastuti, S. P., & Ghozali, I. (2019). Analisis Faktor-Faktor yang Mempengaruhi Profitabilitas Perbankan Go Public di Indonesia. Diponegoro Journal of Accounting, 1-10.

23. Hermina, R., & Suprianto. (2014). Analisis Pengaruh CAR, NPL, LDR, Dan BOPO Terhadap Profitabilitas (ROE) Pada Bank Umum Syariah (Studi Kasus Pada Bank Umum Syariah di BEI 2008–2012). Jurnal Akuntansi Indonesia, 129-142.

24. Hussain, H. & Al-Ajmi, J., 2012. The Journal of Risk Finance, Vol. 13 No. 3. *Risk management practices of conventional and Islamic banks,* pp. 215-239.

25. IBI. (2016). Manajemen Kesehatan Bank Berbasis Risiko. Jakarta: PT Gramedia Pustaka Utama.

26. Isam Saleh, M. A. A., 2020. The effect of credit risk, liquidity risk and bankcapital on bank profitability: Evidence from anemerging market. *Cogent Economics & Finance.*

27. Jihan Yunike Putri dan Imo Gandakusuma. 2020. Analisis Pengaruh Risiko Kredit, Risiko Likuiditas, serta Risiko Operasional Terhadap Kinerja Perbankan: Studi Kasus pada Bank Umum Konvensional yang Terdaftar di Bursa Efek Indonesia Periode 2016-2020. Jurnal Manajemen dan Usahawan Indonesia. Vol 46 , No. 1 : 34-48. Program

28. Khalifaturofi'ah, S. O., 2021. Cost efficiency, innovation and financial performance of banks in Indonesia. *Journal of Economic and Administrative Sciences,* Issue Emerald Publishing Ltd..

29. Korompis, R. R., Murni, S., & Untu, V. N. (2020). Pengaruh Risiko Pasar (NIM), Risiko Kredit (NPL), dan Risiko Likuiditas (LDR) Terhadap Kinerja Keuangan Perbankan (ROA) Pada Bank Yang Terdaftar Di LQ 45 Periode 2012-2018 . Jurnal EMBA , 175-184.

30. Laker, J., 2007. The Evolution of Risk and Risk Management – A Prudential Regulator's Perspective.

31. Larry Li, I. M., 2015. Operational risk, the legal system and governance indicators: a country-level analysis. *Applied Economics,* Issue Taylor & Francis Journals, pp. 2053-2072.

32. Latumaerissa, J. R. (2017). Bank dan Lembaga Keuangan Lain. Jakarta: Salemba Empat.

33. Ly, K. C., 2015. Liquidity Risk, Regulation and Bank Performance: Evidence from European Banks. *Global Economy and Finance Journal,* Volume 11 – 33.

34. Marozva, G., 2015. Liquidity And Bank Performance. *Business and Economics Research Journal,* pp. 453-562.

35. Matz, L., n.d. Liquidity Risk: New Lessons and Old Lessons. *Financial Managers Society,* Issue White Paper, Chicago.

36. Ni Wayan Pebry Diyan Gayatri, I. N. K. A. M. I. K. S., 2019. Risiko Kredit, Risiko Likuiditas, Risiko Operasional dan Profitabilitas. *Jurnal Riset Akuntansi.*

37. Ongore, V. O. (2013). The Relationship Between Ownership Structure and Firm Performance: An Empirical Analysis of Listed Companies in Kenya. African Journal of Business Management, 2120-2128.

38. Ongore, V. O., & Kusa, G. B. (2013). Determinants of Financial Performance of Commercial Banks in Kenya. International Journal of Economics and Financial Issues, 237-252.

39. Prasetyo, H. H. (2018). Pengaruh CAR, BOPO, LDR Dan NPL Terhadap Kinerja Keuangan Bank Perkreditan Rakyat Di Provinsi Diy Periode 2015-2016 . Jurnal Fakultas Ekonomi Universitas Negeri Yogyakart, 1-17.

40. Purwani, T. (2010). Pengaruh Good Corporate Governance terhadap Kinerja Perusahaan. Majalah Ilmiah Informatika, Vol.1, No 2 Mei 2010.

41. Rahman, R. A., & Isynuwardhana, D. (2019). Pengaruh CAR,LDR Dan NPL Terhadap Profitabilitas Pada Industri Perbankan (Studi Pada Bank Umum Yang Terdaftar Di Bursa Efek Indonesia Tahun 2013-2017. e-Proceeding of Management , 622-633.

42. Ramazan Ekinci, G. P., 2019. The Effect of Credit Risk on Financial Performance of Deposit Banks In Turkey. *Procedia Computer Science.*

43. Ratih Nurmalita Hapsari. 2022. Pengaruh Kewajiban Penyediaan Modal Minimum, Risiko Kredit, Risiko Pasar, Risiko Operasional Dan Risiko Likuiditas Terhadap Kinerja Keuangan Bank, Fakultas Ekonomi dan Bisnis Universitas Ma Chung, Malang, Indonesia. Parsimonia Vol 9. NO. 1 : 28-43

44. Rose Waithira Kamau, D. J. G. D. F. M., 2018. The Effect of Operational Risk Management on Financial Performance of Commercial Banks: A Case of Tier Two and Three Commercial Banks in Kenya. *The International Journal of Business & Management.*

45. Saeed, M. H., 2015. Examining the relationship between operational risk, credit risk and liquidity risk with performance of Malaysia Banks. *Doctoral dissertation,* Issue University Utara.

46. Samuel Gameli Gadzo, H. K. K. J. G. 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.*

47. Saputra, A., Arfan, M., & Saputra, M. (2018). Pengaruh Capital Adequacy Ratio, Net Interest Margin, Loan To Deposit Ratio Dan Non-Performing Loan Terhadap Profitabilitas Bank Umum Non Devisa Di Indonesia Periode 2014-2016 . JURNAL PERSPEKTIF EKONOMI DARUSSALAM, 199-212.

48. Sawada, M., 2010. Liquidity risk and bank portfolio management in a financial system without deposit insurance: Empirical evidence from prewar Japan. *International Review of Economics & Finance,* pp. 392-406.

49. Sekaran, U., & Bougie, R. (2017). Metode Penelitian untuk Bisnis. Jakarta: Salemba Empat.

50. Sudiyanto, B., & Jati, S. (2010). Analysis of the effect of third-party funds, BOPO, CAR and LDR on financial performance in the go public banking sector on the Indonesia stock exchange (Period 2005 - 2008). Journal of Financial and Banking Dynamics, 125-137.

51. Sugiyono. (2017). Metode Penelitian Kuantitatif dan R&D. Bandung: CV Alfabeta.

52. Supriyono, M. (2011). Buku Pintar Perbankan. Yogyakarta: CV. Andi Offset.

53. Taswan. (2010). Manajemen Perbankan Konsep, Teknik, dan Aplikasi, edisi 2. Yogyakarta: UPP STIM YKPN.

54. Yi-Kai Chen, C.-H. S. L.-F. K. C.-Y. Y., 2018. Bank Liquidity Risk and Performance. *Review of Pacific Basin Financial Markets and Policies.*