



Website:

ejournal.umm.ac.id/index.php/jrak

***Correspondence:**

soni_irwandi@perbanas.ac.id

DOI: [10.22219/jrak.v13i2.25135](https://doi.org/10.22219/jrak.v13i2.25135)

Citation:

Shonhadji, N.& Irwandi, S, A. (2023). Liquidity Risk And Basel III Implementation In Southeast Asia Banking. *Jurnal Reviu Akuntansi Dan Keuangan*, 13(2), 481-496.

Article Process

Submitted:

February 15, 2023

Reviewed:

May 26, 2023

Revised:

August 14, 2023

Accepted:

August 23, 2023

Published:

August 31, 2023

Office:

Department of Accounting
University of
Muhammadiyah Malang
GKB 2 Floor 3.
Jalan Raya Tlogomas 246,
Malang, East Java,
Indonesia

P-ISSN: 2615-2223

E-ISSN: 2088-0685

Article Type: Research Paper

LIQUIDITY RISK AND BASEL III IMPLEMENTATION IN SOUTHEAST ASIA BANKING

Nanang Shonhadji¹, Soni Agus Irwandi^{2*}

Affiliation:

^{1,2}Faculty of Economics and Business, University of Hayam
Wuruk Perbanas, Surabaya, Indonesia

ABSTRACT

Purpose: *The objective of this study was to determine the effect of liquidity coverage ratio, net stable funding ratio, net interest margin, and cost of funds on return on assets in Southeast Asian countries' banking services.*

Methodology/approach: *This research was a quantitative research method. Secondary data was used and collected from stock exchanges in each country. Samples were banks in Indonesia, Malaysia, Cambodia, Philippines, Singapore and Thailand. The data testing technique uses multiple linear regression analysis.*

Findings: *The study inform that net stable funding ratio, liquidity coverage ratio, net interest margin and cost of funds have a significant effect on return on assets.*

Practical implications: *The practical implications were BASEL III implementation to manage liquidity risk and capital in each country have successfully and encourage compliance with bank liquidity and capital aspects according to the framework of BASEL III to enhance the financial performance of banks in Southeast Asian countries.*

Originality/value: *Research on the application of BASEL III in Southeast Asian Countries as a framework that establishes international standards for bank capital adequacy, stress testing, and liquidity requirements is the originality of this research.*

KEYWORDS: *Bank Accounting; BASEL III; Liquidity; Net Stable Funding Ratio.*

ABSTRAK

Tujuan penelitian: *Tujuan dari penelitian ini adalah untuk mengetahui pengaruh liquidity coverage ratio, net stable*

funding ratio, net interest margin dan cost of fund terhadap return on assets pada layanan perbankan negara-negara Asia Tenggara.

Metode/pendekatan: Penelitian ini merupakan metode penelitian kuantitatif. Data sekunder digunakan dan dikumpulkan dari bursa saham di masing-masing negara. Sampel adalah bank-bank di Indonesia, Malaysia, Kamboja, Filipina, Singapura dan Thailand. Teknik pengujian data menggunakan analisis regresi linier berganda.

Hasil: Hasil penelitian ini menginformasikan bahwa rasio pendanaan stabil bersih, rasio cakupan likuiditas, margin bunga bersih dan biaya dana berpengaruh signifikan terhadap pengembalian aset.

Implikasi praktik: Implikasi praktiknya adalah implementasi BASEL III untuk mengelola risiko likuiditas dan permodalan di masing-masing negara telah berhasil dan mendorong pemenuhan aspek likuiditas dan permodalan bank sesuai kerangka BASEL III untuk meningkatkan kinerja keuangan perbankan di negara-negara Asia Tenggara

Orisinalitas/kebaharuan: Penelitian penerapan BASEL III di Negara Asia Tenggara sebagai kerangka kerja yang menetapkan standar internasional untuk kecukupan modal bank yang diukur dengan net stable funding ratio (NSFR), stress testing dan persyaratan likuiditas yang diukur dengan liquidity coverage ratio (LCR) adalah orisinalitas dari penelitian ini. Pembuktian risiko kecukupan modal dan likuiditas bank dalam kerangka BASEL III merupakan kebaruan dalam penelitian ini.

KATA KUNCI: Akuntansi Perbankan; BASEL III; Likuiditas; Rasio Pendanaan Stabil Bersih.

INTRODUCTION

Countries in Southeast Asia build their country's economic resilience through bank financing. The real economic sector plays a role in increasing economic growth in Southeast Asian countries by utilizing banking services. Banks function as intermediary institutions and executors of government policies. The role of the Bank in the form of services needed by individual and industrial customers to facilitate and provide security for financial transactions (Bhati et al., 2019; Santika et al., 2022). This bank service is a form of contribution to the finances of countries in Southeast Asia.

The commercial bank functions as a financial intermediary or collects funds from the community and distributes them back to customers. Private banks as trust agents or institutions to mobilize funds for the country's economic development, and service agents or institutions that provide services to the public (Rakshit & Bardhan, 2022; Ramchandani

et al., 2021). However, the growth of the current economic and monetary crisis in Southeast Asia, which provides considerable growth for the Southeast Asia's economic growth.

483

Based on the global economic and monetary crisis, a regulation was issued by the Basel Committee on Banking Supervision (BCBS), which in 2008 was marked by the bankruptcy of Lehman Brothers which discussed the world financial crisis into the submission of world financial assistance from the Basel Accord I and Basel II which discussed no able to overcome the crisis (Bilal & Salim, 2016; Shah et al., 2022; Zainudin et al., 2019). The bankruptcy of Lehman Brothers shows weak management policies and government protection, improper incentive structures and excessive banking industry influence. Because this prompted BCBS to issue a global financial reform package, better known as Basel III. Banks in Southeast Asia countries has implemented Basel III for their liquidity and capital since 2019 until January 2023 for full adoption.

Research gap was shown that BASEL I and Basel II have weakness to protect liquidity and capital risk. BASEL III is made so that banks are ready to manage liquidity risks and can improve their performance (Kiptoo & Maniagi, 2020). When bank management succeeds in improving performance in banking institutions, the success will have implications for increasing the profitability, capital and liquidity of the banking industry (Santika et al., 2022; Sidhu et al., 2022). Therefore, profitability measured by return on assets (ROA) can be used as a valid measure in banking performance. ROA is a comparison between earnings before income tax and total assets. The greater value of ROA shows better performance of the banking company (Golubeva et al., 2019).

Basel III is related to capital and liquidity, which will take effect in 2019. In Basel III provisions, the evaluation of liquidity management uses two approaches, namely net stable funding ratio (NSFR) and liquidity coverage ratio (Giordana & Schumacher, 2017; Ozili, 2021). In brief, NSFR is a control of long-term liquidity flows, while LCR is a control of short-term cash flows. In addition, NSFR and LCR require banks to increase high-quality liquid assets and obtain stable funding sources and ensure that they are in accordance with the principles of liquidity risk management (Sidhu et al., 2022).

The first approach is the net stable funding ratio (NSFR) in Basel III intended to promote medium and long-term funding of assets and activities of banking organizations. Thus, NSFR tends to reduce exposure to liquidity risk funding. While the second approach is the liquidity coverage ratio (LCR) which was introduced to improve the ability of banks to overcome short-term liquidity needs and liquidity market risks. The LCR effect on bank profitability will exceed the level of net outflows, so banks tend to be more careful in investing (Giordana & Schumacher, 2017).

This study also uses cost of fund (COF) and net interest margin (NIM). The cost of fund is a ratio used to measure the proportion of own capital compared to external funds in financing banking business activities (Khalifaturofi'ah, 2021). Cost of fund is the interest rate that must be paid by a financial institution for collecting funds (Ramchandani et al., 2021). Net interest margin is a measure of the difference between the interest income earned by a bank and the amount of interest paid to their lenders (eg, deposits), relative to their total assets. Net interest margin shows the effectiveness of banks in managing their productive asset placement. The standard set by the Central Bank in Southeast Asia countries for the net interest margin ratio is above 6% (Santika et al., 2022). There is studies showing that NIM has an effect on ROA, such as research that has been conducted by Fibriyanti and Nurcholidah (2020). However, research conducted by (Nufus & Munanda, 2021) shows that NIM has no effect on ROA. Based on research conducted by several previous researchers,

it can be concluded that there are research gap, which are shown in consistent findings. Analysis of the application of Basel III to banks in the Southeast Asia region, which is a framework that establishes international standards for bank capital adequacy, stress testing, and liquidity requirements that are updated and implemented in stages is the novelty and originality of this research. The purpose of this study is to find out the liquidity risk and the implementation of Basel III on banking financial performance in Southeast Asia Countries. The contribution of this research can be a literature study and strengthening of pecking order theory and theory of bank capital on the application of BASEL III to improve the ability of the banking sector to resolve financial crises and economic pressures. The practical contribution is as information for banks on liquidity risk management and capital aspects.

Pecking Order Theory by Myers (1984) states that there is a sequence of company funding decisions in determining the optimal capital structure. Banks require internal and external capital stability for operations. Therefore, one of the objectives of BASEL III is to provide guidance for banks to maintain stability in the capital aspect. Funding sources with reference to the pecking order theory are internal funds, debt and equity. Internal funds have less risk than external funds. Bank capital adequacy is a BASEL III mandate that must be complied with by banks. Apart from that, the Theory of Bank Capital as informed by Douglas (2002) also emphasizes that bank capital is the key to bank operations and liquidity. Banks whose capital adequacy is disrupted will have an impact on bank liquidity which will be used to generate fee based income and spread income. The financial distress experienced by banks leading to bank bankruptcy in the world is not caused by miss management but because of problems with the capital and liquidity aspects of banks (Zainudin et al., 2019). The financial ratios and implementation of BASEL III on the aspects of liquidity and bank capital are obtained from the main sources of bank financial reports (Boora & Kavita, 2018).

Calomiris et al. (2015) stated that company liquidity is related to the availability of cash and cash equivalents owned by the company. Stable bank liquidity will strengthen bank health when a monetary crisis occurs. Bank liquidity guarantees that banks are able to meet their maturing short and long-term obligations from cash flow funding sources and liquid assets they have. Bank liquidity is very important for company operations to avoid liquidity risk (Golubeva et al., 2019). A lack of liquidity in a bank can have a wider impact and a negative impact on the banking system. Liquidity risk occurs when a bank is unable to meet its liquidity to pay and cover obligations that have matured. Many bank bankruptcies occur not because banks experience losses but because banks fail to maintain liquidity stability. Therefore, the efforts that must be made to control liquidity risk can be carried out by formulating a good and effective funding strategy, managing the financial liquidity position in a planned and measurable manner in daily, monthly, and annual periods, management of good quality liquid asset management and an emergency funding planning strategy. The theory of liquidity in this study relates to the implementation of BASEL III on the adequacy aspect and liquidity risk management by using the indicators net stable funding ratio, liquidity coverage ratio and cost of funds as independent variables that affect a bank's financial performance (Maria & Georgoulea Eleftheria, 2016).

Learning from the slump in the banking industry during the global crisis that hit the United States around 2008, it was concluded that the Basel II provisions did not adequately take into account risks during a crisis (Hamdy et al., 2017; Johnson, 2022). The stress testing process carried out according to the guidelines in Basel II, was not sufficient to cover the stressful conditions that occurred during that year. The impact of conditions for banking sector in each South East Asia countries have a high level of leverage, both on balance sheets and off balance sheets, which then reduces the quality of bank capital. Meanwhile, there is a risk

relationship, especially between systematic banks, which, on the other hand, are not supported by adequate liquidity as a buffer. Other factors that also influence liquidity are the quality of corporate governance and risk management quality. Therefore, BCBS deems it necessary to improve the provisions of Basel II with new prudent provisions, commonly referred to as Basel III (Hasan & Zayed, 2018).

Banks need to provide adequate capital reserves by requiring the establishment of a capital conservation buffer of 2.5 percent of CET1 capital so that during a crisis, the Bank can over at least three months during the crisis period will end (Johnson, 2022). Basel III also includes: (1). Macroprudential aspects have a countercyclical capital buffer of 0 percent - 2.5 percent in accordance with the Bank's credit growth rate according to the supervisor's assessment. (2). Banks are required to provide a capital surcharge for institutions that are considered systemic of 1 percent – 3.5 percent in accordance with the systemic level according to the regulator's assessment (Mashamba, 2018).

BASEL III requires the application of a net stable financing ratio (NSFR) by maintaining stable bank liquidity. This ratio can be measured by dividing available stable funds by the stable financing required by banks (Sidhu et al., 2022). A bank's ability to maintain a stable availability of funds can be done by strengthening the placement of liquid assets in the form of cash, cash equivalents or other marketable bank portfolios (Setiyono & Naufa, 2021). The availability of these funds is a fundamental aspect of the Bank in determining the amount of funds that are ready and safe to be allocated as financing for customers. The availability of stable funds can also be interpreted as the adequacy of the amount of equity and financing obligations allocated as a source of financing that can be used as a source of financing funds when the Bank is in a state of financial difficulty. Administrative accounts are bank accounts that are not included in the Bank's financial statements. This account is an auxiliary account. The conditions required for this ratio are the total value of the ratio. This standard also requires the value of the ratio of stable funds that must be available to be higher than the ratio of stable funds needed so that the Bank has the ability to finance long-term loans and extend the observation period (Obadire et al., 2022).

The net stable funding ratio is a comparison ratio of available stable funding with required stable funding. Available stable funding (ASF) is a stable amount of liabilities and equity for one year to fund bank activities. Where as required stable funding (RSF) is the number of assets and administrative account transactions that need to be funded by stable funding. NSFR is included as long-term funding that used to meet returns or gain. The NSFR value that must be fulfilled by the Bank is at least 100% (FSI, 2019). The reason management needs long-term funding is because of the large amount of funds needed for banks investment or retained earnings to meet funding needs.

Long-term funding also affects the profits of a banks because it is used for investment. The higher the long-term funding, the more companies have investments so the profits obtained are greater because banks use long-term funding to obtain longer benefits. This pecking order theory and theory of bank capital show the sufficient funding and bank capital could be used to support operating expense and take high profit. With a high NSFR value, it can be said that the condition of the Bank is getting better because the Bank has sufficient funding or capital to get bigger profits. According to previous research conducted by Sidhu et al. (2022) and Giordana and Schumacher (2017) the NSFR has an effect on ROA. But the research conducted by Maria and Georgoulea Eleftheria (2016) shows that NSFR does not affect ROA. The hypotheses formulated for this study is:

H₁: Net stable funding ratio has a significant effect to return on assets.

Liquidity coverage ratio (LCR) is the ratio of liquid assets owned by a bank to estimated cash outflows when the Bank is experiencing financial difficulties (Rahman et al., 2018). BASEL III requires the fulfillment of this liquidity adequacy ratio so that banks avoid the liquidity risk of financial difficulties and nonperforming loans. In general, banking institutions in Southeast Asia require an LCR value of $<100\%$ and banks in an orderly and consistent manner to meet the requirements on an ongoing basis (Mashamba, 2018). LCR is an indication of the soundness of a bank in terms of liquidity to meet short-term obligations of at least 30 days when they are due. In addition, it is an indicator of a bank's ability to manage quality liquid and anticipate funding that must be made when a bank experiences financial difficulties. LCR in this study is used to determine the liquidity of bank assets that have been used for financing that effectively affect the financial performance of banks in Southeast Asian countries.

Banking liquidity is the ability of banks to fulfill their main obligations in public deposits and other liquid liabilities. One indicator of banking liquidity monitoring is the liquidity coverage ratio, where banks have sufficient stock of high-quality liquid assets (HQLA) consisting of cash or assets. These assets must be converted into cash which is losing value in the market, to meet the liquidity needs of 30 days.

LCR can affect the profits of a bank. If LCR is high, it means that the Bank has a stock of HQLA containing a lot of cash or assets, and the banking profit is also high, and vice versa. Because if LCR is high, the Bank has the ability to fulfill its main obligations and other liquid obligations based on high profits. Pecking order theory and theory of bank capital show The large availability of funds and capital for banks can be used to strengthen bank liquidity. Large internal sources of funds inform that banks have very good sources of liquidity funds to finance the company's operations to make a profit. Bank which a high LCR value has better condition and performance. According to previous research conducted by Bhati et al. (2019) the LCR has an effect on ROA. But the research conducted by Maria and Georgoulea Eleftheria (2016) shows that NSFR does not affect ROA. The hypotheses formulated for this study is

H₂: Liquidity coverage ratio has a significant effect to return on assets.

Banks have productive assets that must be managed effectively in order to generate profits for the Bank. According to (Fibriyanti & Nurcholidah, 2020) net interest margin (NIM) is the ratio used to measure a bank's ability to manage its productive assets to generate net interest income. Bank product assets are the provision of funds by banks to obtain income in the form of loans, securities owned by banks, placement of funds between banks and acceptance receivables. Meanwhile, what is meant by net interest income is the Bank's interest income obtained from the utilization of its assets minus interest expenses. A high net interest margin will increase the Bank's operating income. When operating income increases, financial performance will also increase. In this study, net interest margin is used as an indicator to measure a bank's ability to manage its productive assets so that interest income results from improving the financial performance of banks in Southeast Asian countries. Net interest margin can also be calculated as interest income minus interest expense divided by the average interest-bearing asset. The standard set by each banks in Southeast Asia Countries is above 6%.

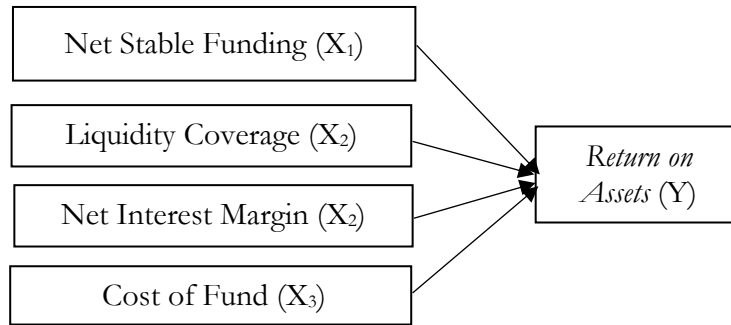


Figure 1.
The Research Framework

The objective of calculating the net interest margin is to evaluate the Bank's risk management performance. The risk that occurs can be caused by changes in interest rates. The factors that affect the net interest margin are interest income, principal expenses, and earning assets. Every Bank in the world certainly tries to earn as much revenue as possible and keep costs down as low as possible. The effect of net interest margin on return on assets shows a positive influence, meaning that the higher interest income earned from loans, the profit will also increase. This result is reinforced by research by Fibriyanti and Nurcholidah (2020) which inform that NIM has an effect on ROA. However, research conducted by Santika et al. (2022) shows that NIM has no effect on ROA.

H₃: Net interest margin has a significant effect to return on assets.

Cost of funds is the total interest costs incurred by banks to obtain funding from customer deposits or other parties. Every fund that is successfully collected by the Bank will get a rate of return in the form of interest (Ramchandani et al., 2021). By the Bank this interest is recorded as interest expense that must be paid. Apart from that, the cost of funds that must be issued by the Bank comes from bank loans to other parties. The cost of these funds must be managed by the Bank to minimize the risk of bank financial difficulties. The total cost of funds must be reduced by the reserve requirement (Merchant & White) to ensure the availability of stable and clean funds that can be allocated as reserves for the cost of funds. While the cost of funds originating from loans (cost of loanable funds) is the cost of funds that must be issued by the Bank against the Bank's maturing obligations to the lender (Magdalena et al., 2019). According to previous research conducted by Ramchandani et al. (2021), it was shown that COF had an effect on ROA, so the hypothesis for this study was:

H₄: Cost of fund has significant effect to return on assets.

METHODS

Quantitative research method was used. The population in this study were several banking companies in Southeast Asia. The sampling technique is done by using a convenience sampling method. Total of 93 companies consisting of 41 Indonesian banks, 22 Malaysian banks, 5 Cambodia banks, 8 Philippines banks, 6 Singapore banks, and 11 Thai banks. Total panel data were used, approximately 465. Samples criteria were banking companies in Southeast Asia and listing on the Stock Exchange 2016-2020 periods, publish audited financial statements include changes in equity, income statements and financial position statement that are consistent in 2016-2020 and also provide data related to the independent variables in this study were net stable funding ratio (NSFR), liquidity coverage ratio (LCR), net interest margin (NIM), cost of fund (COF) and dependent variable was return on assets (ROA). Measurement of variables that were used in this study:

$$ROA = \frac{\text{Earning Before Income Tax}}{\text{Total Asset}} \dots\dots\dots 1$$

$$\text{NSFR} = \frac{\text{Available Stable Funding (ASF)}}{\text{Required Stable Funding (RSF)}} \dots\dots\dots 2$$

$$\text{LCR} = \frac{\text{High Quality Liquid Asset}}{\text{Net Cash Outflows}} \dots\dots\dots 3$$

$$\text{NIM} = \frac{\text{Net interest income}}{\text{Assets productive}} \dots\dots\dots 4$$

$$\text{COF} = \frac{\text{Interest Expense}}{\text{Third Parties Fund}} \dots\dots\dots 5$$

According to Ghozali (2018), the data analysis technique in this study used descriptive analysis, the classical assumption test (normality, multicollinearity, heteroscedasticity, and autocorrelation), multiple linear regression analysis, and hypothesis test (F-test and t-test).

The multiple regression model in this study is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e \dots\dots\dots 6$$

Information:

Y = Financial Performance (ROA)

β_0 = Constant

$\beta_1, \beta_2, \dots, \beta_4$ = Regression coefficient

X₁ = Liquidity Coverage Ratio (LCR)

X₂ = Net Stable Funding Ratio (NSFR)

X₃ = Net Interest Margin (NIM)

X₄ = Cost of Fund (CoF)

e = error

RESULT AND DISCUSSION

Table 1 shows descriptive statistics for research samples in Southeast Asian countries from 2016 to 2020, reaching 465 banks. Based on the calculations that have been carried out, an explanation of the results of the descriptive analysis for the dependent variable and independent variable is obtained:

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROA	465	.002	.028	.0153	.00691
LCR	465	-6214.39	2580.41.00	20.816	41.159.411
NSFR	465	.00	01.00	.5270	.13814
NIM	465	.00	2.847.987.58	25755.17	260.990.58
CoF	465	00.00	23.11	58.349	418.963

Table 1.
Descriptive
Analyze Test

Source: data processed 2023

Return on assets (ROA) value based on Table 1 shows that the maximum ROA value is 0.028 owned by 37 banks, while the minimum ROA value is 0.002 owned by 56 banks. This shows that a company that has a maximum ROA value can be said to be very healthy because it has a ROA value of more than 1.5%, which means that the banks are able to manage their assets properly to obtain the expected profit while the minimum ROA value is said to be unhealthy because it has the value 0.2%. This means that the banks are not able to manage their assets properly to generate profits. The average ROA value of the research sample is 0.0153. It can be said to be very healthy. The standard deviation of the research data is 0.00691. The standard deviation value is lower than the average value so it can be concluded that the results are quite good and the distribution of the data shows normal results and does not cause bias.

The LCR ratio is used in this study because it measures a bank's ability to provide sufficient liquidity to anticipate an economic crisis. The Liquidity Coverage Ratio (LCR) value based on Table 1 shows that the maximum LCR value is 2580.41 owned by Bank Mandiri and Bank Artos Indonesia in 2018. This shows that companies with the maximum LCR value are able to overcome the economic crisis due to provisions owned by LCR minimum 100%. The minimum LCR value is -6214.39 which is owned by the Philippine National Bank in 2018. It is indicate that companies have a minimum LCR value are unable to overcome the economic crisis that occurs so they cannot gain profits in overcoming their liquidity. The average LCR value of this research sample is 2.0816. It means is healthy. The standard deviation of the research data is 411.59411 is higher than the average value so it can be concluded that the results are not good and the distribution of the data shows abnormal results and causes bias.

The net stable funding ratio (NSFR) value based on Table 1 shows that the maximum NSFR value is 1.00, owned by Rizal Commercial Banking Corporation in 2017 and 2018. This shows that companies with the maximum NSFR value are able to obtain stable funding in overcoming the economic crisis that happened. The minimum NSFR value of 0.00 was owned by Krung Thai Bank Cambodia in 2019, indicating that companies that have a minimum NSFR value are unable to obtain stable funding in overcoming the economic crisis because the NSFR requirement is at least 100%. The average NSFR value of the research sample is 0.5270. It can be said to be unfavorable because banks are unable to obtain stable funding to gain profits in overcoming the economic crisis. The standard deviation of the research data is 0.13814 is lower than the average value, so it can be concluded that the results are quite good, and the distribution of the data shows normal results and does not cause bias.

The net interest margin value in Table 1 shows that the maximum NIM value is 2847987.58, owned by Krung Thai Bank Public Company Ltd in 2017, while the minimum NIM value is 0.00, owned by Hong Leong Bank in 2020. NIM has an average value (mean) in the 2016-2020 period is 25.755.17 with an overall standard deviation of 260.990.58. This standard deviation value is lower than the average value so it can be concluded that the distribution of the data shows normal results and does not cause bias.

Cost of funds in this study was measured by debt equity ratio Ramchandani et al. (2021). A high DER will also pose a high risk for the company because the company must pay loan principal and interest costs more. Debt equity ratio also describes a company's funding decisions based on their debt and equity. Table 1 shows that the maximum cost of funds is 23.11 owned by banking companies in Malaysia, namely the Scotia banking company in 2016, while the minimum cost of funds is 0.00 owned by MICB banking companies and MBB in Cambodia in 2020. Cost of funds have mean value 5.8349 with an overall standard deviation of 4.18963. This standard deviation value is classified as lower than the average value so that

it can be concluded that the results is good and distribution of the data shows normal results and does not cause bias.

The classical assumption test was carried out as the basis of the regression model, which was carried out before the multiple regression analysis (Ghozali, 2018). The classical assumption test is carried out to avoid biased estimates of all the relationships between the variables tested. The classic assumption test used in this study includes the normality test, multicollinearity test, heteroscedasticity test, and autocorrelation test. Based on Ghozali (2018: 154), the normality test aims to test whether in the regression model, the confounding or residual variables have a normal distribution or not. The results of this study inform that the results of the normality test on banking data samples in Southeast Asian countries with a total sample of 465 samples obtained a Kolmogorov-Smirnov significance value of 0.200 greater than 0.05 ($0.200 > 0.05$), meaning that the data is normally distributed. The results of this study inform that the Variance Inflation Factor (VIF) value for each independent variable is a tolerance value > 0.10 or the same as a VIF value < 10 , so the regression model of this study does not have multicollinearity problems. Heteroscedasticity will be tested using the Glejser test by regressing the absolute value of the residuals on the independent variables. The results of this study inform that the significant value for all independent variables is $> 5\%$, so there is no heteroscedasticity problem in this study. The run test is used to see whether the residual occurs randomly or not. The run test result in this study has not detected an autocorrelation problem. Table 2 informs LCR, NSFR, NIM, and CoF have a significant effect on ROA because they have a significant value < 0.05 . The regression equation that can be made is as follows:

$$\text{ROA} = 0.003 + 0.0000001294 \text{ LCR} + 0.005 \text{ NSFR} + 0.0000000008261 \text{ NIM} + 0.000 \text{ CoF} + e$$

The F statistical test aims to determine whether the regression model used is fit or feasible to use. F test result obtained from the calculated F value of 12,223 with a significance value of 0,000 so that H_0 is rejected and H_1 is accepted because the significance value is less than 0.05 ($0.000 < 0.05$), which means that the regression model is fit and feasible to use for further testing. The test results for the coefficient of determination (R^2) with an Adjusted R Square value of 0.31 or 31%, which means that the variation in the ROA variable can be explained by the independent variables LCR, NSFR, NIM, and CoF is 31%. The remaining 69% is explained by other variables outside the independent variables studied. The standard error of the estimate (SEE) value is 0.00291, which means that the smaller the SEE value, the more precise the regression model will be in predicting the dependent variable. The results of the partial test (t-test) show that the significance values of the variables LCR, NSFR, NIM, and CoF are < 0.05 , respectively so it can be informed that LCR, NSFR, NIM, and CoF have a significant influence on ROA. It means all banks who operate in Indonesia, Malaysia, Cambodia, Philippines, Singapore, and Thailand in this study have informed that they have prepared to anticipate liquidity risk problems and BASEL III implementation.

This study aims to test whether the liquidity coverage ratio (LCR), net stable funding ratio (NSFR), net interest margin (NIM), and cost of funds affect return on assets (ROA). Tests in this study were conducted on banking sector companies in Southeast Asia from 2016 to 2020 with a total sample of 465 data.

Model	Unstandardized Coefficients			
	B	Std. Error	t	Significant
(Constant)	.003	.001	4.869	.000
LCR	1,29E-04	.000	3.327	.001
NSFR	.005	.001	4.411	.000
NIM	8,26E-07	.000	4.217	.000
Cost of fund	.000	.000	-5.506	.000
F-test			0.000	
R ²			00.34	
Adjusted R ²			00.31	

Table 2.
Results of
Multiple Linear
Regression Test

Source: data processed 2023

Effect of Net Stable Funding Ratio (NSFR) on Financial Performance (ROA)

The net stable funding ratio (NSFR) is a comparison between available stable funding (ASF) and required stable funding (RSF). ASF is a stable amount of liabilities and equity for a period of one year to fund the Bank's activities. RSF is the amount of assets and administrative account transactions that need to be funded by a stable fund. The ratio required by BASEL III is a minimum of 100%. Based on the results of testing the hypothesis on banks in Indonesia, Malaysia, Cambodia, Philippines, Singapore, and Thailand, the variable net stable funding ratio (NSFR) has an effect on financial performance (ROA) because the significance value of NSFR is <0.05. Its mean banks are able to obtain stable funding in overcoming the economic crisis so that they can increase expected profits and financial performance. NSFR affects ROA because banks are able to obtain stable funding to meet their liquidity in the medium and long term. The greater NSFR ratio indicates the greater the Bank's ability to obtain stable funding so that it can increase profits.

Pecking order theory and theory of bank capital strengthen the results of research that bank funds and capital are the most important aspects for banks. Banks must keep funds and capital sourced from internal and external banks must be stable. This stable source of bank liquidity funds comes from customer deposits, own capital and non-conventional funding, which aims to limit dependence on short-term corporate funding, encourage better assessment of liquidity risks associated with funding for all financial positions and administrative accounts of banks and also strengthen stable funding. The results of this study are in line with the research of Sidhu et al. (2022) and Giordana and Schumacher (2017), which state that NSFR has an effect on financial performance (ROA). The results of this study are not supported by Maria and Georgoulea Eleftheria (2016), who state that NSFR has no effect on financial performance (ROA).

Effect of Liquidity Coverage Ratio (LCR) on Financial Performance (ROA)

Liquidity coverage ratio (LCR) is a comparison between high quality liquid assets (HQLA) and total net cash outflow for the next 30 days in a stress scenario. BASEL III recommends fulfilling a minimum liquidity coverage ratio of 100 percent and banks are expected to fulfill this requirement continuously. The objective is to ensure the Bank's liquidity. LCR is used to emphasize that a bank holds sufficient high-quality liquid assets to meet short-term liquidity needs for 30 days (Nisa & Darzi, 2018). Based on the results of hypothesis testing, it is known that the liquidity coverage ratio (LCR) has an effect on the return on assets (ROA) of banks in Indonesia, Malaysia, Cambodia, Philippines, Singapore and Thailand because the

significance value of LCR is < 0.05 . These results inform that banks in the six countries in the Southeast Asia can fulfill their obligations in a timely manner due to the adequacy of short-term bank liquidity. LCR is very important and fundamental for the banking services industry because the main trigger for bank bankruptcy is not the result of business or operational losses, but due to the Bank's inability to meet liquidity. The results of this study inform that the banks in the study sample have succeeded in utilizing and increasing the fulfillment of liquidity sourced from cash and cash equivalents, bank balances in central Bank current accounts, bills and deposits at other banks which are used to support bank operational costs. The results of this study are supported by Sidhu et al. (2022) and Giordana and Schumacher (2017), who state that liquidity coverage ratio has an effect on financial performance (ROA), but not supported by Maria and Georgoulea Eleftheria (2016) shows that liquidity coverage ratio does not affect ROA.

Effect of Net Interest Margin (NIM) on Financial Performance (ROA)

Net interest margin (NIM) shows the effectiveness bank in placing productive assets. Conversely, when the net interest margin shows a minimal percentage, there will be a tendency for nonperforming loans. Based on the results of hypothesis testing net interest margin variable affects return on assets because the NIM significance value is < 0.05 . In this condition, banks can increase interest income on their productive assets. The relationship between the net interest margin ratio and return on assets is that the greater net interest margin will cause interest income on productive assets managed by a bank to be higher, so banks' ability to solve nonperforming loans is easier, and the possibility of a bank in a troubled condition is smaller. Net interest margin shows the effectiveness bank in placing assets. The results of the research are in line with research conducted by Fibriyanti and Nurcholidah (2020), which states that net interest margin has an effect on return on asset; however, this is not in line with research conducted by Santika et al. (2022), which states that net interest margin has no effect on return on asset.

Effect of Cost of Funds on Financial Performance (ROA)

The results of the study inform that the cost of funds (CoF) has an effect on return on assets (ROA). If the costs incurred by sources of funds are smaller than the cost of equity, then sources of funds originating from sources of loan funds and customer deposits will be more effective in generating profits and increasing return on assets and vice versa (Obadire et al., 2022). Companies with growing profits have a great opportunity to be profitable in funding their investments internally so that companies avoid attracting outside funds and try to find the right solutions to problems related to their debts. Debt has a negative impact on company performance because a higher level of debt will make increase interest expense. It can reduce the profits of banks and make a company's performance decrease.

Based on the results of hypothesis testing in Indonesia, Malaysia, Cambodia, Philippines, Singapore, and Thailand can be concluded that the Cost of funds ratio affects financial performance (ROA) because the significance value of the cost of funds is lower than 0.05. Pecking order theory and theory of bank capital can provide relevant information on the cost of fund management that can effectively increase bank profits. Thus, banks can obtain funds from investors so that banks can have a large turnover of equity in order to make a profit. The research results are in line with research conducted by Ramchandani et al. (2021) and Maria and Georgoulea Eleftheria (2016), which state that the cost of funds affects financial performance (ROA).

CONCLUSION

493 This study aims to determine the effect of Liquidity coverage ratio (LCR), net stable funding ratio (NSFR), net interest margin (NIM), and cost of funds on Return on Assets (ROA) in banking sector companies in Southeast Asian countries in 2016- 2020. The conclusions from the results of this study are that liquidity coverage ratio (LCR), net stable funding ratio (NSFR), net interest margin (NIM), and cost of funds have a significant effect on return on assets (ROA). The Basel III framework has been implemented by banks in several Southeast Asian countries for capital and liquidity standards, following which several other standards will be implemented in accordance with the deadline set by BCBS. The results of the research inform that banks in Southeast Asia have met the liquidity and capital standards mandated in the Basel III framework so that the Bank's financial performance improved. The results also inform that the liquidity coverage ratio (LCR), net stable funding ratio (NSFR), net interest margin (NIM), and cost of funds have an effect on return on assets are evidence that the implementation of BASEL III can strengthen rules regarding global capital and liquidity through increasing banking sector resilience.

Implementing BASEL III can also improve the ability of the banking sector to deal with shocks arising from the financial crisis and economic pressures. In practice, banks still have difficulty anticipating operational and market risks, even though BASEL III is a regulatory reform in the banking sector in response to the world financial crisis caused by a lack of capital adequacy, very high leverage and a liquidity crunch. Theoretical implications of this study provide support for the theory of bank capital that the main cause of bankruptcy and failure of a bank is caused by capital and liquidity shocks, not due to market and business aspects.

The gradual implementation of Basel III by banks in Southeast Asia has caused this research to only be able to analyze liquidity and capital risks. BASEL III is an international regulatory agreement that introduces a series of reforms designed to mitigate risks that are not only limited to liquidity and capital risks in the banking sector are the limitations of this research. Suggestions for further research can analyze the implementation of BASEL III in efforts to mitigate market and banking operational risks so that the effect and effectiveness of the implementation of BASEL III can be known.

REFERENCES

- Bhati, S., Zoysa, A. D., & Jitaree, W. (2019). Factors Affecting the Liquidity of Commercial Banks in India: a Longitudinal Analysis. *Banks and Bank Systems*, 14(4), 78-88. [https://doi.org/http://dx.doi.org/10.21511/bbs.14\(4\).2019.08](https://doi.org/http://dx.doi.org/10.21511/bbs.14(4).2019.08).
- Bilal, Z. O., & Salim, B. F. (2016). Does Basil III Implementation Impact on Financial Performance? Evidence from Omani's Commercial Banks. *International Journal of Economics and Financial Issues*, 6(3), 963-971. <https://dergipark.org.tr/download/article-file/364820>.
- Boora, K. K., & Kavita. (2018). The Impact of Basel III Norms on Profitability: An Empirical Study of Indian Public Sector Banks. *IUP Journal of Financial Risk Management*, 15(3), 44-58. <https://www.proquest.com/openview/073114817e7dc8bdfc2ecbc576d2e161/1?pq-origsite=gscholar&cbl=54459>.
- Calomiris, C. W., Heider, F., & Hoerova, M. (2015). Theory of Bank Liquidity Requirements. Characteristics on Eve of Liquidity Coverage Ratio Application - The Case of the

- Czech Republic. *Columbia Business School Research Paper No. 14-39*.
<https://doi.org/https://doi.org/10.2139/ssrn.2477101>.
- Douglas W. D, Raghuram G. R (2002) A Theory of Bank Capital, *The Journal of Finance*, 55(6), 2431-2465, <https://doi.org/10.1111/0022-1082.00296>
- Fibriyanti, Y. V., & Nurcholidah, L. (2020). Pengaruh CAR, NPL, NIM, BOPO Dan LDR Terhadap Profitabilitas Bank Umum Swasta Nasional Devisa. *Jurnal Sains Sosio Humaniora*, 4(2), 344-350. <https://doi.org/https://doi.org/10.22437/jssh.v4i2.10863>.
- FSI. (2019). Financial Stability Institute. *Bank for International Settlements*.
<https://www.bis.org/fsi/fsisummaries/nsfr.pdf>.
- Ghozali, I. (2018). *Aplikasi Analisis Multivariate dengan Program IBM SPSS 23 Update PLS Regresi*. Badan Penerbit Universitas Diponegoro.
- Giordana, G. A., & Schumacher, I. (2017). An Empirical Study on the Impact of Basel III Standards on Banks Default Risk: The Case of Luxembourg. *Journal of Risk and Financial Management*, 10(2), 1-21. <https://doi.org/https://doi.org/10.3390/jrfm10020008>.
- Golubeva, O., Golubeva, O., Duljic, M., & Keminin, R. (2019). The Impact of Liquidity Risk on Bank Profitability: Some Empirical Evidence From The European Banks Following The Introduction of Basel III Regulations. *Journal of Accounting and Management Information Systems*, 18(4), 455-485. <https://doi.org/https://doi.org/10.24818/jamis.2019.04001>.
- Hamdy, A., Zaky, M., & Soliman, M. M. (2017). The impact of announcement of Basel III on the banking system performance: an empirical research on Egyptian Banking Sector. *The Business and Management Review*, 9(2), 165-175.
https://cberuk.com/cdn/conference_proceedings/conference_56239.pdf.
- Hasan, R., & Zayed, N. M. (2018). The New Basel-III Capital Accord: Capability Of The Banks In Adapting And Adopting The New Regime In Bangladesh. *International Journal of Development Research*, 8(9), 22782-22791. www.journalijdr.com.
- Johnson, L. N. (2022). Basel III in Sierra Leone: Delivering on it. *Journal of Economics & Management Research*, 3(4), 1-4. [https://doi.org/https://doi.org/10.47363/JESMR/2022\(3\)155](https://doi.org/https://doi.org/10.47363/JESMR/2022(3)155).
- Khalifaturofi'ah, S. O. (2021). Cost Efficiency, Innovation and Financial Performance of Banks in Indonesia. *Journal of Economic and Administrative Sciences*, ahead-of-print(ahead-of-print). <https://doi.org/https://doi.org/10.1108/JEAS-07-2020-0124>.
- Kiptoo, S. K., & Maniagi, G. (2020). Influence of liquidity regulation on financial performance of Commercial Banks in Kenya. *The Strategic Journal of Business & Change Management*, 7(4), 86-96. <https://doi.org/https://strategicjournals.com/index.php/journal/article/view/1778>.
- Magdalena, A., Marpaung, B. S., & Indira. (2019). The Effects Of Bank Funds Sources On Bank Profitability In Indonesian Stock Exchange. *Riset: Jurnal Aplikasi Ekonomi Akuntansi dan Bisnis*, 1(2), 90-98. <https://doi.org/https://doi.org/10.35212/riset.v1i2.23>.

- Maria, P., & Georgoulea Eleftheria. (2016). The Impact of Basel III Indexes of Leverage and Liquidity CRDIV/CRR on Bank Performance: Evidence from Greek Banks *Journal of Economics and Business*, 66(2), 79-107. <http://hdl.handle.net/10419/169179>.
- Mashamba, T. (2018). The Effects of Basel III Liquidity Regulations on Banks' Profitability. *Journal of Governance & Regulation*, 7(2), 34-48. https://doi.org/http://doi.org/10.22495/jgr_v7_i2_p4.
- Merchant, K. A., & White, L. F. (2017). Linking the Ethics and Management Control Literatures. *Advances in Management Accounting*, 28(1), 1-29. <https://doi.org/https://doi.org/10.1108/S1474-787120170000028001>.
- Myers, Steward C. (1984). Capital Structure Puzzle. *The Journal of Finance*, 39(3), 574-592. <https://doi.org/10.1111/j.1540-6261.1984.tb03646.x>
- Nisa, R., & Darzi, M. A. (2018). Impact of Basel-III Implementation on Profitability of Banks. *International Journal of Commerce and Management*, 4(5), 101-109. <http://www.managejournal.com/archives/2018/vol4/issue5>
- Nufus, H., & Munanda, A. (2021). Analisis Pengaruh CAR Dan NIM Terhadap ROA Pada PT Bank Muamalat Indonesia Tbk. *Jurnal Disrupsi Bisnis*, 4(6), 497-504. <https://doi.org/http://dx.doi.org/10.32493/dr.b.v4i6.12753>
- Obadire, Moyo, & Munzhelele. (2022). Basel III Capital Regulations and Bank Efficiency: Evidence from Selected African Countries. *International Journal of Financial Studies*, 10(3), 57. <https://doi.org/https://doi.org/10.3390/ijfs10030057>
- Ozili, P. K. (2021). Basel III in Africa: Making It Work *CBN Bullion*, 45(1), 16-23. https://www.researchgate.net/publication/353913531_Basel_III_in_Nigeria_making_it_work
- Rahman, A. A., Markom, R., & Rashid, U. S. A. (2018). The Regulatory Framework on Liquidity Risk Management of Islamic Banking In Malaysia. *International Journal of Business and Society*, 19(S3), 332-352. <http://www.ijbs.unimas.my/images/repository/pdf/Vol19-S3-paper1.pdf>
- Rakshit, B., & Bardhan, S. (2022). Does Bank Efficiency Enhance Bank Performance? Empirical Evidence from Indian Banking. *Bulletin of Monetary Economics and Banking*, 25(Special 1), 103-124. <https://doi.org/https://doi.org/10.21098/bemp.v25i0.1844>.
- Ramchandani, Bist, K. a., & Singh, S. (2021). Impact of Cost of Funds on Bank Profitability: Evidence from Scheduled Commercial Banks of India. *Empirical Economics Letters*, 20(special Issue 1), 1-7. <https://ssrn.com/abstract=3994327>
- Santika, E., Fakhruhozy, M. H., Nur, W. M., & Lestari, H. S. (2022). Effect of operational risk on financial performance in banking industry IDX *Jurnal Ekonomi*, XXVII(01), 123-137. <https://doi.org/http://dx.doi.org/10.24912/je.v27i1.915>
- Setiyono, B., & Naufa, A. M. (2021). The Impact of Net Stable Funding Ratio on Bank Performance and Risk Around The World. *Buletin Ekonomi Moneter dan Perbankan*, 23(4), 543-564. <https://doi.org/https://doi.org/10.21098/bemp.v23i4.1166>.
- Shah, S. Q. A., Lai, F.-W., Shad, M. K., Malik, M., & Sadriwala, K. F. (2022). Basel III and Firm Performance: A Lens of Managerial Ownership. *Eurasian Business and Economics*

Perspectives, 1(1). <https://www.springerprofessional.de/en/understanding-student-learning-gain-using-student-staff-partners/23596742>.

Sidhu, A. V., Rastogi, S., Gupte, R., Rawal, A., & Agarwal, B. (2022). Net Stable Funding Ratio (NSFR) and Bank Performance: A Study of the Indian Banks. *Risk Financial Management Journal*, 15(11), 527. <https://doi.org/10.3390/jrfm15110527>

Zainudin, S. M., Rasid, S. Z. A., Omar, R., & Hassan, R. (2019). The Good and Bad News about the New Liquidity Rules of Basel III in Islamic Banking of Malaysia. *Journal of Risk and Financial Management*, 12(3), 120. <https://doi.org/10.3390/jrfm12030120>