

Liquidity Potential Analysis of Sharia Banks Using Stock-Based and Flow-Based Methods

Aqidah Asri Suwarsi¹, Syakir Jamaluddin², Diyah Fajri Anggraini³,
Anisatun Anggraeni⁴

Abstract. Bank liquidity is adequate if the bank has sufficient funds when depositors withdraw them. The bank's inability to meet its depositors' rights will negatively affect public confidence and bank profitability. This study is to identify the potential liquidity risk of Islamic Commercial Banks in Indonesia using the Stock-Based and Flow-Based Methods based on OJK regulation. The assessment of the potential for liquidity risk using the stock-based method and the weight of the inherent risk value results in the statement risk level for each Islamic commercial Bank, ranging from 2.25 (low) to 2.85 (moderate). The flow-based method results in a negative liquidity gap. This research finds that bank liquidity has no significant impact on its profitability. The research provides direction for Islamic commercial banks in measuring liquidity risk so that the bank can formulate strategies for risk mitigation and control to avoid financial distress.

Keywords: flow-based; liquidity; profitability; risk management; stock-based

Abstrak. Likuiditas bank dikatakan baik apabila bank mampu memenuhi dana yang dibutuhkan saat depositan melakukan penarikan. Namun, jika bank tidak mampu memenuhi dana yang dibutuhkan oleh para depositan, maka tingkat kepercayaan masyarakat bisa berkurang dan memengaruhi profitabilitas bank. Penelitian ini mengidentifikasi potensi resiko likuiditas Bank Umum Syariah di Indonesia dengan Metode Stock- Based dan Flow-Based, berdasarkan peraturan OJK. Penilaian potensi terjadinya resiko likuiditas dengan menggunakan metode stock-based dan bobot nilai risiko inheren memperoleh hasil tingkat risiko pada masing-masing bank umum syariah yang berkisar antara 2,55 (moderate) sampai dengan 3,15 (moderate). Metode flow-based, secara keseluruhan, menghasilkan gap likuiditas negatif. Dalam penelitian ini, tidak terdapat pengaruh likuiditas bank terhadap profitabilitas. Penelitian ini bermanfaat untuk memberikan arahan kepada Bank Umum Syariah dalam mengukur Risiko Likuiditas sehingga Bank mampu merumuskan strategi untuk mitigasi dan pengendalian risiko untuk menghindari kondisi Financial Distress.

Kata kunci: Flow-Based; Likuiditas; Manajemen Risiko; Profitabilitas; Stock-Based

^{1, 2, 3, 4}Muhammadiyah Yogyakarta University, Indonesia.

E-mail: ¹aqidah.asri@fai.umy.ac.id, ²syakir_j@umy.ac.id, ³diyahangg@gmail.com, ⁴anisatun.anggraeni@gmail.com

Introduction

Economic growth in a country cannot be separated from its relationship with financial institutions that function as a medium for collecting, distributing funds, and providing financial services in economic activities (Supartoyo et al., 2018). During the last three decades, Islamic financial institutions have experienced rapid growth. Islamic banking is a new phenomenon, including the center of Islamic finance in western countries in the UK. The growth rate of the 100 largest Islamic banks in the world reaches 27 percent per year compared to the growth rate of conventional banks, which only reaches 19 percent per year (Afriyeni & Susanto, 2019).

After going through a slow start in 1992-1998, Islamic banking in Indonesia grew significantly in recent years. According to Islamic banking statistics issued by the Financial Services Authority in December 2020, there are 14 Islamic Commercial Banks (BUS), 20 Sharia Business Units (UUS), and 163 BPRS (Otoritas Jasa Keuangan, 2020).

Table 1. Development of BUS, UUS, and BPRS

BUS/UUS/BPRS	Number of Banks	Number of Offices	Total Asset (in billion IDR)
BUS	14	2.034	397.073
UUS	20	392	196.875
Total	34	2.426	593.948

Source: (Otoritas Jasa Keuangan, 2020)

Islamic banks have unique characteristics because they must comply with sharia principles. Unlike conventional banks, Islamic banks are related to the real sector. Liquidity risk in Islamic banks can arise when the business (real sector) has decreased, which causes the bank to fail to manage liquidity risk (balance of assets and liabilities) (Ismal, 2010). A bank can be considered a failure if the bank cannot manage risk. One of the causes is the failure to maintain existing liquidity even though the bank has good quality assets or sufficient income and capital. Islamic banks are required to make additional efforts in managing their liquidity risk (Ben Jedidia, 2020).

On the other hand, a bank can fail if the bank is unable to manage risk. One of the reasons is the failure to maintain existing liquidity even though it has assets of satisfactory quality or sufficient income and capital. Bank liquidity is adequate if the bank can meet the funds needed when depositors withdraw

(Anam, 2013). However, suppose the bank is unable to meet the funds needed by depositors (Muharam & Kurnia, 2015). In that case, it can reduce public confidence and decrease third-party funds, affecting bank profitability (Santoso & Sukihanjani, 2012). However, if the bank is too focused on a high level of liquidity, its profitability can decrease because there is much idle money, or the funds are not used for financing. Therefore, Liquidity and Profitability management must be balanced. Liquidity risk management is an essential concern so that banks avoid bankruptcy conditions (Bani & Yaya, 2016).

Liquidity risk is the risk or loss arising from the bank's failure to carry out or fulfill its maturing obligations from the cash flow funding side and the liquid assets side without disrupting the bank's activities. Liquidity risk occurs due to gaps between short-term funding sources and long-term assets. Liquidity in banks is also influenced by the funding structure, asset liquidity, liabilities to counterparties, and credit commitment to debtors (Ikatan Bankir Indonesia, 2015b). Liquidity risk is a particular concern and a challenge for banks in this increasingly modern era related to bank competition and advances in financial technology.

Liquid banks are very important for the smooth functioning of the economy because it is very hard to keep the economic wheel rotating without liquid banks. The recent financial crisis has revealed the fact that if banks do not perform well, the economies do not do well (Umar & Sun, 2016).

The example, PT. Century Bank experienced a liquidity crisis when customers could not withdraw from their savings at the Bank. Apart from the fund withdrawing issues, Century Bank also suffered a defeat in the clearing process due to the liquidity difficulties they experienced, which caused the Bank to go out of business. The current problem is that Indonesian banks, especially BUKU (Commercial Banks Group of Business Activities) category I, are vulnerable to liquidity risk. It is stated that the LDR of BUKU I is at 79.7% (under the regulation of the health level Liquidity Ratio 80% -110%). This figure is lower than the BUKU II category at 89%, the BUKU III category at 99%, and the BUKU IV category at 89%. This problem requires banks, especially in the BUKU I category, to pay more attention and manage the possible risks to prevent the performance and viability of banking (keuangan.kontan.co.id, n.d.).

Banks have an opportunity cost to pursue liquidity or profitability (Moussa & Boubaker, 2020). Banks that choose to be liquid will not be profitable, and vice versa. Higher liquid assets are usually associated with lower returns (Qurban et al., 2021). If the bank's liquidity is too high, little fun distribution is given

for financing. In the end, it will make the bank profit slightly. The available money does not generate additional profits for the bank. It also applies vice versa. Banks can maintain a balance between liquidity and profitability to obtain effective performance and optimal profits (Moussa & Boubaker, 2020).

Liquidity risk measurement methods are divided into several categories as follows: measurement based on nominal size (stock-based) and measurement based on flow (flow-based) (Ikatan Bankir Indonesia, 2015a). This method is described in the letter of Otoritas Jasa Keuangan number 14 / SEOJK.03/2017 regarding assessing the health of commercial banks (Otoritas Jasa Keuangan, 2017). So, it can comprehensively measure the cash flow and liquidity capacity of financial ratios and measure how the bank can meet the obligations of its total assets.

The formulation of the proposed problem is as follows: How is the analysis of Liquidity Risk management for Islamic Commercial Banks in Indonesia using the Stock-Based and Flow-Based Methods? How is the impact of bank liquidity on bank profitability? This study aims to identify the potential liquidity risk of Islamic Commercial Banks in Indonesia using the Stock-Based and Flow-Based Methods. The urgency of this research is to provide direction to Islamic Commercial Banks in measuring Liquidity Risk so that the Bank can formulate strategies for Risk Mitigation and Control to avoid Financial Distress conditions. To the best of the authors' knowledge, this work is the first to analyze the liquidity risk using stock-based and flow-based methods, based on Otoritas Jasa Keuangan (OJK) regulation. In addition, this study proxied the liquidity risk by the stock-based method, which is used to measure the impact of bank liquidity on bank profitability.

Literature Review

Definition of Risk Management

A risk is a potential event in a bank that can be predicted or expected to negatively impact the bank's business's sustainability. According to Bank Indonesia Regulation No.13 / 23 / PBI / 2011, the risk is the potential loss due to the occurrence of a specific event (Bank Indonesia, 2015). Meanwhile, risk management is a series of methodologies and procedures used to identify, measure, monitor, and control risks from all bank business activities (Fasa, 2016). Meanwhile, according to Adiwarmarman Karim, risk management is identifying, measuring, monitoring, and controlling the course of bank business activities with a reasonable level of risk in a directed, integrated, and sustainable manner. Risk management functions as an initial filter or warning of bank business activities (Karim, 2011).

Types of Bank Risk

Referring to the provisions of Bank Indonesia PBI No. 5/8/2003 and its amendments No. 11/25 / PBI / 2009 concerning Application of Risk Management for Commercial Banks, eight risks must be managed by banks (Bank Indonesia, 2003). The eight risks are credit risk, market risk, operational risk, liquidity risk, compliance risk, legal risk, reputation risk, and strategic risk (Bank Indonesia, 2009). Every bank activity or product has at least one or more types of risk. There are two additional risks in Islamic banking other than the eight inherent risks: yield and investment. Therefore, banks need to manage these risks (Bank Indonesia, 2009).

Liquidity Risk

Liquidity risk is due to the Bank's incompetence to meet maturing obligations from existing funding sources and high-quality, guaranteed liquid assets without disrupting the Bank's activities and financial condition (Bank Indonesia, 2015).

Liquidity risk is defined by the Islamic Financial Services Board (IFSB) as the potential loss arising from their inability to meet their obligations or to fund an increase in assets as they mature without incurring unacceptable costs or losses. (Al-Harbi, 2020).

Greuning and Iqbal state that liquidity risk is classified into two types: (1) funding liquidity risk, such as lack of access to funding arising from cash flows and expected and unexpected current and future collateral needs; and (2) market liquidity risk, if the bank cannot easily offset or eliminate positions at market prices due to lack of liquidity in the market (Ben Jedidia, 2020).

Funding liquidity risk is the possibility that the bank will not immediately settle its funding obligations. On the other hand, market liquidity risk is the risk of loss because banks cannot liquidate assets in a short period with little or no cost (Al-Harbi, 2020).

Stock-Based Method

The stock-based measurement method uses a liquidity ratio system. The liquidity ratio is a financial ratio that provides descriptions related to liquidity indicators or measures the level of a bank's ability to meet its obligations. Measurement in the liquidity ratio is adjusted to business strategy, risk tolerance, and past performance. In obtaining a picture related to the actual condition of

bank liquidity, the results of measurements using these ratios must be analyzed by taking into account relevant qualitative data or information (Ikatan Bankir Indonesia, 2015b)

This qualitative information includes the withdrawal of time deposits before maturity, decreases in credit facilities, or transaction volume changes. There are several ratios used in liquidity risk (Otoritas Jasa Keuangan, 2017), namely:

1) *primary liquid assets and secondary liquid assets*

total assets

This ratio measures the amount of the bank's liquid assets compared to the bank's total assets. Primary liquid assets are highly liquid assets owned by banks consisting of cash, Bank Indonesia securities, short-term and liquid government bonds. Meanwhile, secondary liquid assets are less liquid assets, namely Government Sharia Securities or Retail Government Sukuk with a maturity of 3 years (Bank Indonesia, 2004). However, there are no bonds on the asset side in Islamic banks but use State Sharia Securities, commonly known as Sukuk.

2) *primary liquid assets and secondary liquid assets*

short term funding

This ratio measures the number of liquid assets owned by the bank compared to short-term sources of funds. If this ratio is above 100%, then this is considered adequate.

3) *primary liquid assets and secondary liquid assets*

non-core funding

Non-core funding is considered unstable, for example, relatively large funds above IDR 2 billion, transactions between banks, and loans from other banks.

4) *primary liquid assets*

short-term non-core funding

Short-term non-core funding is a type of funding with a term of less than one year.

5) *non-core funding*

total funding

Total funding is the total amount of third-party funds and loans from other parties.

6) *non-core funding-liquid assets*

total productive assets-liquid assets

This ratio is used to see the level of bank dependence on non-core funds (Otoritas Jasa Keuangan, 2017).

Flow-Based Method

The flow-based measurement method uses a liquidity gap analysis (Liquidity Gap Analysis). What is meant by a gap in this analysis is the difference between total assets and liabilities that have matured in a certain period (Ikatan Bankir Indonesia, 2015b).

The data used in this method are components consisting of assets, liabilities, and off-balance sheet items. The data sources used in the liquidity gap are the accounting balance, liquidity projection data from business units, including estimated income and interest costs. However, Islamic banks do not recognize the term interest cost but instead use a projection for the results. Islamic banks use two schemes: deposits and investment partnerships (*shirkah* financing or buying and selling). The income will be divided according to the profit-sharing ratio's agreed portion if these two schemes generate income (Ikatan Bankir Indonesia, 2014).

There are two analyzes in the liquidity gap. If the liquidity gap is positive, the number of assets owned is greater than the liabilities in the maturity period. Meanwhile, suppose the liquidity gap has a negative value. In that case, this means that the bank's liabilities are more significant than the assets in the maturity period, so that this negative gap value will trigger risks to the bank, and the bank begins to manage these risks. This flow-based method will adjust to the instruments used by Islamic banks (Ikatan Bankir Indonesia, 2015b).

Differences between Stock-Based and Flow-Based Methods

The measurement using the stock-based method uses various financial ratios as an indicator of the level of liquidity. Six indicators are used through the Financial Services Authority Circular Letter Number 14/SEOJK.03/2017 concerning the Assessment of Commercial Bank Soundness Levels. Three of them use primary and secondary liquid assets compared with 1) total assets; 2) short-term funding; 3) non-core funding (Otoritas Jasa Keuangan, 2017).

Primary liquid assets are highly liquid assets to meet liquidity needs for withdrawals of third party funds and maturing obligations consisting of cash, placements with Bank Indonesia, Available for Sale, and government bonds. Secondary liquid assets are liquid assets of lower quality to meet liquidity needs, in the form of government bonds in the AFS category with maturities of 1 - 5 years, government bonds in the HTM category with maturities of less than one year, trading categories, and AFS with maturities of more than five years, with

a 25% haircut value. However, there are no bonds on the asset side in Islamic banks but use State Sharia Securities, commonly known as Sukuk (Otoritas Jasa Keuangan, 2017).

Short-term funds are third-party funds with maturities of less than one year, current accounts, and savings accounts. The higher the value of liquid assets compared to short-term funding, the lower the bank's liquidity risk is. Non-core funding is funding that is considered unstable, such as relatively large funds above 2 billion, interbank transactions, and other bank loans. The higher the value of liquid assets compared to short-term funding, the lower the bank's liquidity risk is (Otoritas Jasa Keuangan, 2017).

The fourth indicator measures the comparison between primary liquid assets and short-term non-core funding. Measuring (non-core funding – liquid assets) compared to (total productive assets – liquid assets), this indicator is used to assess the bank's dependence on non-core funds. Non-core funding is funding that is considered unstable with a period of less than one year. Then, Measuring non-core funding compared to total funding, total funding includes all third party funds and loans from other banks (Otoritas Jasa Keuangan, 2017).

While stock-based uses ratios, flow-based measurements are based on the bank's balance sheet on a specific date according to the maturity profile of on and off-balance sheet items plus cash flow estimates due to various business activity plans based on business unit projections. The flow-based measurement uses liquidity gap analysis, the difference between total assets and liabilities maturing in a certain period. A negative gap indicates that liabilities are more significant than assets in that period, thus creating a risk for the bank. The components of assets and liabilities that are taken into account directly impact the bank's cash flow (Ikatan Bankir Indonesia, 2015a).

Profitability

Profitability is the ability to generate profits from all business activities of a company organization. Profitability measures management efficiency in using organizational resources to add business value. Profitability can be considered a relative term to measure profit and its relationship with other elements directly affecting company profits (Lestari et al., 2021).

Return on assets (ROA) is one of the indicators of profitability used to measure the efficiency of a company in generating profits from the management of company assets. ROA shows the company's profit relative to the total assets owned,

calculated by net profit to total assets (Lestari et al., 2021). ROA as indicators for measuring bank profitability and measured by the following formula:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Many studies discuss the relationship between bank liquidity and profitability (Moussa & Boubaker, 2020). Research on the Effect of Liquidity and Bank Size on Profitability of Commercial Banks in Bangladesh shows that the ratio of loans to assets and bank size positively correlates with return on assets (ROA), which is an indicator of profitability. The study found that the ratio of deposits to assets harms ROA. In comparison, there is a relationship between liquidity, bank size, and profitability. However, liquidity and bank size have no significant effect on bank profitability (Parvin et al., 2019).

A study by (Moussa & Boubaker, 2020), entitled *The Impact of Liquidity on Bank Profitability: The case of Tunisia*, shows that liquidity and profitability are two critical variables in the banking industry. The results of the study found that (liquid assets/total assets) and (total credits/total deposits) had a positive and significant effect on return on assets (ROA). In contrast (current assets/current liabilities) had no significant effect on ROA. Lukito et al. (2014) assess the effect of liquidity on the profitability of commercial banks in Kenya. The study shows that all variables liquidity has a significant effect and positive relationship with bank profitability.

The study of Qurban et al. (2021) on *The Effect of Liquidity and Rate of Return Risks on The Profitability of Islamic and Conventional Banks in GCG Countries* shows a significant relationship between liquidity risk, rate of return risk, and bank's profitability. There was a positive and significant relationship between liquidity risk and conventional banks' profitability.

Sahyouni & Wang's (2019) study, entitled *Liquidity Creation and Bank Performance: Evidence from MENA*, investigates the liquidity creation of conventional and Islamic banks in the MENA countries. The study revealed a significant and negative impact between liquidity creation and performance of the banks using return on average equity measure (ROAE). In contrast, there was no significant impact between liquidity creation and return on average assets (ROAA). Additionally, there is no difference between Islamic and conventional banks in the relation between liquidity creation and bank performance.

The study of Lestari et al., 2021 on the Effect of Liquidity, Leverage and Bank's Size of the Profitability Conventional Banks Listed on Indonesia Stock

Exchange found that liquidity measured by loan to deposit ratio (LDTR) has an insignificant negative impact on bank's ROA and ROE. The Study with title *The Impact of Liquidity on Bank Profitability* found that (liquid assets / total assets) and (total credits/total deposits) have a negative and significant impact on ROE (return on equity). In comparison, (current assets / current liabilities) do not significantly impact ROE Moussa & Boubaker's (2020).

The findings reveal that while profit-sharing investment accounts (PSIA) are inversely related to the liquidity of Islamic banks, PLS investments do not appear to act as a determinant of bank liquidity. PSIA is a global short-term account, but finances long-term projects cause a substantial maturity mismatch, limiting the availability of liquidity buffers and exacerbating the bank's exposure to liquidity risk. Islamic bank liquidity is closely related to CAR. In addition, bank profitability has a negative effect on the level of liquidity buffer. However, bank size and GDP growth do not appear to play a role in determining the liquidity of GCC Islamic banks (Ben Jedidia, 2020).

The estimation results show that all determinants have a statistically significant relationship with IB liquidity but different signs. On the one hand, foreign ownership, credit risk, profitability, inflation rate, monetary policy, and deposit insurance negatively affect IB liquidity. On the other hand, capital ratios, growth measures, and gross domestic product concentration positively correlate with IB liquidity (Al-Harbi, 2020),

Based on the theory and previous research, this research hypothesizes that liquidity has a negative and significant effect on profitability.

Methodology

This research is descriptive-analytical research with a quantitative approach (Sugiyono, 2016). The sample is all Islamic Commercial Banks in Indonesia with a purposive sampling technique. With the following criteria: (1) Islamic Commercial Banks (BUS) in Indonesia based on sharia banking statistical data issued by the Financial Services Authority; (2) Sharia Commercial Bank (BUS), which presents complete financial reports for the year 2014–2020 3rd quarter. The data collection procedure for 2014–2020 referred to the Islamic Bank financial data website.

The stock-based measurement method uses a liquidity ratio system. The liquidity ratio is a financial ratio that provides descriptions related to liquidity indicators or measures the level of a bank's ability to meet its obligations. There are several ratios used in liquidity risk (Otoritas Jasa Keuangan, 2017), namely:

$$1) \frac{\text{primary liquid assets and secondary liquid assets}}{\text{total assets}}$$

This ratio measures the amount of the bank's liquid assets compared to the bank's total assets.

$$2) \frac{\text{primary liquid assets and secondary liquid assets}}{\text{short term funding}}$$

This ratio measures the number of liquid assets owned by the bank compared to short-term sources of funds. If this ratio is above 100%, then this is considered adequate.

$$3) \frac{\text{primary liquid assets and secondary liquid assets}}{\text{non-core funding}}$$

Non-core funding is considered unstable, for example, relatively large funds above IDR 2 billion, transactions between banks, and loans from other banks.

$$4) \frac{\text{primary liquid assets}}{\text{short-term non-core funding}}$$

Short-term non-core funding is a type of funding with a term of less than one year.

$$5) \frac{\text{non-core funding}}{\text{total funding}}$$

Total funding is the total amount of third-party funds and loans from other parties.

$$6) \frac{\text{non-core funding-liquid assets}}{\text{total productive assets-liquid assets}}$$

This ratio is used to see the level of bank dependence on non-core funds (Otoritas Jasa Keuangan, 2017).

The flow-based measurement method uses a liquidity gap analysis. What is meant by a gap in this analysis is the difference between total assets and liabilities that have matured in a certain period (Ikatan Bankir Indonesia, 2015b).

The data analysis method uses the Stock-Based Method with the Liquidity Ratio approach. Measurement in the liquidity ratio is adjusted to business strategy, risk tolerance, and past performance. The next analysis method is Flow-Based, using liquidity gap analysis. This gap analysis is the difference between total assets and liabilities that have matured in a certain period.

The subsequent analysis uses multiple linear regression. The independent variable used is the liquidity ratio previously calculated using the stock-based

method. The dependent variable used is the profitability ratio proxied by return on assets (ROA). ROA as indicators for measuring bank profitability and measured by the following formula:

$$\text{ROA} = \frac{\text{Net Income}}{\text{Total Assets}}$$

Results and Discussion

Stock-Based Method

Liquid Assets to Total Assets

Table 2: Liquid Assets to Total Assets

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	28%	30%	22%	19%	25%	34%	55%	1 (<i>low</i>)
BNIS	12%	22%	13%	17%	28%	45%	49%	1 (<i>low</i>)
BSM	25%	26%	27%	30%	30%	37%	49%	1 (<i>low</i>)
BMS	18%	18%	16%	27%	23%	20%	63%	1 (<i>low</i>)
BMI	25%	22%	20%	20%	33%	49%	53%	1 (<i>low</i>)
BPDS	35%	20%	25%	26%	23%	21%	21%	1 (<i>low</i>)
BRIS	22%	30%	34%	38%	41%	48%	44%	1 (<i>low</i>)

Source: Data Processed

Based on the measurement of the results above, the ratios of liquid assets to total assets of Islamic Commercial Banks in 2014 to 2020 in the third quarter experienced positive growth ranging from 12% to 55%. It shows that from 2014 to 2020, the liquid assets owned by each of these banks ranged from Rp 830 billion to more than Rp 41 trillion. The bank's composite rating was in the very healthy category or ranked one the level of liquidity risk occurrences. Reporting the bank is classified as very low. The low level of liquidity risk at Islamic Commercial Banks is also supported by each bank's financial performance, especially in terms of capital ratios.

At BCA Syariah, the capital ratio (CAR) was relatively high, ranging from 24.3% to 38.3% in the last five years. Followed by Bank Syariah Mandiri's capital ratio ranging from 12.85% to 16.26%, Bank Mega Syariah ranging from 18.74%

to 23.53%, BNI Syariah ranging from 15.48% to 20.14%, Bank Muamalat Indonesia ranged from 12.00% to 13.62%, Panin Dubai Syariah ranged from 11.51% to 25.69% and BRI Syariah ranged from 12.89% to 29.72%. Apart from the capital side, each bank's FDR ratio is classified as useful and within the established safe limits.

Liquid Assets Against Short-Term Funding

Table 3: Liquid Assets Against Short-Term Funding

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	35%	43%	29%	24%	35%	48%	75%	2 (low to moderate)
BNIS	15%	26%	17%	20%	33%	56%	61%	3 (moderate)
BSM	28%	30%	33%	35%	35%	42%	58%	3 (moderate)
BMS	22%	23%	20%	39%	30%	24%	86%	3 (moderate)
BMI	31%	28%	24%	27%	45%	62%	67%	3 (moderate)
BPDS	43%	24%	32%	30%	29%	26%	26%	4 (moderate to high)
BRIS	26%	37%	42%	46%	53%	60%	53%	2 (low to moderate)

Source: Data Processed

Based on the calculation of liquid assets to short-term funding, BCA Syariah and BRI Syariah ratio is 24% to 75%, which indicates that the potential liquidity risk is low to moderate and is ranked 2. It also shows that the bank's ability to fulfill term funding short in relatively low liquid assets is held.

Meanwhile, Bank BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, Bank Muamalat is in the range of 15% to 87%. It shows that the bank's potential level of liquidity risk is classified as moderate and is in rank 3. At Panin Dubai Syariah Bank, the ratio ranges from 26% to 60%. The liquidity risk experienced tends to be high and is in composite 4. It also proves that the bank's liquid assets are relatively small compared to the amount of short-term funding that the bank has managed to raise. Although the level of potential liquidity risk experienced by banks is classified as high, in terms of financial performance, banks can maintain and even experience positive growth each year, especially in each bank's capital ratio and FDR ratio.

Liquid Assets against Non-Core Funding

Table 4: Liquid Assets against Non-Core Funding

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	35%	41%	29%	24%	36%	48%	77%	2 (low to moderate)
BNIS	15%	26%	16%	20%	33%	51%	56%	3(moderate)
BSM	28%	30%	32%	34%	34%	42%	55%	3(moderate)
BMS	22%	23%	20%	39%	30%	23%	86%	3(moderate)
BMI	30%	27%	23%	25%	43%	60%	66%	3(moderate)
BPDS	43%	24%	32%	30%	29%	27%	25%	3(moderate)
BRIS	26%	36%	42%	46%	53%	61%	51%	2 (low to moderate)

Source: Data Processed

Based on the calculation of liquid assets to non-core funding, BCA Syariah and BRI Syariah for 2014 to 2020 in the 3rd quarter ranges from 24% to 77%, indicating the potential for bank liquidity risk low or is in the composite rating of 2. It is also evidenced by the relatively large liquid assets owned by the bank, ranging from Rp 4.47 trillion to Rp 24.87 trillion, which shows that the bank can meet non-core funding needs.

In BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, Bank Muamalat, and Bank Panin Dubai Syariah the resulting ratio is at 15% to 86%. Banks' potential for liquidity risk is relatively high, at rank 3. The value of liquid assets held by banks is relatively small and is considered sufficient to meet the bank's non-core funding needs.

Banks' financial performance ratios are excellent or even experience growth every year, especially in the capital ratio (CAR). It is following the provisions of the Financial Services Authority regarding the determination of the limit of the capital ratio (CAR), which is 8%, so that the higher the level of risk that causes losses to the bank, the bank will also need more capital.

Primary Liquid Assets Against Short-Term Non-Core Funding

Table 5: Primary Liquid Assets Against Short-Term Non-Core Funding

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	35%	39%	27%	20%	31%	42%	46%	3 (moderate)
BNIS	15%	17%	15%	19%	16%	43%	49%	4 (moderate to high)
BSM	28%	25%	25%	28%	26%	36%	40%	4 (moderate to high)
BMS	14%	12%	13%	21%	13%	22%	47%	4 (moderate to high)
BMI	20%	17%	17%	19%	18%	37%	38%	4 (moderate to high)
BPDS	40%	18%	23%	19%	22%	22%	19%	4 (moderate to high)
BRIS	23%	28%	32%	29%	28%	45%	33%	3(moderate)

Source: Data Processed

Based on the measurement of liquid assets against short-term non-core funding at Bank Central Asia (BCA) Syariah and BRI Syariah are ranked 3. It occurs because the value of banks' primary liquid assets tends to be smaller than the value of non-core funding that must be paid.

Meanwhile, at BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, Bank Muamalat, and Bank Panin Duabi Syariah are ranked 4. The cause of the high potential for liquidity risk is that the value of assets owned by each bank is low so that it does not seem sufficient to meet the short-term non-core funding needs of each of the banks.

Non-Core Funding Against Total Funding

Table 6: Non-Core Funding Against Total Funding

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	100%	100%	100%	100%	91%	100%	100%	2 (low to moderate)
BNIS	100%	100%	100%	100%	100%	100%	100%	2 (low to moderate)
BSM	100%	98%	93%	100%	99%	100%	100%	2 (low to moderate)
BMS	100%	99%	99%	97%	99%	100%	100%	2 (low to moderate)
BMI	100%	100%	116%	101%	97%	100%	100%	2 (low to moderate)
BPDS	100%	100%	100%	100%	100%	100%	100%	2 (low to moderate)
BRIS	100%	96%	96%	100%	100%	100%	100%	2 (low to moderate)

Source: Data Processed

Based on calculating the ratio of non-core funding to total funding. The period 2014 to 2020 in the third quarter is 96% to 100%. It shows the bank is ranked 2, so the potential for liquidity risk is relatively low.

Non-core Funding – Total Liquid Assets to Total Earning Assets – Liquid Assets

Table 7: Bank Dependence on Non-Core Funding

Bank Name	Rate							Rating
	2014	2015	2016	2017	2018	2019	2020Q3	
BCAS	75%	68%	103%	97%	94%	64%	29%	5 (high)
BNIS	92%	94%	96%	100%	-208%	78%	76%	5 (high)
BSM	96%	90%	81%	87%	87%	65%	76%	5 (high)
BMS	82%	82%	89%	71%	87%	90%	38%	5 (high)
BMI	116%	97%	108%	108%	89%	78%	75%	5 (high)
BPDS	65%	73%	71%	82%	77%	74%	77%	5 (high)
BRIS	87%	79%	72%	85%	66%	64%	75%	5 (high)

Source: Data Processed

BNI Syariah experienced the smallest ratio in Islamic Commercial Banks in 2018, which touched -208%, and the largest was experienced by Bank Muamalat Indonesia, which reached 116% in 2014. The ratio's size shows the high potential level of liquidity risk experienced by the Bank Sharia General. One of the contributing factors is the small nominal value of total productive assets owned by banks or banks' considerable dependence on non-core funding. Based on measurements using the bank dependency approach on non-core funding, the safe limit of a bank's soundness level based on liquidity according to Bank Indonesia is less than 5%.

Flow-Based Method

BCA Syariah

Based on measurements using the flow-based method on BCA Syariah, a relatively large negative liquidity gap in the 0 to 6 month period from 2014 to 2020. The negative liquidity gap indicates a mismatch between the total assets owned by the bank and the obligations that must be paid. The size of the negative

liquidity gap also shows the magnitude of the potential liquidity risk in banks in the short term due to the small value of the bank's total assets.

Table 8: Liquidity Gap BCA Syariah (In Billion IDR)

Year	<i>Maturity Buckets</i>					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 year	
2014	(2.682.533)	(27.068)	-	602.053	1.390.775	Potential
2015	(3.493.815)	(23.134)	-	944.089	1.871.291	Potential
2016	(3.979.488)	(26.371)	-	1.216.317	1.953.264	Potential
2017	(5.244.098)	(39.998)	-	1.630.515	1.997.867	Potential
2018	(6.293.160)	(34.414)	-	1.979.044	2.443.064	Potential
2019	(3.160.012)	1.278.605	-	742.336	1.139.072	Potential
2020	(3.235.833)	(349.450)	1.532.385	853.981	3.637.793	Potential

Source: Data Processed

However, from 9 months to more than one year, the BCA Syariah liquidity gap is positive in the long term. The positive liquidity gap indicates that the bank's low potential for liquidity risk is because the bank has sufficient total assets to be used in fulfilling maturing liabilities. Besides, this also proves that the total assets owned by BCA Syariah are relatively large in 9 months to more than one year.

BNI Syariah

Table 9: Liquidity Gap BNI Syariah (In Billion IDR)

Year	<i>Maturity Buckets</i>					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(13.376.592)	-	-	7.237.260	1.395.570	Potential
2015	(15.957.159)	-	-	782.915	15.256.452	Potential
2016	(19.718.135)	-	-	1.200.200	18.766.858	Potential
2017	(22.813.853)	-	-	(962.475)	24.235.543	Very Potential
2018	(27.951.227)	-	-	(900.258)	30.139.148	Very Potential
2019	(27.131.215)	-	-	3.764.573	28.182.878	Potential
2020	(28.056.439)	-	-	4.879.239	28.472.284	Potential

Source: Data Processed

At BNI Syariah, a negative liquidity gap occurs in the maturity period of 0 to 3 months and has increased every year. In 2017 and 2018, negative liquidity gaps also occurred in maturity periods of 9 to 12 months. This negative liquidity gap occurs due to the relatively small value of the maturing liabilities and the relatively small value of the bank's total assets. It also shows considerable potential for liquidity risk in banks in the maturity period of 0 to 12 months.

However, from 2014 to 2020, a positive liquidity gap occurred in the maturity period of more than one year. It also shows that the bank's total assets are relatively large in the long term, and the potential for liquidity risk in this period is classified as low.

Bank Syariah Mandiri

Based on measurement results using the flow-based method at Bank Syariah Mandiri, it shows that the liquidity gap was at a relatively large negative level from 2014 to 2019 in the 0 to 6 month period. It also shows that Bank Syariah Mandiri's total value in the short term is relatively small. It cannot meet the needs of fulfilling obligations and causes potential liquidity risk in 0 to 6 months.

Table 10: Liquidity Gap Bank Syariah Mandiri (In Billion IDR)

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(49.636.245)	(1.241.039)	-	1.647.582	34.272.399	Potential
2015	(56.599.923)	(1.468.906)	-	15.204.633	40.135.183	Potential
2016	(62.469.313)	-	(1.396.817)	11.524.889	44.226.860	Potential
2017	(67.374.274)	(1.380.542)	-	16.160.263	52.486.434	Potential
2018	(77.415.276)	-	(1.570.906)	22.856.405	43.481.990	Potential
2019	(56.339.862)	2.949.095	-	2.720.827	84.074.238	Potential
2020Q	9.613.160	9.971.969				No Potential

Source: Data Processed

The positive liquidity gap at Bank Syariah Mandiri occurs in 9 months to more than one year from 2014 to 2019. This positive liquidity gap shows that the bank's total asset value tends to be more to cover obligations that are due in the same period. The positive liquidity gap also indicates the bank's low potential for liquidity risk.

Mega Syariah Bank

At Bank Mega Syariah, a negative liquidity gap occurred in periods of 0 to 12 months in 2014 and 2015, which indicates that the bank has a high enough potential for liquidity risk. It is due to the small value of the bank's total assets in fulfilling the obligations that are due in the same period.

Table 11: Liquidity Gap Mega Syariah (In Billion IDR)

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(9.234.574)	(14.107)	-	(12.294)	6.048.603	Sangat Potential
2015	(4.679.809)	(16.744)	-	(10.916)	4.884.079	Sangat Potential
2016	(5.527.453)	(4.958)	-	1.374.863	3.866.642	Potential
2017	(5.391.064)	(13.173)	-	1.713.623	4.261.773	Potential
2018	(6.167.787)	(21.517)	-	1.550.267	4.906.924	Potential
2019	(5.479.070)	-	-	1.416.739	4.905.491	Potential
2020Q	1.288.596	1.305.783				No Potential

Source: Data Processed

In the following years, namely 2016 to 2019, the negative liquidity gap only occurs in the 0 to 6 month period. However, the potential for liquidity risk to be experienced by banks is still relatively high considering the sizeable negative figure. The maturity buckets period of 9 months to more than one year is at a positive level, which indicates that the bank has sufficient total asset value to meet the needs of its maturing obligations. In this period, the potential for liquidity risk experienced by the bank is relatively low.

Bank Muamalat Indonesia

Table 12: Liquidity Gap Bank Muamalat Indonesia (In Billion IDR)

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(40.912.434)	(2.529.567)	-	1.066.048	43.852.762	Potential
2015	(39.028.646)	(1.017.220)	-	8.568.348	35.103.489	Potential
2016	(41.131.147)	(1.691.748)	-	4.490.111	35.485.018	Potential

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2017	(38.590.363)	(2.874.293)	-	8.092.553	36.712.671	Potential
2018	(40.673.811)	(1.906.375)	-	10.491.042	36.286.261	Potential
2019	(26.742.842)	(585.348)	-	497.695	26.997.837	Potential
2020	(26.554.967)	(369.492)	-	1.258.020	25.923.739	Potential

Source: Data Processed

At Bank Muamalat Indonesia, a negative liquidity gap occurred from 2014 to 2020 in the maturity buckets period of 0 to 6 months. The negative figure for the liquidity gap is relatively high, indicating that banks' potential for liquidity risk is also relatively high. The positive liquidity gap at Bank Muamalat Indonesia occurs in 9 months to more than one year. It also shows that the bank can pay its maturing liabilities with sufficient total asset value.

Panin Dubai Syariah Bank

Table 13: Liquidity Gap Panin Dubai Syariah (In Billion IDR)

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(4.674.308)	(191.448)	-	1.409.841	3.450.046	Potential
2015	(5.792.573)	(195.688)	-	772.231	5.154.403	Potential
2016	(6.506.193)	(606.470)	-	787.778	6.367.846	Potential
2017	(7.647.859)	(300.454)	-	1.262.932	5.702.715	Potential
2018	(5.438.914)	(1.594.892)	-	1.253.843	5.039.061	Potential
2019	(6.185.407)	-	-	1.324.669	5.810.197	Potential
2020	(5.092.135)	-	-	472.553	6.825.768	Potential

Source : Data Processed

The same thing happened to Panin Dubai Syariah Bank, where a negative liquidity gap occurred in the 0 to 6 month period from 2014 to 2019. This negative liquidity gap shows that the bank does not have sufficient total asset value to pay its maturing obligations. The magnitude of this negative number indicates the high potential for liquidity risk at the bank.

In 9 months to more than one year, the liquidity gap generated by Panin Dubai Syariah Bank is positive. This upbeat number indicates that the bank has sufficient total asset value to pay its maturing liabilities. In this period, the potential for liquidity risk to the bank is low.

BRI Syariah

Table 14: Liquidity Gap BRI Syariah (In Billion IDR)

Year	Maturity Buckets					Potential Risks
	0-3 month	3-6 month	6-9 month	9-12 month	>1 Year	
2014	(14.524.742)	-	-	2.293.427	12.924.121	Potential
2015	(16.841.248)	-	-	2.519.004	15.151.840	Potential
2016	(19.453.920)	-	-	4.427.085	14.825.348	Potential
2017	(23.658.253)	-	-	5.896.978	7.434.851	Potential
2018	(22.967.318)	-	-	4.267.743	18.160.312	Potential
2019	(22.833.429)	-	-	4.573.664	23.440.391	Potential
2020	(40.996.432)	-	-	4.411.695	42.723.514	Potential

Source: Data Processed

In BRI Syariah, a negative liquidity gap occurred in the 2014 to 2020 period in the 0 to 3 month period. Even though it only occurs in the short term, the negative figure is considered large, indicating the high potential for liquidity risk. Due to the small value of the total assets owned by the bank, it is not sufficient to meet the needs of the due obligations.

The positive liquidity gap at BRI Syariah from 2014 to 2020 occurred in the long-term, namely nine months to more than one year. Apart from showing the low potential liquidity risk that occurs, this also shows that most of the assets owned by banks are placed in the long-term period.

Based on the potential for liquidity risk assessment using the stock-based method and the weighted value of inherent risk, the risk level results at each Islamic commercial bank ranged from 2.25 (low) to 2.85 (moderate). The measurement results table shows that BCA Syariah and BRI Syariah have the lowest weighting value with the number of 2.25, which indicates that the bank's potential level of liquidity risk is classified as low. Banks' financial performance can be useful because

banks can maintain ratios following the established safe limits, such as the capital ratio, which has increased. The percentage of financing to third-party funds (FDR) has decreased but is still within safe limits every year (BCA Syariah, 2019; BRI Syariah, 2019). This was followed by Bank BNI Syariah, Bank Syariah Mandiri, Bank Mega Syariah, and Bank Muamalat Indonesia, with a weighted value of 2.7. The potential for liquidity risk at the bank is relatively high. However, the bank's financial performance is useful by maintaining the ratio following the established safe limits.

Table 15: Result of Measurement

Bank Name	Potential Risks Based on Measurement	
	Stock Based	Flow Based
BCA Syariah	2,25 (<i>LOW</i>)	Potential
BNI Syariah	2,7 (<i>MODERATE</i>)	Potential
Bank Syariah Mandiri	2,7 (<i>MODERATE</i>)	Potential
Mega Syariah	2,7 (<i>MODERATE</i>)	Potential
Bank Muamalat Indonesia	2,7 (<i>MODERATE</i>)	Potential
Panin Dubai Syariah	2,85 (<i>MODERATE</i>)	Potential
BRI Syariah	2,25 (<i>LOW</i>)	Potential

Source : Data Processed

The financial performance of BNI Syariah in 2019 was 18.88%. However, the FDR ratio tends to decline for three periods, namely from 2016 to 2019, where each year is 84.57%, 80.21%, 79.62%, and 74.31%. The same thing happened to the NPF ratio, which has decreased every year. In 2019, the NPF ratio was 1.44% (Bank BNI Syariah, 2019),

The capital ratio of Bank Syariah Mandiri in 2019 touched 16.15%. It successfully reduced the NPF ratio to 1.00% in 2019, and the rate of financing to third-party funds is relatively stable, ranging from 77.25% to 81.99% from 2014 to 2019 (Bank Syariah Mandiri, 2019).

Whereas at Bank Mega Syariah, the financial performance ratio, especially in the capital ratio, decreased from 2016 to 2019, where each year was 23.53%; 22.19%; 20.54%; and 19.96%. The NPF ratio in banks also declined but showed improvement until 2018 was successfully reduced to 2.15% and 19.96% in

2019. The FDR ratio is stable and is within a specified safe limit (Bank Mega Syariah, 2019).

At Bank Muamalat Indonesia, financial performance ratios are classified as improving. The bank capital ratio in 2019 touched 12.42%. The bank's NPF ratio was successfully reduced to 2.58%, which previously in 2014 was classified as high, reaching 4.85%. The NPF ratio in 2019 is 4.30%. The FDR ratio at Bank Muamalat Indonesia from 2014 to 2019 was stable, ranging from 73.18% to 99.50% (Bank Muamalat, 2019).

At Panin Dubai Syariah Bank, with a risk-weighted figure of 2.85, the potential for liquidity risk at the bank is relatively high. However, the bank's financial performance side is useful by maintaining the ratio by the established safe limits. The financial performance of Panin Dubai Syariah Bank is relatively good. The bank capital ratio in 2018 managed to touch 23.15%. In 2019, the NPF ratio reached 2.80%, and the FDR ratio was relatively stable, ranging from 86.95% to 96.43% in the 2014 to 2019 period (Bank Panin Dubai Syariah, 2019).

The flow-based method was a complete result in a negative liquidity gap. A negative liquidity gap indicates that a bank has the potential for liquidity risk due to the number of liabilities that the bank has to pay, but this is not proportional to its total assets' small value. The liquidity gap measures the difference between cash inflows (asset side) and cash outflow (liability side). The essential point of the liquidity gap is the amount of cash needed in a certain period compared to the amount of cash available in the same period. The higher the negative liquidity gap, the greater the liquidity risk faced by the bank. (Ikatan Bankir Indonesia, 2015c).

This liquidity condition will determine the strategy to be implemented by the bank, for example, the fund placement strategy, funding strategy, or fund pricing strategy (Ikatan Bankir Indonesia, 2015c). The high potential risk requires banks to carry out risk control by the size or size of the risk and following applicable regulations. This risk control is intended to minimize the risk of causing losses in the future.

The application of liquidity risk limits is carried out consistently and relevant to the bank's business, according to the complexity of activities, risk tolerance, product characteristics, historical data, profitability level, and available capital. Determination of limits may include, among others: 1) cash flow mismatch limits, both in the short and long term, including cash flows from administrative account positions, 2) concentration limits on assets and liabilities, 3) overnight loan limits, and another liquidity ratio (Ikatan Bankir Indonesia, 2015c).

Although the measurement of liquidity uses two different methods, the assessment involves several factors that cause liquidity risk: the composition of assets held, liabilities, off-balance-sheet transactions, and funding sources at the bank, called stock-based. The liquidity risk level assessment can also be seen from the liquidity gap between assets and liabilities that mature in a certain period or is known as flow-based.

Both indicate that the bank can experience liquidity risk because liquidity risk is inherent in Islamic commercial banks. However, if the bank is too focused on a high level of liquidity, its profitability can decrease because there is much idle money, or the funds are not used for financing. Therefore, Liquidity and Profitability management must be balanced, and Liquidity risk management is an essential concern so that banks avoid bankruptcy conditions.

Hypothesis Testing

Table 16: Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.320 ^a	.103	-.026	1.79420

a. Predictors: (Constant), L6, L5, L4, L3, L1, L2

Sources: Data Processed

The data shows the R Square value of 0.103. It means that liquidity has an effect of 10.3%. Meanwhile, for the remaining 80.7%, profitability is influenced by other variables outside the study.

Table 17: Anova

ANOVA^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.467	6	2.578	.801	.575 ^b
	Residual	135.204	42	3.219		
	Total	150.671	48			

a. Dependent Variable: ROA

b. Predictors: (Constant), L6, L5, L4, L3, L1, L2

Sources: Data Processed

The p-value of 0.575 in the table above is more than the 0.05 significance level. The model describes that simultaneously liquidity did not have an impact on profitability.

Table 18: Coefficients

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.966	8.792		.337	.738
	L1	-.216	.149	-1.456	-1.453	.154
	L2	.301	.265	2.674	1.137	.262
	L3	-.176	.219	-1.540	-.805	.425
	L4	.073	.050	.425	1.446	.156
	L5	-.022	.088	-.037	-.250	.804
	L6	-.006	.006	-.157	-1.006	.320

a. Dependent Variable: ROA

Sources: Data Processed

The p-value of L1 (primary liquid and secondary liquid assets/total assets) is 0.154, more than the 0.05 significance level. The p-value of L2 (primary liquid assets and secondary liquid assets/short term funding) is 0.262, more than 0.05. The p-value of L3 (primary liquid assets and secondary liquid assets/non-core funding) is 0.425. The p-value of L4 (primary liquid assets/short-term non-core funding) is 0.156. The p-value of L5 (non-core funding/total funding) is 0.804. The p-value of L6 (non-core funding - liquid assets/ total productive assets – liquid assets) is 0.320. These results indicate that partially liquidity does not affect profitability. The liquidity ratio is not significant with the ROA.

The results showed that the liquidity ratio had no significant effect on the profitability of Islamic banks. This result supports the previous study that there was no significant impact between liquidity creation and return on average assets (ROAA) (Sahyouni & Wang, 2019). The other study found that liquidity has an insignificant negative impact on banks' ROA and ROE (Lestari et al., 2021). In other research, liquidity and bank size have no significant effect on the bank's profitability (Parvin et al., 2019).

Banks may fail without having the necessary liquidity and funding to meet

short-term obligations. Therefore, banks with higher liquidity ratios have more liquidity and are less prone to weakness. However, having higher liquid assets is usually associated with lower returns. The available money does not generate additional profits for the bank, and a negative relationship is expected (Qurban et al., 2021).

Liquidity and profitability play an essential role in the sustainable development and stability of the bank's financial system. There is an opportunity cost for banks either pursuing to be liquid or profitable. Banks that choose liquid will not be profitable and vice versa. So that the implementation of liquidity and profitability regulations is essential to maintain the banks' health (Moussa & Boubaker, 2020). The Banks must maintain liquidity risk within the safe limits allowed by Bank Indonesia and the Financial Services Authority (OJK) to remain able to generate optimal profits and not experience liquidity problems.

Conclusion

This research found that bank liquidity has no significant impact on bank profitability. The potential liquidity risk assessment using the stock-based method and the weighted value of inherent risk shows the risk level at each Islamic commercial bank ranged from 2.25 (low) to 2.85 (moderate). The flow-based method as a whole result in a negative liquidity gap. A negative liquidity gap indicates that a bank has the potential for liquidity risk due to the number of liabilities that the bank has to pay, but this is not proportional to the small value of the bank's total assets. This high-risk potential requires banks to carry out risk control by the size or size of the risk and applicable regulations. This risk control is intended to minimize risks that cause losses in the future.

References

- Afriyeni, A., & Susanto, R. (2019). *Manajemen Risiko Pada Bank Syariah*. 1–11. <https://doi.org/10.31219/osf.io/yj9kb>
- Al-Harbi, A. (2020). Determinates of Islamic banks liquidity. *Journal of Islamic Accounting and Business Research*, 11(8), 1619–1632. <https://doi.org/10.1108/JIABR-08-2016-0096>
- Anam, A. K. (2013). Risiko Likuiditas Dan Dampaknya Terhadap Kinerja Perbankan Di Indonesia. *Jurnal Dinamika Ekonomi Dan Bisnis*, 10(1), 1–16. <http://ejournal.unisnu.ac.id/JDEB/article/view/20>

- Bani, F., & Yaya, R. (2016). Rasio Likuiditas Pada Perbankan Konvensional dan Syariah di Indonesia. *Jurnal Riset Akuntansi & Bisnis*, 16(1), 1–26. <http://jurnal.umsu.ac.id/index.php/akuntan/article/download/1716/1750>
- Bank BNI Syariah. (2019). *Annual Report Tahunan BNI Syariah*. [https://www.bnisyariah.co.id/Portals/1/BNISyariah/Perusahaan/Hubungan Investor/AR/Annual Report BNI Syariah-bahasa.pdf](https://www.bnisyariah.co.id/Portals/1/BNISyariah/Perusahaan/Hubungan%20Investor/AR/Annual%20Report%20BNI%20Syariah-bahasa.pdf)
- Bank Indonesia. (2003). *Peraturan Bank Indonesia No: 5/8/PBI/2003 Tentang Penerapan Manajemen Risiko Bagi Bank Umum*. 1–14. <https://peraturan.bpk.go.id/Home/Details/137775/peraturan-bi-no-58pbi2003>
- Bank Indonesia. (2004). *Surat Edaran Bank Indonesia. Sistem Penilaian Tingkat Kesehatan Bank Umum. No. 6/23/DPNP*. 6, 55. <https://www.bi.go.id/id/archive/arsip-peraturan/Documents/0151b17420f84d118de8fdf0c0642730se623dpnp.pdf>
- Bank Indonesia. (2009). Peraturan Bank Indonesia Nomor: 11/ 25 /Pbi/2009 Tentang Perubahan Atas Peraturan Bank Indonesia Nomor 5/8/Pbi/2003 Tentang Penerapan Manajemen Risiko Bagi Bank Umum. *Peraturan Bank Indonesia Nomor: 11/ 25 /Pbi/2009*. http://www.bi.go.id/id/peraturan/perbankan/Pages/pbi_112509.aspx
- Bank Indonesia. (2015). Penerapan Manajemen Risiko bagi Bank Umum Syariah dan Unit Usaha Syariah. *Peraturan Bank Indonesia Nomor 13/23/PBI/2011, 1*(Penerapan Manajemen Risiko Bagi Bank Umum Syariah Dan Unit Usaha Syariah), 1–43. www.bi.go.id
- Bank Mega Syariah. (2019). *Annual Report Bank Mega Syariah*. 1–727. <https://www.megasyariah.co.id/>
- Bank Muamalat. (2019). *Annual Report Bank Muamalat*. <https://www.bankmuamalat.co.id/hubungan-investor/laporan-tahunan>
- Bank Panin Dubai Syariah. (2019). *Annual Report Panin Dubai Syariah*. <https://www.paninbanksyariah.co.id/index.php/mtentangkami/laporantahunan>
- Bank Syariah Mandiri. (2019). Laporan Tahunan 2019 : Memberikan Nilai Tambah Melalui Pengembangan Kapabilitas Internal. *PT. Bank Syariah Mandiri*, 412. [https://www.mandirisyariah.co.id/assets/pdf/annual-report/Bank-Syariah_mandiri-Annual-Report2019\(Update\).pdf](https://www.mandirisyariah.co.id/assets/pdf/annual-report/Bank-Syariah_mandiri-Annual-Report2019(Update).pdf)
- BCA Syariah. (2019). *Annual Report*. <https://www.bcasyariah.co.id/laporan-tahunan>

- Ben Jedidia, K. (2020). Profit- and loss-sharing impact on Islamic bank liquidity in GCC countries. *Journal of Islamic Accounting and Business Research*, 11(9), 1791–1806. <https://doi.org/10.1108/JIABR-10-2018-0157>
- BRI Syariah. (2019). *Annual Report*. 87. https://ir.bankbsi.co.id/annual_reports.html
- Fasa, M. I. (2016). Manajemen Risiko Perbankan Syariah di Indonesia. *Li Falah Jurnal Studi Ekonomi Dan Bisnis Islam*, 1(2), 36–53. <https://ejournal.iainkendari.ac.id/index.php/lifalah/article/view/482>
- Ikatan Bankir Indonesia. (2014). *Memahami Bisnis Bank : Modul Sertifikasi Tingkat 1 General Banking / Ikatan Bankir Indonesia*. PT Gramedia Pustaka Utama.
- Ikatan Bankir Indonesia. (2015a). *Manajemen Risiko 1. Mengidentifikasi Risiko Pasar, Operasional, dan Kredit Bank*. PT Gramedia Pustaka Utama.
- Ikatan Bankir Indonesia. (2015b). *Manajemen Risiko 2. Mengidentifikasi Risiko Likuiditas, Reputasi, Hukum, Kepatuhan, dan Strategik Bank*. PT Gramedia Pustaka Utama.
- Ikatan Bankir Indonesia. (2015c). *Manajemen Risiko 2. Mengidentifikasi Risiko Likuiditas, Reputasi, Hukum, Kepatuhan, dan Strategik Bank*. PT Gramedia Pustaka Utama.
- Ismal, R. (2010). Assessment of liquidity management in Islamic banking industry. *International Journal of Islamic and Middle Eastern Finance and Management*, 3(2), 147–167. <https://doi.org/10.1108/17538391011054381>
- Karim, A. A. (2011). *Bank Islam : Analisis Fiqh dan Keuangan*. PT. Raja Grafindo Persada.
- keuangan.kontan.co.id. (n.d.). *Risiko Likuiditas Bank Kecil Paling Tinggi*. <http://keuangan.kontan.co.id/news/risiko-likuiditas-bank-kecil-paling-tinggi>
- Lestari, H. S., Tarigan, G. G., & Pohan, L. A. (2021). The Effect of Liquidity, Leverage and Bank's Size on Bank's Profitability of Indonesian Listed Bank. *Jurnal Manajemen*, 12(2), 26. <https://doi.org/10.32832/jm-uika.v12i2.3946>
- Lukito, S. N., Muturi, W., Nyang'au, A. S., & Nyamasege, D. (2014). Assessing the effect of liquidity on profitability of commercial banks in Kenya. *Research Journal of Finance and Accounting*, 5(19), 145. <https://core.ac.uk/download/pdf/234630201.pdf>

- Moussa, D. M. A. Ben, & Boubaker, A. (2020). The Impact of Liquidity on Bank Profitability: Case of Tunisia. *European Journal of Accounting, Auditing and Finance Research*, 8(2), 20–37. <https://doi.org/https://doi.org/10.37745/ejaaf/vol8.no2.pp20-37.2020>
- Muharam, H., & Kurnia, H. P. (2015). Liquidity Risk on Banking Industry: Comparative Study Between Islamic Bank and Conventional Bank in Indonesia. *Al-Iqtishad: Journal of Islamic Economics*, 5(2). <https://doi.org/10.15408/aiq.v5i2.2565>
- Otoritas Jasa Keuangan. (2017). Surat Edaran Otoritas Jasa Keuangan Nomor 14/SEOJK.03/2017 Tentang Penilaian Tingkat Kesehatan Bank Umum. *Peraturan Otoritas Jasa Keuangan*, 33. <https://www.ojk.go.id/id/kanal/perbankan/regulasi/surat-edaran-ojk/Pages/Surat-Edaran-Otoritas-Jasa-Kuangan-Nomor-14-SEOJK.03-2017.aspx>
- Otoritas Jasa Keuangan. (2020). *Statistik Perbankan Syariah*. <https://www.ojk.go.id/id/kanal/syariah/data-dan-statistik/statistik-perbankan-syariah/Pages/Statistik-Perbankan-Syariah---Desember-2020.aspx>
- Parvin, S., Chowdhury, A. N. M. M. H., Siddiqua, A., & Ferdous, J. (2019). Effect of Liquidity and Bank Size on the Profitability of Commercial Banks in Bangladesh. *Asian Business Consortium*, 9(1), 7–10. <https://doi.org/10.18034/abr.v9i1.219>
- Qurban, S. N. M. A., Shaheen, R., & Hakim, S. (2021). the Effect of Liquidity and Rate of Return Risks on the Profitability of Islamic and Conventional Banks in Gcc Countries. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 18(13), 569–579. <https://archives.palarch.nl/index.php/jae/article/view/8142>
- Sahyouni, A., & Wang, M. (2019). Liquidity creation and bank performance: evidence from MENA. *ISRA International Journal of Islamic Finance*, 11(1), 27–45. <https://doi.org/10.1108/IJIF-01-2018-0009>
- Santoso, A. L., & Sukihanjani, T. (2012). Faktor-Faktor yang Mempengaruhi Likuiditas Perbankan Syariah di Indonesia. *Jurnal Ekonomi Universitas Sebelas Maret*, 221–231. <http://jp.feb.unsoed.ac.id/index.php/sca-1/article/viewFile/298/303>
- Sugiyono. (2016). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. PT Alfabet.
- Supartoyo, Y. H., Juanda, B., Firdaus, M., & Effendi, J. (2018). Pengaruh Sektor Keuangan Bank Perkreditan Rakyat terhadap Perekonomian Regional

Wilayah Sulawesi. *Kajian Ekonomi Dan Keuangan*, 2(1), 15–38. <https://doi.org/10.31685/kek.v2i1.207>

Umar, M., & Sun, G. (2016). Determinants of different types of bank liquidity: evidence from BRICS countries. *China Finance Review International*, 6(4), 380–403. <https://doi.org/10.1108/CFRI-07-2015-0113>