
Do Ownership Type and Ownership Concentration Affect Liquidity Creation? A Case Study of Commercial Bank in Indonesia

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Abstract

The ability to create liquidity is crucial for banks because a lack of liquidity can lead to failure. This study aims to examine the influence of ownership types and ownership concentration on liquidity creation. The study divides bank ownership types into government ownership, bank ownership, institutional ownership, non-financial company ownership, and family ownership. Additionally, ownership concentration is considered as a moderating variable and measured at various levels ranging from 25% to 85%. The research seeks to investigate whether, according to corporate governance theory, ownership concentration affects a bank's decisions in creating liquidity, and whether, according to ownership structure theory, the risk-taking behavior and agency problems of each ownership type differ, thus affecting the bank's ability to create liquidity. The sample for this study comprises 84 Commercial Banks in Indonesia. The analysis employs dynamic panel data regression, covering the period from 2018 to 2022. Based on the research findings, it is discovered that ownership concentration has a significant negative effect on liquidity creation, indicating that liquidity creation is more prevalent among less concentrated banks. Ownership type does have an effect, but not on all ownership types. Institutional ownership has a positive effect on liquidity creation, whereas bank ownership by other banks has a negative effect. Ownership by the state, family, and company does not significantly affect liquidity creation. Ownership concentration affects liquidity creation at levels below 65%, whereas at levels above 75%, there is no significant influence of ownership concentration on liquidity creation. Another finding is that liquidity creation is more prominent in smaller banks compared to larger ones.

Keywords: *Liquidity Creation; Ownership Types; Ownership Concentration*

1. Introduction

Maintaining liquidity is paramount for banks as financial institutions can face failure during crises despite having adequate capital but encountering liquidity problems (Diamond & Dybvig, 1983). This aligns with modern financial intermediation theory, which argues that banks have two main roles: creating liquidity and transferring risk (Bhattacharya & Thakor, 1993).

The economic crisis of 2007-2009, triggered by subprime mortgages, impacted banking liquidity risk, underscoring the importance of strengthening liquidity creation in the banking world. Shocks experienced by banks during economic crises have ramifications on the economy. Similarly, during the COVID-19 pandemic, widespread layoffs due to disruptions on both the consumer and producer sides, disruptions in supply chains, and increased non-performing loan risks in banking have led to heightened risks in the banking industry, particularly reducing banks' ability to create liquidity as loans cannot be disbursed effectively.

These experiences highlight the critical importance of maintaining liquidity, as financial institutions can face failure during crises despite having adequate capital but encountering liquidity problems (Diamond

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& Dybvig, 1983). Several studies also indicate that maintaining liquidity is crucial because tight banking liquidity can affect banking risk (Bhattacharya & Thakor, 1993).

Given the significance of liquidity creation for banks, this research aims to examine the relationship between types and concentration of bank stock ownership on liquidity creation in Indonesia. The types and concentration of bank stock ownership are important variables to study in Indonesia because the types and concentration of bank ownership in Indonesia are diverse, and the banking sector still dominates the financial landscape, with the assets of commercial banks and Islamic banks in Indonesia comprising 57% of the total GDP in 2022. Indonesia's GDP in 2022 stood at 19,588.4 trillion (bps.go.id), while the assets of commercial and Islamic banks in Indonesia in 2022 amounted to 11,113.321 trillion (Indonesian Banking Statistics, OJK, March 2023). Currently, the Financial Services Authority (OJK) records the number of banks in Indonesia shrinking to 105 banks.

To create liquidity, based on theories from previous research, banks create liquidity by using relatively liquid liabilities to finance relatively illiquid assets (Diamond & Dybvig, 1983). By using relatively liquid liabilities to finance illiquid assets, banks can obtain more stable funding. Although illiquid assets cannot be quickly liquidated, banks can manage their liquidity to meet their obligations.

Based on a series of corporate governance literature, it is mentioned that concentrated share ownership has greater control over management decision-making due to higher voting rights (Levine, 2003). Some argue that concentrated ownership encourages managers to create more liquidity as liquidity creation can enhance bank performance, thereby increasing bank revenue (Yeddou & Pourroy, 2020). However, on the other hand, there is also an argument that ownership concentration negatively affects liquidity creation (Kayani et al., 2021). Concentrated ownership actually leads to a decrease in bank risk-taking and thus reduces liquidity.

In ownership structure theory, it is stated that risk-taking behavior and agency problems differ depending on the type of shareholder (Jensen & Meckling, 2019). In this study, the types of share ownership are divided into government ownership, family ownership, ownership by other banks, institutional ownership, and non-financial company ownership, referring to previous research (Yeddou & Pourroy, 2020). This study differs from some previous research in Indonesia that divided types of share ownership into foreign ownership, government ownership, and private ownership. With this research, a broader understanding of the impact of bank ownership on liquidity creation in Indonesia is expected, as current findings on the impact of bank ownership types on liquidity creation yield varied results.

There are differences in theories regarding the risk-taking behavior of each shareholder. Based on previous research, there is a theory that government ownership of banks is expected to create more liquidity due to government protection if banks encounter problems. However, there are also findings that government ownership of banks negatively affects liquidity creation.

Family ownership, on one hand, is presumed to be more risk-averse with the intention of passing the company on to the next successor, thus they might take fewer risks and create less liquidity. However, there is also an argument that family ownership similarly drives liquidity creation.

Ownership by non-financial companies is expected to take more risks and create more liquidity. Ownership by other banks is expected to take fewer risks and create liquidity due to control from the parent bank, as in financial distress, the parent bank must support its subsidiary bank. Institutional ownership, on the other hand, is expected to adopt the riskiest strategies and create more liquidity.

This study adds empirical evidence on the influence of bank ownership concentration, types of bank ownership on liquidity creation in further research. It can also assist investors in understanding the impact of ownership concentration and types of bank ownership, thereby aiding investment decisions, especially in the banking industry. Additionally, for policymakers/government, it serves as input for formulating policies regarding bank ownership, bank liquidity, and banking activities.

2. Theoretical Background

Teori Financial Intermediation

The modern financial intermediation theory posits that banks have two primary roles: creating liquidity and transferring risk (Bhattacharya & Thakor, 1993). This theory argues that banks create liquidity on their balance sheets by financing relatively illiquid assets using liquid liabilities (Berger & Bouwman, 2009). Additionally, banks also create liquidity outside of financial statements by making loan commitments and similar claims on liquid funds (Berger & Bouwman, 2009).

Liquidity Creation

Based on modern financial intermediation theory, the presence of banks is crucial because they have two roles in the economy: creating liquidity and transforming risk (Bhattacharya & Thakor, 1993). In performing intermediation functions, banks engage in a process known as liquidity creation. One theory suggests that when banks create liquidity, they transform liquid liabilities (such as demand deposits) with lower interest rates into less liquid assets (such as commercial loans) with higher interest rates (Diamond & Dybvig, 1983). The greater the difference between asset management and liquidity, the higher the liquidity created by the bank, prompting shareholders to request continuous improvement in liquidity (Yeddou & Pourroy, 2020).

The Relationship Between Bank Ownership Types And Concentration With Liquidity Creation

Concerns regarding liquidity creation for both managers and shareholders revolve around liquidity creation being closely tied to the level of risk-taking. If shareholders and bank management are risk-averse, they are inclined to use liquid liabilities to fund liquid assets. In this scenario, liquidity creation is unlikely to occur because the bank holds assets and liabilities with similar levels of liquidity (Berger & Bouwman, 2009). Conversely, if management and shareholders are less risk-averse and seek higher yields, they will use liquid liabilities to fund illiquid assets, resulting in liquidity creation (Yeddou & Pourroy, 2020).

Previous research indicates that the higher the concentration of share ownership, the greater the ability to influence management decision-making (Levine, 2003). Therefore, share ownership concentration is also believed to affect a bank's ability to create liquidity. Research conducted by (Yeddou & Pourroy, 2020), across 17 European countries found that share ownership concentration positively and significantly affects liquidity creation. However, there is another perspective suggesting that share ownership concentration leads to a decrease in risk-taking, thus reducing liquidity, as evidenced by research (Kayani et al., 2021) on banking in Asian developing countries.

Previous studies have also demonstrated that the type of bank ownership affects liquidity creation by influencing bank credit risk (Yeddou & Pourroy, 2020). Bank managers who are risk-averse tend to play it safe by using liquid liabilities to finance liquid assets, which does not increase liquidity, while risk-taking bank managers will seize opportunities to manage liquid liabilities to fund less liquid assets, thus generating higher returns.

Research by (Iannotta et al., 2007), indicates that government ownership of shares tends to have a higher insolvency risk and lower loan percentages but higher deposits. Government-owned banks are expected to generate more liquidity as they can receive government assistance in case of losses (Demirgüç-Kunt & Detragiache, 2002). However, on the other hand, there are conflicting findings that government ownership of shares significantly negatively affects liquidity creation, as in the study by (Le-Bao et al., 2023) on banking in Vietnam, which reflects different banking characteristics in Vietnam. In this research, government ownership is believed to significantly negatively affect liquidity creation.

Banks owned by non-financial companies are expected to generate more liquidity. As per (Laeven, 2001), when banks are owned by non-financial companies and lend to these companies, they tend to be riskier because they provide tenure adjusted to the needs of the parent company. Ownership of banks by non-financial companies is expected to encourage banks to take active risk management and generate more liquidity.

On the other hand, family ownership tends to be risk-averse, seeking to reduce risk through various means such as seeking low-failure probability forms of capital and having fewer debts in their capital structure (Anderson & Reeb, 2003). There are differing opinions on the impact of bank ownership on liquidity creation, with one suggesting that family ownership tends to generate less liquidity compared to ownership by other shareholders. However, there is another perspective stating that family ownership, like other ownership types, aims to increase liquidity. Therefore, family ownership is believed to significantly positively affect liquidity creation, as in the study conducted by (Kayani et al., 2021) on banking in developing countries in Asia.

Banks owned by institutional investors are expected to take more risks and generate more liquidity. Institutional investors (such as investment firms, pension funds) have significant voting power, allowing them to influence the company's risk-taking level. Institutional investors have more experience, thus providing more control to encourage banks to take risks (Barry et al., 2011).

Banks whose controlling shareholders are other banks tend to choose conservative strategies for security and reputation because if the bank fails, the parent bank bears the loss (Barry et al., 2011). However, on the other hand, large banks are likely to take more risks as they manage diversified portfolios (Yeddou & Pourroy, 2020).

3. Methodology

Types and Sources of Data

The data processed in this study are secondary data, namely panel data of commercial banks in Indonesia categorized by the Financial Services Authority. The research period spans from 2018 to 2022, with a sample consisting of 84 banks, including National Private Banks and Regional Development Banks (BPD). The sample banks were selected based on the availability of complete financial report data and inclusion in the Bank Focus database. This sample size represents 80% of the total number of banks in Indonesia. The sampling method employed in this study is non-random sampling, specifically purposive sampling. Below is the breakdown of the resources used in the research:

Table 1. Source of Data

No	Data Type	Data Source
1	Liquidity Creation	Bank Focus Data, then calculated by the researcher
2	Ownership Types	Financial Statements and Bank Focus Data
3	Ownership Concentration	Financial Statements and Bank Focus Data
4	Size	Bank Focus Data, then calculated by the researcher
5	Capital	Bank Focus Data, then calculated by the researcher
6	Market Power	Bank Focus Data, then calculated by the researcher

Research Hypotheses

This study aims to examine the relationship between ownership concentration, ownership type, and bank income diversification on liquidity creation.

Based on a series of corporate governance literature, it is shown that concentrated share ownership exerts greater control over management decision-making due to higher voting rights (Levine, 2003). However, increasing ownership concentration may lead to a decrease in bank risk-taking and, therefore, reduce liquidity, as evidenced by (Kayani et al., 2021) study on banking in developing countries in Asia. Thus, it is expected that bank ownership concentration will have a significantly negative effect on liquidity creation (Hypothesis 1).

Furthermore, according to the theory that risk-taking behavior and agency problems vary depending on the type of shareholder (Jensen & Meckling, 2019), it is expected that ownership types such as government (state), family, bank, non-financial company, and institutional ownership will have different effects on liquidity creation. Therefore, in this study, it is expected that ownership type will have different effects on liquidity creation (Hypothesis 2).

As demonstrated by (Yeddou & Pourroy, 2020), different ownership concentration levels yield different effects on the relationship between ownership type and liquidity creation. Hence, in this study, it is expected that the influence of bank ownership type on liquidity creation will differ at different concentration levels (Hypothesis 3).

Research Model

The model used in this study can be depicted as shown in Figure 1 below.

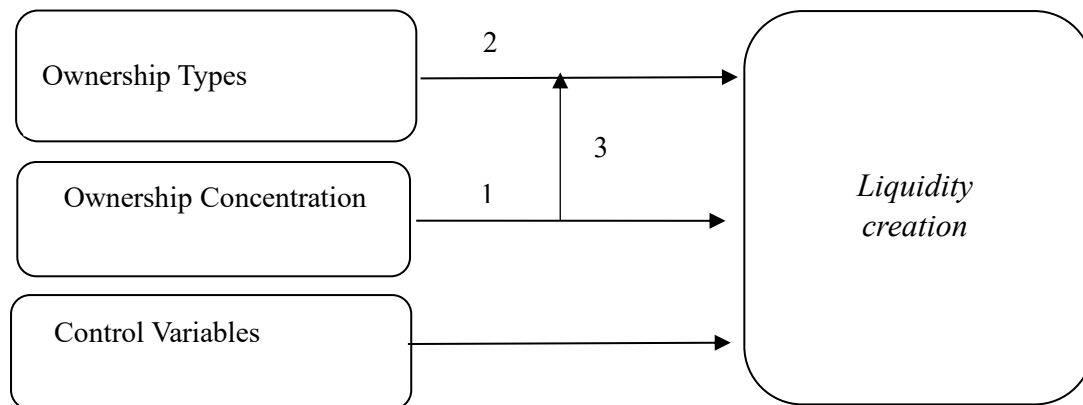


Figure 1. Research Model

According to the model above, there are 3 types of models used. The first model is to examine the effect of ownership concentration on liquidity creation as Hypothesis 1, as follows:

$$Y_{it} = \alpha + Y_{i,t-1} + \alpha_1 Own_{it} + \sum \beta_j Z_{jit} + \varepsilon_{it}$$

The second model is to examine the effect of ownership types on liquidity creation as Hypothesis 2, as follows:

$$Y_{it} = \alpha + Y_{i,t-1} + \alpha_1 Bank_{it} + \alpha_2 Family_{it} + \alpha_3 Company_{it} + \alpha_4 State_{it} + \alpha_5 Institute_{it} + \sum \beta_j Z_{jit} + \varepsilon_{it}$$

The third model is the model to test the effect of ownership concentration on the relationship between bank ownership types and liquidity creation as Hypothesis 3, as follows:

$$Y_{it} = \alpha_0 + Y_{i,t-1} + \alpha_1 \text{Concentrated}_{it}(X) * \text{Bank}_{it} + \alpha_3 \text{Concentrated}(X)_{it} * \text{Family}_{it} + \alpha_3 \text{Concentrated}(X)_{it} * \text{Company}_{it} + \alpha_4 \text{Concentrated}(X) * \text{State}_i + \alpha_5 \text{Concentrated}(X)_{it} * \text{Institute}_{it} + \sum \beta_j Z_{jit} + \varepsilon_{it}$$

In the above model, Y represents Liquidity Creation. The Own variable represents the percentage of ownership by controlling shareholders. Values range from 25 to 100%, while if the ownership percentage is below 25%, it is given a value of "0". The Company, Institute, Bank, Family, and State variables represent the type of controlling shareholder ownership, measured using dummy variables where "1" is assigned if the controlling shareholder is a bank, company, state, or institute with at least 25% total capital, and "0" otherwise.

Meanwhile, the Concentrated variable (X) is a dummy variable representing the level of ownership concentration with thresholds of 25%, 35%, 45%, 50%, 55%, 65%, 75%, 85%. If the ownership concentration is \geq the threshold X, it is assigned a value of "1", otherwise, it is assigned a value of "0". To determine whether the impact of bank ownership types on increasing concentration levels can lead to different effects on liquidity creation, regressions are performed at each threshold in this model. Additionally, Z_jit represents control variables.

In Model 2, if the values of $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$ are all 0 then type of bank ownership does not have a different effect on liquidity creation. In Model 3, to see if ownership concentration affects the relationship between ownership type and liquidity creation, we can observe the values of $\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5$. If they are 0, then H0 is rejected.

Definition And Measurement Of Research Variables

a. Dependent Variable

The dependent variable in this study is Liquidity Creation (NLC). To calculate NLC, the "cat nonfat" method is used, as employed in the research by (Yeddou & Pourroy, 2020).

Table 2. Method for Calculating Narrow Liquidity Creation (NLC)

Asset		
Illiquid (0,5)	semiliquid (0)	liquid (-0,5)
<i>corporate and commercial loans</i>	<i>residential mortgage</i>	<i>cash and due from banks</i>
<i>other loans</i>	<i>other mortgage</i>	<i>trading securities and at future value through incomes</i>
<i>investment in property</i>	<i>loans and advances to banks</i>	<i>available for sale securities</i>
<i>insurance assets</i>	<i>Consumer loan</i>	<i>held to maturity securities</i>
<i>foreclosed real estate</i>		<i>at-equity investment in associates</i>
<i>fixed assets</i>		<i>other securities</i>
<i>goodwill</i>		<i>reserve repos and cash collateral</i>
<i>other intangibles</i>		<i>insurance asset</i>
<i>current tax assets</i>		
<i>deferred tax assets</i>		

Asset		
Illiquid (0,5)	semiliquid (0)	liquid (-0,5)
<i>other earning assets</i>		
<i>discontinue operations</i>		
<i>other asset</i>		

Liabilities and Equity		
illiquid (-0,5)	semiliquid (0)	liquid (0,5)
<i>senior debt maturing after 1 year</i>	<i>other deposit and short term borrowing</i>	<i>customer deposit</i>
<i>subordinates borrowing</i>	<i>Time deposit</i>	<i>deposit from bank</i>
<i>other funding</i>		<i>repo and cash collateral</i>
<i>fair value portion of debt</i>		<i>trading liabilities</i>
<i>credit impairment reserves</i>		<i>Transaction deposit</i>
<i>reserves for pensions and other</i>		<i>Saving deposit</i>
<i>current tax liabilities</i>		
<i>deferred tax liabilities</i>		
<i>other deferred liabilities</i>		
<i>discontinue operations</i>		
<i>insurance liabilities</i>		
<i>other liabilities</i>		
<i>Pref. Shares and Hybrid Capital accounted for as Debt</i>		
<i>Pref. Shares and Hybrid Capital accounted for as equity</i>		
<i>Common equity</i>		
<i>Non controlling interest</i>		
<i>Securities Revaluation Reserve</i>		
<i>foreign exchange revaluation reserves</i>		
<i>Fixed Assets Revaluation and other accumulation Other Comprehensive Income (OCI)</i>		

Note: based on (Berger & Bouwman, 2009); Berger et al. (2019)

After grouping is conducted, the calculation of Narrow Liquidity Creation Calculation values is performed using the following formula:

$$NLC = \frac{0,5 \cdot \text{illiquid asset} + 0 \cdot \text{semiliquid asset} - 0,5 \cdot \text{liquid asset} + 0,5 \cdot \text{liquid liabilities} + 0 \cdot \text{semiliquid liabilities} - 0,5 \cdot \text{illiquid liabilities}}{\text{Total Asset}}$$

b. Independent Variables

The independent variables in this study are the type of bank ownership and the concentration of bank ownership. To measure the type of bank ownership, this study adopts the method used by (Yeddou & Pourroy, 2020) and (Barry et al., 2011) which categorizes bank ownership into: (1) government (state), (2) other banks (bank), (3) company, (4) institutional companies such as insurance, pension funds (institute), and (5) family.

To classify a shareholder into one of these groups, a minimum ownership threshold of 25% is used. If a shareholder owns 25% or more, a dummy variable with a value of "1" is assigned, and a value of "0" is assigned if there is no shareholder ownership exceeding 25%.

In measuring the concentration of bank ownership, a bank is considered concentrated if and only if there is at least one shareholder owning more than or equal to 25% of the total bank capital. If there is no ownership concentration above or equal to 25%, the bank ownership is categorized as "widely held". The percentage of share ownership is represented by the variable "Own" (score between 25% to 100%, with a value of "0" if share ownership < 25%).

Furthermore, following the study by (Yeddou & Pourroy, 2020), to examine the impact of the type of ownership on liquidity creation at each level of ownership concentration, ownership concentration is also measured using a dummy variable "Concentrated", with a value of "1" if the concentration exceeds the threshold X%, and "0" otherwise. The thresholds are set at 25%, 35%, 45%, 50%, 55%, 65%, 75%, 85%.

c. Moderating Variable

The moderating variable in this study is the concentration of ownership. The ownership concentration variable is hypothesized to affect the relationship between the type of ownership and liquidity creation.

d. Control Variables

The control variables used in this study are market power, bank capital, and size. Market power is included as a control variable because when banks have significant market power, they tend to increase their activities by providing more loans and attracting more funds, thus affecting liquidity creation (Distinguin et al., 2013). Market power is measured using the following formula:

Market power = total bank assets / total banking assets in Indonesia

The next control variable is bank capital. Referring to previous research, larger capital is expected to enable banks to create more liquidity, as banks with larger capital are better able to absorb risks as per the theory that banks are risk transformers (Bhattacharya & Thakor, 1993). Bank capital is measured using the following formula:

Bank Capital = Total equity / total assets

The final control variable is size. Research by Safiullah et al., 2022, indicates that larger banks have a greater impact on liquidity creation due to their ability to provide more credit. Other studies show a relationship between larger banks and net interest income, indicating that larger banks have the advantage of engaging in more modern business activities (Lu & Mieno, 2020). Size is measured using the following formula:

Size = natural logarithm of total bank assets in period t

Statistical Testing

Referring to previous research, data analysis in this study employs the dynamic panel data regression method. The estimation method used in this study is the SYS-Generalized Method of Moments (GMM), consistent with studies by (Kinini et al., 2023) and (Yeddou & Pourroy, 2020). The GMM method offers several advantages, including robustness against distribution of errors and greater efficiency compared to the two-stage least squares (2SLS) regression method.

4. Empirical Findings/Result

Descriptive Statistic

Table 3. Descriptive Statistic

variabel	Obs	average	std deviasi	min	max
Own	420	57.8698254	28.3553437	0	99.99
Modal	420	0.18733963	0.11609662	0.05534	0.92508
MP	420	0.01109735	0.02914449	0.000082	0.17929336
Size	420	16.98075	1.501148	13.4	21.4
NLC	420	0.12891722	0.17373419	-0.932138	0.41639234

The displayed data presents descriptive statistics of 420 bank samples in Indonesia over 5 years from 2018 to 2022. The variable Own indicates ownership concentration with a mean value of 57.8% and a standard deviation of 28.35%. The lowest value for the Own variable is 0%, and the highest is 99%. The variable Modal indicates the ratio of bank capital to total assets. The minimum value is 0.05534, and the maximum is 0.92508. The variable MP represents Market Power with an average value of 0.01109735 and a standard deviation of 0.02914449. The minimum value is 0.05534, and the maximum value is 0.92508. The Size variable indicates the size of the company calculated using the natural logarithm of the total assets of bank *i* in period *t*. The average company size is 16.98075, with a standard deviation of 1.501148. The NLC variable represents liquidity creation with an average value of 0.12891722 and a standard deviation of 0.17373419.

Empirical Testing Results

Prior to conducting empirical testing, considering the issue of endogeneity in the variables used in the research on liquidity creation based on previous studies, an endogeneity test was first performed to determine the statistical method to be used. After testing, it was found that there was endogeneity, thus it was decided to use the GMM method.

Before conducting empirical testing, several tests were performed, including (1) Arellano Bond test used to examine the consistency of estimation results through autocorrelation testing, (2) Unbiasedness test by comparing lag dependent GMM estimator with FEM and PLS, and (3) Sargan test used to examine the consistency of estimation results through autocorrelation testing (overidentifying conditions). From the series of tests conducted, it was decided to use either SYS GMM or First Difference GMM method. Based on the test results, it was decided to use the SYS GMM method in this research. Below are the results of the testing using SYS-GMM:

Table 4. The relationship between ownership concentration and liquidity creation

No	Variabel name	Coeff	p value
1	NLC-L1	0.6366	0.000*
2	own	-0.0016	0.018*
3	modal	0.2188	0.126
4	MP	0.7182	0.847
5	Size	-0.0417	0.004*

Notes: *significant at 5% level

Based on the regression results, it is evident that ownership concentration significantly negatively affects liquidity creation, as indicated by the coefficient value of -0.0016 and probability < 0.018. This indicates that the higher the ownership concentration of banks in Indonesia, the lower their ability to perform liquidity creation.

Table 5. Relationship between Types of Bank Share Ownership and Liquidity Creation

No	Variabel name	Coeff	p value
1	NLC-L1	0.4393	0.000*
2	Bank	-0.4071	0.015*
3	Family	0.2838	0.053
4	Company	-0.1022	0.501
5	State	-0.1082	0.687
6	Institution	0.1615	0.035*
7	Modal	0.1703	0.403
8	MP	0.2675	0.907
9	Size	-0.0186	0.238

Notes: *significant at 5% level

Based on the regression results, it is known that the types of bank ownership that significantly affect liquidity creation are Bank ownership and Institutional ownership. Meanwhile, the types of ownership such as Company, Family, and State do not have a significant effect on liquidity creation, as their p-values are greater than 0.05. These research findings support hypothesis 2, indicating that different types of ownership have varying effects on liquidity creation.

Table 6. The impact of bank ownership types on liquidity creation at different levels of concentration

No	Variabel	25%	35%	45%	50%	55%	65%	75%	85%
1	NLC L1	.4393434 (0.000)	.4076741 (0.000)	.6719297 (0.000)	.5522862 (0.000)	.5822917 (0.000)	.5664164 (0.000)	.7560798 (0.000)	8236152 (0.000)
2	ConBank	-.4071069 (0.015)*	-.350834 (0.014)*	-.3226788 (0.024)*	-.2607278 (0.010)*	-.194082 (0.053)	-.2874803 (0.003)*	-.3017297 (0.084)	-.2174161 (0.171)
3	ConFamily	.2838096 (0.053)	.2244465 (0.002)*	.3014639 (0.054)	.3034812 (0.002)**	.37343 (0.000)*	n.a	n.a	n.a
4	ConCompany	-.1022157 (0.501)	-.0564995 (0.488)	-.045835 (0.553)	-.0605408 (0.372)	-.0277727 (0.674)	.0155771 (0.644)	.0510555 (0.458)	.0316323 (0.766)
5	ConState	-.1082813 (0.687)	-.1179631 (0.289)	.0383384 (0.691)	.0505782 (0.800)	-.0108113 (0.874)	-1.42492 (0.687)	-2.381233 (0.416)	-2.9707 (0.389)
6	ConInstitution	.1615178 (0.035)*	.0686106 (0.270)	.0540255 (0.489)	.1101428 (0.268)	.268586 (0.027)*	.203293 (0.000)*	n.a	n.a
7	Capital	.1703264 (0.403)	.1264655 (0.602)	.5084276 (0.207)	.2290635 (0.187)	.2570876 (0.169)	.1532686 (0.325)	.411959 (0.307)	.4787496 (0.263)
8	MP	.2675888 (0.907)	-.3896244	4.912333 (0.451)	.3455217 (0.941)	1.085845 (0.814)	1.118174 (0.781)	3.761751 (0.540)	3.223873 (0.615)

			(0.881)						
9	Size	- .0186182 (0.238)	- .0200852 (0.295)	-.0461694 (0.012)*	-.0256423 (0.080)**	-.0346863 (0.035)*	-.035068 (0.018)*	-.0701906 (0.002)*	-.0758042 (0.003)*

Notes: *significant at 5% level

To test whether ownership concentration influences the relationship between ownership type and liquidity creation, regressions are conducted at each threshold from 25% to 85%. At the 25% threshold level, all banks with ownership concentration above $\geq 25\%$ are assigned a value of 1, while banks with ownership concentration below 25% are assigned a value of 0. Similarly, at the 35% threshold level, banks with concentration $\geq 35\%$ are assigned a value of 1, and so forth until the 85% threshold level, where only banks with concentration $\geq 85\%$ are assigned a value of 1.

Based on the regression results, it can be observed that at the 25%, 35%, 45%, 50%, and 65% levels, ownership by banks has a significant negative effect on liquidity creation. Controlling shareholder ownership by families has a significant positive effect at the 35%, 50%, and 55% levels. Ownership of banks by families between the 65% and 85% levels cannot be analyzed due to constant data. Institutional ownership has a significant positive effect on liquidity creation at the 25%, 55%, and 65% levels. At the thresholds of 75% and 85%, institutional ownership is excluded from the regression due to collinearity. Ownership of banks by the state and companies, on the other hand, does not significantly affect liquidity creation at any level.

From these research findings, it can be seen that there is still a significant influence of ownership types on liquidity creation from the 25% to 65% levels. However, beyond the 75% level, ownership types do not significantly affect liquidity creation. This supports hypothesis 3 that the type of bank ownership has a different effect on liquidity creation depending on the level of ownership concentration.

Control Variables

Based on regressions in several models used, there is consistency in the relationship where the Size variable significantly negatively affects liquidity creation. According to the regression results, the capital variable does not significantly positively affect liquidity creation. Furthermore, the Market Power variable consistently does not significantly affect liquidity creation.

5. Discussion

Relationship between ownership concentration and liquidity creation.

Based on a series of corporate governance literature, it is shown that concentrated share ownership exerts greater control over management decision-making due to higher voting rights (Levine, 2003).

In this study, it was found that the variable of ownership concentration has a significantly negative effect on liquidity creation. These research findings support Hypothesis 1: Ownership concentration negatively and significantly affects liquidity creation. These findings align with the study by (Kayani et al., 2021), which examined developing countries in the Asian region and concluded that concentrated ownership leads to a decrease in bank risk-taking and, consequently, reduces liquidity. This study also corroborates the findings of (Barry et al., 2011), who found that ownership concentration does not influence the level of corporate risk-taking. The research by Haque & Shahid (2016) similarly did not find a significant relationship between ownership concentration and risk-taking.

This is also consistent with the findings in this study regarding control variables, indicating that company size has a significantly negative effect on liquidity creation, meaning that larger banks tend to create less liquidity. According to data in Indonesia, highly concentrated banks are relatively large, while banks with low ownership concentration are relatively small.

However, this study is not consistent with the findings of (Yeddou & Pourroy, 2020), where highly concentrated banks had a positive and significant impact on liquidity creation because they could influence management to take more risks to create more liquidity.

Relationship between Types of Bank Ownership and Liquidity Creation

The research results indicate that the type of bank ownership has a significantly negative impact with a coefficient value of -0.407 and a p-value of 0.015, suggesting that banks owned by other banks tend to generate less liquidity. This is consistent with the study by (Yeddou & Pourroy, 2020), where banks owned by other banks produced less liquidity creation compared to other ownership types. Banks with controlling shareholders being other banks tend to choose a conservative strategy for security and reputation because if a bank fails, the parent bank bears the losses (Barry et al., 2011). This leads to banks owned by other banks generating less liquidity.

Ownership by institutions shows a positive and significant influence on liquidity creation. This aligns with the research by (Yeddou & Pourroy, 2020), which also found a positive and significant relationship between institutional ownership and liquidity creation. Supporting this finding is the notion that institutional investors can influence managers to make riskier decisions (Barry et al., 2011). These risky decisions ultimately drive banks to increase liquidity creation. Pound (1998) as cited in (Yeddou & Pourroy, 2020) argues that institutional investors have higher expertise and can monitor managers at a lower cost compared to small shareholders. As shareholders, institutional investors should be less sensitive to investment risk levels and only concerned with expected returns. Therefore, banks owned by institutional investors might take more risks and create more liquidity.

Ownership by the government, family, and non-financial companies does not significantly affect liquidity creation. Considering the differing influences of ownership types on liquidity creation, the research findings support Hypothesis 2: ownership types have different effects on liquidity creation.

Influence of Bank Ownership Types on Liquidity Creation at Different Levels of Ownership Concentration

Based on the research findings, it can be concluded that within the concentration levels of 25% to 75%, the type of ownership influences liquidity creation, although not all types of ownership have an impact, while at the 75% level, there is no influence of ownership type on liquidity creation.

These research results support Hypothesis 3: The effect of bank ownership type on liquidity creation varies at different concentration levels. Additionally, the research findings also support Hypothesis 1, where higher ownership concentration (above 75%) does not affect liquidity creation.

Control Variables

Based on the research findings, smaller-sized banks actually generate more liquidity compared to larger-sized banks. This finding is consistent with the research conducted by Viverita et al., (2023) and Dang & Dang, (2021), which indicate that larger banks tend to engage in less liquidity creation, and vice versa. Additionally, this finding supports hypothesis 1, suggesting that banks with higher ownership concentration tend to generate less liquidity creation, and vice versa.

The capital variable did not have a significant effect but with a positive coefficient. This indicates that higher bank capital encourages more liquidity creation. This supports the risk absorption hypothesis, which states that higher capital increases a bank's ability to absorb risk, thus encouraging the bank to create more liquidity (Bhattacharya & Thakor, 1993). This result supports the findings of (Kayani et al., 2021). The market power variable also did not have a significant effect on liquidity creation.

6. Conclusion

Banks play a crucial role in creating liquidity and managing risk. This research aims to contribute to the literature on factors influencing liquidity creation, focusing on ownership types and ownership concentration. Ownership types studied include government (state), family, non-financial companies, banks, and institutional investors, which are relatively underexplored in research on bank ownership types in Indonesia. The study is conducted in Indonesia due to the dominance of banking institutions in the country's financial sector.

Liquidity creation serves as a channel for shareholders to adjust bank risk, implying that different ownership types may lead to varying liquidity levels. The study tests two main variables hypothesized to affect liquidity creation: ownership types and ownership concentration. The research utilizes a sample of 84 banks in Indonesia from 2018 to 2022.

The findings indicate that ownership concentration significantly negatively affects liquidity creation, suggesting that concentrated ownership leads to reduced bank risk-taking and, consequently, lower liquidity. This contrasts with some literature suggesting that increased ownership concentration incentivizes banks to generate more liquidity. This indicates that ownership concentration may either encourage banks to take more risks, resulting in greater liquidity, or push them to reduce risks, leading to less liquidity. This underscores the need for regulators to encourage highly concentrated banks to engage in more liquidity-generating activities.

Furthermore, it is evident that ownership types have varying effects on liquidity creation. Ownership by banks significantly negatively affects liquidity creation, supporting the notion that bank ownership by other banks leads to less liquidity creation, as banks tend to act more conservatively to protect the parent bank from losses. Considering this finding, the Indonesian government is advised to encourage highly concentrated banks to generate more liquidity by investing more in illiquid assets such as corporate and commercial loans.

On the other hand, ownership by institutional investors has a significantly positive effect on liquidity creation, suggesting that institutional ownership incentivizes banks to create liquidity. Moreover, ownership by institutional investors supports the argument that institutions possess expertise that can help drive liquidity creation in banks.

Another key finding is that smaller banks actually generate more liquidity compared to larger banks. This implies that larger banks in Indonesia tend to generate less liquidity. Therefore, the Indonesian government is advised to encourage larger banks to invest more in business and individual sectors that generate liquidity, rather than investing in money markets or Bank Indonesia certificates.

Given the importance of liquidity monitoring for financial system stability, this research provides additional insights for regulators on the significance of ownership concentration and types in liquidity creation, which can inform banking regulations.

References:

- Anderson, R. C., & Reeb, D. M. (2003). Founding-family ownership, corporate diversification, and firm leverage. *The Journal of Law and Economics*, 46(2), 653–684. <https://www.journals.uchicago.edu/doi/abs/10.1086/377115>
- Barry, T. A., Lepetit, L., & Tarazi, A. (2011). Ownership structure and risk in publicly held and privately owned banks. *Journal of Banking & Finance*, 35(5), 1327–1340. <https://doi.org/10.1016/j.jbankfin.2010.10.004>

- Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation. *The Review of Financial Studies*, 22(9), 3779–3837. <https://doi.org/10.1093/rfs/hhn104>
- Bhattacharya, S., & Thakor, A. V. (1993). Contemporary banking theory. *Journal of Financial Intermediation*, 3(1), 2–50. <https://doi.org/10.1006/jfin.1993.1001>
- Demirgüç-Kunt, A., & Detragiache, E. (2002). Does deposit insurance increase banking system stability? An empirical investigation. *Journal of Monetary Economics*, 49(7), 1373–1406. [https://doi.org/10.1016/S0304-3932\(02\)00171-X](https://doi.org/10.1016/S0304-3932(02)00171-X)
- Diamond, D. W., & Dybvig, P. H. (1983). Bank runs, deposit insurance, and liquidity. *Journal of Political Economy*, 91(3), 401–419. <https://www.journals.uchicago.edu/doi/abs/10.1086/261155>
- Distinguin, I., Roulet, C., & Tarazi, A. (2013). Bank regulatory capital and liquidity: Evidence from US and European publicly traded banks. *Journal of Banking and Finance*, 37(9), 3295–3317. <https://doi.org/10.1016/j.jbankfin.2013.04.027>
- Iannotta, G., Nocera, G., & Sironi, A. (2007). Ownership structure, risk and performance in the European banking industry. *Journal of Banking & Finance*, 31(7), 2127–2149.
- Jensen, M. C., & Meckling, W. H. (1919). Theory of the firm: Managerial behavior, agency costs and ownership structure. In *Corporate governance* (pp. 77–132). Gower.
- Kayani, G. M., Akhtar, Y., Yiguo, C., Yousaf, T., & Shahzad, S. J. H. (2021). The Role of Regulatory Capital and Ownership Structure in Bank Liquidity Creation: Evidence From Emerging Asian Economies. *Sage Open*, 11(2), 21582440211006052.
- Kinini, D. M., Ocharo, K. N., & Kariuki, P. W. (2023). Do income diversification and capital adequacy affect liquidity creation? A case study of commercial banks in Kenya. *Cogent Business and Management*, 10(2). <https://doi.org/10.1080/23311975.2023.2240082>
- Laeven, L. (2001). Insider lending and bank ownership: The case of Russia. *Journal of Comparative Economics*, 29(2), 207–229.
- Le-Bao, T., Ho, L., & Lang, D. (2023). Basel III standards and liquidity determinants in Vietnamese commercial bank. *Journal of Eastern European and Central Asian Research (JEECAR)*, 10(3), 401–412.
- Levine, R. (2003). The corporate governance of banks. *World Bank Policy Research Working*.
- Lu, W., & Mieno, F. (2020). Impact of foreign entry into the banking sector: The case of Thailand in 1999–2014. *Pacific Basin Finance Journal*, 64(August), 101424. <https://doi.org/10.1016/j.pacfin.2020.101424>
- Yeddou, N., & Pourroy, M. (2020). Bank liquidity creation: Does ownership structure matter? *Quarterly Review of Economics and Finance*, 78, 116–131. <https://doi.org/10.1016/j.qref.2020.01.003>