
Effect Analysis of CAR, BOPO, NPL, ROA, and Total Assets on LDR at Bank DKI (Period of 2014 – 2018)

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Abstract

Managing liquidity at a bank as an intermediary institution, is very important. Liquidity itself is considered as a reflection of the trust of customers or investors to bank. By knowing the factors that affect liquidity, banks are able to manage liquidity better. This study aims to analyze the variables that affect liquidity which is proxied by Loan to Deposit Ratio (LDR) at Bank DKI. The independent variables used are Capital Adequacy Ratio (CAR), Operating Expenses on Operating Income (BOPO), Non Performing Loans (NPL), Return On Assets (ROA), and Total Assets. The data was obtained from secondary data from financial statements issued by Bank DKI in the period January 2014 to December 2018. The sampling technique used purposive sampling. The hypothesis in this study is based on previous research and various other supporting theories which are then analyzed using multiple linear regression analysis with Eviews 9. The results of this study indicate that CAR and NPL have a positive effect on LDR, Total Assets negatively affect LDR, ROA has no effect on LDR while BOPO cannot be used because of multicollinearity.

Keywords: LDR, CAR, BOPO, NPL, ROA, Liquidity.

Abstrak

Mengelola likuiditas pada suatu bank sebagai lembaga intermediasi merupakan hal yang sangat penting. Likuiditas itu sendiri dianggap sebagai cerminan kepercayaan nasabah atau investor terhadap bank. Dengan mengetahui faktor-faktor yang mempengaruhi likuiditas, bank mampu mengelola likuiditas dengan lebih baik. Penelitian ini bertujuan untuk menganalisa variabel-variabel yang mempengaruhi likuiditas yang diproksikan oleh Loan to Deposit Ratio (LDR) pada Bank DKI. Variabel-variabel independen yang digunakan adalah Capital Adequacy Ratio (CAR), Beban Operasional terhadap Pendapatan Operasional (BOPO), Non Performing Loan (NPL), Return On Asset (ROA), dan Total Aset. Data diperoleh dari data sekunder laporan keuangan yang dikeluarkan oleh Bank DKI dengan periode bulan Januari 2014 hingga Desember 2018. Teknik pengambilan sampel menggunakan Purposive Sampling. Hipotesis dalam penelitian ini didasarkan pada penelitian terdahulu dan berbagai teori pendukung lainnya yang kemudian dianalisis menggunakan analisis regresi linier berganda dengan Eviews 9. Hasil penelitian ini menunjukkan bahwa CAR dan NPL berpengaruh positif terhadap LDR, Total Aset berpengaruh negatif terhadap LDR, ROA tidak berpengaruh terhadap LDR sedangkan BOPO tidak dapat digunakan karena terjadi multikolinearitas.

Kata Kunci: LDR, CAR, BOPO, NPL, ROA dan Likuiditas.

1. Introduction

The banking industry has a significant role in supporting economic growth and creating equity in a country. Banking plays an important role in the movement of the wheels of the economy in Indonesia. The Bank is a public intermediation institution as well as a supporter of economic development so that bank management must be balanced between rentability, liquidity and capital adequacy (Ambarita, 2015) in Evi Nur Fadillah (2018).

The banking industry is a type of industry that is very full of risks because it involves the management of public-owned money which can be withdrawn at any time to be rotated in the form of various investments, such as providing credit, purchasing securities, and investing other funds (Isnaisyah, 2011) in Arif Lukman Santoso (2013). In order to create a sound banking system that is able to develop and compete nationally and internationally, banks need to manage liquidity in accordance with the principle of prudence. The experience of the global financial crisis that occurred in 2008 shows that although the bank's capital is adequate, if the bank does not manage its liquidity prudently, it can disrupt the bank's business continuity (Executive Summary POJK No. 50/POJK.03/2017).

Liquidity is the ability of bank management to provide sufficient funds to meet its obligations at all times (Taswan, 2010). Banks as trust institutions for the public must be able to manage liquidity properly, especially aimed at reducing liquidity risks caused by lack of funds. In managing liquidity there will always be a conflict of interest between decisions to maintain liquidity and increase income. According to Astuti (1995) in Gladys Rosadaria (2012), for a bank the problem of liquidity is more dangerous than the condition of a bank that provides poor service to Customer. Liquidity issues for a bank are very important because liquidity can be considered as a reflection of customer confidence in the bank.

Banks that are always cautious about maintaining liquidity will tend to maintain their liquidity tools that are relatively larger than they need with a view to avoiding liquidity difficulties. But on the

other hand, banks are also faced with huge costs related to the maintenance of excessive liquidity tools. Idle funds result in costs incurred by banks greater than the receipts obtained from the receipt of interest for credit provided to customers.

Based on a circular letter to all commercial banks in Indonesia by Bank Indonesia Number 11/16/DPNP in force since 6th July 2009 concerning the Implementation of Risk Management for Liquidity Risk, the Bank can ensure the adequacy of funds on a daily basis both under normal conditions and crisis conditions in fulfilling obligations in a timely manner. Through good liquidity management banks can give confidence to depositors that they can withdraw their funds at any time at maturity, which is why liquidity analysis is very important and banks must be able to maintain their liquidity.

According to Lukman Dendawijaya (2005) emphasized that the liquidity of a bank can be measured from the Loan to Deposit Ratio (LDR). LDR is the ratio between the entire amount of credit provided by the bank and the funds received by the bank. LDR shows the relationship between deposits and credit. The growth of Third-Party Funds (DPK) will affect the amount of credit disbursement, this is in line with the LDR (Martha Novalina Ambaroita, 2015). Bank Indonesia as the monetary authority sets the ideal LDR limit at the level of 75% - 85% in Bank Indonesia Circular Letter Number 6/23/DPNP.

By calculating the LDR, the bank can find out and assess how far the bank has a healthy condition in carrying out its operations or business activities. In other words, LDR is used as an indicator to determine the level of insecurity of a bank (Nurul Fitria, 2012). The LDR shows how liquid a bank is. The higher the LDR level, the more illiquid the liquidity condition of the bank. This means that banks will find it difficult to fulfill their short-term obligations, such as the withdrawal of funds by customers against their deposits that are made suddenly. Meanwhile, the lower the LDR of a bank, the more liquid the bank will be. However, the increasingly liquid liquidity condition indicates that

Table 1. LDR, CAR, NPL, ROA, BOPO and Aset Ratio Performance Between Bank DKI and Bank Buku 3

Period	LDR		CAR		BOPO		NPL		ROA		Aset (in Billion Rupiah)	
	Bank DKI	BUKU 3	Bank DKI	BUKU 3	Bank DKI	BUKU 3	Bank DKI	BUKU 3	Bank DKI	BUKU 3	Bank DKI	BUKU 3
2014	92,57 %	96,99 %	17,96 %	17,04 %	80,26 %	84,67 %	2,92 %	1,88 %	2,10 %	1,78 %	36.436	1.762.813
2015	91,14 %	99,37 %	24,53 %	23,30 %	90,99 %	90,70 %	4,23 %	1,87 %	0,89 %	1,25 %	38.638	2.248.668
2016	87,41 %	95,96 %	29,79 %	24,86 %	77,82 %	89,33 %	2,75 %	1,99 %	2,29 %	1,41 %	40.567	2.410.748
2017	70,77 %	96,63 %	28,77 %	24,85 %	76,97 %	86,08 %	2,31 %	1,62 %	2,04 %	1,77 %	51.417	2.463.522
2018	93,04 %	101,53 %	28,62 %	25,72 %	76,86 %	86,00 %	1,95 %	1,70 %	2,19 %	1,82 %	53.028	2.697.941

Source : Statistik Perbankan Indonesia (OJK) and Financial Statements PT. Bank DKI

many funds are unemployed, thereby reducing the bank's opportunity to get receipts from credit interest that should be disbursed, so that the bank's function as an intermediation institution has not been achieved properly. Therefore, the liquidity balance needs to be maintained so that it does not exceed the upper limit or less than the lower limit of the LDR level that has been determined by the government (Agustina and Anthony Wijaya, 2013).

PT Bank DKI, better known as Bank DKI, is a Regional Development Bank (BPD) and a Regionally Owned Enterprise (BUMD) whose share ownership is owned by the Provincial Government of the Special Capital Region of Jakarta and PD Pasar Jaya, which provides banking services like other Commercial Banks. Bank DKI obtains sources of funds from the community in the form of deposits in the form of current accounts, time deposits, and savings accounts. On the other hand, the use of funds from the community is used by providing credit to the community and also within the DKI Jakarta Provincial Government such as investment credit, working capital credit, or consumptive credit. The support of the DKI Jakarta Provincial Government as the largest shareholder, one of which is in increasing capital, will strengthen Bank DKI's liquidity profile.

It can be seen in Table 1 above where the Loan Deposit Ratio (LDR) value of Bank DKI shows an upward trend of fluctuations. This shows the condition of Bank DKI which is liquid with an average LDR of 86.99% which is included in the rating assessment criteria is quite healthy. On the other hand, when compared to the average bank in the classification of Commercial Banks of Business Group (BUKU) 3 where Bank DKI has been included in it since 2015, the average LDR of Bank BUKU 3 has a tendency to fluctuate upwards. During the period 2014 - 2018, Bank DKI, which is also included in Bank BUKU 3, was able to compete and maintain liquidity in its class, by showing that Bank DKI's liquidity performance was still better than bank BUKU 3's liquidity performance. Therefore, it is necessary to examine the factors that affect Bank DKI's liquidity in order to maintain Bank DKI's operational performance in the next period.

Based on the data from Table 1 above, it appears that the phenomenon of gaps in all variables appears. The relationship between CAR, ROA, and Total Assets does not show the same direction towards the LDR. Meanwhile, the NPL and BOPO show the same direction where it should show a different direction towards the LDR. Therefore, the author feels the need to know more about liquidity management at Bank DKI, in order to see the factors that affect liquidity at Bank DKI, which can then be used by banks as consideration in making decisions in the future is coming. So, in this case, the author takes the title "Analysis of the Effect of

CAR, BOPO, NPL, ROA, and Total Assets on LDR at Bank DKI (Period 2014 – 2018)"

Based on the background above, the problems in this study are formulated as Does the Capital Adequacy Ratio (CAR) have a positive effect on the LDR at Bank DKI? Does Operating Cost to Operating Income (BOPO) negatively affect the LDR at Bank DKI? Does Non-Performing Loan (NPL) negatively affect the LDR at Bank DKI? Does the Return on Asset (ROA) have a positive effect on the LDR at Bank DKI? Does Total Assets have a positive effect on the LDR at Bank DKI?

2. Theoretical Framework and Hypothesis Development (If Any)

Bank

The definition of a bank in Law Number 7 of 1992 concerning Banking as amended by Law Number 10 of 1998 is a business entity that collects funds from the public in the form of deposits and distributes them to the public in the form of credit and or other forms in order to improve the living standards of many people. Meanwhile, according to Kasmir (2008), the definition of a bank is a financial institution whose business activity is to collect funds from the community and distribute the funds back to the community and provide other bank services. For this reason, banks need trust from the public so that their operations can run well.

Definition of bank health level according to Bank Indonesia Regulation No. 6/10/PBI/2004, the level of bank health is the result of a qualitative assessment of various aspects that affect the condition or performance of a bank through quantitative assessment and or qualitative assessment of factors of capital, asset quality, management, rentability, liquidity and sensitivity to market risks.

Bank Liquidity and Bank Liquidity Management

According to Taswan (2010), bank liquidity is the ability of bank management to provide sufficient funds to meet its obligations at all times. Banks as trust institutions for the public must be able to manage liquidity properly, especially aimed at reducing liquidity risks caused by lack of funds. Banks in fulfilling their obligations do not need to have to look for funds with relatively high interest rates in the money market or banks are forced to sell part of their assets at a relatively large loss that will affect the bank's income.

In managing liquidity there will always be a conflict of interest between the decision to maintain liquidity and increase profits. Banks that are too cautious in maintaining their liquidity will tend to maintain relatively large liquid tools than necessary with a view to avoiding the risk of liquidity difficulties, but on the other hand they are also faced with large costs related to maintenance redundant liquid tools. Therefore, in liquidity management, a

balance between the two interests above is needed. Banks as trust institutions need to maintain their liquidity so that customers or investors feel safe their funds are stored in the bank.

Loan to Deposit Ratio

The *Loan to Deposit Ratio* (LDR) is used as a dependent variable because it is a ratio that measures the bank's ability to meet financial obligations that must be met immediately related to liquidity aspects. LDR is a comparison between the entire amount of credit provided by the bank and the funds received by the bank (Dendawijaya, 2005). This ratio takes into account the amount of third-party funds disbursed in the form of credit. According to Agustina and Anthony Wijaya (2013), how far the bank's liquidity level is indicated by the LDR. The higher the LDR rate, the more illiquid a bank is, meaning that the bank will find it difficult to meet its short-term obligations. Conversely, the lower the LDR rate, the more liquid the bank becomes. However, the more liquid the bank shows that more funds are unemployed so that the bank's chances of receiving greater income will be smaller. Thus, the intermediation function of the bank is not well achieved. Therefore, banks must maintain the LDR so that it is not too high or low.

$$\text{LDR} = \frac{\text{Credit}}{\text{Third Party Funds}} \times 100\%$$

Source: Bank Indonesia Circular Letter No. 13/24/DNP

Capital Adequacy Ratio

The *Capital Adequacy Ratio* (CAR) is an independent variable that affects the LDR based on its relationship with the bank's health level which boils down to the bank's liquidity. According to Dendawijaya (2005), CAR is a ratio that shows how far all bank assets that contain risk (credit, participation, securities, bills at other banks) are financed from the bank's own capital funds in addition to obtaining funds from sources outside the bank, such as funds from the public, loans, and so on. CAR is a capital adequacy ratio that serves to reduce the risk of loss that is likely to be faced by banks. The higher the CAR means the better the bank's ability to bear the risks of risky credit. If the value of CAR is high, it can be said that the bank is able to finance operational activities and make a large enough contribution to make a profit.

$$\text{CAR} = \frac{\text{Capital}}{\text{Risk Weighted Asset}} \times 100\%$$

Source: Bank Indonesia Circular Letter No. 13/24/DNP

Operating Costs to Operating Income

Operating Costs to Operating Income abbreviated as BOPO are used as independent variables that affect LDR based on their relationship with the level of bank health which boils down to liquidity. The

BOPO ratio is used to measure the level of efficiency and effectiveness of banks in carrying out their operational activities. Considering that the bank's main activity is in principle to act as an intermediary, namely collecting and distributing public funds, the bank's costs and operating income are dominated by interest costs and interest yields (Dendawijaya, 2005).

The high value of the BOPO ratio at a bank indicates the inefficiency of the bank in carrying out its operational activities because the high value of this ratio shows the amount of operating costs that must be incurred by the bank to obtain operating income. In addition, a large amount of operating expenses will reduce the amount of profit to be obtained because operating costs or expenses act as a deduction factor in the income statement. The ideal BOPO ratio value is between 50% – 75% in accordance with Bank Indonesia regulations.

$$\text{BOPO} = \frac{\text{Operating Expenses}}{\text{Operating Income}} \times 100\%$$

Source: Bank Indonesia Circular Letter No. 13/24/DNP

Non Performing Loan

Non Performing Loan (NPL) is a ratio used to measure a bank's ability to measure the risk of credit repayment failure by debtors. Therefore NPLs are a reflection of credit risk. The smaller the value of the NPL, the smaller the credit risk borne by the bank. In providing credit, banks must conduct an analysis of the ability of prospective debtors to repay their obligations. After the credit is given, the bank is obliged to monitor the use of credit as well as the debtor's ability and compliance in fulfilling its obligations. To minimize credit risk, banks conduct reviews, assessments, and also binding on credit guarantees.

According to BI Circular Letter No. 3/30DPNP dated December 14, 2001, the NPL measured the ratio of the ratio between non-performing loans to total loans provided. High NPLs will increase costs, potentially against bank losses. The higher this ratio, the worse the bank's credit quality will be, thus the greater the number of non-performing loans. The higher the NPL ratio, the lower the level of liquidity of banks to third-party funds. This is because most of the funds disbursed by banks in the form of credit are sourced from deposits of third party funds.

$$\text{NPL} = \frac{\text{Sum of Non Performing Loans}}{\text{Total Credit}} \times 100\%$$

Source: Bank Indonesia Circular Letter No. 13/24/DNP

Return on Asset

Return on Asset (ROA) is a bank's financial ratio related to profitability. ROA measures a bank's ability to generate profits or profits at a certain level of income, assets and share capital. By knowing the ROA, we can assess whether the bank has been

efficient in using its assets in operating activities to make a profit.

ROA is used as an independent variable that affects LDR based on its relationship with the level of health of the bank which boils down to the liquidity of the bank. According to Dendawijaya (2005), this ratio is used to measure management's ability to obtain profits (profits) as a whole. The greater the ROA, the greater the level of profit achieved by the bank and the better the bank's position in terms of asset use.

$$\text{ROA} = \frac{\text{Net Profit}}{\text{Total Asset}} \times 100\%$$

Source: Bank Indonesia Circular Letter No. 13/24/DNP

Total Asset

The size of a bank is viewed using total assets. Bank size can be divided into 3 (three) categories based on the total assets of the bank, namely *the largest bank*, *the middle size bank*, and the small bank (*the smaller bank*). Total Assets (TA) as an illustration of the bank's size is an asset used for the company's operating activities. Total Assets are used as an independent variable that affects the LDR because the asset structure will affect the amount of profit generated which boils down to the bank's liquidity. In this study, total assets were measured using Logarithms (Logs). The use of Logs aims to reduce excessive data fluctuations. Using Log, the value of billions and even trillions will be simplified, without changing the proportion of the actual total value of assets. Total Assets is measured by the following formula :

$$\text{TA} = \text{Log Total Asset}$$

Source : Evi Nur Fadillah. 2018

Hypothesis Development

Evi Nur Fadillah (2018) examined the Effect of Internal Factors and Inflation on Liquidity in Regional Development Banks in Indonesia. The dependent variables that reflect liquidity in this study are *the Loan to Deposit Ratio (LDR)*, while the independent variables used are NPL, CAR, ROA, *bank size*, *loan growth*, and Inflation. The research method used in this study is a quantitative method with a causality or *explanatory* approach. Because it aims to find evidence of the presence or absence of the influence of independent variables on dependent variables. The results showed that ROA, *bank size*, and inflation had a positive effect on liquidity (LDR). Meanwhile, NPLs, CAR, and *loan growth* have no effect on liquidity.

Martha Novalina Ambaroita (2015) conducted a study with the aim of describing DPK, CAR, and NPL, and analyzing how the influence of DPK, CAR, and NPL on LDR in the short and long term of commercial banks in Indonesia. The analysis method used is the *Error Correction Model (ECM)*

and uses a classic assumption test. Long-term results of CAR do not affect LDR, in the short term CAR has a positive effect on the LDR of commercial banks in Indonesia. In the long run, deposits have a positive effect on LDR and in the short term, deposits do not affect the LDR of commercial banks in Indonesia. In the long run NPL negatively affects LDR and in the short term NPL has a positive effect on LDR.

Arif Lukman Santoso (2013) discussed to find out the Factors Affecting Banking Liquidity in Indonesia. Where the independent variables used are bank size, *Net Working Capital*, *Return on Assets (ROA)*, *Return on Equity (ROE)*, *Capital Adequacy Ratio (CAR)*, *Non Performing Loan (NPL)*, *Deposit Interest Rate* , and *Lending Rate*. Using *purposive sampling*, the sample taken was a national banking industry company registered with Bank Indonesia in the period 2007 to 2011. This study used multiple regression analysis methods to test each influence of independent variables on their dependent variables. In addition, it also analyzes its descriptive statistics to provide an overview or description of a data seen from the average value (*mean*), standard deviation, maximum, and minimum. The results showed that the variables of Bank Size and NPL had an insignificant influence on the variables of Bank Liquidity. Variables that have a significant influence on Bank Liquidity, among others: *Net Working Capital*, ROA and CAR have a positive influence while ROE, Deposit Interest Rate and Lending Rate have a negative influence.

Dwi Anggraeni Srihadi Putri (2012) examined the effect of the SBI interest rate, Third Party Funds (DPK), Inflation, Non-Current Loans, and Exchange Rate on *Loan to Deposit Ratio (LDR)* for the 2006-2009 period. The *sampling* technique used is *purposive sampling*. A total sample of 121 commercial banks in Indonesia was obtained. The data analysis techniques used are multiple linear regression, classical assumption test and hypothesis test. The results of this study show that the variable interest rate of SBI and DPK has a significant positive effect on LDR. The NPL variable has a significant negative effect on the LDR, while the Inflation Rate and exchange rate (exchange rate) variables do not show a *significant* effect on the LDR.

Agustina and Anthoni Wijaya (2013) conducted a study to determine and analyze the effect of *Capital Adequacy Ratio*, *Net Interest Margin*, operating costs on operating income and interest rates on *loan to deposit ratio* both simultaneously and partially. The data analysis method used in this study is a statistical analysis method. Based on the results of the study, it is known that simultaneously, *capital adequacy ratio*, *net interest margin*, operating costs to operating income and interest rates have a significant effect on *the Loan to Deposit Ratio*, but partially *Net Interest Margin*, Operating Costs to Op-

erating Income and Interest Rates have a positive and significant effect on the *Loan to Deposit Ratio* while the *Capital Adequacy Ratio* has no effect on the *Loan to Deposit Ratio*.

Gladys Rosadaria (2012) examined the effect of *Capital Adequacy Ratio* (CAR), *Non Performing Loan* (NPL), *Net Interest Margin* (NIM), *Earning Per Share* (EPS), *Price Earning Ratio* (PER), Inflation and *Exchange Rate* on *Loan to Deposit Ratio* (LDR) as banking liquidity. This research is useful to provide an overview of the ability of bank performance ratios to influence banking liquidity so that short-term needs can also be met. The method used in this study is regression analysis. The results showed that if testing without the use of *outlier* samples, NIM had a significant positive influence and significant negative EPS on LDR. However, if testing uses *outlier* samples, CAR turns significantly negative to LDR as well as the feasibility of the research model becomes reduced.

Tafirei Mashamba (2014) examined the variables that determine the liquidity of *commercial* banks in Zimbabwe. As independent variables used are *Capital Adequacy Ratio* (CAR), *Bank Size*, *Loan Growth*, and *Non Performing Loans* (NPL), while the dependent variable is the liquidity ratio between loans to total assets. The research is motivated by the persistent liquidity crisis in Zimbabwe. The method used in this study is multiple linear regression analysis or *Ordinary Least Squares* (OLS). Based on the results of the study, it is known that *Bank Size* has a positive and significant effect on liquidity ratio, *non-performing loans* (NPL) have a negative and significant effect on liquidity ratio while *capital adequacy ratio* (CAR) and *loan growth* has no effect on the *Liquidity Ratio*.

Jefri I. B. Sengkey, Sri Murni and Joy E. Tulung (2018) conducted a study with the aim of knowing both simultaneously and partially between BOPO, NPL and ROA on liquidity (LDR) at National Private Commercial Banks listed on the Indonesia Stock Exchange for the period 2012 – 2015. As independent variables used are BOPO, NPL and ROA, while the dependent variables used are LDR. The method used in this study is multiple linear regression analysis using the SPSS program. Based on the results of the study, it is known that BOPO and ROA have a negative and significant effect on LDR, while NPL has no effect on LDR.

Alfian (2018) conducted a study with the aim of analyzing the effect of Third Party Funds (DPK), *Capital Adequacy Ratio* (CAR), *Non Performing Financing* (NPF), Operational Costs and Operational Financing (BOPO), Inflation, and Bank Indonesia Sharia Certificates (SBIS) on Banking Liquidity Sharia in Indonesia is proxied by the *Financing to Deposit Ratio* (FDR) ratio in Islamic Banking in Indonesia for the 2011-2017 period. As independent variables used are Third Party Funds

(DPK), *Capital Adequacy Ratio* (CAR), *Non Performing Financing* (NPF), Operational Costs and Operational Financing (BOPO), Inflation, and Bank Certificates Indonesia Syariah (SBIS), while the dependent variable used is the *Financing to Deposit Ratio* (FDR). The method used in this study is multiple linear regression analysis using SPSS and Microsoft Excel programs. Based on the results of the study, it is known that simultaneously the variables dpk, CAR, NPF, BOPO, Inflation & SBIS have a significant effect on FDR. Partially, the dpk, NPF & Inflation variables have a positive and significant influence on FDR, while the CAR, BOPO & SBIS variables have a positive and significant influence on FDR.

From previous studies that discuss liquidity in banks, there are several similarities and differences with the research conducted by the author. From the whole study using *loan to deposit ratio* (LDR) as the same dependent variable as the author's research in describing liquidity, but the dependent variable in Arif Lukman Santoso's research (2013) used the ratio between total capital to total assets while in Tafirei Mashamba (2014) used the ratio between the amount of loans to total assets. In Alfian's research (2018), the proxy of liquidity also uses the *Loan to Deposit Ratio* (LDR) but in Islamic banking it is called the *Financing to Deposit Ratio* (FDR).

In previous studies, there were also using the same independent variables as the author's research, such as: CAR, BOPO, NPL, ROA and Total Assets. But there are some other independent variables that the author does not use, namely:

- loan growth on Evi Nur Fadilah (2018) and Tafirei Mashamba (2014),
- inflation on Evi Nur Fadilah (2018), Gladys Rosadaria (2012) and Alfian (2018),
- Third Party Funds (DPK) pada Martha Novalina Ambaroita (2015), Dwi Anggraeini Srihadi Putri (2012) and Alfian (2018),
- Net Working Capital (NWC) on Arif Lukman Santoso (2013),
- Return on Earning (ROE) on Arif Lukman Santoso (2013),
- Interest Rates on Arif Lukman Santoso (2013), Dwi Anggraeini Srihadi Putri (2012) and Agustina (2013),
- Exchange Rate on Dwi Anggraeini Srihadi Putri (2012) and Gladys Rosadaria (2012),
- Net Interest Margin (NIM) on Agustina (2013) and Gladys Rosadaria (2012),
- Price Earning Ratio (PER) on Gladys Rosadaria (2012),
- Earning Per Share (EPS) on Gladys Rosadaria (2012),
- Bank Indonesia Sharia Certificate (SBIS) on Alfian (2018)

Based on the description above, the hypothesis proposed in this study is :

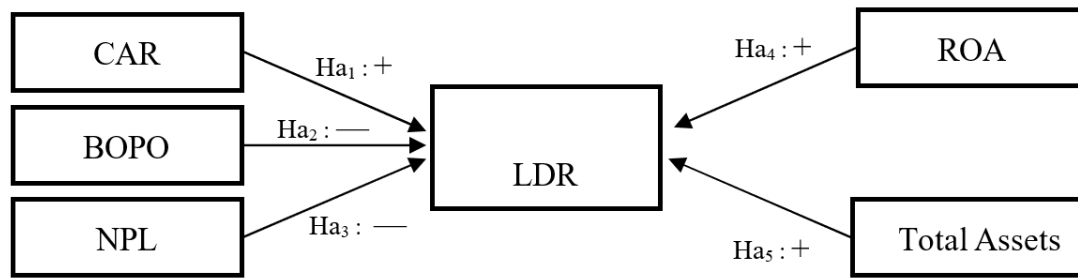


Figure 1. Research Framework

- Ha₁** : *Capital Adequacy Ratio* (CAR) positively affects LDR at Bank DKI for the period 2014 – 2018
- Ha₂** : Operating Expenses to Operating Income (BOPO) negatively affect the LDR at Bank DKI for the period 2014 – 2018
- Ha₃** : *Non Performing Loan* (NPL) negatively affects LDR at Bank DKI for the period 2014 – 2018
- Ha₄** : *Return On Assets* (ROA) positively affects LDR at Bank DKI for the period 2014 – 2018
- Ha₅** : Total Assets positively affect Liquidity (LDR) at Bank DKI for the Period 2014 – 2018

Research Framework

Based on the formulation of the hypothesis made, the following research framework shows the influence of the *variables Capital Adequacy Ratio* (CAR), *Operating Expenses to Operating Income* (BOPO), *Non Performing Loans* (NPL), *Return On Assets* (ROA), and *Total Assets to Loan to Deposit Ratio* (LDR) at Bank DKI which is used as follows in Figure 1.

3. Research Method

Data Types and Sources

The type of data used in this study is secondary data in the form of historical reports of financial ratios and financial position at Bank DKI which include *Loan to Deposit Ratio* (LDR), *Capital Adequacy Ratio* (CAR), *Operating Expenses to Operating Income* (BOPO), *Non Performing Loans* (NPL), *Return On Assets* (ROA), and *Total Assets* acquired by observation method during the period from January 2014 to December 2018.

The data used in this study is in the form of data on financial ratios and financial position every month from January 2014 to December 2018 obtained from financial statements issued by Bank DKI. The observation period is considered sufficient to follow the development of bank performance because *time series* data is used and includes the latest period of published financial statements published by Bank DKI.

Population and Sample

The population in this study is the group of banks that are classified as commercial banks for

business activities (BUKU) 3 in Indonesia. The sampling technique in this study used *Purposive Sampling*. This technique is carried out on the basis of the author's own consideration, that is, in sampling the author directly selects objects or data that are considered to be representative of the population in this study. So the sample in this study is Bank DKI. The consideration of sampling is due to the completeness of the data needed during the research period, besides that Bank DKI is not only a Regional Development Bank (BPD) and also one of the Commercial Banks in Indonesia located in Jakarta as the national capital. Bank DKI, which is also included in the BUKU 3 bank category, which can compete in maintaining its liquidity with banks in its class. This is evidenced during the research period, Bank DKI remained within the healthy rating criteria in maintaining liquidity ratios compared to BUKU 3 banks.

Technical Data Collection

The technical data collection used in this study is a documentation method, namely by collecting, recording, and reviewing secondary data in the form of monthly and annual financial statements published through the official website of Bank DKI. The data collected are data from historical reports of financial ratios and financial positions. The data is obtained by directly quoting or processing financial statement data issued by Bank DKI.

Research Variables and Operational Variables

The variables used in this study are classified into dependent variables and independent variables. The research variables used are as follows:

1. The dependent variable in this study that describes liquidity is the *Loan to Deposit Ratio* (LDR).
2. The independent variables in this study are *Capital Adequacy Ratio* (CAR), *Operating Expenses to Operating Income* (BOPO), *Non Performing Loans* (NPL), *Return On Assets* (ROA), and *Total Assets*.

Technical Data Analysis

Researchers used multiple regression analysis. This regression analysis can be used to obtain a comprehensive picture of the relationship between

Table 2. Operational Variable

Variable	Definition	Indicator	Scale
Loan to Deposit Ratio (LDR)	Comparison between the amount of credit and the amount of third-party funds	$LDR = \frac{\text{Credit}}{\text{Third Party Funds}} \times 100\%$	Rasio
Capital Adequacy Ratio (CAR)	Comparison between capital and Risk-Weighted Assets (ATMR)	$CAR = \frac{\text{Capital}}{\text{Risk Weighted Assets}} \times 100\%$	Rasio
Beban Operasional terhadap Pendapatan Operasional (BOPO)	Comparison between Operating Expenses and Operating Income	$BOPO = \frac{\text{Operating Expenses}}{\text{Operating Income}} \times 100\%$	Rasio
Non Performing Loan (NPL)	Comparison between the number of non-performing loans and the total loans provided	$NPL = \frac{\text{Sum of Non Performing Loan}}{\text{Total Credit}} \times 100\%$	Rasio
Return on Asset (ROA)	Comparison between net profit and total assets	$ROA = \frac{\text{Net Profit}}{\text{Total Assets}} \times 100\%$	Rasio
Total Aset (TA)	Bank scale viewed from total assets	TA = Log Total Assets	Rasio

dependent and independent variables either simultaneously or partially. Before performing multiple linear regression tests, the method requires to perform a classical assumption test in order to get the best results. The linear equation used is as follows:

$$LDR_t = \alpha + \beta_1 CAR_t + \beta_2 BOPO_t + \beta_3 NPL_t + \beta_4 ROA_t + \beta_5 TA_t + \epsilon_t$$

Information :

- LDR = Loan to Deposit Ratio
- CAR = Capital Adequacy Ratio
- BOPO = Operating Expenses to Operating Income
- NPL = Non Performing Loan
- ROA = Return On Asset
- TA = Log Total Assets
- t = time
- α = constanta
- ε = error term
- β₁, β₂, β₃, β₄, β₅ = Coefficient of regression

4. Result, Discussion, and Managerial Implication

Overview of Research Objects

Pt. Bank DKI or better known as Bank DKI was first established in Jakarta under the name "PT. Regional Development Bank djakarta Raya" or PT. BPD Jaya on April 11, 1961. Bank DKI, headquar-

tered in Jakarta, is one of the Regional Development Banks in Indonesia. At the time of establishment, the shareholders were the DKI Jakarta Regional Government as much as 99.97% and 0.03% of the shares were owned by PD. Pasar Jaya, with a total paid-up capital of IDR 3.9 trillion. Bank DKI was established with the intention and purpose of helping and encouraging economic growth and regional development in all fields as well as one of the sources of regional income in order to improve the living standards of the people.

Descriptive Statistics

The data used in this study is secondary data obtained from the publication of financial statements in the form of financial ratios and positions, namely: LDR, CAR, NPL, ROA, and Total Assets. The time period used was monthly during the years 2014 to 2018, thus the number of observations was 60. However, there are observation periods of 8 which are classified as *outlier* data so that the number of observations used is 52.

Furthermore, data processing using the Eviews 9 program, descriptive statistical results of each variable were obtained as follows in table 3.

Based on Table 3, it can be seen in the *Loan to Deposit Ratio* (LDR) variable has an average value (*mean*) of 0.797144 or 79.71%. This shows that during the period 2014 - 2018 the LDR value of Bank DKI was included in the healthy rating,

Table 3. Descriptive Statistics of Research Variable

	LDR	CAR	NPL	ROA	TA
Mean	0,797144	0,240407	0,030108	0,020754	40.995
Median	0,790000	0,272750	0,029300	0,020450	39.676
Maximum	0,961600	0,309000	0,045600	0,038900	53.080
Minimum	0,618600	0,148300	0,013200	0,007000	28.806
Std. Dev.	0,082788	0,057837	0,008894	0,008293	6.290
Observations	52	52	52	52	52

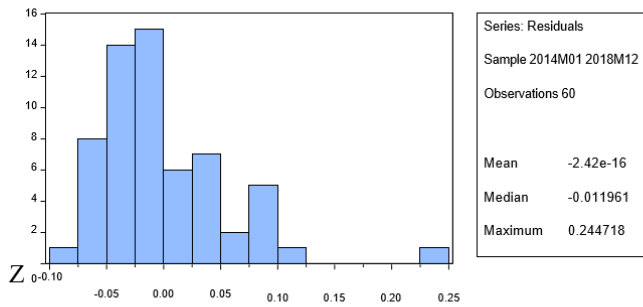


Figure 2. Normality Test With Outliers

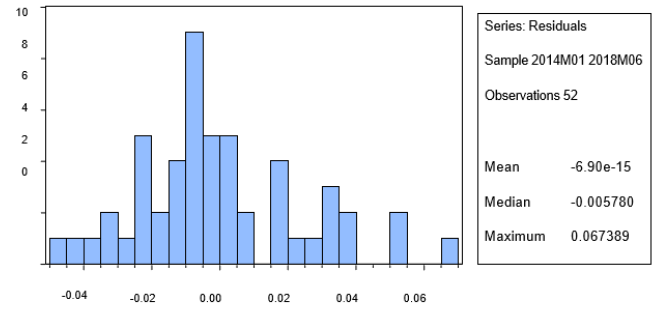


Figure 3. Normality Test Without Outliers

which was between 75% and 85% determined by Bank Indonesia. The average value (*mean*) of the *Capital Adequacy Ratio (CAR)* variable was 0.240407 or 24.04%, where during the period 2014 - 2018 the car value of Bank DKI was included in a very healthy rating because it was above 12% determined by Bank Indonesia. The mean value of the *Non Performing Loan (NPL)* variable was 0.030108 or 3.01%, where during the period 2014 - 2018 Bank DKI's NPL value was included in the healthy rating because it was among the 2% and 5% determined by Bank Indonesia. The average value (*mean*) of the *Variable Return On Asset (ROA)* of 0.020754 or 2.08%, where during the period 2014 - 2018 the ROA value of Bank DKI was included in a very healthy rating because it was above 1.5% determined by Bank Indonesia. The average value (*mean*) of the total assets variable was 40.99 where during the period 2014 - 2018 the average total assets of Bank DKI amounted to Rp 40.99 trillion.

Testing Classical Assumptions
Normality Test

In Figure 2, it can be seen where from the Jarque-Fallow value of 73.04994 with a probability of 0.00000 where it is below the significance value ($\alpha = 0.05$), that way H_0 is rejected and H_a cannot be rejected. This indicates with a significance value ($\alpha = 0.05$) the data used is not normally distributed.

To cope with normal undistributed data by discarding outliers. *The outliers* discarded in this study in stages are data on the following month periods: December 2018, January 2015, September 2018, October 2018, December 2014, July 2018, August 2018, and November 2018. After *the outliers* were discharged, the number of samples was reduced by

8 pieces from $N = 60$ to $N = 52$. Then the normality test is carried out again, the results of the normality test after *the outliers* are thrown away can be seen in Figure 3.

Based on Figure 3, it shows the Value of Jarque-Bera in this study of 3.584284 with a probability of 0.166603 where above the significance value ($\alpha = 0.05$), that way H_0 is accepted and H_a is rejected. So it can be said that with a significance value ($\alpha = 0.05$) the data used in this study is normally distributed and meets the requirements of normality.

Multicholnearity Test

In the initial process in this study, it was found that there was a relationship or correlation between independent variables . As seen in Table 4 where between the independent variables ROA and BOPO has a fairly high correlation coefficient value which is between 80 % - 100 % which is 97.62 %, this is suspected to be the case multicholnearity problem between independent variables ROA and BOPO.

The occurrence of multicholnear problems needs to be overcome by removing independent variables that have high correlation coefficient values (Gujarati, 2006). By looking at the regression coefficient between the ROA and BOPO variables in Table 4, it is shown that BOPO has a smaller regression coefficient value compared to ROA which means that BOPO has a smaller influence than ROA on LDR. In this study , the BOPO variable was discarded to overcome the multicholnearity in the model. So that the number of independent variables used in the next regression model is as many as 4 variables.

Table 6 shows the result of a multicholnearity test after the BOPO independent variable is omitted from the regression model. It can be seen that the

Table 4. Multicholnearity Test Result Before

	CAR	NPL	ROA	BOPO	TA
CAR	1.000000	0.136774	-0.262940	0.134495	0.746844
NPL	0.136774	1.000000	-0.635491	0.678063	0.211205
ROA	-0.262940	-0.635491	1.000000	-0.976184	-0.496771
BOPO	0.134495	0.678063	-0.976184	1.000000	0.343239
TA	0.746844	0.211205	-0.496771	0.343239	1.000000

Table 5. Multiple Linier Regression Coefficient Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	25.58821	1.672897	15.29575	0.0000
CAR	0.835783	0.092776	9.008630	0.0000
ROA	-7.333295	3.258430	-2.250561	0.0292
NPL	1.897986	0.550244	3.449355	0.0012
LOG ASET	-1.785771	0.107603	-16.59593	0.0000
R-squared	0.919600	Mean dependent var		0.797144
Adjusted R-squared	0.910861	S.D. dependent var		0.082788
S.E. of regression	0.024717	Akaike info criterion		-4.454464
Sum squared resid	0.028103	Schwarz criterion		-4.229320
Log likelihood	121.8161	Hannan-Quinn criter.		-4.368149
F-statistic	105.2276	Durbin-Watson stat		1.449907
Prob(F-statistic)	0.000000			

Table 6. Multicholinerity Test Result After

	CAR	NPL	ROA	TA
CAR	1,0000	0,1368	-0,2629	0,7468
NPL	0,1368	1,0000	-0,6355	0,2112
ROA	-0,2629	-0,6355	1,0000	-0,4968
TA	0,7468	0,2112	-0,4968	1,0000

CAR variable has the strongest relationship with the Total Asset variable of 0.7468 or 74.68%. However, this correlation is still below 80% therefore it can be said that there is no multicholinerity problem. So it can be concluded that because the overall value of the correlation coefficient is below 80%, there is no multicholinerity problem in the regression model in this study.

Heteroskedasticity Test

Looking at the results of the heteroskedasticity test in Table 7 shows that the probability value of Obs*R-squared (Prob. Chi-Square) is 0.8166 or 81.66 % which is greater than the significance value ($\alpha = 0.05$) so that Ho is accepted and Ha is rejected. So it can be said that with the significance value ($\alpha = 0.05$) the regression model in this study there was no heteroskedasticity problem.

Autocorrelation Test

Looking at the results of the autocorrelation test in Table 8 shows that the probability value of Chi-Square Probability is 0.2365 or 23.65 % which is greater than the significance value ($\alpha = 0.05$) so that Ho is accepted and Ha is rejected. So it can be said that with the significance value ($\alpha = 0.05$) the regression model in this study there was no autocorrelation problem.

Table 7. Heteroskedasticity Test Result

F-statistic	0.362507	Prob. F(4,47)	0.8340
Obs*R-squared	1.556272	Prob. Chi-Square(4)	0.8166
Scaled explained SS	1.721224	Prob. Chi-Square(4)	0.7869

Table 8. Autocorrelation Test Result

F-statistic	1.320805	Prob. F(2,45)	0.2771
Obs*R-squared	2.883271	Prob. Chi-Square(2)	0.2365

Linear Regression Results

Based on the results of the multiple linear regression analysis in Table 9 which was processed using the Eviews 9 program, it is known that the multiple linear regression equation is as follows:

$$LDR = 23,025 + 0,859 CAR + 1,464 NPL - 0,324 ROA - 1,651 TA$$

Coefficient of Determination

In Table 8, you can see the *Adjusted R-squared* value of 0.903639 or 90.36%. This shows that the four independent variables CAR, NPL, ROA, and Total Assets are able to influence and explain the dependent variable LDR of 90.36% while the remaining 9.64% is explained by other variables not used in this study.

Discussion of Research Results

Effect of CAR (*Capital Adequacy Ratio*) on LDR (*Loan to Deposit Ratio*)

The first hypothesis (H_{a1}) proposed states that the independent variable CAR (*Capital Adequacy Ratio*) has a positive effect on the dependent variable LDR (*Loan to Deposit Ratio*). From the results of the research, the regression coefficient value for the CAR variable was obtained by 0.859 with a significance value of 0.000 which is smaller than the

Table 9. Multiple Linier Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	23.02499	1.244189	18.50602	0.0000
CAR	0.858870	0.095838	8.961726	0.0000
NPL	1.464041	0.533812	2.742617	0.0086
ROA	-0.323977	0.656042	-0.493836	0.6237
LOG_ASET	-1.651404	0.091961	-17.95764	0.0000
R-squared	0.911197	Mean dependent var		0.797144
Adjusted R-squared	0.903639	S.D. dependent var		0.082788
S.E. of regression	0.025699	Akaike info criterion		-4.393520
Sum squared resid	0.031041	Schwarz criterion		-4.205900
Log likelihood	119.2315	Hannan-Quinn criter.		-4.321591
F-statistic	120.5651	Durbin-Watson stat		1.431899
Prob(F-statistic)	0.000000			

significance value ($\alpha = 0.05$). The regression coefficient is positively valued according to the proposed hypothesis. This shows that CAR (*Capital Adequacy Ratio*) has a positive and significant effect on the LDR (*Loan to Deposit Ratio*) at Bank DKI for the period 2014 – 2018, thus H_{a1} is can not be rejected.

Obtaining support for bank DKI's capital foundation by providing additional Government Capital Participation (PMP) by the Provincial Government in 2015 amounting to Rp 1 trillion has pushed Bank DKI's core capital to Rp 5.20 trillion and made Bank DKI included in the classification of Commercial Bank Business Group (BUKU) 3. The increase in capital has encouraged Bank DKI to increase its lending and financing capacity. That way, the increase in the capital ratio has an impact in line with the increase in LDR with the increase in Bank DKI's loan disbursements, which is shown that the loans disbursed increased from Rp 25.02 trillion in 2014 to Rp 34.70 trillion in 2018.

The results of this study support the results of previous studies conducted by Martha Novalina Ambaroita (2015) in the short term and Arif Lukman Santoso (2013) where CAR has a positive influence on LDR.

Effect of NPL (*Non Performing Loan*) on LDR (*Loan to Deposit Ratio*)

The third hypothesis (H_{a3}) proposed states that the independent variable NPL (*Non Performing Loan*) negatively affects the dependent variable LDR (*Loan to Deposit Ratio*). From the results of the research, the regression coefficient value for the NPL variable was obtained at 1.464 with a significance value of 0.009 which is smaller than the significance value ($\alpha = 0.05$). The regression coefficient is positively valued opposite to the proposed hypothesis. This shows that NPL (*Non Performing Loan*) has a positive and significant effect on the LDR (*Loan to Deposit Ratio*) at Bank DKI for the period 2014 - 2018, but H_{a3} rejected.

In the period 2014 - 2015, bank DKI's NPL value experienced a tendency to fluctuate downwards

from 2.92% to 1.58%. This provides an overview of Bank DKI's efforts in reducing the number of non-performing loans. The improvement in the NPL ratio was driven by a number of efforts to improve credit quality, including intensive credit collection, collateral takeover, credit collateral auctions, credit restructuring, and write-offs. Bank DKI also made improvements to the credit process to ensure that new loans were disbursed *prudently*. Some of the things that were done included refining sops, structuring the authority to terminate credit in accordance with the *four eyes principles*, centralizing the credit analysis and admin process, and improving the quality of human resources in the credit sector. Bank DKI's management efforts in order to maintain a better level of non-performing loan ratios, where lending is carried out more prudently or *prudently* so that credit growth is slowing down .

The results of this study are inconsistent with previous research conducted by Dwi Anggareni Srihadi Putri (2012), Tafirei Mashamba (2014) and Martha Novalina Ambaroita (2015) in the long term where NPLs have a negative influence on LDR. However, the results of the study support previous research conducted by Martha Novalina Ambaroita (2015) in the short term where NPLs have a positive influence on LDR.

Effect of ROA (*Return On Asset*) on LDR (*Loan to Deposit Ratio*)

The fourth hypothesis (H_{a4}) proposed states that the independent variable ROA (*Return on Asset*) has a positive effect on the dependent variable LDR (*Loan to Deposit Ratio*). From the results of the research, the regression coefficient value for the ROA variable was obtained at -0.324 with a significance value of 0.624 which is greater than the significance value ($\alpha = 0.05$). Thus, it can be concluded that ROA (*Return on Asset*) has no effect on the LDR (*Loan to Deposit Ratio*) at Bank DKI for the period 2014 - 2018, so H_{a4} rejected.

The results of this study are not in line with previous research conducted by Evi Nur Fadillah (2018) and Arif Lukman Santoso (2013) where

ROA has a positive influence on LDR.

Effect of Total Aset on LDR (*Loan to Deposit Ratio*)

The fifth hypothesis (H_{a5}) proposed states that the independent variable Total Assets has a positive effect on the dependent variable LDR (*Loan to Deposit Ratio*). From the results of the research, the value of the regression coefficient for the variable Log_Aset as an illustration of the Total Assets of -1.651 with a significance value of 0.000 which is smaller than the significance value ($\alpha = 0.05$). The regression coefficient is negatively valued as opposed to the hypothesis proposed. This shows that Total Assets have a negative and significant effect on the LDR (*Loan to Deposit Ratio*) at Bank DKI for the period 2014 - 2018, thus not in accordance with the Hypothesis of H_{a5} where Total Assets have a positive influence on LDR so that H_{a5} rejected.

The collection of Third Party Funds (DPK) which grew from the efforts taken by the management of Bank DKI through various programs and initiatives contributed significantly to the growth of Bank DKI's total assets where the average growth of total assets during the research period was Rp 4.15 trillion per year. However, the average deposit growth of Rp 2.57 trillion per year is still greater and less comparable to the average credit growth of Rp 2.42 trillion per year. This shows that Total Assets experienced growth during the research period but Bank DKI's liquidity position was increasingly liquid.

The results of this study are inconsistent with previous research conducted by Tafirei Mashamba (2014) and Evi Nur Fadillah (2018) where Total Assets have a positive influence on LDR.

Managerial Implications

The results of the analysis in this study show that the *Capital Adequacy Ratio* (CAR), *Non-Performing Loan* (NPL) and Total Assets are independent variables that have a significant influence on the *Loan to Deposit Ratio* (LDR) at Bank DKI for the period 2014 - 2018. Judging from the value of the regression coefficient, Total Assets is the variable that has the most significant effect on changes in liquidity, followed by NPLs and finally the CAR variable. In accordance with the results of this study, these three variables can be used as consideration in making decisions or taking risk mitigation measures for the management of Bank DKI.

Total Assets in this study were significantly negatively related to the LDR of Bank DKI. The greater the value of total assets will decrease the value of the LDR, on the contrary, the decrease in total assets affects the increase in the LDR. The growth of Total Assets is the result of contributions from Bank DKI's efforts in collecting Third Party Funds

(DPK). The results of the fund collection can encourage an increase in the value of Total Assets through one of the credit distribution agencies. Various programs can be carried out by Bank DKI both in terms of raising funds and from the credit side in order to achieve good performance growth where asset growth is achieved and liquidity is maintained.

The NPL value in this study has a positive and significant relationship with the LDR of Bank DKI where the decrease in the NPL value is also followed by a decrease in the LDR value. This illustrates that Bank DKI seeks to improve the ratio of non-performing loans by improving credit quality and improving credit processes to ensure more *prudent* lending so that it experiences a slowdown in credit growth. Thus, to maintain the liquidity of Bank DKI can be done by maintaining NPL properly.

The value of CAR in this study has a significant positive relationship with LDR, where an increase in the value of CAR will cause an increase in the value of LDR. With the increase in capital factors, it will increase the capacity of lending and financing so that Bank DKI can play a more role in supporting DKI Jakarta's economic growth in the coming years .

By paying attention to the value of CAR, the support of the DKI Jakarta Provincial Government as the largest shareholder on the capital side can help Bank DKI in increasing the amount of credit provided. So that Bank DKI is able to record good performance growth amidst various existing economic dynamics, especially in maintaining liquidity.

5. Conclusion, Suggestion, and Limitation

Based on the results of data analysis and discussion of research results by testing hypotheses using multiple linear regression analysis, the following conclusions can be drawn that the variable CAR (*Capital Adequacy Ratio*) had a positive and significant effect on bank DKI's LDR for the period 2014 - 2018. In accordance with the hypothesis proposed. With the better capital foundation , one of which is the increase in capital participation by the DKI Jakarta Provincial Government, encouraging Bank DKI to be able to increase the capacity of lending and financing. The variable Operating Expenses to Operating Income (BOPO) in this study cannot be used as an independent variable because there is multicollinearity. The NPL (*Non Performing Loan*) variable had a positive and significant effect on bank DKI's LDR for the period 2014 - 2018. However, it does not match the hypothesis proposed. The decline in NPLs is an effort by Bank DKI to improve non-performing loans. Lending is also carried out more prudently, resulting in slowing credit growth. The ROA (*Return on Asset*) variable has no effect on bank DKI's LDR for the peri-

od 2014 – 2018. Does not correspond to the hypothesis proposed. The Total Assets variable has a negative and significant effect on the LDR of Bank DKI for the period 2014 - 2018. However, it does not match the hypothesis proposed. Bank DKI's efforts to increase deposits have boosted the growth of total assets, although Bank DKI's liquidity position is increasingly liquid.

The limitations in this study are as follows The research sample used in this study was only 1 bank, namely Bank DKI. So that it only describes the phenomenon in Bank DKI. The existing phenomenon does not necessarily correspond to the existing theory and cannot describe the phenomenon in the bank BUKU 3. The occurrence of multicollinearity problems in the model causes the BOPO variable to be unusable or analyzed.

Based on the results of the research that has been put forward, suggestions can be given are the management of Bank DKI in liquidity management in order to pay attention to factors that can affect liquidity. Because liquidity is a very important thing that is considered a reflection of customer or investor confidence in the bank. As produced in this study where CAR, NPL and Total Assets are variables that have a significant influence on changes in Bank DKI's liquidity, so that these three variables can be used as material for consideration and risk mitigation for bank DKI management. In managing liquidity, Bank DKI can carry out a deposit improvement program that is not only related to the DKI Jakarta Provincial Government but non-DKI Jakarta Provincial Government. These programs aim to optimize banking services and the implementation of existing facilities at Bank DKI. Thus, it can meet the achievement of Third Party Funds as an effort to manage to maintain liquidity levels. This is also so that Bank DKI does not rely too much on local government funds. CAR is a significant variable that has an influence on the LDR of Bank DKI, it can be used as a reference material for the DKI Jakarta Provincial Government as the controlling shareholder of the bank in making decisions to provide support to Bank DKI in capital. In this study, the LDR (*Loan to Deposit Ratio*) variable was used as a dependent variable. To be able to get an overview of liquidity from the other side, in the next study to use other variables that describe bank liquidity such as *Liquidity Coverage Ratio* (LCR), *Ratio of Liquid Assets to Non-Core Deposits* (AL / NCD) or *Net Stable Funding Ratio* (NSFR). The independent variables used in this study are CAR (*Capital Adequacy Ratio*), BOPO (*Operating Expenses to Operating Income*), NPL (*Non Performing Loan*), ROA (*Return on Assets*) and Total Assets. To obtain different research results that are more relevant to current banking conditions, the next study should add other different or more diverse factors as independent variables such as *Net Interest Margin* (NIM), *Return on Equity*

(ROE), *Minimum Reserve Requirement* (GWM), or indicators macroeconomics such as inflation, interest rates, rupiah exchange rates, economic growth and others. It is expected that in the next study using research samples of banks other than Bank DKI or using bank groups such as banks in BUKU 1, 2, 3 or 4 in order to get the results of different banking conditions that can be used as a comparison reference.

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