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Determinant Factor of Banking Credit and Its Effect on Profitability of Indonesian Commercial Bank, Listed in Indonesia Stock Exchange

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Abstract

Banking Industry having a vital role as a financial intermediary must be able to compete in order to be survive and always get the profitability growth. Profitability has become one of the challenges faced by commercial banks to strengthen their financial position to face risks associated with the openness and flow of globalization. The purpose of this study was to analyze the effect of the Spread of Interest Rate, LDR, NPL, and CAR, as determinant factor of banking credit on profitability at commercial banks listed on the Indonesia Stock Exchange 2014-2018. This research applied a quantitative approach and multiple linear regression analysis. The data used in this study were obtained from the 2014-2018 annual financial statements of the commercial banks, listed on the Indonesia Stock Exchange. The results showed that Spread of Interest Rate (SIR), NPL, and CAR, except for LDR has effect on profitability at commercial banks. These findings imply that bank managers must pay attention to how much interest must be paid to the third parties. Also, commercial bank managers continue to improve higher banking deposits in order to reduce funding gaps, must be careful in managing risk mitigation to avoid the high NPL, and focus on managing the debt collection.

Keywords: *Spread Interest Rate (SIR), Loan to Deposit Ratio (LDR), Non Performing Loan (NPL), Capital Adequacy Ratio (CAR), Profitability*

1. INTRODUCTION

A Bank has several broad definitions, for example, a definition in Law of Republic of Indonesia and the Statement of Financial Accounting Standards (PSAK). Based on RI Law No.10 of 1998, on November 10, 1998, concerning Banking, explains that bank is a business entity that collects some fund from the public which is channeled in the form of credit or other forms in order to improve the people life. Then, Law RI No. 10 of 1998 concerning Banking in article 1 paragraph 3 explains, the definition of a commercial bank is a bank that carries out conventional and sharia activities to provide financial services in payment traffic. Meanwhile, Financial Accounting Standards (PSAK) No. 31 explains that a bank is an institution that acts as a financial intermediary between parties who have excess funds and those who need funds, as well as institutions that function to facilitate payment traffic.

Banking practices in Indonesia have spread out to remote villages. Financial institution in the form of bank in Indonesia is a Commercial Bank, Rural Credit Banks (BPR), Sharia Commercial Bank, and Sharia People Financing Bank (BPRS). Based on its characteristics the bank is divided into:

A. Bank based on ownership

- Government-owned banks.
- National private-owned banks.

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- Cooperative bank.
- Mixed-owned banks.
- Foreign-owned banks.

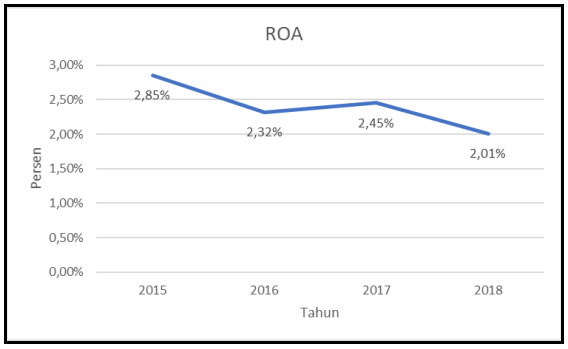
B. Bank based on the operation

- Conventional banks.
- Sharia Bank.
- Central bank.
- Commercial banks.
- Rural banks.

C. Based on the status in the capital market, bank that have been registered in the capital market and can be bought by public shares (IPO) such as Bank Rakyat Indonesia Syariah (BRI Syariah), Bank Tabungan Pensiunan Negara Syariah (BTPN Syariah), Bank Panin Dubai Syariah, Bank Mandiri, Bank Negara Indonesia, Bank Rakyat Indonesia, Bank Tabungan Negara, Bank Muamalat, Bank Central Asia, Bank Bumi Putra, Bank Danamon, Bank Niaga and Bank Mega.

The development of general banking in Indonesia is very closely related to the Indonesian economy, where economic growth greatly influences the demand for credit in general banking. The increase of loan interest will increase the ratio of non-performing loans or Non-Performing Loans (NPLs). The banking development in Indonesia occurs due to the achievement of profitability performance from year to year. Banking is demanded to be able to play the role of financial intermediary, on the other hand, it must be able to compete in order to maintain the survival of the company, so that the ability to obtain profits is very important. Based on these problems, the researcher will examine the effect of credit determinants on the high or low profitability of a commercial bank.

The managerial factor is influenced by the decisions and management goals to be achieved by bank management such as: capital ratio, credit risk, productivity growth, and bank performance measure. The environmental factor is influenced by external forces such as financial market structure, trade interdependence, economic growth, inflation, market interest rates and ownership structure. The profitability of the banking sector in Indonesia over the past five years has fluctuated with a downward trend, as shown in Figure 1 below:



Source : OJK (2019)

Figure 1 Fluctuation of Profitability of Indonesian Commercial Banks

Figure 1 above shows the profitability of commercial banks in Indonesia which experiences a downward trend. The Deposit Insurance Corporation (LPS) revealed, in the last three years, the level of bank profitability continued to decline. According to LPS (2018), the profitability ratio of commercial bank continued to decline because of write off bad credit books, resulting in a lot of bank profits declined compared with the previous year. According to LPS in 2018, the profitability ratio still has the potential to improve, due to economic growth factors and the maintained macro economy and several banks have finished consolidating. This causes the balance sheet is relatively clean to provide new credit. However, banks must be aware of profit decline margin due to the risk of rising interest rate.

Banking profitability is a reflection of the ability of banks to generate profits (Rekik and Kalai, 2018). Profitability is important for bank, because the main purpose of bank is to create profit. This study used 20 commercial bank samples in Indonesia that are classified as Book 3 and Book 4 with asset criteria above Rp 50 trillion because they play an important role in Indonesia economy. The following sample of commercial banks that will be examined, can be seen in Figure 2 below:

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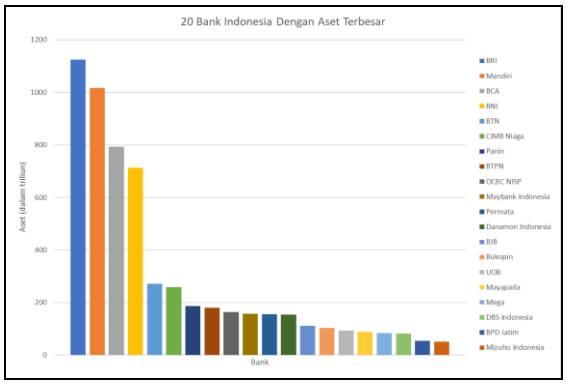


Source : IDX (2019)

Figure 2 Comparison of 20 Largest Indonesian Commercial Bank Assets

In the operational activities, the twenty banks have profitability with different profitability levels, which can be seen in Figure 3 below:

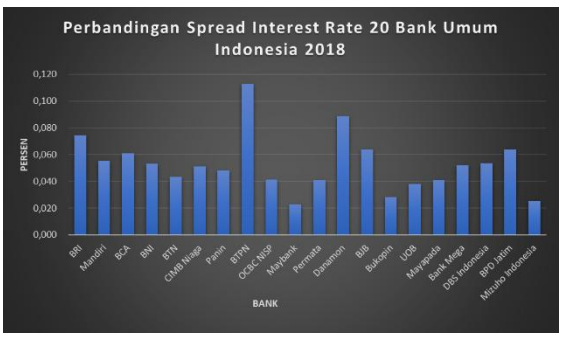
Source : IDX (2019)

Figure 3 Profitability Comparison of 20 Largest Indonesian Commercial Banks

Figure 3 shows that Bank BCA has the highest level of profitability, while Bank Bukopin and DBS Indonesia have the lowest level of profitability. This shows that the twenty largest commercial banks in Indonesia have different performance qualities. According to a report of Bank Indonesia, bank lending for the period 2014 - 2018 has increased from year to year with an average increase of around 10% to 15%. Bank lending enables the public to conduct investment, distribution, and consumption activities that are always related to the use of money, so they are able to drive the economic development of Indonesia's society. Meanwhile, a credit expansion strategy oriented towards productive sectors accompanied by increased efficiency has a more positive impact on bank profitability performance. This condition is strengthened by the bank's balance sheet, it will be seen that the amount of credit provided is very dominant, and if you look at the bank's income statement, it will be seen that the income side is dominated by the amount of income from interest and credit proposition.

The last few decades Indonesia faced a period of fluctuating interest rates, facing investors with a more unpredictable environment to work on. As a result, the main concern of investors is the impact of interest rates on commercial bank revenues, costs, and profitability. In situation where the financial system is not well developed, inefficient and noncompetitive, bank lending rates can be very high and deposit rate is low, with borrowers and savers reducing basically to be price stewards in the market (Antwi et al, 2017) . According to Ismail (2011: 7), interest income received from borrowing customers is lower than the interest costs paid by banks to customers, called the negative spread. Conversely, if the interest received from borrowing customers is higher than the interest paid by banks to customers, this is called positive spread.

According to Ferry (2008: 16), the difference between the interest received from secondary reserves, loans, and investment returns after deducting the interest costs of third party funds and second parties will generate net interest income. Net interest income is still the main contributor to income generation for most banks in the world. The comparison of the spread of interest rates of the twenty largest commercial banks in terms of assets in Indonesia can be seen in Figure 4 below:



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Source : IDX (2019)

Figure 4 Comparison of the spread of interest rates of the twenty largest commercial banks in Indonesia in terms of assets

Figure 4 above shows that BTPN and Danamon bank have the highest spread of interest rates, namely 11.3% and 8.9%, this shows that BTPN and Bank Danamon banks have received substantial incentives from the difference of interest rates. Thus, it can be concluded that the higher the spread of interest rate, the higher the level of profitability of a bank, conversely the lower the spread of interest rate, the profitability of ban decreases.

Rengasamy (2014), the Loan to Deposit Ratio (LDR) is a useful instrument in determining bank liquidity, and it affects bank profitability. Among various factors, loan and deposit are one of the main factors in determining bank profitability. Both loan and deposit are as important in banking operations as two sides of the same coin. In general, the main source of income for banks is the loan interest.

Based on Bank Indonesia Regulation No. 15/7 / PBI / 2013 the LDR standard is 78% - 92%. If the LDR ratio is below 78%, it can be said that the bank cannot properly channel back the funds that have been collected. If the bank's LDR ratio reaches more than 92%, then the total credit extended by the bank has exceeded the portion of the maximum limit of funds collected that can be distributed. In managing these public funds, bank is required to be able to maintain their liquidity in order to continue to gain trust from the public. The size of the LDR of a bank will affect the level of profitability of the bank. Loan to Deposit Ratio Comparison of the twenty largest commercial banks in Indonesia can be seen in Figure 5 below:

Source : IDX (2019)

Figure 5 Loan to Deposit Ratio Comparison of the twenty largest commercial banks in Indonesia in terms of assets

Figure 5 shows that all commercial banks tested have a fairly high LDR level. In general, the twenty banks get optimal returns from loans. According to Patwary and Tasneem (2019), developing countries depend a lot on the banking industry for smooth financial intermediation. The bank contributes to economic development through efficient loans. According to Patwary and Tasneem (2019), the banking sector is currently facing problems with NPL (Non-Performing Loans) as a sign of ineffective lending practices. Banks must take the necessary steps to eliminate NPLs from the industry. However, empirical studies show that NPLs have a negative effect on bank profitability in the world. Akter and Roy (2017) find the negative impact of NPL on profitability (Net Interest Margin). In fact, the Net Profit Margin found was also negatively affected by NPLs for 2008 to 2013. Balango & Rao (2017) found a significant relationship between profitability and the number of NPLs, where the results of the analysis stated that NPLs had a negative and significant effect on ROA. Islam & Rana (2017) in their study found NPLs and operating costs have a significant effect on ROA, where NPL increase can lead to lower profits.

The current NPL which is allowed by Bank Indonesia is a maximum of 5%. The greater level of NPL shows that the bank is not professional in managing the credit which will have an impact on bank losses. Comparison of Non Performing Loans

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from the twenty largest commercial banks in Indonesia can be seen in Figure 6 below:

Source : IDX (2019)

Figure 6 Non-Performing Loans Comparison of the twenty largest commercial banks in Indonesia in terms of assets

Figure 6 shows that all banks tested except Bank Bukopin have an NPL value which are allowed by Bank Indonesia which is under 5%. Therefore, all banks tested except Bukopin Bank can be classified as banks that are professional in managing their credit. In addition to profitability, NPL, LDR and Spread of Interest Rate, bank capital plays a very important role in supporting the bank's long-term operations and bank's survival (Buchory, 2014). According to Buchory (2014), the strength of a bank's capital can be measured by a capital adequacy ratio or CAR. The comparison of the Capital Adequacy Ratio of the twenty largest commercial banks in Indonesia can be seen in Figure 7 below:

Source : IDX (2019)

Figure 7 Comparison of Capital Adequacy Ratio of the twenty largest commercial banks in Indonesia in terms of assets

Figure 7 above shows that the twenty banks have a capable ability to bear the risk of credit. If the CAR value is high, the bank is able to finance operational activities and make a significant contribution to profitability. According to Ajayi et al (2019), there is a positive relationship between CAR and profitability where the Capital Adequacy Ratio (CAR) is one of the focuses of bank managers in monitoring strategies and evaluating the financial stability of banking institutions.

It is estimated that the profitability decreasing due to the twenty commercial banks is due to an increase in the ratio of non-performing loans (NPLs). This research was conducted by referring to previous research conducted by Antwi et al (2017), Rengasamy (2014), Patwary and Tasneem (2019), and Ajayi et al (2019), where they states differently that the determinants of credit distribution affect bank profitability is the Spread of Interest Rate, LDR, NPL and CAR. Based on the considerations above, this study aimed to analyze. Therefore, the researchers conducted research with the aim of analyzing the effect of the Spread of Interest Rate, LDR, NPL and CAR on profitability at commercial banks listed on the Indonesia Stock Exchange 2014-2018.

2. LITERATURE REVIEW

A. Spread of Interest Rate

Spread of Interest Rate is often equated with margin use even though these two terms actually have a more specific meaning. Spread in a general meaning is the difference between the cost of funds (Borrowing Rate) with the interest rate on credit (Lending Rate) or the difference between Bidding Rate and Offering Rate which is often used in money market transactions. Negative spread generally occurs when the country's economy is unstable and there is a financial crisis. In this time, bank will need a lot of funds to maintain their level of liquidity. Each bank will compete in obtaining third party funds. To get third party funds, one of the

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ways taken is to provide high interest. Conversely, positive spread usually occurs in normal economic conditions. In a stable country's economy, credit interest rates will always be higher than deposit rates. In a stable economy condition, usually a negative spread does not occur.

Each bank will be able to sell funds at a higher interest rate than the interest paid of the customer who places the funds. Conversely, in a country's economic conditions are unstable, or in crisis, a negative spread can occur. To measure the spread of interest rate the, formula is:

$$\text{Spread} = \frac{\text{Interest Received}}{\text{Earning Assets}} - \frac{\text{Interest Expenditures}}{\text{Interest-Bearing Funds}}$$

Spread of interest rate is the difference between interest received and interest expenditure. The higher the spread value indicates the higher the profitability on the contrary, the lower the spread, the lower the profitability (Tasman et al, 2015).

B. *Loan to Deposit Ratio*

Dendawijaya (2009: 116) defines Loan to Deposit Ratio is a measure of the ability of banks in refinancing fund withdrawals of depositors by relying on loans provided as a source of liquidity. MacDonald and Koch (2006: 581) state that all banks and bank analysts see the Loan to Deposit Ratio as a measure of bank liquidity. Sipahutar (2007) states that the Loan to Deposit Ratio is a comparison between loans extended by banks and third party funds.

The definition of Loan to Deposit Ratio (LDR), according to Bank Indonesia Circular Letter No 6/23 / DPNP on May 31, 2004, is the ratio of loans to third party funds (Demand Deposits, Savings, Certificates of Deposits and Deposits). This ratio is also an indicator of the vulnerability and ability of a bank. Some banking practitioners agree that the safe limit of a bank's LDR is around 80%. However, tolerance limits range between 85% and 100% (Dendawijaya, 2009).

The purpose of LDR calculation is to find out and measure how far a bank has a healthy condition in carrying out its operations. How far the provision of credit for credit customers can offset the bank's obligation to immediately meet the demand of depositors who want to withdraw the money that has been used by banks to provide credit (Dendawijaya, 2009: 116). The use of Loan To Deposit Ratio (LDR) according to Almilia and Herdiningtyas (2005) is to measure the liquidity of a bank by dividing the amount of credit by the amount of funds. Loan to Deposit Ratio (LDR) is also a ratio that shows the ability of a bank to provide funds to its debtors with the capital owned by the bank and funds that can be collected from the public.

Loan to Deposit Ratio is a comparison between the amount of credit extended and the amount of third party funds raised. The value that the Loan To Deposit Ratio can be obtained through the formula:

$$LDR = \frac{Total\ Deposit + Equity}{Total\ Loan}$$

From the above explanation, it can be concluded that the Loan To Deposit Ratio (LDR) is the ability of the Bank to repay withdrawal funds that have been made by depositors by relying on credit to determine the level of liquidity.

C. *Non Performing Loan*

According to Ismail (2009: 226), NPL (Non Performing Loan) is overdue credit for more than 90 days. Where NPL is divided into substandard, doubtful, and bad loans. The smaller the NPL, the smaller the credit risk borne by the bank. Bank in conducting credit must conduct an analysis of the ability of debtors to repay their obligations. After credit is granted, bank is required to monitor the use of credit and the ability and compliance of debtors in fulfilling their obligations. The Bank conducts a review and binding of collateral to minimize credit risk. Banking practitioners agree that the safe limit of a bank's NPL must not exceed 5%.

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According to Rivai (2007), there are several definitions of non-performing loans, namely:

- Credit which in its implementation has not reached / met the target of the bank.
- Credit that have the possibility of future risks for bank in a broad sense.
- Credit that have difficulty in settling their obligations to the bank.
- Credit in which there is a breach of promise in repayment according to the agreement so there are arrears because there is a potential loss in the debtor company.

From the above statement it can be concluded that the definition of Non-Performing Loans is one of the measurements of bank risk that shows the magnitude of the risk of non-performing loans in a bank. The ratio between non-performing loans and disbursed loans, NPL Ratios can be calculated using the following formula:

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

Rating criteria based on NPL component ranking can be seen in the following table 1:

Table 1 NPL Component Ranking Matrix Criteria

NPL	Risk Value	Predicate Ratio
≤ 10 %	1	Very Good
10 % < NPL ≤ 15%	2	Good
15%, NPL ≤ 20%	3	Enough
20% < NPL ≤ 25%	4	Poor
25% < NPL	5	Very Poor

Source : SE.BI No. 13/1/PBI/2011

Banks as lenders must pay attention to the symptoms that lead to the worsening of the debtors' loan conditions, including the following:

a. Deliquency.

b. Financial balance deteriorates (Adverse Trend).

c. Debtor reluctant.

d. Guaranteed impairment.

e. Other factors.

Non-performing loans in large amounts can have adverse effects both for the lending bank, the banking world in general, and for the economic / monetary life of the country (Sutojo, 2008: 25). By the stoppage funds, it will disrupt the function of bank as intermediaries. The loss of opportunities for banks to finance operations and expand the operations of other debtors, due to the stoppage circulation of funds that they lend, will minimize the opportunity for entrepreneurs to take advantage of existing business and investment opportunities. Thus, the positive multiplier effects of business expansion or new project investment, including the provision of new jobs, increased foreign exchange earnings, import substitution and so on, will also not be obtained. This will disrupt national economic growth as a whole. Non-performing loans represent loans that have been distributed by banks, and customers cannot make payments or make installments according to agreements signed by banks and customers. So, the higher the problem loans, the lower the profitability of banks, conversely the lower the problem loans, the higher the profitability of banks. Therefore, non-performing loans indicate a negative effect on the profitability of a bank.

D. *Capital Adequacy Ratio*

Understanding Capital Adequacy Ratio (CAR) according to Dendawijaya (2009) is a ratio that shows how much the total amount of all bank assets that contain elements of risk (credit, participation, securities, bills at other banks) which are financed from the bank's own capital, besides obtaining funds from sources outside the bank. Meanwhile, according to Kuncoro and Suhardjono (2011), the definition of CAR is capital adequacy which shows

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the ability of banks to maintain sufficient capital and the ability of bank management to identify, measure, monitor, and control risks that arise that can affect bank capital. Efforts that can be made to improve the Bank's Minimum Capital (CAR) position are by:

a. Minimize loan commitment.

b. Limit and select the Loan so that it can reduce the risk.

c. Bank guarantee facilities that only generate income in the form of a relatively small position but with the same risk as the amount of existing loans should be limited.

d. Commitment of Letter of Credit (L / C) for foreign exchange bank that have not really obtained certainty and guarantors or cannot be utilized efficiently should also be limited.

e. Investments that have 100% risk need to be reviewed whether it is useful or not.

f. The position of asset and inventory do not overdo and do not merely fulfill eligibility.

g. Add and improve capital position by cash deposit, go public, and long-term subordinated loans from shareholders.

According to Buchory (2014), CAR is an indicator of a bank's ability to provide funds for expansion and accept the risk of loss caused by bank operations. For banks in Indonesia, according to BI regulation PBI.14 / 18 / PBI / 2012 28 November 2012, the lowest minimum capital adequacy is as follows:

a. 8% of Risk Weighted Assets (RWA) for the Bank's risk profile with a rating of 1.
b. 9% to less than 10% of RWA for Bank risk profiles with a rating of 2.
c. 10% to less than 11% of RWA for Bank risk profiles with a rating of 3
d. 11% to 14% of RWA for Bank risk profiles rated 4 or 5

The higher the CAR, the greater the financial resources that can be used to support the implementation of certain credit intermediation functions. According to Soedarto (2004) and Budiawan (2008), CAR has a positive and significant impact on bank credit. According to Buchory (2006) that there is an influence of financial intermediation on the capital structure of banks. This means that bank in carrying out the intermediary financial function, especially in loans need additional funds from the public and is supported by adequate capital.

E. Profitability

Many experts give definitions of different profitability ratios, but they have the same goals. The following definition of profitability ratios according to experts. According to Kasmir (2012: 22), profitability or the ability to make a profit is a ratio to measure the company's ability to seek profits in a certain period. According to Harahap (2009: 309), profitability ratio is describing a company's ability to get profits through all of its capabilities, and existing sources such as sales, cash, equity, number of employees, number of branches and so on. Based on the understanding of the experts above, it can be concluded that the profitability ratio is the ratio used by companies to calculate the company's ability to generate profits. According to Kasmir (2012: 197), several ways to measure the level of profitability of a company, namely:

a) *Gross Profit Margin* (GPM).
b) *Operating Profit Margin* (OPM).
c) *Net Profit Margin* (NPM).
d) *Return On Asset* (ROA).
e) *Return On Equity* (ROE).

Based on how to measure the level of profitability above, this study used the ratio of Return on Assets (ROA). ROA can provide a measure of the level of effectiveness of company management that can be shown from the profits derived from sales or from investment income. One indicator that can be used to measure the bank's profitability performance is ROA (Return On Asset), which shows the ratio between profit (before tax) and total bank assets.

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This ratio shows the level of efficiency of asset management carried out by the bank concerned. Profitability values can be obtained through the following formula:

$$ROA = \frac{\text{Profit before Interest and Tax}}{\text{Total Asset}} \times 100\%$$

ROA's components are :
a. Net profit
b. Total assets

To get the total assets is the sum of current assets and fixed assets which are the company's assets as a whole. Based on the Decree of the Director of BI Number 06/23 / DPNP in 2004 the predicate of bank health in terms of ROA is shown in Table 2 as follows:

Table 2 ROA Component Ranking Criteria Matrix

ROA	Risk Value
ROA > 1,5%	1
1,25% < ROA ≤ 1,5%	2
0,5% < ROA ≤ 1,25%	3
0 < ROA ≤ 0,5%	4
ROA ≤ 0,765%	5

Source : SE.BI No. 13/1/PBI/2011.

The above description shows that the ROA ratio is used to measure the performance of bank management in managing available assets to generate net income. The greater the ROA, the greater the level of profits achieved by banks, so that the possibility of a bank in problematic conditions is smaller. Return on Assets (ROA) which focuses on the company's ability to earn earnings in the company's operations is used to measure the effectiveness of the company in generating profits by utilizing its assets.

F. Hypothesis

There are four independent variables, namely Interest Rate Spread, Loan Deposit Ratio, Non Performing Loans and Capital Adequacy Ratio. In addition, there is one variable that acts as the dependent variable, namely profitability. The relationship between variables in this study can be described with the following scheme:

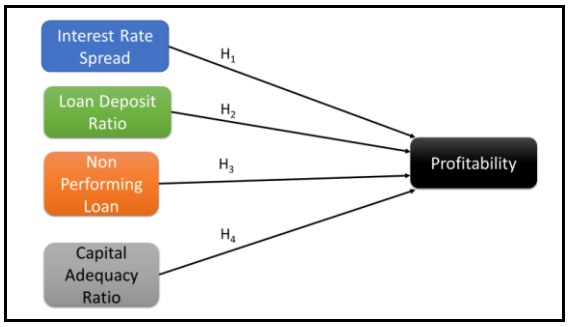

Figure 8 Research Framework

Figure 8 above shows the following four hypotheses.
H_1 : Interest Rate Spread influences the Profitability.
H_2 : Loan Deposit Ratio influences the Profitability.
H_3 : Non Performing Loan influences the Profitability.
H_4 :.....

3. RESEARCH METHODS

This study used quantitative methods that describe the actual research object condition. This activity carried out by studying the financial statements of several commercial banks listed on the IDX. This study intended to obtain bank data related to the measurement of Spread of Interest Rate (SIR), Loan to Deposit Ratio (LDR), Non Performing Loans (NPL), Capital Adequacy Ratio (CAR) and bank profitability which in this study was the Return ratio on Assets (ROA).

The data collection technique used in this study was the documentation technique, which was in the form of financial statement data through documentation from several sources, namely financial statements containing financial ratio of Commercial Bank that included in the Book 3 and Book 4 categories that

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have assets of more than Rp. 50 Trillion registered on the Indonesia Stock Exchange in the period 2014-2018 taken from the annual report of the bank used as the object of research.

The sample used in this study selected 20 Commercial Bank purposively (based on the purpose of the study), or 35% of the population, this figure had exceeded 2.5 times of minimum number, so it is considered good and relatively large in terms of numbers. Observation unit was determined from 20 commercial bank samples analyzed for 5 years performance, so that the total observation unit was 100 (N). In the statistical units of observation N = 30 to N = infinity, This study considered quite broad, which was more than 3 times the minimum criteria of N 30, or as many as 100. The sampling technique (sample selection technique) or how to choose samples / representatives in this research was obtained by purposive sampling method. According to Sugiyono (2016), the method of taking data by purposive sampling is a technique in determining research samples with certain considerations aimed at making the data obtained later in line with the research objectives. The sample selected 20 commercial banks, out of a population of 57 commercial banks that did not have the same opportunity. The selection of 20 commercial banks was commercial bank which was included in book 3 and book bank 4.

Book 3 was a bank categorized as having core capital of IDR 5 Trillion to IDR 30 Trillion, while Book 4 was a bank categorized as having core capital of more than IDR 30 Trillion. Book 3 and book 4 banks are commercial banks with core capital greater than book 1 and book 2 banks (core capital of less than Rp 5 trillion).

The greater the core capital owned by a bank, the level of security and strength of banks in dealing with operational risks is higher. Therefore, 20 samples of the best commercial banks that had an important role in the Indonesian economy were chosen. Besides, 20 samples were ranked in the top 20 Commercial Banks in terms of assets, namely the best commercial banks with assets of more than Rp 50 Trillion. Twenty samples selected were BRI, Danamon Indonesia, Mandiri, BJB, BCA, Bukopin, BNI, UOB, BTN, BTPN, CIMB Niaga, Mega, Panin, Mayapada, OCBC NISP, DBS Indonesia, Maybank Indonesia, BPD Jatim, Permata and Permata and BPD Mizuho Indonesia.

This study used a multiple linear regression analysis model. This multiple linear regression analysis was used to see whether there was an influence of the independent variable on the dependent variable in the model. The multiple linear regression analysis in this research was used to analyze the effect of Spread of Interest Rate (SIR), LDR, NPL and CAR on ROA, with the basic model as follows:

$$ROA = \alpha + b_1SIR + b_2LDR + b_3NPL + \beta_4CAR + et$$

Hypothesis testing was aimed to find out the influence of one independent variable partially (individually) explains whether each of the SIR, LDR, NPL and CAR variables has a significant influence on the ROA dependent variable.

4. RESULT

A. Data Description

From 20 commercial banks tested, in 2018 Bank BCA had the highest profitability value of 4%, while Bank DBS Indonesia had the lowest profitability value of 0.1%. This shows that BCA Bank had the lowest risk value among the 20 banks tested. From 20 commercial banks tested, in 2018 BTPN had the highest interest rate spread of 11.3%, while Bank Sumitomo Mitsui Indonesia had the lowest interest rate spread of 1.4%. This shows that Bank BTPN had profit rate of the largest interest. From 20 commercial banks tested, in 2018 Bank Sumitomo Mitsui had the highest Loan to Deposit Ratio value of 231.5%, while Bank BPD Jatim had the lowest Loan to Deposit Ratio of 66.57%. This shows that

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out of 20 banks tested, Bank Sumitomo Mitsui was the bank with the lowest level of liquidity.

From 20 commercial banks tested, in 2018 Bank Bukopin had the highest Non Performing Loan value of 6.7%, while Bank Sumitomo Mitsui Indonesia had the lowest Non Performing Loan of 0.2%. This shows that all commercial banks that were sampled still had the level of Non Performing Loans which were considered very good. From 20 commercial banks tested, in 2018 Bank BTPN had the highest Capital Adequacy Ratio of 25.3%, while Bank Bukopin had the lowest Capital Adequacy Ratio of 13.4%. This shows that all commercial banks tested have financial resources that can be used to support the implementation of the bank's functions. Descriptive analysis results can be seen in Table 3.

Table 3 Descriptive statistics

Descriptive Statistics

	N	Range	Minimum	Maximum	Sum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
ROA	100	.081	-.041	.040	1.873	.01873	.001102	.011021	.000
SIR	100	.106	.014	.120	5.359	.05359	.002308	.023076	.001
LDR	100	2.010	.554	2.564	102.195	1.02195	.041560	.415599	.173
NPL	100	.087	.001	.088	2.432	.02432	.001516	.015161	.000
CAR	100	.157	.105	.262	19.255	.19255	.003203	.032035	.001
Valid N (listwise)	100								

Source : Data processing (2020)

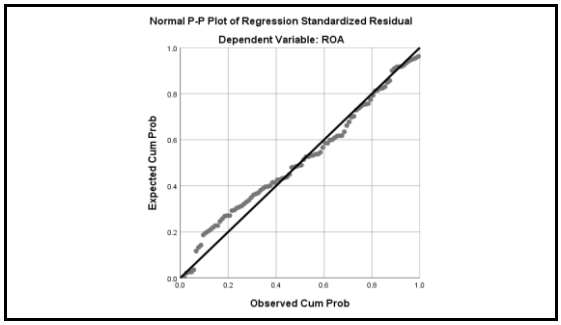
Table 3 above shows the analysis of descriptive statistical tests on each variable. From 20 commercial banks, the average value of ROA is 0.01873 with a standard deviation value of 0.011, which means that 20 commercial banks tested have an average profitability value of 1.87%. From 20 commercial banks, the average value of the Interest Rate Spread is 0.0536 with a standard deviation value of 0.023, which means, from 20 commercial banks tested have an average Interest Rate Spread of 5.36%. From 20 commercial banks, the average value of the Loan to Deposit Ratio is 1.0219 with a standard deviation value of 0.416, which means that 20 commercial banks tested have an average Loan to Deposit Ratio of 102.19%. From 20 commercial banks, the average value of Non Performing Loans is 0.024 with a standard deviation value of 0.015, which means that from 20 commercial banks tested, they have an average Non Performing Loan value of 2.4%. Of the 20 commercial banks, the average value of the Capital Adequacy Ratio is 0.193 with a standard deviation value of 0.032, which means that of the 20 commercial banks tested have an average Capital Adequacy Ratio of 19.3%.

B. Data Test

According to Sugiyono (2014), the linear regression model must meet the BLUE criteria with the aim of stating that the linear regression model can be used to describe the effect of SIR, LDR, NPL and CAR on ROA, besides the BLUE criteria, it also states that the linear regression model used is not biased, consistent and efficient. To meet the BLUE criteria, a classic assumption test is carried out in which there are four elements, namely normality, heteroscedasticity, multicollinearity and autocorrelation.

- **Normality Test**

Normality test aims to test whether in the regression model there are confounding or residual variables that have a normal distribution. The results of the normality test using graph analysis of the normal probability plot show that in the regression, the graph provides a pattern that indicates the data are normally distributed because the points follow and approach a diagonal line.



Source : Data Processing (2020)

Figure 9 Normality Test Result

In addition, the normality test can also be seen through the following Kolmogorov Smirnov test.

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Table 4 Normality Test with Kolmogorov Smirnov

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		100
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	.00781889
Most Extreme Differences	Absolute	.092
	Positive	.060
	Negative	-.092
Test Statistic		.092
Asymp. Sig. (2-tailed)		.038[c]

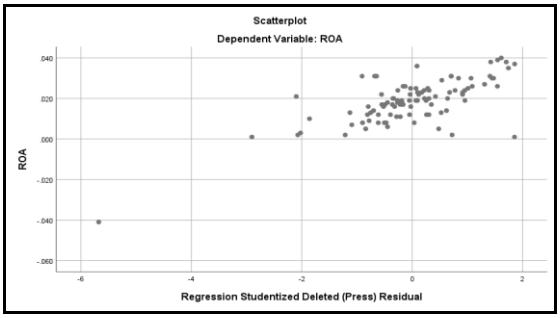
a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

Source : Data Processing (2020)

Table 4 above shows that the significance value obtained is 0.038. Significance value below 0.05 indicates that the data used for the regression model in this study had a normal distribution.

- **Heteroscedasticity Test**

Heteroscedasticity test aims to test whether in the regression model there is an inequality of variance from the residuals of one observation to another. A good regression model is Homoskesdatisitas or Heteroscedasticity does not occur. Table below is the result of heteroscedasticity testing by looking at the scatterplot graph between the predicted value of the dependent variable ZPRED and the residual SRESID.



Source : Data Processing (2020)

Figure 10 Results of the Heteroscedasticity Test

Figure 10 above shows that there is a clear pattern in the regression equation, but there are spread points above 0 on the Y axis. It can be concluded that heteroscedasticity did not occur in the regression model.

- **Multicollinearity Test**

Multicollinearity test aims to test whether the regression model found a correlation between independent variables (independent). A good regression model should not occur correlation between independent variables. The commonly way to know the presence or absence of multicollinearity is using the Variance Inflation Factor (VIF) and Tolerance values. The criteria for decision making with tolerance and VIF values are as follows:

(1) If tolerance Value < 0,1 or VIF Value > 10, So it is multicollinearity;
(2) If tolerance Value > 0,1 or VIF Value < 10, So it is not multicollinearity.

Table 5 Multicollinearity Test

Variable	Tolerance	VIF
SIR	0,522	1,915
LDR	0,635	1,575
NPL	0,803	1,245
CAR	0,644	1,533

Based on the test results in table 5, all independent variables have a tolerance value> 0.1 and a VIF value <10 which means there are no symptoms of multicollinity in the regression model. This shows that the partial regression coefficient value of all variables can be said to be immune to changes that occur in other variables in the regression model.

- **Autocorrelation Test**

The researcher used the durbin-watson value to test whether there was a high correlation between residuals or not. If there is a correlation between residuals, then it can be said that there is a random residual. The test results show that the value of durbin-watson is 0.919. The results of the statistical table for Durbin Watson obtained dL value = 1.5922 and dU value = 1.7582 (obtained from the Durbin Watson Table for k = 4 and n = 100). The durbin-

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watson value of 1,919 lies above the dU value and below the 4-dU value (4-1,7582 = 2.2418), which means the regression model has no autocorrelation problems.

The results of the classic assumption test in which there are four elements, namely normality, heteroscedity, multicollinearity and autocorrelation show that the linear regression model used in this study meets the BLUE criteria. It can be concluded that the linear regression model used in this study is valid and can be used to describe the effect of SIR, LDR, NPL and CAR on ROA, and the linear regression model used is not biased, consistent and efficient.

C. Determination Test and Fisher Test

Table 6 below presents the results of the test of the determination of the effect of SIR, LDR, NPL and CAR on the profitability of 20 commercial banks used as samples.

Table 6 Determination Test the effect of SIR, LDR, NPL and CAR on ROA

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.705[a]	.497	.475	.007982	.497	23.432	4	95	.000	.919

a. Predictors: (Constant), CAR, LDR, NPL, SIR

b. Dependent Variable: ROA

From the table above we can see that the value of R2 is 0.497, which means that 49.7% of the profitability variable can be explained by SIR, LDR, NPL and CAR. The remaining 50.3% is explained by other variables outside the equation. The feasibility test of the regression model of the effect of SIR, LDR, NPL, CAR on ROA of 20 commercial banks through the Fisher test can be seen from the following Table 7.

Table 7 Anova Regression, the Effects of SIR, LDR, NPL, CAR on ROA

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.006	4	.001	21.860	.000[b]
	Residual	.006	95	.000		
	Total	.012	99			

a. Dependent Variable: ROA

b. Predictors: (Constant), CAR, LDR, NPL, SIR

Source : survey data processing (2020)

Table 7 above shows that by using a significance level of 0.05, the Fcount value is 21.860, while the Ftable value is 2.47 (the statistical F table for df1 = 4 and df2 = 95). This means that the linear regression can be declared feasible to test the influence model of SIR, LDR, NPL, CAR on ROA in 20 commercial banks.

D. Hypothesis testing

Before testing the hypothesis, a classic assumption test for the use of multiple linear regression model was done. The classical assumption test results indicated that the data in this study had met the requirements to use multiple regression models as a hypothesis testing tool. Table 8 below shows the results of multiple linear regression.

Table 8 Hypothesis Test

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	t	Sig.
1	(Constant)	-.002	.007	-.327	.744
	SIR	.115	.048	2.391	.019
	LDR	.000	.002	-.173	.863
	NPL	-.294	.059	-4.977	.000
	CAR	.116	.031	3.706	.000

Table 8 above produces multiple linear regression equations for the following four hypotheses:

ROA = - 0,002 + 0,115 SIR - 0,0004 LDR - 0,294 NPL+ 0,116 CAR

This test is carried out to test whether each independent variable has a significant effect on the

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independent variable. Based on the results of the regression can be obtained as follows:

- SIR ***(Spread of Interest Rate)***
  The regression test results presented in Table 8 show the coefficient value is positive and the significance value is smaller than 0.05. This means that the Spread of Interest Rate has a positive and significant effect on the profitability of commercial banks.
- LDR **(*Loan to Deposit Ratio)***
  The regression test results presented in Table 8 show the coefficient values are negative and a significance value is greater than 0.05. This shows that the Loan to Deposit Ratio does not affect the profitability of commercial bank.

- NPL (***Non Performing Loan)***
  The regression test results presented in Table 8 show the coefficient value is negative and the significance value is smaller than 0.05. This means that Non-Performing Loans have a negative and significant effect on the profitability of commercial bank.
- CAR (***Capital Adequacy Ratio)***
  Table 8 shows the results of the hypothesis test of the effect of CAR on the profitability of commercial banks is positive and significant, which is indicated by the coefficient value is positive and the significance value is smaller than 0.05.

E. DISCUSSION

- **The Influence of *Interest Rate Spread* toward the *Profitability***
  Regression result reveals that the Interest Rate Spread has a positive and significant effect on the profitability of commercial banks. These results are supported by two previous studies which show that Interest Rate Spread has a relationship to profitability. Antwi et al (2017) found that Interest Rate Spreads have a significant effect on profitability. Likewise, Musah et al (2018) found that Interest Rate Spreads have a significant effect on profitability, so the government should issue laws governing the amount of Interest Rate Spreads. Disbursement of fund from third parties is enough to help bank to get higher income. However, bank must also pay attention to the amount of interest that must be paid to these third parties. This implies that commercial bank manager is able to analyze and make more consideration of the amount of interest that must be paid when the bank gets an offer of funds from another party.

- **The Influence of *Loan Deposit Ratio* toward the Profitability**

Regression result shows that the Interest Rate Spread has a positive and significant effect on the profitability of commercial bank. This result is supported by two previous studies which show that Interest Rate Spread has a relationship to profitability. Antwi et al (2017) found that Interest Rate Spreads have a significant effect on profitability. Likewise, Musah et al (2018) found that Interest Rate Spreads have a significant effect on profitability, so the government should issue laws governing the amount of Interest Rate Spreads. Disbursement of funds from third parties is enough to help banks to get higher income. However, banks must also pay attention to the amount of interest that must be paid to these third parties. This implies that bank managers regression results show that the Loan to Deposit Ratio does not affect the profitability of commercial banks. This result is not supported by two previous studies which showed that Loan to Deposit Ratio has a relationship to profitability. Rengasamy (2014) found that the Loan to Deposit Ratio had a significant effect on profitability, while Hantono (2017) found that CAR, LDR, and NPL had a significant effect on profitability both partially and simultaneously.

In 2018, bank credit growth reached 11.8%. This was the highest since 2013. However, DPK only grew by 6.4%, the lowest since September 2016. The low DPK growth in 2016 was temporary because there was a ransom payment by taxpayers

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who participated in a tax amnesty program. This condition reflects that commercial bank managers must continue to encourage DPK to grow higher, so that the funding gap (the gap in funding) can be reduced, and the value of LDR remains small. This is due to the liquidity provided by BI through the "term repo" facility which is more short-term in nature and does not have a major impact on long-term liquidity.

The general public is able to analyze and make more consideration of the amount of interest that must be paid when the bank gets an offer of funds from another party.

- **The influence of *Non Performing Loan* toward the Profitability.**

Regression result shows that the Non Performing Loan has a negative and significant effect on the profitability of commercial bank. There are four previous studies that support the regression results. Patwary and Tasneem (2019) that NPL has a negative and significant effect on profitability. Likewise, the results of the study of Bishop Panta (2018), which shows that NPL has a negative and significant effect on profitability. Christaria and Kurnia (2016) also found that NPLs had a significant effect on profitability, although they did not show a negative or positive direction, while Hantono (2017) found that CAR, LDR and NPL had a significant effect on profitability both partially and simultaneously.

This reflects that bank manager must be able to manage their NPLs getting lower, so that third parties will increasingly trust to disburse their funds. This needs to be done because the third party will check the liquidity ratio at the bank by looking at the NPL level. A high NPL will result in lower third party fund liquidity ratios, which will have an impact on third parties who no longer wish to provide funds to banks. This can happen because the bank's NPL level is too high. Most of the funds disbursed by banks to customers are funds from these third parties. If the NPL is too high, surely the third party will also lose money. Therefore, this condition has implications for commercial bank managers to focus on the collection aspect by conducting routine monitoring once a month on the debtor savings account, observing the volume of debtor sales and taking action.

- **The Influence of *Capital Adequacy Ratio* toward the Profitability**

The regression test results show that the Capital Adequacy Ratio has a positive and significant effect on the profitability of commercial banks. There are two previous studies supporting the regression results. Ajayi, et al (2019) showed that the Capital Adequacy Ratio had a significant effect on profitability, while Wahyuni (2018) showed that the Capital Adequacy Ratio, LDR and BOPO had a significant effect on profitability. This reflects that the manager of a commercial bank always maintains the Capital Adequacy Ratio (CAR) or capital adequacy ratio in order not to go down or low.

5. CONCLUSION AND SUGGESTION

A. Conclusion

Based on the analysis and discussion which is calculated by using the method of multiple linear regression analysis, it can be concluded that 20 commercial banks tested are as follows:

- The hypothesis which states that the Interest Rate Spread has an influence on significant profitability is supported, indicating that the higher the Interest Rate Spread in 20 sample banks, the greater the profits obtained to support the profitability of 20 sample banks. The high spread is not generated by increasing interest rates, because customers will not easily get an increase in interest rates, but by increasing low-cost funds and cost efficiency.
- The hypothesis which states that the Loan to Deposit Ratio has an influence on unsupported profitability, implies that the Loan to Deposit Ratio in 20 sample banks is

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ceteris paribus on the profitability of 20 sample banks.

- Hypothesis which states that Non Performing Loans have a significant influence on supported profitability, reflecting that the higher the NPL in 20 sample banks, the smaller the financial resources that can be used to support the profitability of 20 sample banks.
- The hypothesis which states that the Capital Adequacy Ratio has a significant effect on profitability, implies that the higher the CAR in the 20 sample banks, the greater the financial resources that can be used to support the profitability of the 20 sample banks.

B. Suggestion

The results of this study provide several findings that obtain some suggestions, as follows:

- Disbursement of funds from third parties is enough to help banks to get higher income, but banks also must pay attention to how much interest should be paid to these third parties. Therefore, it is advisable for commercial bank managers to provide more in-depth analysis and consideration when banks get offers of funds from other parties, banks must consider the amount of interest paid to them.
- It is recommended that commercial commercial bank managers still have to push DPK to grow higher to reduce funding gap (funding gap), so that the LDR value is maintained, because the liquidity provided by BI through the term term repo facility is short-term and does not have a major impact on long-term liquidity.
- A high NPL will cause a lower third party fund liquidity ratio. Bank NPLs are too high, occurring because third parties no longer want to give their funds to banks, because most of the funds disbursed by banks to credit customers are funds from these third parties. If the NPL is too high, surely the third party will also lose money. Therefore, it is advisable for commercial commercial bank managers to uphold the principle of prudence in lending that is complemented by risk mitigation and focus on the collection aspect by conducting routine monitoring once a month on the debtor savings account, observing the volume of debtor sales, and conduct accompanying visits as often as possible. In particular, bank officers contact customers who have been indicated not to be timely in paying credit installments, so the risk of customers delaying payments is expected to be low, which can potentially be non-current or non-payment. Another important thing is the credit appraisers of customers need to apply the optimization of the prudent principle / precautionary principle in the process of giving credit without leaving existing business prospects.
- It is recommended that commercial bank managers maintain that the Capital Adequacy Ratio (CAR) does not decrease in order to increase the Bank's profitability capability.

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