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Financial And Macroeconomic Performance Effect On Net Interest Margins At Conventional Commercial Banks In Indonesia

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ARTICLE INFORMATION

ABSTRACT

Purpose of this study is to determine the effect of financial and macroeconomic performance on Net Interest Margin in conventional banking in Indonesia. Used regression method, and monthly time series data form financial services authority in 2017-2020. Research result shown that, Loan to Deposit Ratio and interest rate have a positive and significant effect on Net Interest Margin while the exchange rate has a negative and significant effect to Net Interest Margin. However, Operating Expenses and Operating Income have not been shown to affect Net Interest Margin. If Banking performance improves, stable macroeconomic conditions, and regulations that support the banking sector, the Net Interest Margin conditions can be conducive.

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INTRODUCTION

Banking plays a big role in supporting the success of Indonesia development [1]. This is inseparable from its function as an intermediary institution that helps facilitate the implementation of economic activities [2]. The condition of the bank is inseparable from the impact of financial performance in its internal and macroeconomics [3]. Internal factors related to the bank's ability to manage its business and macroeconomics are external factors that are beyond the company's control, so bank needs to anticipate quickly from the turmoil that occurs [4]. This condition, making national and international banks do Basel III agreement by reforming arrangements in the banking sector in response to the world financial crisis in 2008, which resulted from lack of capital adequacy, high variation of Risk Weighted Assets By Risk between banks, very high leverage and liquidity

crunch [5]. In its development, conventional bank is divided into 4 commercial banks business groups (BUKU), because, the more funds that banks can distribute, it will have a large multiplier effect on the wheels of the economy and public demand, so that it can eventually increase bank profits [6].

In carrying out its business, bank is obtain profits from various sources of activity carried out and one of them is a large contribution from loans given to the community in the form of Net Interest Margin (NIM). Net Interest Margin of bank value at Indonesia in 2017-2020 in BUKU IV, continues to experience a declining trend (Figure 1). This situation, will endanger the health of the bank for long term, so needs an effort from internal side to improve it, and anticipate the macroeconomic turmoil so that the trend can immediately increase [7].
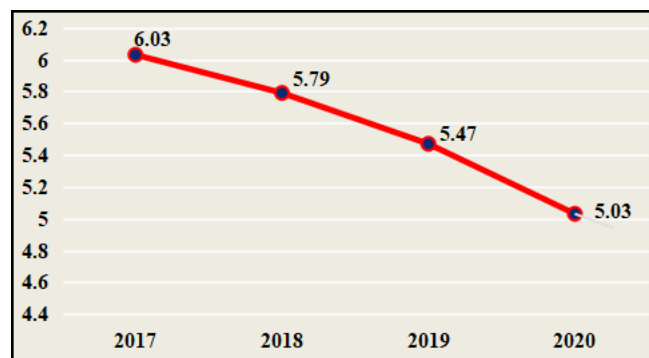

Figure 1. NIM Conventional Commercial Bank BOOK IV
In 2017-2020 (Percent).
Source: Financial Services Authority, 2021.

Profit is purpose of the bank when doing their activities. It is necessary to pay attention to their performance through financial ratios [8]. Profitability ratio used to determine banks ability to generate profits [9]. Form this ratio is Net Interest Margin (NIM) as well as Operating Expenses and

Operating Income (BOPO) [10]. NIM used to determine bank management ability in managing its productive assets in order to generate net interest income [11]. This income earned from interest income minus interest expense [12]. The greater NIM will increase interest income on productive

assets managed by the bank, so it will reducing Bank experiencing problems. BOPO is used to determine management's ability to control operating expenses against operating income [13]. The smaller BOPO, can make the operating costs of the bank more efficient, so profits obtained by the bank will be greater. Liquidity Ratio measures bank's ability to meet its short-term obligations [14]. This is a risk due to the bank's inability to meet its obligations that have matured from sources of cash flow funding and or from high-quality liquid assets that can be used, without disturbing bank's financial activities and conditions. Liquidity ratio using Loan to Deposit Ratio (LDR), describes the comparison between credit issued by banks and total third-party funds collected in the form of current accounts, savings and deposits [15]. Number of third-party funds that can be collected by banks, directly proportional to the amount of credit issued, so the more third-party funds, the more credit channeled by the bank.

In the digital era, macroeconomic changes have a rapid impact on companies condition. Financial industry, especially banks need to take policies and actions quickly, but always becareful in running their business. Macroeconomic conditions in the form of interest rates and exchange rates are the basic foundation for banks in maintaining their business stability. Better macroeconomic conditions will be followed by stable exchange rate, so the moment is used by the central bank to improve banking performance by not raising interest rates or even if it can actually lower it. Hope is that there will be an increase in loan demand which will eventually increase bank profits. Interest rate is loan cost or price that tenant pays to the owner of the fund [8]. Interest

rates can be divided into nominal and real interest rates. Nominal interest rate occurs in the market and the real interest rate is the concept of measuring funds return rate after deducting with inflation [16]. Real interest rates used Fisher effect to determining expectations of the effect of inflation on nominal interest rates [17]. Interest rate movement mechanism have been developed through classical, Keynesian, and post Keynesian theories. In classical theory its revealed that interest rates are one of the indicators that used by someone in deciding to save or invest [18]. Existence of higher interest rates will have an impact on funds rising that offered, so there is a positive relationship between interest rates and the amount of funds offered [19]. Keynes's theory considers money is one form of wealth owned by public and in holding it, there are several reasons in form of transactions, vigilance and speculation [20]. Money demand for transactions and vigilance is insensitive to interest rates [21].

Liquidity preference is a money demand for speculation purpose that links money demand to interest rates. Post Keynesian theory reveals that interest rates are the occurrence of economic balance with the provision of interest rates formed to meet the balance in the investment fund market and money market [22]. This theory using the IS-LM curve analysis tool, which has the advantage of having succeeded in integrating savings, investments, money demand for speculation and money supply. In this theory, all of them are integrated, because money supply will affect interest rate, so it will affect the demand for money for speculation and investment. For this reason, fund owners and borrowers will be

in contact with banks if the interest rate can provide benefits for them, so the bank strives to make efficiencies to increase the interest spread it produces [23]. This theory, states that savings are not only determined interest rates but also income. This means that savings will increase if their national income increases. Interest rate theory developed rapidly until the discovery of interest rate parity theory that popular in international finance [21]. Interest rate parity doctrine is based on exchange rates based on interest rates between the countries. Countries that use free exchange rate system, its domestic interest rates tend to be equated with foreign interest rates by taking into account the estimated rate of country currency depreciation concerned against other countries [22]. Purchasing Power Parity's theory formulates the exchange rate between two currencies. This condition, identical to general price level ratio in the two countries concerned. This theory reveals that foreign exchange market is in a state of equilibrium when all deposits or deposits in various foreign exchanges offer the same rate of reward. As for the condition where the estimated rate of reward offered all deposits in various foreign exchanges are the same calculated with one unit of the same currency (interest rate parity).

Bank sustainability depends on profitability and one of them comes from NIM. For this reason, a lot of NIM research has been done. Hidayat research (2012) [24], on conventional banks listed on the Indonesia Stock Exchange in 2006-2010 revealed that BOPO has a negative and significant effect on NIM, while Widyanto, Agung, & Alwiyah research (2020) [25], on banking company that listed on the Indonesia Stock Exchange

at 2012-2016 period and find that BOPO has no influence against NIM. Setiawan, Putri, & Rachmansyah research (2019) [26], at Bank Perkreditan Rakyat Indonesia obtained that LDR had a positive and significant effect on NIM, Result of Endri, Marlina, & Hurriyaturrohman research (2020) [16] on banks in Indonesia interest rates have a positive and significant effect on NIM. Zulkifli & Eliza research (2018) [20], on national banks with the finding that the exchange rate has a negative and significant effect on NIM, while Fahruri's research (2017) [1], on Banking listed on the Indonesia Stock Exchange in 2007-2010 obtained that the exchange rate has no effect on NIM.

Bank has a strategic role in supporting national development, and needs to be pursued its existence. Bank development depends on their profit, but many factors affect it, in terms of internal and macroeconomic. Profit earned by the bank depends on its participation in BUKU, so efforts to anticipate global competition using BUKU IV. Conventional banks are still an indicator of successful banks in Indonesia because of its existence earlier than Islamic banks, so this business more established. NIM is one sources that contributes greatly in supporting the bank's profit. In 2017-2020 has a downward trend that could harm the bank's business. For this reason, it is necessary to have a research about influence of financial and macroeconomic performance on Net Interest Margin on conventional banking in Indonesia.

RESEARCH METHOD

This research was conducted to find out the influence of financial and macroeconomic performance on NIM on conventional commercial banks in Indonesia. Financial

performance is proxied using BOPO and LDR, while macroeconomics is proxied using interest rates and exchange rates. BOPO and LDR are used because they can represent bank performance, which is related to the efficiency made through BOPO and the risk of refunds made by the LDR. An efficient bank, taking into account the risks that they are faced, will increase the bank's sustainable income.   This research used regression methods. Dependent variables using NIM and independent variables using BOPO, LDR, interest rate, and exchange rate. Used monthly time series data from financial services authorities in 2017-2020. Similarities models used in the study Information:

NIM   = Net Interest Margin.
BOPO = Operating Expenses and Operating Income.
LDR   = Loan to Deposit Ratio.
Interest= Interest rate.
ER   = Exchange Rate.

1. Net Interest Margin (NIM).

$$NIM = \frac{Interest\ Income}{Average\ of\ productive\ assets} x\ 100\%$$

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011 shown in table 1.

Table1. Matrix of Health Assessment criteria of NIM Ratio Bank

Rating	Information	Criteria
1	Very Healthy	BOPO≤83%
2	Healthy	83%<BOPO≤85%
3	Average Healthy	85%<BOPO≤87%
4	Less Healthy	87%<BOPO≤89%
5	Unhealthy	BOPO≤89%

Source : SEBI No. 13/24/DPNP Year 2011 [27]

2. Operating Expenses and Operating Income Ratio (BOPO).

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

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011, shown in table 2.

Table 2. BOPO Ratio Bank Health Assessment Criteria Matrix

Rating	Information	Criteria
1	Very Healthy	NIM > 3%
2	Healthy	2% < NIM = 3%
3	Average Healthy	1,5% < NIM = 2%
4	Less Healthy	1% < NIM = 1,5%
5	Unhealthy	NIM = 1%

Source: SEBI No.13/24/DPNP Year 2011 [27]

3. Loan to Deposit Ratio.

$$LDR = \frac{Total\ Credit}{Third\ Party\ Funds} x\ 100\%$$

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011 shown in table 3.

Table 3. LDR Ratio Bank Health assessment criteria matrix

Rating	Information	Criteria
1	Very Healthy	LDR≤75%
2	Healthy	75%<LDR≤85%
3	Average Healthy	85%<LDR≤100%
4	Less Healthy	100%<LDR≤120%
5	Unhealthy	LDR>120%

4. Interest rates.
The interest rate used the savings rate one month in percent.

5. Exchange rate.
The exchange rate used is Rupiah, required to get 1 US Dollar based on bank indonesia's provisions.

Hypothesis:

1. BOPO is the bank's ability to control operating costs against operating income. In their activities, to increase their profit, banks performs efficiency by reducing their operating costs. Because the bank has a spread between real interest rate on loans and savings that is getting bigger, so it can provide benefits for banks due to increasing NIM. It can be hypothesized that H_1: BOPO has a negative and significant effect on NIM.

2. Comparison between the credit provided by bank to third party funds called LDR. Third-party funds at the bank will have a high profit. Due to third-party funds raised by banks increased, banks distribution of funds can increased, due to NIM increase. For this reason, it can be hypothesized that H_2: LDR has a positive and significant effect on NIM.

3. Exchange rate is country's currency values against another country currencies. Volatility of rising exchange rate can increase the risk of loss, then have an impact to reducing NIM. This is because the depreciation of rupiah will result in loan quality decreases, thus impacting the decline in bank margins due to declining NIM. It can be hypothesized that H_4: Exchange Rate has a negative and significant effect on NIM.

RESULT AND DISCUSSION
Result
Descriptive of NIM, BOPO, LDR, interest, and ER values of this study are seen in Table 4.

As for the details, NIM average value in 2017.1-2020.12 is 5.583963 percent and has 0.407550 percent standard deviation, with maximum value 6.084456 percent in 2017.3 and a minimum value 4.627052 percent in 2020.4. BOPO average value is 75.83123 percent and has 4.506925 percent standard deviation, with maximum value 85.37191 percent in 2020.3 and a minimum value 69.18077 percent in 2018.12. Average LDR value is 87.86592 percent and has 3.2282252 percent standard deviation, with maximum value 92.69033 percent in 2019.5 and the lowest value is 80.11000 percent in 2020.12. The average interest rate is 1.445000 percent has standard deviation of 0.497359 percent, with maximum value 2.320000 percent in 2018.2 and a minimum 0.660000 percent in 2020.11 and 2020.12. Exchange rate average is Rp14,095.00, and has standard deviation Rp. 592.00 with maximum value Rp15,867.00 in 2020.4 and a minimum Rp13,297.00 in 2017.6

Table 4. Descriptiv Statistic at 2017.1-2020.12

	NIM	BOPO	LDR	Interest	ER
Mean	5.583963	75.83123	87.86592	1.445000	14095
Median	5.694486	75.43243	88.94774	1.420000	14087
Maximum	6.084456	85.37191	92.69033	2.320000	15867
Minimum	4.627052	69.18077	80.11000	0.660000	13297
Std. Dev.	0.407550	4.506925	3.282252	0.497359	592

Results of this study in table 4, obtained a value of coefficient of determination (adjusted R-square) is 0.839284, means BOPO, LDR, interest rate, and exchange rate can explain against NIM of 83.9284 percent, and 16.0716 percent remaining is influenced by other factors, but not included in the model. F-statistic test obtained an F-statistic

of 56.13824 with a probability (F-statistic) of 0.0000<0.05, means at least one of the

BOPO, LDR, interest rate, and exchange rate can affect NIM (Table 5).

Table 5. Partial Test Results (Test t)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.696359	1.205887	7.211585	0,0000
BOPO	-0.005595	0.007716	-0.725155	0,4723
LDR	0.020237	0.008383	2.413935	0,0201
Interest	0.420406	0.070118	5.995720	0,0000
ER	-0,000360	4.46E-05	-8.068408	0,0000

A partial test (t-test) was conducted to determine the individual effect of BOPO, LDR, interest rate, and exchange rate on NIM. Coefficient value of BOPO is minus 0.005595 with a probability value of 0.4723>0.05, means it cannot be proven that BOPO has a negative and significant effect on NIM. Result obtained from this study, coefficient value of LDR is 0.020237 with a probability value of 0.0201<0.05, means that LDR proven has a positive and significant effect on NIM. Coefficient value of interest rate is 0.420406 with probability value of 0.0000<0.05, means that interest rate proven has a positive and significant effect on NIM. Coefficient value of exchange rate is minus 0.000360 with probability value of 0.0000<0.05, means that exchange rate proven has a negative and significant effect on NIM.
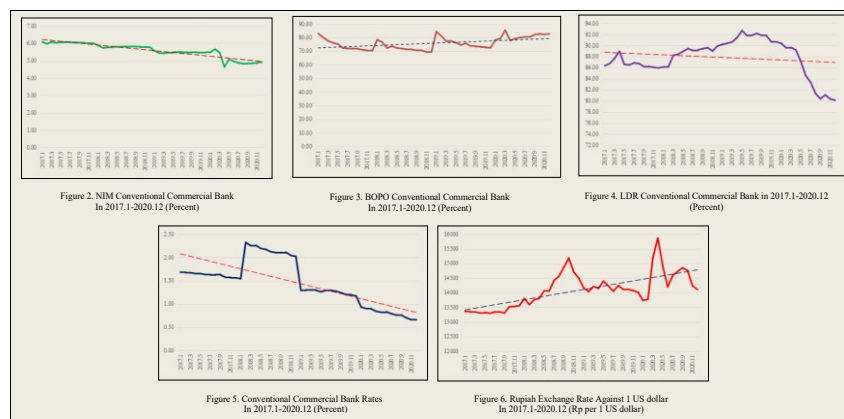
Discussion

NIM, BOPO, LDR, interest rates, and exchange rates experienced diverse fluctuations in 2017.1-2020.12. Extreme economic conditions occurred due to the economic crisis in 2018 and were exacerbated by Covid-19 outbreak in 2019. NIM experienced a downward trend in

2017.1-2020.12, due to disruptions in many business sectors which resulted in hampered lending to its lending. This condition is following national economy development, especially after the implementation of large-scale social restriction policies in overcoming the Covid-19 pandemic, which resulted in decrasing demand at economic activity due to decreasing of people's purchasing power, so company degrade its investment and ultimately had an impact on declining loans at banks. Government and banks anticipate by lowering the interest rate on loans that have an impact on the NIM decline. This is an appropriate action, because company loss will be smaller but the business can still run, so companies can still provide jobs to their employee and contribute to economic growth. Average condition of NIM value at conventional commercial banks on BUKU IV in Indonesia, falls into the very healthy category, in accordance with SEBI decree No. 13/24/DPNP Year 2011 has 5.583963 percent value, which is in NIM>3 percent.

BOPO experiencing fluctuations with increasing trend making the bank's efficiency decrease. This is due to bank investment to

developing acceleration of digital technology and the decrease in bank activity impacted by Covid-19 pandemic resulting in economic sluggishness, so that funds issued are increasing and the acquisition of funds is accordance with SEBI decree No. 13/24/DPNP Year 2011 has 75.83123 percent value, which is in BOPO≤83 percent. Average condition of LDR value of conventional public bank in BUKU IV at Indonesia is in the quite healthy category in accordance with SEBI decree No. 13/24/DPNP Year 2011 has a value of 87.86592 percent which is at 85 percent<LDR≤100 percent. After Covid-19 pandemic outbreak, interest rates fluctuated with a sharp downward trend, but in 2018 there was an increase due to policies carried out by banks in addressing the increased risk of lending due to the economic crisis that occurred. Condition of interest rate of conventional commercial bank on BOOK IV in Indonesia has an average value of

1.445000 percent with a low standard deviation of 0.497359 percent. Rupiah continues to depreciate, especially during pandemics that have an increasing trend of rupiah exchange rate decreasing against U.S. dollar. This condition is the impact of world economic sluggishness that has an impact on decreasing export demand and increasing imported goods and increasing foreign debt. Rupiah exchange rate conditions in Indonesia have an average value of Rp14095.00 with a low standard deviation of Rp592.00.decreasing. Average condition BOPO value of conventional public bank in BUKU IV in Indonesia is in the very healthy category, in Results of this study, both macroeconomic factors affect NIM. But in the financial performance of banks, there is only one factor that affects NIM. This shows that macroeconomic factors play a big role in Indonesia's banks condition in addition t their financial performance. LDR, interest rates, and exchange rates are factors that

Figure 2. NIM Conventional Commercial Bank
In 2017.1-2020.12 (Percent)

Figure 3. BOPO Conventional Commercial Bank
In 2017.1-2020.12 (Percent)

Figure 4. LDR Conventional Commercial Bank in 2017.1-2020.12 (Percent)

Figure 5. Conventional Commercial Bank Rates
In 2017.1-2020.12 (Percent)

Figure 6. Rupiah Exchange Rate Against 1 US dollar
In 2017.1-2020.12 (Rp per 1 US dollar)

profits obtained from credit distribution, so banks strive to have sufficient liquidity and optimize their productive assets in order to increase NIM. Interest rates have a positive and significant effect on NIM. It means rising interest to transfer funds to banks in the form of deposits, thus increasing banks ability to distribute their funds. Exchange rate has a negative and significant effect on

NIM. interest rates will increase NIM and conversely, decreassing in interest rates will lower NIM. This condition, in accordance with Endri, Marlina, & Hurriyaturrohman research (2020) [16]. It can be happen because when there is an increased in interest rates, it will increase investorsIncreasing in exchange rate will decrease NIM and vice versa, decrease in

exchange rate will increase NIM. Results shown in accordance with Zulkifli & Eliza research (2018) [20]. To obtain 1 US Dollar requires a larger amount of rupiah, resulting in the domestic currency rate depreciating and foreign currency rates experiencing appreciation and vice versa, it takes a smaller amount of rupiah to obtain 1 US Dollar resulting in the domestic currency rate experiencing appreciation and foreign depreciating. This condition can occur because when volatility of exchange rate is rise causing an increase in potential losses, so it can decrease net interest margin.

Banks existence is needed by community and government to smoother development process in Indonesia. It's has an impact on bank efforts in carrying out their activity to gain the profits in order to develop its business. NIM greatly contributes in increasing bank profits, so it is necessary to maintain acceptance the stability from this source, but the situation is influenced by internal changes and macroeconomic conditions. Therefore, government role is needed in maintaining macroeconomic stability and regulations that support the bank, but the bank itself needs to be more professional and increase efficiency, and be able to make policies quickly that can overcome macroeconomic changes.

CONCLUSION

Factors that affect NIM in conventional commercial banks research in Indonesia with regression methods, used monthly time series data from 2017-2020. The results shown that LDR has a positive and significant effect on NIM because it has a coefficient value of 0.020237 with a probability value of 0.0201. The interest rate has a positive and significant effect on NIM because it has a coefficient value of 0.420406 with a probability value of 0.0000. BOPO has not proven have any effect on NIM. In the next study, the exchange rate, as a macroeconomic variable, should be used as a moderation variable and add other internal variables that can improve NIM performance. In the next study, researchers should use internal condition, and macroeconomic need to use internal and other macroeconomic variables, as well as the implementation of Corporate Social Responsibility conducted by the bank. Better used panel data to find out the characteristics of each bank. The main purpose is, bank can well develop and have a large contribution to sustainable development, in accordance with Indonesia's agreement to implement the Sustainable Development Goals program.

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Financial And Macroeconomic Performance Effect On Net Interest Margins At Conventional Commercial Banks In Indonesia

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Financial And Macroeconomic Performance Effect On Net Interest Margins At Conventional Commercial Banks In Indonesia

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ARTICLE INFORMATION

ABSTRACT

Purpose of this study is to determine the effect of financial and macroeconomic performance on Net Interest Margin in conventional banking in Indonesia. Used regression method, and monthly time series data form financial services authority in 2017-2020. Research result shown that, Loan to Deposit Ratio and interest rate have a positive and significant effect on Net Interest Margin while the exchange rate has a negative and significant effect to Net Interest Margin. However, Operating Expenses and Operating Income have not been shown to affect Net Interest Margin. If Banking performance improves, stable macroeconomic conditions, and regulations that support the banking sector, the Net Interest Margin conditions can be conducive.

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INTRODUCTION

Banking plays a big role in supporting the success of Indonesia development [1]. This is inseparable from its function as an intermediary institution that helps facilitate the implementation of economic activities [2]. The condition of the bank is inseparable from the impact of financial performance in its internal and macroeconomics [3]. Internal factors related to the bank's ability to manage its business and macroeconomics are external factors that are beyond the company's control, so bank needs to anticipate quickly from the turmoil that occurs [4]. This condition, making national and international banks do Basel III agreement by reforming arrangements in the banking sector in response to the world financial crisis in 2008, which resulted from lack of capital adequacy, high variation of Risk Weighted Assets By Risk between banks, very high leverage and liquidity

crunch [5]. In its development, conventional bank is divided into 4 commercial banks business groups (BUKU), because, the more funds that banks can distribute, it will have a large multiplier effect on the wheels of the economy and public demand, so that it can eventually increase bank profits [6].

In carrying out its business, bank is obtain profits from various sources of activity carried out and one of them is a large contribution from loans given to the community in the form of Net Interest Margin (NIM). Net Interest Margin of bank value at Indonesia in 2017-2020 in BUKU IV, continues to experience a declining trend (Figure 1). This situation, will endanger the health of the bank for long term, so needs an effort from internal side to improve it, and anticipate the macroeconomic turmoil so that the trend can immediately increase [7].
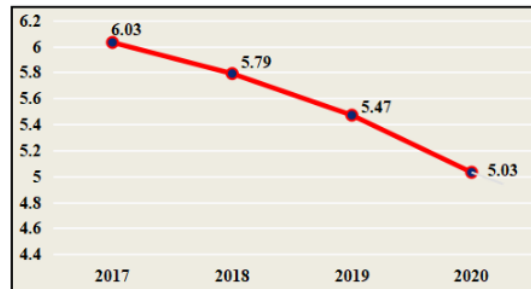

Figure 1. NIM Conventional Commercial Bank BOOK IV
In 2017-2020 (Percent).
Source: Financial Services Authority, 2021.

Profit is purpose of the bank when doing their activities. It is necessary to pay attention to their performance through financial ratios [8]. Profitability ratio used to determine banks ability to generate profits [9]. Form this ratio is Net Interest Margin (NIM) as well as Operating Expenses and Operating Income (BOPO) [10]. NIM used to determine bank management ability in managing its productive assets in order to generate net interest income [11]. This income earned from interest income minus interest expense [12]. The greater NIM will increase interest income on productive

12

assets managed by the bank, so it will reducing Bank experiencing problems. BOPO is used to determine management's ability to control operating expenses against operating income [13]. The smaller BOPO, can make the operating costs of the bank more efficient, so profits obtained by the bank will be greater. Liquidity Ratio measures bank's ability to meet its short-term obligations [14]. This is a risk due to the bank's inability to meet its obligations that have matured from sources of cash flow funding and or from high-quality liquid assets that can be used, without disturbing bank's financial activities and conditions. Liquidity ratio using Loan to Deposit Ratio (LDR), describes the comparison between credit issued by banks and total third-party funds collected in the form of current accounts, savings and deposits [15]. Number of third-party funds that can be collected by banks, directly proportional to the amount of credit issued, so the more third-party funds, the more credit channeled by the bank.

In the digital era, macroeconomic changes have a rapid impact on companies condition. Financial industry, especially banks need to take policies and actions quickly, but always becareful in running their business. Macroeconomic conditions in the form of interest rates and exchange rates are the basic foundation for banks in maintaining their business stability. Better macroeconomic conditions will be followed by stable exchange rate, so the moment is used by the central bank to improve banking performance by not raising interest rates or even if it can actually lower it. Hope is that there will be an increase in loan demand which will eventually increase bank profits. Interest rate is loan cost or price that tenant pays to the owner of the fund [8]. Interest

rates can be divided into nominal and real interest rates. Nominal interest rate occurs in the market and the real interest rate is the concept of measuring funds return rate after deducting with inflation [16]. Real interest rates used Fisher effect to determining expectations of the effect of inflation on nominal interest rates [17]. Interest rate movement mechanism have been developed through classical, Keynesian, and post Keynesian theories. In classical theory its revealed that interest rates are one of the indicators that used by someone in deciding to save or invest [18]. Existence of higher interest rates will have an impact on funds rising that offered, so there is a positive relationship between interest rates and the amount of funds offered [19]. Keynes's theory considers money is one form of wealth owned by public and in holding it, there are several reasons in form of transactions, vigilance and speculation [20]. Money demand for transactions and vigilance is insensitive to interest rates [21].

Liquidity preference is a money demand for speculation purpose that links money demand to interest rates. Post Keynesian theory reveals that interest rates are the occurrence of economic balance with the provision of interest rates formed to meet the balance in the investment fund market and money market [22]. This theory using the IS-LM curve analysis tool, which has the advantage of having succeeded in integrating savings, investments, money demand for speculation and money supply. In this theory, all of them are integrated, because money supply will affect interest rate, so it will affect the demand for money for speculation and investment. For this reason, fund owners and borrowers will be

in contact with banks if the interest rate can provide benefits for them, so the bank strives to make efficiencies to increase the interest spread it produces [23]. This theory, states that savings are not only determined interest rates but also income. This means that savings will increase if their national income increases. Interest rate theory developed rapidly until the discovery of interest rate parity theory that popular in international finance [21]. Interest rate parity doctrine is based on exchange rates based on interest rates between the countries. Countries that use free exchange rate system, its domestic interest rates tend to be equated with foreign interest rates by taking into account the estimated rate of country currency depreciation concerned against other countries [22]. Purchasing Power Parity's theory formulates the exchange rate between two currencies. This condition, identical to general price level ratio in the two countries concerned. This theory reveals that foreign exchange market is in a state of equilibrium when all deposits or deposits in various foreign exchanges offer the same rate of reward. As for the condition where the estimated rate of reward offered all deposits in various foreign exchanges are the same calculated with one unit of the same currency (interest rate parity).

Bank sustainability depends on profitability and one of them comes from NIM. For this reason, a lot of NIM research has been done. Hidayat research (2012) [24], on conventional banks listed on the Indonesia Stock Exchange in 2006-2010 revealed that BOPO has a negative and significant effect on NIM, while Widyanto, Agung, & Alwiyah research (2020) [25], on banking company that listed on the Indonesia Stock Exchange

at 2012-2016 period and find that BOPO has no influence against NIM. Setiawan, Putri, & Rachmansyah research (2019) [26], at Bank Perkreditan Rakyat Indonesia obtained that LDR had a positive and significant effect on NIM, Result of Endri, Marlina, & Hurriyaturrohman research (2020) [16] on banks in Indonesia interest rates have a positive and significant effect on NIM. Zulkifli & Eliza research (2018) [20], on national banks with the finding that the exchange rate has a negative and significant effect on NIM, while Fahruri's research (2017) [1], on Banking listed on the Indonesia Stock Exchange in 2007-2010 obtained that the exchange rate has no effect on NIM.

Bank has a strategic role in supporting national development, and needs to be pursued its existence. Bank development depends on their profit, but many factors affect it, in terms of internal and macroeconomic. Profit earned by the bank depends on its participation in BUKU, so efforts to anticipate global competition using BUKU IV. Conventional banks are still an indicator of successful banks in Indonesia because of its existence earlier than Islamic banks, so this business more established. NIM is one sources that contributes greatly in supporting the bank's profit. In 2017-2020 has a downward trend that could harm the bank's business. For this reason, it is necessary to have a research about influence of financial and macroeconomic performance on Net Interest Margin on conventional banking in Indonesia.

RESEARCH METHOD

This research was conducted to find out the influence of financial and macroeconomic performance on NIM on conventional commercial banks in Indonesia. Financial

performance is proxied using BOPO and LDR, while macroeconomics is proxied using interest rates and exchange rates. BOPO and LDR are used because they can represent bank performance, which is related to the efficiency made through BOPO and the risk of refunds made by the LDR. An efficient bank, taking into account the risks that they are faced, will increase the bank's sustainable income. This research used regression methods. Dependent variables using NIM and independent variables using BOPO, LDR, interest rate, and exchange rate. Used monthly time series data from financial services authorities in 2017-2020. Similarities models used in the study Information:

NIM = Net Interest Margin.
BOPO = Operating Expenses and Operating Income.
LDR = Loan to Deposit Ratio.
Interest= Interest rate.
ER = Exchange Rate.

1. Net Interest Margin (NIM).

$$NIM = \frac{Interest\ Income}{Average\ of\ productive\ assets} \times 100\%$$

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011 shown in table 1.

Table1. Matrix of Health Assessment criteria of NIM Ratio Bank

Rating	Information	Criteria
1	Very Healthy	BOPO≤83%
2	Healthy	83%<BOPO≤85%
3	Average Healthy	85%<BOPO≤87%
4	Less Healthy	87%<BOPO≤89%
5	Unhealthy	BOPO≤89%

Source : SEBI No. 13/24/DPNP Year 2011 [27]

2. Operating Expenses and Operating Income Ratio (BOPO).

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

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011, shown in table 2.

Table 2. BOPO Ratio Bank Health Assessment Criteria Matrix

Rating	Information	Criteria
1	Very Healthy	NIM > 3%
2	Healthy	2% < NIM = 3%

Rating	Information	Criteria
3	Average Healthy	1,5% < NIM = 2%
4	Less Healthy	1% < NIM = 1,5%
5	Unhealthy	NIM = 1%

Source: SEBI No.13/24/DPNP Year 2011 [27]

3. Loan to Deposit Ratio.

$$LDR = \frac{Total\ Credit}{Third\ Party\ Funds} x\ 100\%$$

Bank's health assessment criteria in accordance with Bank Indonesia standards according to SEBI No. 13/24/DPNP Year 2011 shown in table 3.

Table 3. LDR Ratio Bank Health assessment criteria matrix

Rating	Information	Criteria
1	Very Healthy	LDR≤75%
2	Healthy	75%<LDR≤85%
3	Average Healthy	85%<LDR≤100%
4	Less Healthy	100%<LDR≤120%
5	Unhealthy	LDR>120%

Source : SEBI No.13/24/DPNP year 2011 [27]

4. Interest rates.
The interest rate used the savings rate one month in percent.

5. Exchange rate.
The exchange rate used is Rupiah, required to get 1 US Dollar based on bank indonesia's provisions.

Hypothesis:
1. BOPO is the bank's ability to control operating costs against operating income. In their activities, to increase their profit, banks performs efficiency by reducing their operating costs. Because the bank has a spread between real interest rate on loans and savings that is getting bigger, so it can provide benefits for banks due to increasing NIM. It can be hypothesized that H_1: BOPO has a negative and significant effect on NIM.

2. Comparison between the credit provided by bank to third party funds called LDR. Third-party funds at the bank will have a high profit. Due to third-party funds raised by banks increased, banks distribution of funds can increased, due to NIM increase. For this reason, it can be hypothesized that H_2: LDR has a positive and significant effect on NIM.

3. Interest rate is the fee or price that tenant pays to the owner of the fund.

16

Banks that have high nominal interest rates will be attract for fund owners to invest their funds in banks because they earn high profits. This has an impact on increasing number of funds collected in bank, so bank has ability in its distribution, which will eventually increase its profits due to increased NIM. It can be hypothesized that H₃: Interest rates have a positive and significant effect on NIM.

4. Exchange rate is country's currency values against another country currencies. Volatility of rising exchange rate can increase the risk of loss, then have an impact to reducing NIM. This is because the depreciation of rupiah will result in loan quality decreases, thus impacting the decline in bank margins due to declining NIM. It can be hypothesized that H₄: Exchange Rate has a negative and significant effect on NIM.

RESULT AND DISCUSSION

Result

Descriptive of NIM, BOPO, LDR, interest, and ER values of this study are seen in Table 4. As for the details, NIM average value in 2017.1-2020.12 is 5.583963 percent and has 0.407550 percent standard deviation, with maximum value 6.084456 percent in 2017.3 and a minimum value 4.627052 percent in 2020.4. BOPO average value is 75.83123 percent and has 4.506925 percent standard deviation, with maximum value 85.37191 percent in 2020.3 and a minimum value 69.18077 percent in 2018.12. Average LDR value is 87.86592 percent and has 3.2282252 percent standard deviation, with maximum value 92.69033 percent in 2019.5 and the lowest value is 80.11000 percent in 2020.12. The average interest rate is 1.445000 percent has standard deviation of 0.497359 percent, with maximum value 2.320000 percent in 2018.2 and a minimum 0.660000 percent in 2020.11 and 2020.12. Exchange rate average is Rp14,095.00, and has standard deviation Rp. 592.00 with maximum value Rp15,867.00 in 2020.4 and a minimum Rp13,297.00 in 2017.6

Table 4. Descriptiv Statistic at 2017.1-2020.12

	NIM	BOPO	LDR	Interest	ER
Mean	5.583963	75.83123	87.86592	1.445000	14095
Median	5.694486	75.43243	88.94774	1.420000	14087
Maximum	6.084456	85.37191	92.69033	2.320000	15867
Minimum	4.627052	69.18077	80.11000	0.660000	13297
Std. Dev.	0.407550	4.506925	3.282252	0.497359	592

Source: Research Processed Data

Results of this study in table 4, obtained a value of coefficient of determination (adjusted R-square) is 0.839284, means BOPO, LDR, interest rate, and exchange rate can explain against NIM of 83.9284 percent, and 16.0716 percent remaining is influenced by other factors, but not included in the model. F-statistic test obtained an F-statistic

of 56.13824 with a probability (F-statistic) of 0.0000<0.05, means at least one of the

BOPO, LDR, interest rate, and exchange rate can affect NIM (Table 5).

Table 5. Partial Test Results (Test t)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.696359	1.205887	7.211585	0,0000
BOPO	-0.005595	0.007716	-0.725155	0,4723
LDR	0.020237	0.008383	2.413935	0,0201
Interest	0.420406	0.070118	5.995720	0,0000
ER	-0,000360	4.46E-05	-8.068408	0,0000

Source: Research Processed Data

A partial test (t-test) was conducted to determine the individual effect of BOPO, LDR, interest rate, and exchange rate on NIM. Coefficient value of BOPO is minus 0.005595 with a probability value of 0.4723>0.05, means it cannot be proven that BOPO has a negative and significant effect on NIM. Result obtained from this study, coefficient value of LDR is 0.020237 with a probability value of 0.0201<0.05, means that LDR proven has a positive and significant effect on NIM. Coefficient value of interest rate is 0.420406 with probability value of 0.0000<0.05, means that interest rate proven has a positive and significant effect on NIM. Coefficient value of exchange rate is minus 0.000360 with probability value of 0.0000<0.05, means that exchange rate proven has a negative and significant effect on NIM.
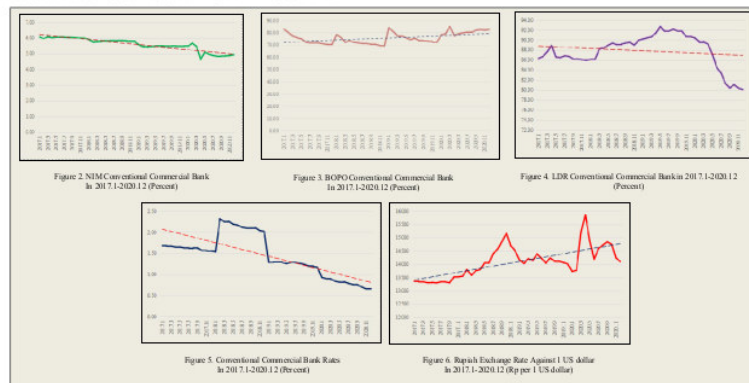
Discussion
NIM, BOPO, LDR, interest rates, and exchange rates experienced diverse fluctuations in 2017.1-2020.12. Extreme economic conditions occurred due to the economic crisis in 2018 and were

exacerbated by Covid-19 outbreak in 2019. NIM experienced a downward trend in 2017.1-2020.12, due to disruptions in many business sectors which resulted in hampered lending to its lending. This condition is following national economy development, especially after the implementation of large-scale social restriction policies in overcoming the Covid-19 pandemic, which resulted in decrasing demand at economic activity due to decreasing of people's purchasing power, so company degrade its investment and ultimately had an impact on declining loans at banks. Government and banks anticipate by lowering the interest rate on loans that have an impact on the NIM decline. This is an appropriate action, because company loss will be smaller but the business can still run, so companies can still provide jobs to their employee and contribute to economic growth. Average condition of NIM value at conventional commercial banks on BUKU IV in Indonesia, falls into the very healthy category, in accordance with SEBI decree No. 13/24/DPNP Year 2011 has 5.583963 percent value, which is in NIM>3 percent.

BOPO experiencing fluctuations with increasing trend making the bank's efficiency decrease. This is due to bank investment to developing acceleration of digital technology and the decrease in bank activity impacted by Covid-19 pandemic resulting in economic sluggishness, so that funds issued are increasing and the acquisition of funds is accordance with SEBI decree No. 13/24/DPNP Year 2011 has 75.83123 percent value, which is in BOPO≤83 percent. Average condition of LDR value of conventional public bank in BUKU IV at Indonesia is in the quite healthy category in accordance with SEBI decree No. 13/24/DPNP Year 2011 has a value of 87.86592 percent which is at 85 percent<LDR≤100 percent. After Covid-19 pandemic outbreak, interest rates fluctuated with a sharp downward trend, but in 2018 there was an increase due to policies carried out by banks in addressing the increased risk of lending due to the economic crisis that occurred. Condition of interest rate of conventional commercial bank on BOOK IV

in Indonesia has an average value of 1.445000 percent with a low standard deviation of 0.497359 percent. Rupiah continues to depreciate, especially during pandemics that have an increasing trend of rupiah exchange rate decreasing against U.S. dollar. This condition is the impact of world economic sluggishness that has an impact on decreasing export demand and increasing imported goods and increasing foreign debt. Rupiah exchange rate conditions in Indonesia have an average value of Rp14095.00 with a low standard deviation of Rp592.00.decreasing. Average condition BOPO value of conventional public bank in BUKU IV in Indonesia is in the very healthy category, in Results of this study, both macroeconomic factors affect NIM. But in the financial performance of banks, there is only one factor that affects NIM. This shows that macroeconomic factors play a big role in Indonesia's banks condition in addition t their financial performance. LDR, interest rates, and exchange rates are factors that

Figure 2. NIM Conventional Commercial Bank In 2017.1-2020.12 (Percent)

Figure 3. BOPO Conventional Commercial Bank In 2017.1-2020.12 (Percent)

Figure 4. LDR Conventional Commercial Bank in 2017.1-2020.12 (Percent)

Figure 5. Conventional Commercial Bank Rates In 2017.1-2020.12 (Percent)

Figure 6. Rupiah Exchange Rate Against 1 US dollar In 2017.1-2020.12 (Rp per 1 US dollar)

profits obtained from credit distribution, so banks strive to have sufficient liquidity and optimize their productive assets in order to increase NIM. Interest rates have a positive and significant effect on NIM. It means rising

interest to transfer funds to banks in the form of deposits, thus increasing banks ability to distribute their funds. Exchange rate has a negative and significant effect on NIM. interest rates will increase NIM and conversely, decreassing in interest rates will

lower NIM. This condition, in accordance with Endri, Marlina, & Hurriyaturrohman research (2020) [16]. It can be happen because when there is an increased in interest rates, it will increase investorsIncreasing in exchange rate will decrease NIM and vice versa, decrease in exchange rate will increase NIM. Results shown in accordance with Zulkifli & Eliza research (2018) [20]. To obtain 1 US Dollar requires a larger amount of rupiah, resulting in the domestic currency rate depreciating and foreign currency rates experiencing appreciation and vice versa, it takes a smaller amount of rupiah to obtain 1 US Dollar resulting in the domestic currency rate experiencing appreciation and foreign depreciating. This condition can occur because when volatility of exchange rate is rise causing an increase in potential losses, so it can decrease net interest margin.

Banks existence is needed by community and government to smoother development process in Indonesia. It's has an impact on bank efforts in carrying out their activity to gain the profits in order to develop its business. NIM greatly contributes in increasing bank profits, so it is necessary to maintain acceptance the stability from this source, but the situation is influenced by internal changes and macroeconomic conditions. Therefore, government role is needed in maintaining macroeconomic stability and regulations that support the bank, but the bank itself needs to be more professional and increase efficiency, and be able to make policies quickly that can overcome macroeconomic changes.

CONCLUSION

Factors that affect NIM in conventional commercial banks research in Indonesia with regression methods, used monthly time series data from 2017-2020. The results shown that LDR has a positive and significant effect on NIM because it has a coefficient value of 0.020237 with a probability value of 0.0201. The interest rate has a positive and significant effect on NIM because it has a coefficient value of 0.420406 with a probability value of 0.0000. BOPO has not proven have any effect on NIM. In the next study, the exchange rate, as a macroeconomic variable, should be used as a moderation variable and add other internal variables that can improve NIM performance. In the next study, researchers should use internal condition, and macroeconomic need to use internal and other macroeconomic variables, as well as the implementation of Corporate Social Responsibility conducted by the bank. Better used panel data to find out the characteristics of each bank. The main purpose is, bank can well develop and have a large contribution to sustainable development, in accordance with Indonesia's agreement to implement the Sustainable Development Goals program.

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