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Determinants of Lending in Commercial Banks in Indonesia Before and During the Covid-19 Pandemic

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ABSTRACT

This study aims to estimate the effect of lending rates, exchange rates, money supply, inflation, and public optimism on credit demand in Indonesia during January 2012 to May 2022 and compare their effects before and during the Covid-19 pandemic, using the Ordinary Least Squares (OLS) approach. The results showed that the exchange rate and money supply had a positive effect on credit demand in Indonesia before and during the Covid-19 pandemic, while lending rates and public optimism had no effect on credit demand. Meanwhile, inflation before the Covid-19 pandemic showed no effect on credit demand, but had a positive effect during the Covid-19 pandemic. Thus, in order to increase credit demand, Bank Indonesia as the central bank should maintain exchange rate stability and money supply through monetary policy to improve the economy and maintain public perception.

Keywords: credit demand, lending rate, exchange rate, money supply, inflation, public optimism, Covid-19

INTRODUCTION

Banking is one of the institutions that plays a crucial role in fostering a country's economic growth. As a financial intermediary, banks collect money from the public as surplus deposits (surplus units) and channel it as loans to those in need (deficit units). Of all the core activities of banks, the largest income comes from the distribution of funds in the form of loans (conventional banks) or financing (Islamic banks). Therefore, lending is a critical activity for banks. Loans provided by banks are divided into working capital loans, investment loans, and consumption loans, depending on their intended use (Ismail, 2010).

Table 1. Indonesia's Credit Demand 2012-2021 (Billion Rupiah)

Year	Credit Demand (IDR Billion)			Total Credit
	Working Capital Loans	Investment Loans	Consumer Loans	
2012	1,181,450	529,636	728,125	2,439,211
2013	1,433,929	688,029	857,086	2,979,045
2014	1,646,523	849,135	958,466	3,454,123
2015	1,809,737	956,019	1,057,610	3,823,367
2016	1,921,116	1,061,711	1,147,474	4,130,301
2017	2,077,042	1,137,588	1,260,215	4,474,845
2018	2,313,322	1,236,914	1,402,484	4,952,721
2019	2,502,471	1,403,519	1,509,602	5,415,592
2020	2,509,964	1,486,225	1,545,153	5,541,342
2021	2,517,262	1,479,486	1,571,996	5,568,744

Source: Otoritas Jasa Keuangan, processed

Based on Table 1, total credit demand continuously increased during the period of 2012 and 2021. However, the volume of investment loans decreased to IDR 1,479,486 billion in 2021 due to the deterioration of investment loans disbursement in the agriculture, livestock, forestry, and fisheries sectors as the impact of the Covid-19 pandemic. The increase in credit demand shows that Bank Indonesia has tried to maintain the stability of lending amid economic uncertainty during the Covid-19 pandemic (Bank Indonesia, 2020c).

One of the factors that influence credit demand is the interest rate. According to Kasmir (2004) the interest rate can be defined as the price paid to customers and the price that customers have to pay to banks, as well as the prices charged for other banking services. In lending, banks will pay interest to customers for the loans they receive. An increase in interest rates weakens the quality of loans, as high interest rates make it difficult for borrowers to repay loans (Eswanto et al., 2016).

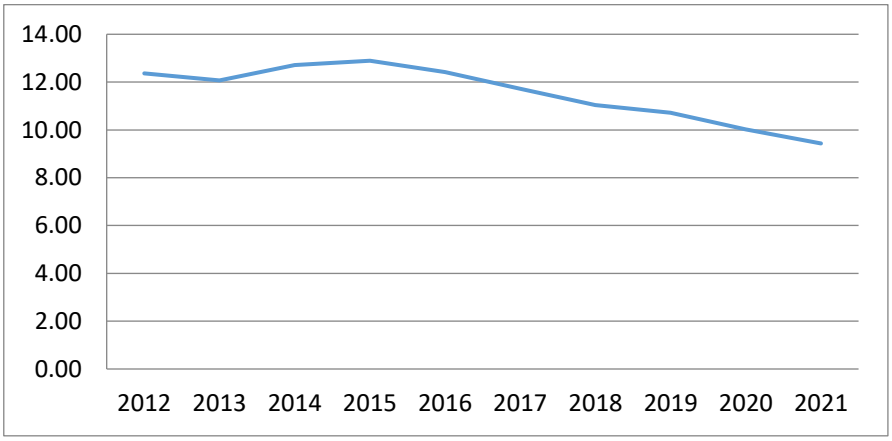

Figure 1. Indonesia's Lending Rate 2012-2021 (%)
Source: BPS

Based on Figure 1, lending rates increased from 12.71% to 12.89% in 2014 and 2015, due to the increase in fuel prices and electricity tariffs, as well as foreign pressures. Lending rates began to decline in 2016 and continued to decline amid the Covid-19 pandemic in 2020, as banking liquidity conditions remained adequate and supported the continued decline in interest rates. The decline in interest rates was supported by the increase in demand for bank loans, which means that banks managed to maintain their lending stability.

Apart from interest rates, a factor that affects the credit demand is the exchange rate. The exchange rate of two countries defines as the price at which residents of those countries trade with each other (Mankiw, 2009). The exchange rate can be used as a gauge of a country's economic status, the stable the country's currency rate, the stable their economic position. When the value of the domestic currency weakens, the price of imported goods will increase and push the price of domestic goods to increase (Sanggor, 2013).

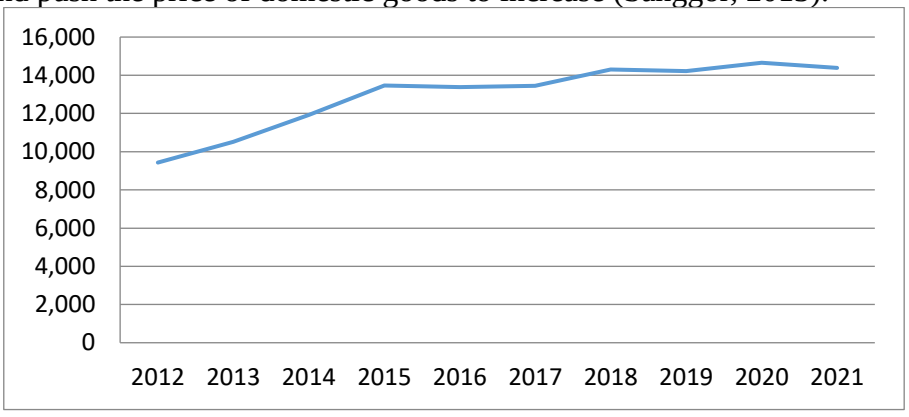

Figure 2. Indonesia's Exchange Rate 2012-2021 (Rupiah per Dollar)
Source: Bank Indonesia

Based on Figure 2, the rupiah exchange rate increased from Rp 9431 to Rp 13456 between 2012 and 2015, meaning that the value of the rupiah against the dollar depreciated. The significant increase was triggered by the current account deficit and external sentiment as well as national political dynamics (Bank Indonesia, 2012). Meanwhile, from 2015 to 2021, the development of the rupiah exchange rate was quite stable. The stability of the

rupiah exchange rate was supported by an increase in the volume of the domestic forex market (Bank Indonesia, 2017).

Further factors that influence credit demand are money supply and inflation. Banks use money supply as a control tool in controlling credit supply. Meanwhile, inflation is a target that must be fulfilled to maintain economic stability. There is a stable and unpredictable relationship between money supply and inflation, which is expressed in the predictability of income velocity or the stability of the money demand function (Muzayyinulhaq, 2019). The amount of money circulating in society weakens the value of money and increases the price of goods. However, research by Hung & Pfau (2009) found that money supply has no effect on the price level due to price stickiness caused by the absence of perfect competition between supply and demand.

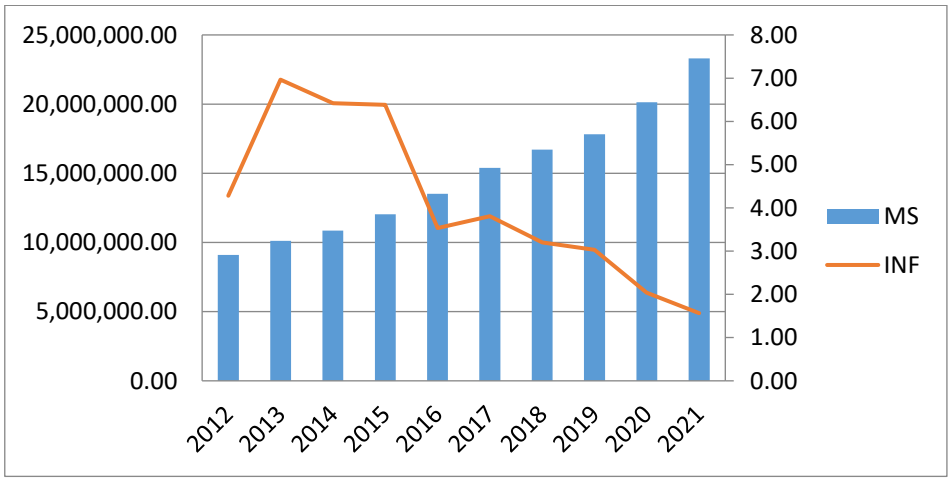

Figure 3. Money Supply (MS, Billion Rupiah) and Inflation (INF, %) Indonesia 2012-2021
Source: BPS and Bank Indonesia

Based on Figure 3, it can be said that the money supply grew significantly between 2012 and 2021, which was caused by an increase in production and consumption lending, as well as an increase in community activity and a decrease in the spread of the Covid-19 virus (Bank Indonesia, 2021b). Meanwhile, inflation was below the target of 3.0±1 percent. The low inflation was influenced by domestic demand that is not yet strong, due to the movement restriction policy implemented to prevent the spread of Covid-19 (Bank Indonesia, 2020a).

Public optimism also affects credit demand. Public optimism is measured by the Consumer Confidence Index (CCI). The purpose of this index is to measure consumers' optimism or pessimism towards the country's economic situation. When the index is ≥ 100, people are considered optimistic, and when the index is below 100, they are pessimistic. When people are pessimistic about the economic situation, people tend to postpone their consumption and investment decisions, thus the demand for consumption and investment credit will also decrease.

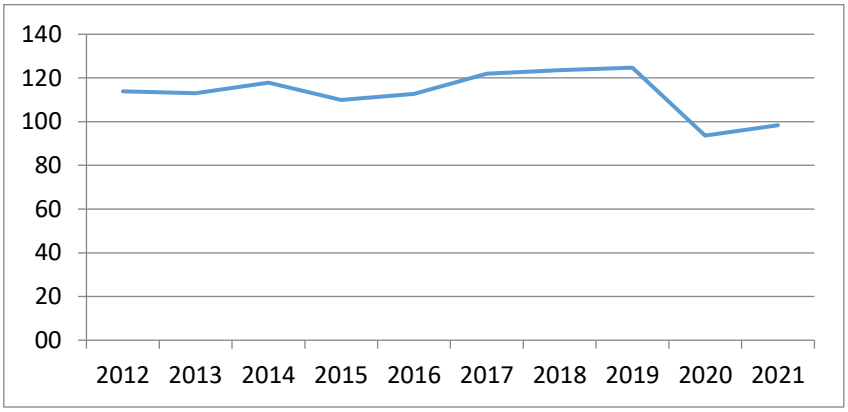

Figure 4: Optimism of Indonesian People in 2012-2021
Source: Bank Indonesia

Based on Figure 4, we can say that public optimism increased between 2012 and 2019 and began to experience a sharp decline in 2020, as a result of the national disaster emergency conditions due to the spread of Covid-19. The Consumer Confidence Index touched 93.6, indicating that consumer perceptions of economic conditions had weakened that year.

Banking is an institution that plays an important role in driving the economic development of a country, and loans are the largest source of income for banks. In the period 2012 to 2021, credit demand has increased, which was supported by a decline in interest rates. Nevertheless, the exchange rate weakened in 2012 to 2015 and has so far remained stable despite the turmoil of the Covid-19 pandemic. Moreover, the money supply has increased along with the declining inflation during the Covid-19 pandemic. Credit demand has increased significantly year-on-year, but public optimism seems to be fading in 2020 and 2021. The purpose of this study is to estimate the effect of lending rates, exchange rates, money supply, inflation and public optimism on the demand for commercial bank loans in Indonesia during January 2012 to May 2022, precisely before and during the Covid-19 pandemic.

Demand theory states that there is a relationship between price and quantity demanded. This relationship between price and quantity demanded applies to most goods in the economy. Under the law of demand, if the price rises, the quantity demanded will fall, and when the price falls, the quantity demanded will increase. In this case, the "good" is the loan and the "price" is the interest rate. When interest rates rise, demand for loans decreases; when interest rates fall, demand for loans increases (Mankiw, 2009).

The interest rate is the rupiah that a customer has to pay for the loan received. According to the demand theory, when interest rates rise, customers prefer to postpone bank loans until interest rates fall. Conversely, when interest rates are low, customers will borrow money from banks, resulting in increased in credit demand. Thus, there is an inverse relationship between interest rates and credit demand.

It is safe to say that a country is stable if the value of its currency is stable. Weakening the value of the currency causes difficulties for entrepreneurs to produce goods, particularly if they import the raw materials. In this situation, companies prefer to reduce their credit activities to avoid a decrease in profits.

According to the quantity theory of money, there is a relationship between money supply and inflation. When the money supply is greater than the production of goods and services, this leads to higher prices and lower value of money, causing an increase in inflation. Conversely, when the money supply is less than the production of goods and services produced, the price level falls and inflation falls.

The central bank has full control over the inflation rate. As inflation rises, the central bank takes the policy to raise the BI rate. This results in an increase in commercial bank deposit and lending rates. The money supply shows the ability of banks to meet their lending needs. A high money supply indicates the high availability of funds for lending and low cost of funds. (Maiti et al., 2020).

Keynesian money demand theory states that a person has three motives for holding money, namely transactional motives, precautionary motives and speculative motives. For speculative reasons, the demand for money is influenced by a number of factors, namely the interest rate, the amount of wealth, and one's optimism and pessimism. In loan applications, when the financial condition is not favorable, it will lead to speculative motives that cause a person not to take funds from the bank in fear of default or other uncertain conditions.

Amelia et al. (2016) analyzed the factors that affect the supply and demand for working capital loans at commercial banks in West Sumatra during 2000.Q1 to 2014.Q3 using the Indirect Least Squares (ILS) method. The results showed that on the supply side, non-performing loans (NPL) and interest rates had a negative effect, while third party funds had a positive effect on credit supply. Meanwhile, on the demand side, inflation and lending rates had a negative effect, while GRDP and exchange rates had no effect on credit demand. Using a similar method, Muzayyinulhaq (2019) analyzed the demand and supply of bank loans in Indonesia from 2003 to 2017. The results showed that on the demand side, interest rates and inflation had a negative effect on credit demand. Meanwhile, on the supply side, interest rates had a positive effect and minimum reserve requirements had a negative effect on credit supply.

By using the Ordinary Least Squares (OLS) method, Mokodompit et al. (2021) in North Sulawesi from 2012.1 to 2019.4 found that GRDP had a positive effect on credit demand, while interest rates had no effect on credit demand.

Next, Setiani (2018) examined the effect of credit interest rates on demand for working capital loans (KMK) at commercial banks in Indonesia from 2006 to 2016 using simple linear regression. The results showed that interest rates had a negative effect on demand for working capital loans.

Eswanto et al. (2016) conducted research on the effect of loan interest rates, non-performing loans, third party funds, inflation, and GRDP on demand for commercial bank loans in Central Java from 2009 to 2013 using multiple linear regression methods. The results showed that loan interest rates, non-performing loans, and GRDP had a negative effect on credit demand. While inflation and third party funds have no effect on credit demand. In 2010 to 2015, Rahayu & Ikhsan (2017) conducted research on the effect of interest rates and per capita income on credit demand in Indonesia with the same method. The results showed that interest rates had a negative effect on credit demand, while per capita income had a positive effect on credit demand. Karim et al. (2019) with a similar method analyzed the effect of internal and external banking factors on bank lending in Indonesia from 2009 to 2016. The results showed that return on assets (RoA), operational efficiency

ratio, loan to deposit ratio (LDR) and GDP had a positive effect, while the capital adequacy ratio (CAR) had a negative effect on lending. Meanwhile, non-performing loans (NPL), net interest margin (NIM), BI Rate, Inflation, and Exchange Rate had no effect on lending.

Analysis with panel regression was also carried out by Saputri (2021) in conducting research on the effect of GDP and interest rates on credit demand in Indonesia during 2015:Q1 to 2020:Q2 using the same method. The results showed that GDP had a positive effect on credit demand. Meanwhile, interest rates had no effect on credit demand.

Next, Arianti & Abdullah (2021) analyzed the effect of interest rates, inflation, and GDP on the total demand for bank loans in Indonesia from 2009 to 2019 using multiple linear regression methods. The results showed that interest rates had a negative effect and GDP had a positive effect on credit demand. Meanwhile, inflation had no negative effect on credit demand. Indrajaya et al. (2021) using the same method as the selected FEM model, conducted research on the effect of third party funds, capital adequacy ratio, casa ratio, BI Rate, and inflation on bank lending in Indonesia from 2011 to 2018. The results showed that the capital adequacy ratio, casa ratio, inflation, and third party funds had a positive effect on bank lending. Meanwhile, the BI rate had no effect on bank lending.

In Manado City from 2002 to 2011 with the same method, Rompas (2018) analyzed the effect of interest rates and exchange rates on credit demand in banks. The results showed that the interest rate had a negative effect and the exchange rate had a positive effect on credit demand. Marlina (2019) conducted research on banking sector companies listed on the Indonesia Stock Exchange from 2013 to 2016 with the same method regarding the effect of inflation, the rupiah exchange rate against the dollar, and interest rates on credit demand. The results showed that inflation, the rupiah exchange rate against the dollar, and interest rates had no effect on credit demand..

Indriati et al. (2018) analyzed working capital lending in commercial banks in Indonesia from 2012 to 2016 using panel data regression. The results showed that third party funds had a positive effect and lending rates had a negative effect on working capital lending. Meanwhile, NPL had no effect on working capital lending. Siwi et al. (2019) with the same method, analyzed the effect of interest rates on credit demand at commercial banks in Indonesia from 2011 to 2017. The results showed that interest rates had a negative effect on credit demand.

Sabar & Kuslin (2018) analyzed the impact of interest rates, exchange rates, and inflation on demand for consumption loans in South Sulawesi from 2007 to 2016 using multiple linear regression methods. The results showed that interest rates had a negative effect and exchange rates had a positive effect on demand for consumption loans. While inflation had no effect on the demand for consumption loans.

Analysis using panel data regression is also used by Kalesaran et al. (2016) which analyzed the determinants of investment credit demand at commercial banks in North Sulawesi from 2008 Q1 to 2014 Q4. The results showed that investment loan interest rates and inflation had a negative effect, while GRDP had a positive effect on investment credit demand. Riantara et al. (2022) ith the same topic conducted research on the effect of GRDP and real interest rates on investment credit demand at commercial banks in Bali Province from 2014 to 2018 with the same method. The results showed that GRDP had a positive effect, while the real interest rate had a negative effect on investment credit demand. In West Java during 2003: Q1 to 2011 Q4 with the same method, Tejawangsa et al. (2022) analyzed

the demand for investment loans at national private banks. The results showed that investment loan interest rates had a negative effect and GRDP had a positive effect on investment credit demand. Meanwhile, inflation has no effect on credit demand.

Maiti et al. (2020) analyzed the impact of interest rates on credit demand in Ghana from 1984 to 2017 using the Auto-Regressive Distributed Lag (ARDL) method. The results showed that in the long run, money supply has a positive effect, while original income, lending rates, and inflation have no effect on credit demand. Meanwhile, in the short term, inflation has a negative effect, while the money supply, original income, and loan interest rates have no effect on credit demand.

The difference between this study and previous studies lies in the independent variable used, namely public optimism proxied by the Consumer Confidence Index (CCI), which is expected to explain credit demand factors more accurately. Furthermore, this study also compares the effect of credit demand before and during the Covid-19 pandemic. Thus, this study predicts the direction and magnitude of the influence of independent variables on the dependent variable, as well as comparing which one has a greater influence between before covid or during covid of a certain variable

METHOD

The variables in this study include credit demand, lending interest rates, exchange rates, money supply, inflation, and public optimism. The details of the data variables in this study are shown in Table 2.

Table 2: Research Variables

Variables	Data/Units	Source
Credit demand	Commercial bank credit demand (billion rupiah)	Otoritas Jasa Keuangan (OJK)
Credit interest rate	Rupiah lending rates by bank group (percent)	Badan Pusat Statistik (BPS)
Exchange rate	USD selling rate (IDR/dollar)	Bank Indonesia
Money supply	Money supply M1 (billion rupiah)	Badan Pusat Statistik (BPS)
Inflation	CPI Inflation (percent)	Bank Indonesia
Community optimism	Consumer Confidence Index	Bank Indonesia

The analytical tool used in this study is linear regression analysis with the Ordinary Least Squares (OLS) model. The econometric model is as follows:

$$CD_t = \beta_0 + \beta_1 IR_t + \beta_2 ER_t + \beta_3 MS_t + \beta_4 INF_t + \beta_5 OPT_t + \varepsilon_t \quad \text{.....(1)}$$

In Equation (1), *CD* is Credit Demand, *IR* is Credit Interest Rate, *ER* is Exchange Rate, *MS* is Money Supply, *INF* is Inflation, *OPT* is Public Optimism. To determine the effect before and during covid, two regressions and tests were conducted, namely between January 2012 to February 2020 and March 2020 to May 2022 with all variables in delta form.

Based on the theoretical basis and previous research, the hypotheses proposed in this study are as follows:

H_1 : Lending interest rate (*IR*) has a negative effect on credit demand in Indonesia
H_2 : Exchange rate (*ER*) has a negative effect on credit demand in Indonesia
H_3 : Money supply (*MS*) has a positive effect on credit demand in Indonesia
H_4 : Inflation (*INF*) has a negative effect on credit demand in Indonesia
H_5 : Public optimism (*OPT*) has a positive effect on credit demand in Indonesia

RESULTS

Estimation Results Before Covid-19

Table 3. Econometric Model Estimation Results (Before Covid-19)

$$\Delta CD_t = 21805.27 - \underset{(0.1129)}{77643.28}\Delta IR_t + \underset{(0.0000)^*}{61.51120}\Delta ER_t + \underset{(0.0000)^*}{1.019597}\Delta MS_t - \underset{(0.8337)}{1103.432}\Delta INF_t + \underset{(0.7915)}{236.9273}\Delta OPT_t + \varepsilon_t$$

R^2= 0.6526; DW-Stat. = 2.3404; F-Stat. = 34.1843; Prob. F-Stat. = 0.0000

Diagnosis Test
(1) Multicollinearity (VIF)
ΔIR = 1.0428; ΔER = 1.1172; ΔMS = 1.1078; ΔINF = 1.0960; ΔOPT = 1.1233
(2) Normality of Residuals
JB(2) = 2.9465; Prob. JB(2) = 0.2292
(3) Autocorrelation
$\chi^2(2)$ = 3.1886; Prob.$\chi^2(2)$ = 0.2030
(4) Heteroscedasticity
$\chi^2(20)$ = 25.4542; Prob. $\chi^2(20)$ = 0.1846
(5) Linearity
F(1, 90) = 6.0807; Prob. F(1, 90) = 0.0156

Source: Secondary data, processed. Notes: *Significant at α = 0.01; **Significant at α = 0.05; ***Significant at α = 0.10. The number in parentheses is the empirical probability (p value) of the t-statistic.

The estimation results of the above econometric model and its complementary tests are summarized in Table 3.

The diagnosis test showed that the estimated model did not appear to have any violations of the classical assumption tests, except for the linearity test. All VIF values are <10, thus the estimated model was free from multicollinearity problems. The empirical probability values of the Residual Normality, Autocorrelation, Heteroscedasticity, and Linearity test statistics, which were 0.2292 (>0.10), 0.2030 (>0.10), 0.1846 (>0.10) and 0.0156 (<0.05), respectively, indicated that the estimated model had a normal distribution of the estimated model residuals, free from autocorrelation and heteroscedasticity problems, with inappropriate model specification (not linear).

The goodness of fit statistics showed that the model exists, as seen from the empirical probability of the F statistic showed the value of 0.0000 (<0.01), with R^2 or medium predictive power of 0.6526. This means that overall, the independent variables, Interest Rate (*IR*), Exchange Rate (*ER*), Money Supply (*MS*), Inflation (*INF*), and Public Optimism

(*OPT*), were able to explain 65.26 percent of the variation in Demand for Credit (*CD*). While the other 34.74 percent was caused by other variables outside the model.

Independently, only exchange rate and Money Supply had a significant effect on Credit Demand, respectively with empirical t probabilities of 0.0000 (<0.01) and 0.0000 (<0.01). Lending Rate, Inflation, and Public Optimism did not have a significant effect on Credit Demand, as they had empirical probabilities of 0.1129 (>0.10), 0.8337 (>0.10), and 0.7915 (>0.10).

The Exchange Rate Exchange Rate had a regression coefficient of 61.51120. The pattern of relationship between Exchange Rate and Credit Demand was linear-linear (lin-lin), therefore if the Exchange Rate increases by 1 Rupiah/dollar, the Credit Demand will increase by 61.51120 billion Rupiah. Conversely, if the Exchange Rate decreases by 1 Rp/dollar, the Credit demand will decrease by 61.51120 billion rupiahs.

The money Supply had a regression coefficient of 1.019597. The pattern of relationship between Money Supply and Credit demand was linear-linear (lin-lin), thus if Money Supply increases by 1 billion rupiah, then Credit demand will increase by 1.019597 billion rupiah. Conversely, if the Money Supply decreases by 1 billion rupiah, the Credit Demand will decrease by 1.019597 billion rupiah.

Estimation Results During Covid

Table 4. Econometric Model Estimation Results (During Covid-19)

$$\Delta CD_t = 14044.05 + 332296.1\Delta IR_t + 50.57820\Delta ER_t + 0.584287\Delta MS_t$$
$$(0.1476) \qquad (0.0111)^{**} \qquad (0.0001)^{*}$$
$$+64458{,}45\Delta INF_t + 738{,}5496\Delta OPT_t + \varepsilon_t$$
$$(0.0240)^{**} \qquad (0.3515)$$

R^2= 0.7288; DW-Stat. = 2.0573; F-Stat. = 11.2845; Prob. F-Stat. = 0.0000

Diagnosis Test

(1) Multicollinearity (VIF)
ΔIR = 1.3326; ΔER = 1.1499; ΔMS = 1.1151; ΔINF = 1.0597; ΔOPT = 1.4029

(2) Normality of Residuals
JB(2) = 1.9912; Prob. JB(2) = 0.3695

(3) Autocorrelation
$\chi^2(2)$ = 0.1076; Prob.$\chi^2(2)$ = 0.9476

(4) Heteroscedasticity
$\chi^2(20)$ = 24.1036; Prob. $\chi^2(20)$ = 0.2379

(5) Linearity
F(1, 20) = 0.8509; Prob. F(1, 20) = 0.3673

Source: Secondary data, processed. Notes: *Significant at α = 0.01; **Significant at α = 0.05; ***Significant at α = 0.10. The number in parentheses is the empirical probability (p value) of the t-statistic.

The diagnosis test showed that the estimated model did not appear to have any violations of the classical assumption test. All VIF values were <10, thus the estimated model was free from multicollinearity problems. The empirical probability values of the Residual Normality, Autocorrelation, Heteroscedasticity, and Linearity test statistics, which were 0.3695 (>0.10), 0.9476 (>0.10), 0.2379 (>0.10) and 0.3673 (>0.10), respectively, indicated that the estimated model had a normal distribution of the estimated model residuals, free from autocorrelation and heteroscedasticity problems, with an appropriate model specification (linier)

The goodness of fit statistics suggest that the model exists, as seen from the empirical probability of the F statistic, which was 0.0000 (<0.01), with a moderate predictive power of 0.7288. This means that, as a whole, the Interest Rate (*IR*), Exchange Rate (*ER*), Money Supply (*MS*), Inflation (*INF*), and Public Optimism (*OPT*), can explain 72.88 percent of the variation in the Credit Demand (*CD)* variable. While the other 27.12 percent was caused by other variables outside the model.

Independently, only the Exchange Rate, Money Supply, and Inflation variables had a significant influence on Credit demand, respectively with empirical t probabilities of 0.0111 (<0.05), 0.0001 (<0.01), and 0.0240 (<0.05). While the Lending Interest Rate and Community Optimism variables did not have a significant effect on Credit Demand, as they had empirical probabilities of 0.1476 (>0.10) and 0.3515 (>0.10).

The Exchange Rate variable had a regression coefficient of 50.57820. The pattern of relationship between Exchange Rate and Credit Demand was liner-liner (lin-lin), therefore if the Exchange Rate increased by 1 Rupiah/dollar, the Credit Demand will increase by 50.57820 billion Rupiah. Conversely, if the Exchange Rate decreases by 1 Rp/dollar, the Credit Demand will decrease by 50.57820 billion rupiahs.

The Money Supply variable had a regression coefficient of 0.584287. The pattern of relationship between Money Supply and Credit demand is linear-linear (lin-lin), so that if Money Supply increases by 1 billion rupiah, then Credit Demand will increase by 0.584287 billion rupiah. Conversely, if the Money Supply decreases by 1 billion rupiah, the Credit Demand will decrease by 0.584287 billion rupiah.

The Inflation variable has a regression coefficient of 64458.45. The pattern of the relationship between Inflation and Credit Demand is linear-linear (lin-lin), so that if Inflation increases by 1%, then Credit Demand will increase by 64458.45 billion rupiah. Conversely, if Inflation decreases by 1%, then Demand for Credit will decrease by 64458.45 billion rupiah.

DISCUSSIONS

Table 3 shows that prior to Covid-19 pandemic, variables that had a positive effect on credit demand were the exchange rate and money supply, while lending rates, inflation, and public optimism had no significant effect on credit demand in commercial banks in Indonesia during the period January 2012 to February 2020. Meanwhile, Table 4 shows that during Covid-19 pandemic, the exchange rate, money supply, and inflation had a positive effect on credit demand, while lending rates and public optimism had no significant effect on credit demand in commercial banks in Indonesia during March 2020 to May 2022.

Effect of Exchange Rate on Credit Demand

The Exchange Rate before covid-19 pandemic and during covid-19 pandemic showed a positive effect on credit demand in commercial banks in Indonesia, during the period January 2012 to May 2022, thus this result is not in accordance with the research hypothesis (the hypothesis is rejected). The exchange rate had a positive effect on credit demand because, from 2012 to 2021, although the exchange rate had depreciated, the depreciation was relatively stable with relatively low pressure, as shown in Figure 2, thus companies do find difficulties in lending. (Bank Indonesia, 2019). The stability of the exchange rate was supported by an increase in the volume of the domestic forex market and the continued inflow of foreign capital as shown in Table 5.

Table 5. Foreign Exchange Market Transaction Volume (thousand USD) and Foreign Capital Flows (million USD) 2015 – 2021

Year	Forex Market Transaction Volume (thousand USD)	Foreign Capital Flow (million USD)	
		Portfolio Investment	Direct Investment
2015	4,496,104	16,182.68	10,704.48
2016	5,005,309	18,995.58	16,135.92
2017	5,299,030	21,059.01	18,502.04
2018	5,451,195	9,311.91	12,510.61
2019	5,336,312	21,990.00	20,531.07
2020	4,756,102	3,368.89	14,142.47
2021	5,362,472	5,072.23	17,423.24

Source: Bank Indonesia

Rompas (2018) found similar results, where the exchange rate had a positive effect on credit demand in banks in Manado City from 2002 to 2011. Sabar & Kuslin (2018) also found that the exchange rate had a positive effect on demand for consumer loans in South Sulawesi from 2007 to 2016. The coefficient of the exchange rate before covid-19 was 61.51120 and the coefficient of the exchange rate during covid was 0.57820, so it can be concluded that the exchange rate before covid has a greater influence than the exchange rate during covid. This is because, at the beginning of the pandemic, capital outflows increased in line with global financial market uncertainty, and depressed the rupiah exchange rate. As seen in Table 5, foreign capital flows decreased in 2020, and started to increase again in 2021. Nevertheless, the banking sector is in good condition, as reflected in good capitalization, credit quality, and liquidity. (Bank Indonesia, 2020b).

Effect of Money Supply on Demand for Credit

A positive effect was also shown by the Money Supply before Covid-19 and during Covid-19 on credit demand in commercial banks in Indonesia during the period January 2012 to May 2022. This result is in accordance with the research hypothesis. The high amount of money in circulation in the community indicates a large number of transactions, which is in line with the lending which also increased in 2012 to 2021. Research by Maiti et al., (2020) found similar results, where the money supply had a positive effect on credit demand in Ghana between 1984 and 2017. The coefficient of money supply before Covid-19 was 1.019597 and the coefficient of money supply during Covid-19 was 0.584287, so it can be concluded that the money supply before Covid-19 had a greater influence than the money supply during Covid-19. In 2020, economic growth was hampered due to the covid pandemic, as seen from the slowing economic growth in that year. As a result of the increase in the price of goods, due to the money supply that makes production costs high, companies lay off their employees, which causes unemployment to increase, as seen in Table 6.

Table 6. Economic Growth (%) and Total Labor Force (people) for 2017 - 2021

Year	GDP (Billion IDR)	Economic Growth (%)	Labor Force (People)	
			Work	Unemployment
2017	9,912,928.10	5.07%	121.022.423	7.040.323
2018	10,425,851.90	5.17%	124.004.950	7.000.691
2019	10,949,155.40	5.02%	126.515.119	7.045.761
2020	10,723,054.80	-2.07%	128.454.184	9.767.754
2021	11,118,868.50	3.69%	131.050.523	9.102.052

Source: Bank Indonesia and Badan Pusat Statistik

Effect of Lending Rate on Credit Demand

Before and during Covid-19 pandemic, the lending rate had no effect on credit demand, so this result is not in accordance with the research hypothesis. Lending rates had no effect on credit demand because, as shown in Table 7, credit demand growth has increased, even though it was not a sharp increase. Therefore, this is not in line with lending rates which have decreased over time. This means that customers are not too concerned about interest rates as long as lending rates do not experience extreme increases. The decline in interest rates was made possible as the bank liquidity is still sufficient for the decline to occur (Bank Indonesia, 2021a). This result is in line with Saputri (2021) and Marlina (2019) that stated lending rates had no effect on credit demand.

Table 7. Growth in Credit Demand and Lending Rates in Indonesia 2012 - 2021

Year	Credit Demand		Lending Rates	
	(billion IDR)	Growth (%)	(%)	Growth (%)
2012	2,439,211	-	12.36	-
2013	2,979,045	21.98	12.07	-2.34
2014	3,454,123	15.83	12.71	5.35
2015	3,823,367	10.60	12.89	1.40
2016	4,130,301	7.96	12.41	-3.72
2017	4,474,845	8.28	11.73	-5.53
2018	4,952,721	10.59	11.04	-5.84
2019	5,415,592	9.25	10.72	-2.95
2020	5,541,342	2.30	10.02	-6.49
2021	5,568,744	0.49	9.43	-5.85

Source: Bank Indonesia

Effect of Community Optimism on Credit Demand

Public optimism is also proven to have no effect on credit demand before and during Covid-19, so this result is not in accordance with the research hypothesis. Optimism shows people's confidence regarding the economic situation to consume. If the Consumer Confidence Index (CCI) is ≥ 100, then people are said to be optimistic. Public optimism had no effect on credit demand because, as seen in Table 8, when credit demand increases, public optimism decreases at the same time. This means that people were pessimistic about the country's situation at that time. However, at the same time, people still took loans. Based on the report Bank Indonesia (2020d) in the consumer survey in April 2020, people's optimism decreased due to a decrease in the income index and the availability of jobs, resulting in an increase in unemployment which caused income to decrease, and public consumption also decreased.

Table 8. Credit Demand and Community Optimism in 2012 - 2021

Year	Credit Demand	Community Optimism
	Billion Rupiah	Index ≥ 100; Optimistic
2012	2,439,211	113.9
2013	2,979,045	113.1
2014	3,454,123	117.9
2015	3,823,367	109.9

2016	4,130,301	112.7
2017	4,474,845	122.0
2018	4,952,721	123.6
2019	5,415,592	124.7
2020	5,541,342	93.6
2021	5,568,744	98.4

Source: Bank Indonesia

Effect of Inflation on Demand for Credit

In the period before Covid-19, inflation had no effect on credit demand, while during Covid-19, inflation had a positive effect on credit demand. Both statements are not in accordance with the research hypothesis. Inflation had no effect on credit demand before Covid-19 as the inflation tended to increase between 2012 and 2015 accompanied by increased in credit demand. The increase in inflation was due to high commodity prices and the increase in fuel prices during those years. (Bank Indonesia, 2013). Meanwhile, inflation had a positive effect during Covid-19 as inflation has decreased due to weak domestic demand. (Bank Indonesia, 2021a). Credit demand also experienced a decline at the beginning of the pandemic, then improved in line with lending rates that continued to fall during the pandemic due to monetary policy implemented by Bank Indonesia. As seen in Table 9, starting in April 2020, after the first Covid case in Indonesia in March 2020, credit demand declined accompanied by a decline in inflation.

Table 9. Credit Demand and Inflation in November 2019 - September 2020

Month	Credit Demand (billion rupiah)	Inflation (%)
Nov'2019	5,582,019	3.00
Dec'2019	5,683,757	2.72
Jan'2020	5,567,040	2.68
Feb'2020	5,603,979	2.98
Mar'2020	5,781,564	2.96
Apr'2020	5,676,052	2.67
May'2020	5,651,483	2.19
June'2020	5,617,711	1.96
Jul'2020	5,607,297	1.54
Aug'2020	5,594,105	1.32
Sep'2020	5,602,034	1.42

Source: Otoritas Jasa Keuangan and Bank Indonesia

IMPLICATIONS

To draw conclusions on the factors affecting credit demand, before and during Covid-19, two regressions were performed. The first regression was performed on data between January 2012 to February 2020, indicating the time before Covid-19, while the second regression was performed on data between March 2020 to May 2022 to indicate the time of Covid-19 pandemic. The regression results showed that before Covid-19, the variables that showed a positive effect were the exchange rate and money supply, while lending rates, inflation, and public optimism had no effect on credit demand. Meanwhile, the regression results during Covid-19 showed that the variables that had a positive effect were the

exchange rate, money supply, and inflation, while lending rates and public optimism had no effect on credit demand.

Based on the test results, only the money supply showed results according to the hypothesis, while the exchange rate, although influential, did not show results according to the hypothesis. Inflation also showed different results before and during covid. Nevertheless, the test results can be strengthened with additional supporting data and previous research.

CONCLUSION

Based on the regression results, we found that the variables that positively affect credit demand in Indonesia before and during the Covid-19 pandemic were the exchange rate and money supply (M1), while lending interest rates and public optimism had no effect on credit demand. Meanwhile, before Covid-19, inflation had no effect on credit demand, while during Covid-19, inflation had a positive effect on credit demand in Indonesia. The variation in credit demand before covid caused by variations in lending rates, exchange rates, money supply, inflation, and public optimism was explained 65.26% by the model, and the remaining 34.74% was caused by other variables outside the model. Meanwhile, the variation in credit demand during covid due to variations in lending rates, exchange rates, money supply, inflation, and public optimism was explained 72.88% by the model, and the remaining 27.12% was caused by other variables outside the model.

Credit demand has increased over time from January 2012 to May 2022. Bank lending is essential to people's productivity both individually and in groups as an effort to foster economic growth. To increase the amount of credit demand, Bank Indonesia as the central bank should maintain the stability of the exchange rate and money supply through monetary policy, so that the economy grows and public perception is maintained. Future studies are expected to add supporting variables that are more complex and measurable in explaining the factors that influence credit demand. In addition, future research is also expected to add time periods, in order to be able to explain credit demand more comprehensively, and use more varied analytical tools in order to get results from different perspectives.

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