

DETERMINANTS OF CREDIT GROWTH FOR MSME FINANCING IN BANK DKI IN JAKARTA PROVINCE

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Abstract: This study aims to analyze the determinants that affect the growth of MSME credit at Bank DKI in DKI Jakarta Province. The independent variables used consist of ROA, NPL, CAR, Spread, Marketing Expense, GDP and Inflation. The data used is quarterly secondary data for the period January 2014 – December 2018. The analysis is carried out as a whole and economic segments (10 sectors) so as to form 11 regressions (sectors) using the EGLS panel model fixed effect model (Cross–Section SUR). The results of this study indicate that Sector 1 (One) is affected by ROA, NPL, and GDP; Sector 2 (Two) is affected by ROA, NPL, CAR, and Inflation; Sector 3 (Three) is affected by NPL, CAR and Inflation; Sector 4 (Four) is affected by NPL, CAR and inflation; Sector 5 (Five) influenced by ROA, NPL, CAR, PEX and GDP; Sector 6 (Six) affected by CAR, PEX, Spread, and GDP; Sector 7 (Seven) affected by ROA, NPL and Spread; Sector 8 (Eight) affected by ROA, NPL, CAR, PEX, Spread, GDP and Inflation; Sector 9 (Nine) affected by ROA; Sector 10 (Ten) affected by ROA, NPL, Spread and GDP; Sector 11 (Eleven) is affected by ROA, NPL, CAR, GDP and Inflation. The results of the study indicate that banks must prioritize certain financial ratios in each MSME sector to grow their credit growth.

Keywords: credit growth, MSMEs, macro factors, micro factors, regional development bank

Abstrak: Penelitian ini bertujuan menganalisis determinan yang memengaruhi pertumbuhan kredit UMKM pada Bank DKI di Provinsi DKI Jakarta. Variabel independen yang digunakan terdiri dari ROA, NPL, CAR, Spread, Marketing Expense, GDP dan Inflasi. Data yang digunakan merupakan data sekunder kuartalan periode Januari 2014–Desember 2018. Analisis dilakukan secara keseluruhan dan persegmen ekonomi (10 sektor) sehingga membentuk 11 kali regresi (sektor) menggunakan model fixed effect model panel EGLS (Cross–Section SUR). Hasil penelitian ini menunjukkan bahwa Sektor 1 (Satu) dipengaruhi oleh ROA, NPL, dan GDP; Sektor 2 (Dua) dipengaruhi oleh ROA, NPL, CAR, dan Inflation; Sektor 3 (Tiga) dipengaruhi oleh NPL, CAR dan Inflasi; Sektor 4 (Empat) dipengaruhi oleh NPL, CAR dan inflation; Sektor 5 (Lima) dipengaruhi oleh ROA, NPL, CAR, PEX dan GDP; Sektor 6 (Enam) dipengaruhi oleh CAR, PEX, Spread, dan GDP; Sektor 7 (Tujuh) dipengaruhi oleh ROA, NPL dan Spread; Sektor 8 (Delapan) dipengaruhi oleh ROA, NPL, CAR, PEX, Spread, GDP and Inflation; Sektor 9 (Sembilan) dipengaruhi oleh ROA; Sektor 10 (Sepuluh) dipengaruhi oleh ROA, NPL, Spread dan GDP; Sektor 11 (Sebelas) dipengaruhi oleh ROA, NPL, CAR, GDP dan Inflasi. Hasil penelitian mengindikasikan bahwa bank haruslah memprioritaskan beberapa rasio finansial tertentu dalam masing-masing sektor UMKM untuk menumbuhkan pertumbuhan kreditnya.

Kata kunci: pertumbuhan kredit, umkm, faktor makro, faktor mikro, bank pembangunan daerah

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INTRODUCTION

As much as 99 percent businesses in Indonesia are MSMEs and this sector makes up 61 percent of national economy (Kementrian Keuangan, 2020). This shows that MSMEs have strong presence in Indonesia. According to Fitriati (2015) this phenomenon is not just typical in developing countries, but also even in developed ones. MSMEs are known to be overly dependent on external source for their funding (Imaran & Nishat, 2013; White and Cestone, 2003; Galor and Zeira, 1993). And they deem bank as their largest suppliers of external finance (Stephanou & Rodriguez, 2008). Previous empirical research has shown that bank funding can leverage the economy as it is the main function of a bank to be financial intermediaries (Supriyono & Herdhayinta, 2019; Massari et al. 2014).

Government via Bank Indonesia has issued regulation PBI No. 17/12/PBI/2015 regarding "loan issuance by bank for the development of MSMEs" makes credit for MSMEs a mandatory. Thus, RDB, as a bank with regional government as its majority shareholder has extra responsibility to develop MSMEs in its region, but its performance in this area is far worse than stellar. DKI Jakarta is the province with the largest contribution to the national economy (Buyung et al. 2019). So, any improvement in MSME financing in the capital would have a big ripple effect. One of the Regional Development Banks that attracted our attention was the DKI Jakarta Regional Bank with the the ratio of MSME credit to total credit (Figure 1).

The Figure 1 shows that the ratio of MSME credit to total credit that continued to decline from the first quarter of 2014 until the fourth quarter of 2018, away from the PBI No. 17/12 / PBI / 2015. This trend was exacerbated by a trend of decreasing credit disbursement to MSMEs from first quarter of 2014 to fourth quarter of 2018 period, so that credit growth was getting smaller. Bank DKI needs to shore up its credit growth to be able to fulfill that mandatory ratio. Finding factors determining it could be a good place to start.

Many studies have been conducted in various countries to determine the factors that can affect credit growth in various countries such as Guo & Stepayan (2011) in 38 countries; Tan (2012) in the Philippines and Asia; Imran & Nishat (2013); Ivanovic (2015) in Montenegro; Tuyen & Diep (2018) in Vietnam; Awdeh (2017) in Lebanon; and finally Nguyen & Andg (2020) in Vietnam. The

results of the research they use are different and still focus on the macro level itself, except for research by Ivanovic (2015) & Nguyen & Andg (2020) which have started to include the micro banking variable itself.

Nguyen & Andg (2020) uses micro variables including liquidity, Size, Return on Asset (ROA), Non performing loans (NPL), and Capital (CAP); while the macro variables used consist of Gross Domestic Product (GDP), Corruption Perception Index (CPI), Foreign Direct Investment (FDI) and Money Supply (M2). The result is that liquidity and profitability factors have a positive effect on credit growth; while NPL, Bank Size, CPI, and FDI have a negative effect on credit growth. Meanwhile, Ivanovic (2015) uses the variables GDP growth, inflation, foreign borrowing costs (euribor), the difference between the interest rate on loans and the interest rate on deposits (Spread), deposit growth, NPL, solvency ratio, inefficiency ratio and Return On Equity (ROE). The results of his research are GDP growth, deposit growth, and solvency ratio variables have positive effect on credit growth. Meanwhile, the other influencing factor is the NPL variable which has a negative effect on credit growth.

The results of the previous researches were quite diverse, especially when divided in particular sectors of credit growth, the resultant determining factors will be different. Hence, in this research we decide to divide the credit growth into economic sectors. The selection of the independent factors in this research is based upon literature review of previous studies. Those factors are Return on Asset (ROA), Non – Performing Loans (NPL), Capital Adequacy Ratio (CAR), Spread, Marketing Expense, GDP and Inflation. We aim to find which factors determine credit growth in certain economic sectors, since each industry has its own unique characteristics. Reviewing studies in the last ten year, we haven't found any research done on any individual RDB's credit growth, so this is one area we are confident to claim novelty.

METHODS

Bank DKI is the subject of our research in the period of January 2014 – December 2018. Secondary data for independent variables was acquired from two sources, ROA, NPL, CAR, Spread and Marketing Expense was acquired from Bank DKI; GDP and Inflation from Baand Pusat Statistik. Data acquisition technique was

purposive sampling of MSMEs' credit disbursement in the period of January 2014 – December 2018. Data represents the whole Jakarta province MSMEs' financing with eleven cluster of offices (KC stands for Kluster Cabang). Each cluster consists of several bank's office branches. Those clusters are KC Balaikota, KC Juanda, KC Kebayoran Baru, KC Matraman, KC Otista, KC Permata Hijau, KC Pintu Besar Selatan, KC Tanjung Priok, KC Walikota Jakarta Barat, KC Walikota Jakarta Selatan, and KC Walikota Jakarta Timur. Data forms panel data with 220 observation (11 KC x 20 quarter). Data analysis technique was multiple regression employing Eviews 10 begins with descriptive test, coefficient of determination test, F-Test, and T-Test. We do analysis for MSME as aggregate and MSME per economic sector, resulting in eleven combined analysis, begins with (1) Aggregate MSMEs; (2) Agriculture, Livestock, Forestry & Fishing; (3) Mining and Excavation; (4) Processing Industry; (5) Electricity, Gas and Clean Water; (6) Construction; (7) Trade, Hotel and Restaurant; (8) Transport and Communication; (9) Finance, real Estate and Corporate Service; (10) Service; and (11) Other Sector.

The dependent variable in this research is credit growth represented as percentage growth from previous quarter. The independent variables were selected based upon

the availability of Bank DKI's data and review based on previous literature study. Hence, we've arrived at these following hypothesis:

According to Ivanovic (2015), banks will be better able to carry out lending activities if they have better profitability. A decrease in profitability at banks causes banks to reduce the amount of credit and is used for the benefit of shareholders (Albertazzi and Gambacorta, 2009). So it can be concluded that if profitability increases, credit growth will increase. In this study, bank profitability is proxied by using Return on Assets (ROA). Based on these findings we form hypothesis 1: H1: ROA ratio has a positive effect on Credit Growth

Credit growth in banks can be influenced by the quality of loans, which is proxied by Non-Performing Loans (NPL) (Nguyen & Andg, 2020; Ivanovic, 2015). Banks will reconsider their long-term strategy related to their assets. When there is an increase in NPLs, the bank's profitability and financial turnover will automatically be disrupted. We estimate that NPL will have a negative effect on credit growth (Ivanovic, 2015; Guo & Stepanyan, 2011; Barajas et al. 2010). Thus, we form a second hypothesis as follows:

H2: The NPL ratio has a negative effect on Credit Growth

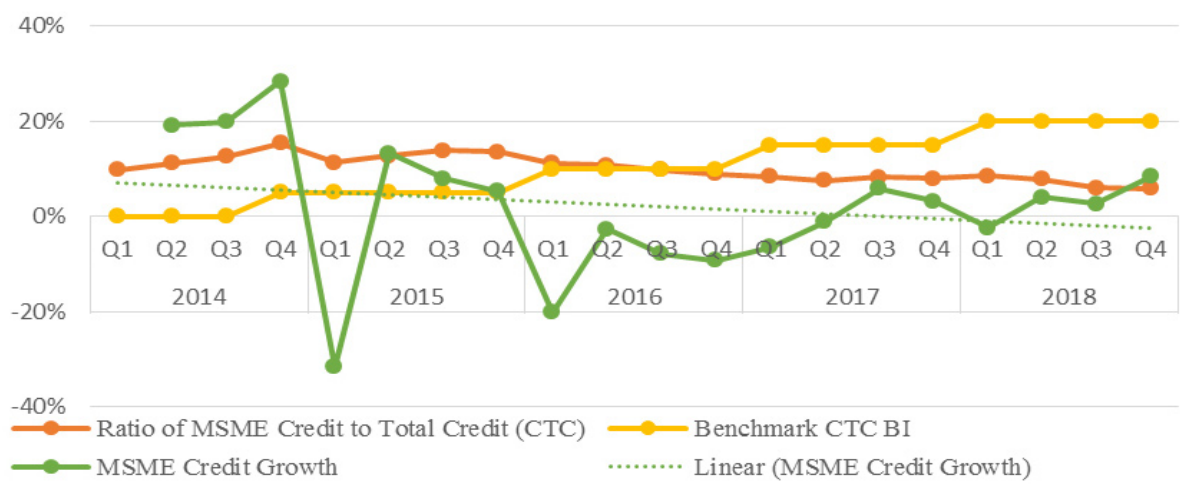


Figure 1. Credit Growth, Ratio of MSME Credit to Total Credit (CTC), Benchmark CTC PBI No. 17/12 / PBI / 2015, and the growth of Bank DKI NPL against MSMEs in DKI Jakarta Province for the period Q1 2014 - Q4 2018

Capital has an influence on credit growth (Nguyen & Andg, 2020; Ivanovic, 2015). The Capital Adequacy Ratio (CAR) is one of the factors determining the level of lending. This is because if banks have sufficient capital it will reduce the risk of losses arising from the financing made (Kuncoro & Suharjono, 2002). Thus, when banks have a high CAR level, they will have high credit growth. thus forming hypothesis 3:

H3: CAR ratio has a positive effect on Credit Growth

Research conducted in the world of marketing shows that promotion can increase sales growth (Kim & Jo, 2013). If this is the case, in accordance with this concept, the researchers suspect that in the banking sector, the promotion carried out can increase credit growth. Promotions that are carried out can be proxied using promotional costs. The higher the promotion cost disbursed, the higher the credit growth achieved. So we form hypothesis 4:

H4: Promotion costs have a positive effect on Credit Growth

Ivanovic, (2015) suggests that the difference between loan interest rates and deposit rates (spread) can affect credit growth. Higher spreads will affect the level of bank profitability and encourage banks to provide more loans. Thus, the theory offered by Ivanovic, 2015 forms hypothesis 5:

H5: Spread has a positive effect on Credit Growth

One of the external factors that affect the rate of credit growth is Gross Domestic Product (GDP) (Guo & Stepayan; 2011; Tan, 2012; Laidroo, 2012; Imran & Nishat, 2013, Gozgor, 2014; Lane, 2014; Ivanovic, 2015; Tuyen & Diep, 2018). This is because GDP represents the state of the economy as a whole. Economic conditions and developments will determine consumption and investment demand, and thus reflect the demand for credit, so that high GDP will increase credit growth (Ivanovic, 2015). Based on these findings we form hypothesis 6:

H6: GDP has a positive effect on Credit Growth

Nguyen & Andg, (2020); Ivanovic, (2015); Hussain & Junaid (2012) Ayuba & Zubairu, (2015) uses the inflation variable to determine credit growth. This is because inflation causes the risk of an increase in non-performing loans. When there are many credit problems, the profitability of banks will decline and will affect the level of credit distribution, thus forming hypothesis 7:

H7: Inflation has a negative effect on Credit Growth

Based on the literature review, the regression model used in this study is as follows:

$$CRG_{i,t} = \alpha + \beta_1 ROA_{i,t} + \beta_2 NPL_{i,t} + \beta_3 CAR_{i,t} + \beta_4 PEX_{i,t} + \beta_5 Spread_{i,t} + \beta_6 GDP_{i,t} + \beta_7 Inflation_{i,t} + \varepsilon_{i,t}$$

Where: $ROA_{i,t}$ (Return on Asset Bank DKI at the time t); $NPL_{i,t}$ (Non-Performing Loan Bank DKI at the time t); $CAR_{i,t}$ (Capital Adequacy Ratio Bank DKI at the time t); $PEX_{i,t}$ (Promotion Expense Bank DKI at the time t); $Spread_{i,t}$ (Difference of Bank DKI's loan interest rate & deposit rate at time t); $GDP_{i,t}$ (Gross Domestic Product at the time t); $Inflation_{i,t}$ (Inflation at the time t); α (Constant); β_1 - β_7 (Coefficient); $\varepsilon_{i,t}$ (Component errors); i (1, 2, 3, ..., 11 is an economic sector that is included in the economic segment; while ($i=1$) Aggregate MSME; ($i=2$) Agriculture, Livestock, Forestry & Fishing; ($i=3$) Mining and Excavation; ($i=4$) Processing Industry; ($i=5$) Electricity, Gas and Clean Water; ($i=6$) Construction; ($i=7$) Trade, Hotel and Restaurant; ($i=8$) Transport and Communication; ($i=9$) Finance, Real Estate and Corporate Service; ($i=10$) Service; and ($i=11$) Other Sector).

RESULTS

Before we regress on the research model, we first carry out a descriptive test to view the collected data as it is, without intending to make general conclusions. In Table 1 we present a descriptive table containing the mean, median, maximum, minimum, and standard deviation of the study sample we used.

Based on Table 1, it can be seen that the average credit growth for MSMEs as a whole (Credit Growth_1) has a mean value of 3.2 percent; Agriculture, Livestock, Forestry & Fishing (Credit Growth_2) by 8 percent; Mining and Excavation (Credit Growth_3) by 88 percent; Processing Industry (Credit Growth_4) by 2.4 percent; Electricity, Gas and Clean Water (Credit Growth_5) by 23 percent; Construction (Credit Growth_6) by 10 percent; Trade, Hotel and Restaurant (Credit Growth_7) by 2.8 percent; Transport and Communication (Credit Growth_8) by 9 percent; Finance, real estate and Corporate Service (Credit Growth_9) by 3 percent; Service (CRG_10) by 2.7 percent; and Other Sector (Credit Growth_11) by 38 percent. Meanwhile, the independent variable, namely Return on Assets

(ROA), has a mean value of 4 percent; Overall MSME Non Performing Loans (NPL) (NPL_1) have a mean value of 16 percent; Agriculture, Livestock, Forestry & Fishing (NPL_2) 0.2 percent; Mining and Excavation (NPL_3) 0.01 percent; Processing Industry (NPL_4) 1.7 percent; Electricity, Gas and Clean Water (NPL_5) by 0.02 percent; Construction (NPL_6) by 2 percent; Trade, Hotel and Restaurant (NPL_7) by 9.6 percent; Transport and Communication (NPL_8) by 0.4 percent; Finance, Real Estate and Corporate Service (NPL_9) by 1.6 percent; Service (NPL_10) by 0.7 percent; and Other Sector (NPL_11) by 0.3 percent. Then the Capital Adequacy Ratio (CAR) variable has a mean value of 24

percent; Promotion Expense (PEX) of 23.33 (the natural logarithm of Promotion expense); spread by 11 percent; Gross Domestic Gross (GDP) by 5 percent; and Inflation of 4 percent. After that, we conducted a regression test using the dependent variable Credit Growth according to the sector. Likewise, the independent variable Non Performing Loans (NPL) also follows the sector being tested; while other variables such as ROA, CAR, PEX, Spread, GDP and Inflation is viewed as a single data whose value is always the same in every regression. The regression results that we get as the output as in Table 2.

Table 1. Descriptive Statistic Data

Deskriptif	Mean	Median	Max	Min	Std. Dev
Credit Growth_1	0.0325	0.0180	1.5287	-0.7084	0.2591
Credit Growth_2	0.0853	-0.0009	2.2465	-0.8638	0.4855
Credit Growth_3	0.8889	0.0000	16.8267	-1.0000	3.4518
Credit Growth_4	0.0241	0.0029	1.3979	-0.6812	0.2330
Credit Growth_5	0.2385	-0.0379	13.9661	-1.0000	1.8124
Credit Growth_6	0.1028	0.0299	3.7995	-0.8061	0.5662
Credit Growth_7	0.0280	0.0203	1.5095	-0.7511	0.2392
Credit Growth_8	0.0930	-0.0472	6.1596	-0.6883	0.7771
Credit Growth_9	0.0399	0.0344	1.4520	-0.8162	0.2658
Credit Growth_10	0.0273	0.0319	1.4414	-0.7388	0.2368
Credit Growth_11	0.3814	-0.0837	3.4858	-0.9337	1.0332
ROA	0.0409	0.0396	0.1223	-0.0660	0.0297
NPL_1	0.1686	0.1537	0.5777	0.0193	0.1136
NPL_2	0.0020	0.0017	0.0069	0.0001	0.0014
NPL_3	0.0001	0.0000	0.0004	0.0000	0.0001
NPL_4	0.0172	0.0151	0.0625	0.0015	0.0119
NPL_5	0.0002	0.0001	0.0009	0.0000	0.0002
NPL_6	0.0203	0.0179	0.0979	0.0021	0.0134
NPL_7	0.0969	0.0872	0.3607	0.0083	0.0688
NPL_8	0.0045	0.0040	0.0203	0.0004	0.0030
NPL_9	0.0164	0.0141	0.0730	0.0015	0.0126
NPL_10	0.0077	0.0070	0.0283	0.0006	0.0054
NPL_11	0.0034	0.0025	0.0133	0.0002	0.0030
CAR	0.2443	0.2767	0.3047	0.1421	0.0546
PEX	23.333	23.435	24.647	20.393	0.9582
Spread	0.1119	0.1150	0.1300	0.0900	0.0100
GDP	0.0501	0.0502	0.0527	0.0466	0.0015
INFLASI	0.0464	0.0398	0.0776	0.0288	0.0164

Table 2. Regression model estimation results

	Credit Growth_1		Credit Growth_2		Credit Growth_3		Credit Growth_4	
	Coef	t-Stat	Coef	t-Stat	Coef	t-Stat	Coef	t-Stat
ROA	1.22***	6.02	1.62***	5.11	0.22	0.23	0.96	4.48
NPL	-0.29***	-3.31	28.8***	2.43	3697***	5.38	-3.93***	-4.37
CAR	-0.82	-1.22	-8.52***	-5.53	48.8***	2.73	-8.93***	-2.19
PEX	0.02	1.20	-0.03	-0.82	0.09	0.20	-0.00	0.83
SPREAD	-0.99	-0.50	-7.01	-1.39	-67.9	-1.31	-2.38	-2.10
GDP	24.1*	1.87	-45.1	-1.53	-99.4	-0.28	-7.96	-1.08
INFLASI	-0.54	-0.25	-26.0***	-5.28	166***	2.87	-2.31***	-1.85
Intercept	-1.30	-1.46	7.02***	3.42	-8.52	-0.35	8.56	1.70
Observasi	220		220		220		220	
Ajs R-squared	23%		27%		23%		30%	
Prob (F-Stat)	0.00		0.00		0.00		0.00	

***) Significan at 1% **) Significan at 5% *) Significan at 10%

	Credit Growth_5		Credit Growth_6		Credit Growth_7		Credit Growth_8	
	Coef	t-Stat	Coef	Coef	Coef	t-Stat	Coef	t-Stat
ROA	-5.96***	-6.66	-4.49	-1.64	1.20***	5.78	-2.33***	-4.99
NPL	2.56***	228	0.19	0.23	-0.59***	-3.62	26.0***	5.36
CAR	-13.4***	3.38	-5.48***	-4.46	0.45	0.76	-3.08**	-2.17
PEX	0.24**	2.39	0.18***	6.08	-0.01	-0.75	0.09***	2.89
SPREAD	-11.8	-1.01	16.8***	4.87	-3.75***	-2.21	8.13**	2.04
GDP	197 **	2.52	207 ***	8.86	-8.41	-0.74	235***	8.79
INFLASI	-1.49	-0.11	4.61	1.16	0.85	0.44	19.2***	4.25
Intercept	-1.08**	-9.97	-1.53***	-9.46	9.82	1.25	-1.50***	-8.16
Observasi	220		220		220		220	
Ajs R-squared	51%		50%		14%		52%	
Prob (F-Stat)	0.00		0.00		0.00		0.00	

***) Significan at 1% **) Significan at 5% *) Significan at 10%

	Credit Growth_9		Credit Growth_10		Credit Growth_11	
	Coef	t-Stat	Coef	t-Stat	Coef	t-Stat
ROA	1.67***	7.95	-1.31***	7.10	5.64***	7.93
NPL	-1.05	-1.19	-6.81***	-3.70	46.1***	4.05
CAR	0.73	0.98	0.06	0.13	-18.1***	-3.73
PEX	-0.00	-0.25	-0.02	-1.57	0.09	0.76
SPREAD	-3.11	-1.37	-8.19***	-5.01	8.22	0.59
GDP	-2.55	-0.18	-25.3**	-2.56	203**	2.16
INFLASI	2.12	0.90	-2.21	-1.31	-35.1**	-2.21
Intercept	2.94	0.30	2.76***	4.00	-7.26	-1.10
Observasi	220		220		220	
Ajs R-squared	21%		21%		33%	
Prob (F-Stat)	0.00		0.00		0.00	

***) Significan at 1% **) Significan at 5% *) Significan at 10%

The results of the tests carried out as a whole (F - statistic) can be seen that the value of each F - stat probability has a value of 0.00 or less than the value of the significance level (0.05) which indicates that Return on Assets (ROA), Non Performing Loans (NPL), Capital Adequacy Ratio (CAR), Promotion Expense (PEX), Spread, Gross Domestic Gross (GDP) and Inflation together have an effect on Credit Growth in MSME financing at Bank DKI Jakarta. For the results of tests carried out partially (T - statistic) in each sector, the following results are obtained:

(1) Aggregate MSME

The results of the regression that were carried out partially, the variables that had a significant effect on the overall Credit Growth of MSMEs were Return on Assets (ROA) with a positive coefficient value indicating that H1 was accepted. This is consistent with the empirical results of Albertazzi and Gambacorta (2009) & Wibowo Et al (2018) that bank credit growth will increase along with the growth in profitability. In addition, the NPL variable has a significant effect with a negative coefficient value which indicates that H2 is accepted. When banks see that many loans have experienced problems, banks will reconsider extending credit to the same sector and will reconsider their long-term strategies related to their assets (Ivanovic, 2015; Guo & Stepanyan, 2011; Barajas et al. 2010). In addition, the GDP variable also has a significant effect on a positive coefficient value, which indicates that H6 is accepted. This means that when the condition and development of the country's economy improves, credit growth will also improve because the level of consumption and investment demand increases (Ivanovic, 2015).

(2) Agriculture, Livestock, Forestry & Fishing Sector

In a partial test of the agriculture, livestock, forestry & fishing sector; shows that independent variables that has influence include ROA, NPL, CAR, and inflation. ROA has a positive coefficient value, NPL has a positive coefficient value, CAR has a positive coefficient value, and inflation has a negative coefficient value. This indicates H1 & H7 is accepted, in accordance with the results of research conducted by Albertazzi and Gambacorta (2009) and Ivanovic (2015) who said that the profitability of banks will be able to increase credit growth. This is possible because when a bank

has an increasing profitability value, it is certain that the bank disburses a lot of credit so that the interest income from the loan increases. However, this will be contradictory when inflation increases. Because when there is an increase in inflation, the potential risk of Non-Performing Loans will be higher and will cause bank profitability to decline. Meanwhile, H2 & H3 are rejected because the NPL and CAR variables have coefficient values that are contrary to the hypothesis.

(3) Mining and Excavation Sector

The results of the partial regression test on the mining and excavation sector show that the influencing variables are NPL, CAR, and inflation. Meanwhile, NPL has a positive correlation with credit growth, which indicates that when there is an increase in NPL, credit growth will increase. This contradicts the nature of the NPL which creates financial problems in banks that lead to reduced credit growth (Nguyen & Andg, 2020). This means that H2 in this sector is rejected. A positive coefficient value on the CAR variable indicates that H3 in this sector is accepted, which means that when availability of capital rises, credit distribution will increase (Nguyen & Andg, 2020). While the inflation variable here has a positive coefficient value, which indicates that H7 is rejected in this sector.

(4) Processing Industry Sector

The regression test results on the processing industry sector show that the independent variables that have significant effect on credit growth are NPL, CAR, and inflation. The coefficient values for each of these variables are negative, negative and positive, respectively. This means that in this sector the variables that are considered influential according to the hypothesis, namely NPL (H2) and inflation (H7) are accepted. Theoretically, an increase in inflation will cause an increase in non-performing loans (NPL). When the NPL increases, the amount of lending will be less and the credit growth rate will decrease.

(5) Electricity, Gas and Clean Water Sector

The variables that have a significant effect on the level of credit growth in the Electricity, Gas and Clean Water Sector are ROA, NPL, CAR, PEX and GDP. However, there is something contrary to previous theoretical studies on hypothesis development, especially on the variables ROA, NPL, and CAR. In this sector,

the results which in accordance with the hypothesis are only the PEX & GDP with a significance level of 10% indicate that H4 & H6 are accepted. When banks increase their promotion, the amount of credit in this sector will be even higher. However, this sector is also very vulnerable to the country's macroeconomic conditions as proxied by GDP. Meanwhile, the other hypothesis is rejected.

(6) Construction Sector

The results of the regression test conducted on the construction sector show that among the independent variables used, the ones that are significant for credit growth, are CAR with a negative coefficient value, PEX with a positive coefficient value, Spread with a positive coefficient value, and GDP with a positive coefficient value. This means the partial test results in this sector indicate H4, H5 and H6 are accepted. Meanwhile, other hypotheses were rejected because in addition to CAR has a negative coefficient value (contrary to the hypothesis), other variables do not have significant effect.

(7) Trade, Hotel and Restaurant Sector

In the Trade, Hotel and Restaurant Sector, there are variables that have significant effect, namely ROA with a positive coefficient value, NPL with a negative coefficient value, and Spread with a negative coefficient value. This indicates that H1 & H2 in this sector are accepted. Although the Spread has a significant effect, it is theoretically contradictory because according to Ivanovic, (2015); when the banking spread is high, banks will usually disburse more credit with the aim of obtaining maximum profit. That is, hypotheses other than H1 & H2 in this sector are rejected.

(8) Transport and Communication Sector

The results of tests conducted on the Transport and Communication Sector show variables that have a significant effect includes ROA with a negative coefficient value, NPL with a positive coefficient value, CAR with a negative coefficient value, PEX with a positive coefficient value, Spread with a positive coefficient value, GDP with a coefficient value. positive, and inflation with a positive coefficient value. The partial test results show that in this sector H4, H5, and H6 are accepted. For the variables ROA, NPL, and CAR, although they have a significant effect, they are

rejected because they are contrary to the hypothesis; while the other hypothesis is rejected because it is not significant.

(9) Finance, Real Estate and Corporate Service Sector

The empirical results conducted on the Finance, Real Estate and Corporate Service Sector show that only ROA has a significant influence with a positive correlation value. This means that H1 is accepted in this sector, which indicates that when banking profitability increases, credit distribution will increase, which will lead to credit growth in the MSME sector.

(10) Service Sector

In the results of partial tests carried out in the services sector, the influencing variables include ROA with a negative coefficient value, NPL with a negative coefficient value, Spread with a negative coefficient value, and GDP with a negative coefficient value. This means that even though there are four factors that have a significant effect on credit growth in this sector, only the NPL variable is in accordance with the hypothesis. This means that in this sector, H2 is accepted; and for other sectors rejected.

(11) Other Sector

In other sectors, among the variables that have a significant effect are the ROA variable with a positive coefficient value, NPL with a positive coefficient value; CAR with negative coefficient value; GDP with a positive coefficient value; and Inflation with a negative coefficient value. That is, in this sector it shows that H1, H6, and H7 are accepted, while others are rejected.

Managerial Implication

The result has shown that certain factors (internal and external) affecting MSMEs' credit growth, whether as aggregate or per economic sector. The managerial implication is straightforward, namely Bank DKI should prioritize certain factors in its endeavor to boost up MSMEs' credit growth. In Aggregate MSME, the determining factors are ones relating to the bank's own profitability (ROA), loan quality (NPL) and GDP. Bank DKI should prioritize factors under direct managerial control (internal) while the external factors could serve as early warning signals, thus anticipatory in nature.

Hence better profitability management, loan quality control and GDP monitoring, can help securing growth in MSMEs financing. In each economic sector of the MSMEs, Bank DKI should prioritize the respective factors that significantly affect its credit growth, whether external or internal.

CONCLUSIONS AND RECOMMENDATIONS

Conclutions

The results of this study show that Sector 1 (One) is affected by ROA, NPL, and GDP; Sector 2 (Two) is affected by ROA, NPL, CAR, and Inflation; Sector 3 (Three) is affected by NPL, CAR and Inflation; Sector 4 (Four) is affected by NPL, CAR and inflation; Sector 5 (Five) influenced by ROA, NPL, CAR, PEX and GDP; Sector 6 (Six) affected by CAR, PEX, Spread, and GDP; Sector 7 (Seven) affected by ROA, NPL and Spread; Sector 8 (Eight) affected by ROA, NPL, CAR, PEX, Spread, GDP and Inflation; Sector 9 (Nine) affected by ROA; Sector 10 (Ten) affected by ROA, NPL, Spread and GDP; Sector 11 (Eleven) is affected by ROA, NPL, CAR, GDP and Inflation. The differences in the factors that affect credit growth in each segment are caused by each segment having different characteristics of the business form. So to increase credit in each segment requires a different strategy.

Recommendations

These results contribute to theoretical understanding of factors affecting MSMEs' credit growth, whether as aggregate and uniquely in this research, as per economic sectors. Thereby the additional managerial implication is straightforward, namely bank should prioritize certain financial ratios in certain MSME sectors to improve credit growth. Based on these results, we recommend Bank DKI, in order to increase its MSME financing, to focus on certain financial ratios in each MSME sectors, and thus fulfilling its responsibility as RDB, to really develop the region it is supposed to develop, since the development of MSME is a priority for a RDB. Bank DKI can start by focusing micro factors under its direct managerial factors such as PEX and NPL, while monitoring macro factors could serve as early warning signals to credit decision in each economic sectors.

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