Is there financial accelerator in indonesian banking?

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Abstract

The purpose of this study is to examine the effect of the business cycle on price-cost margins in Indonesian banking. The research method used is the System Generalized Method Moment (SYS-GMM) to analyze 94 conventional banks in Indonesia for the period 2011-2020. The results of this study indicate that the business cycle has two effects on the price-cost margin in Indonesian banking. First, GDP has no effect on the price-cost margin. Second, credit has a negative effect on price-cost margins in Indonesian banks. Our result study is to prove the results of research on "financial accelerators" in previous studies. This study suggests banks and policymakers in Indonesia must be able to assist the economy in providing credit to accelerate economic recovery, which can reduce the default risk.

1.   INTRODUCTION

Developing countries will experience higher growth through economic reform, financial development, financial integration, privatization, liberalization, and consolidation than developed countries. Investors take advantage of available opportunities by looking at growth rates to enter emerging markets. The banking sector in developing countries has an important role to play in the success or failure of these initiatives (Shaban & James, 2018).

In the base theory, Cao (2022) argued the classic theory of BGG named "financial accelerator" is a deviation from banking behavior in times of crisis by holding back lending and raising the price of loan capital at high-interest rates, thereby accelerating the bank's price-cost margin income but creating a negative impact on the economy. Then the business cycle is closely related to the existence of a financial accelerator mechanism.

According Mankiw (2019) states that the business cycle can be measured through the gross domestic product (GDP), which reflects the total income and expenditure in the economy. Because GDP is the best measure to see the overall condition of the economy. Then, Cao (2022) states that the business cycle can also be measured through credit channels carried out by banks because credit reflects investment and production in the economy of a country.

Furthermore, Bank Indonesia (2020) reported that the banking sector plays an important role in the economy in Indonesia, in 2020 the banking sector became a cushion to maintain the resilience of the financial system. However, banking credit disbursement was too cautious during that period, causing credit growth to decline to see figure 1.
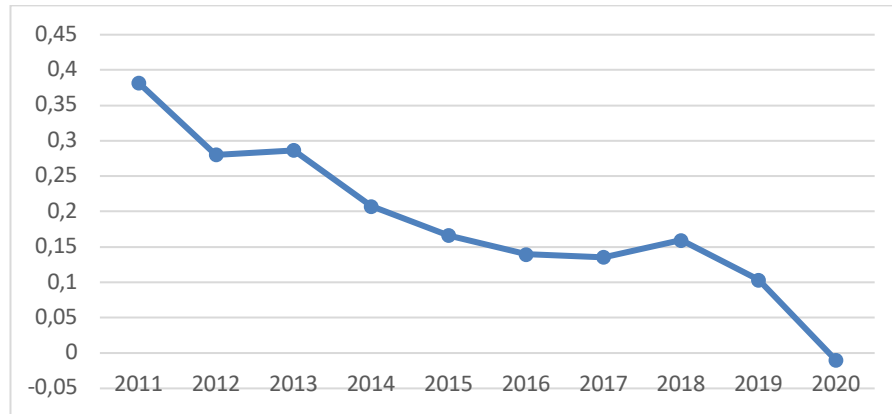

Figure 1. Average of Growth Credit

Several studies have linked the influence of GDP and credit as a business cycle on margin banks. However, the results of these studies are still being debated. Where when GDP increases, it will increase bank profitability (Yudaruddin, 2017c). Meanwhile, other studies have shown that increasing GDP can reduce bank margins (Altunbas et al., 2016). In addition, research Altunbas et al., (2016) by shows that credit results have a negative effect on price-cost margins in European banks. The results are similar to the study Yudaruddin (2017a), finding bank lending has a negative effect on bank margins during times of crisis.

However, there are still few that discuss financial accelerators in the banking sector. The research by Altunbas et al. (2016) focuses on cross-country in European banking. Furthermore, Turgutlu (2010) focused single country of Turkish banking. Smiliarly, Aliaga-Díaz & Olivero (2010) focuses on a single country in US banking. However, in the banking sector in Asia, no one has discussed financial accelerators even though after the 2007/2008 crisis, the Asian region greatly contributes to global economic growth (Christianti, 2019; Lesmana, 2021; Wang & Lin, 2021). Then, our focus in Indonesian banking cause Indonesian banking has the highest performance compared to banks in Asia (Santoso et al., 2020; Yusgiantoro et al., 2019). To fill this research gap, this research contributes to discussing the financial accelerator mechanism in Indonesian banking.

Furthermore, this study aims to analyze the role of the business cycle on the price-cost margin of banks in Indonesian banking for the period 2011-2020. The results of our study indicate that there is a negative effect of the business cycle, especially lending on price-cost margins in Indonesian banking. This result proves the theory Cao (2022) argued "financial accelerator" is a deviation from banking behavior in times of crisis by holding back lending and raising the price of loan capital at high-interest rates, thereby accelerating the bank's price-cost margin income but creating a negative impact on the economy.

The results of this study also provide an overview to banks when the behavior of withholding credit distribution creates systemic risks in the macro economy during a crisis. Banks and policymakers in Indonesia must be able to assist the economy in providing credit to accelerate economic recovery, which can reduce the default risk. According to Yudaruddin (2017) who focused on examining the effect of economic conditions having a

negative impact on lending to bank profitability during the crisis due to the increase in bad loans.

The remainder of the study will be organized as follows: Section 2 Methodology. Section 3 result. Section 4 discusses empirical studies. Section 5 concludes the research and offers

2.   METHOD, DATA, AND ANALYSIS

Data Description

The main purpose of the research is to investigate the mechanism financial accelerator in Indonesian Banking Sector. The study data includes commercial banks in Indonesia. Our focus on Indonesian banking is Indonesian conventional banks were included in our primary analysis from 2011 to 2020. The primary data are the audited yearly financial reports of each bank. The data on macroeconomic factors was collected from the Indonesian Statistics Agency.

Model

In this study, to analyze the role business cycle on price-cost margin in Indonesian banking, the model is as follows empirical study:

$$PCM_{i,t} = \beta_0 + \beta_1 PCM_{i-1,t} + \beta_2 * \text{Growth}(BC) + \sum_{i=1}^{k_1} \delta_i * W_{i,t} + \varepsilon_{i,t} \qquad (1)$$

In this model, i and t are banks and year, respectively, for which we use the annual bank level from Financial Services Authority for 94 conventional banks for the period 2011-2020. Besides that, we estimate $PCM_{i-1,t}$ is entered into a regressor to control lagged PCM, which can emerge as a determinant of PCM at this time. It is indicated that PCM is more significant at low levels of competition for several periods.(Turgutlu, 2010b)

On this model (1) the dependent variable of this study, we use a price-cost margin ratio to measure premium financial external. To measure price-cost margin, we follow (Altunbas, 2016) on the following formula:

$$Price - cost\ margin\ 1_{i,t} = \left(\frac{Interest\ income}{Total\ loan}\right) - \left(\frac{Interest\ expenses}{Total\ deposits}\right) \qquad (2)$$

$$Price - cost\ margin\ 2_{i,t} = \frac{Interest\ income - Interest\ expenses}{Total\ loan} \qquad (3)$$

Independent Variable

We construct a variable, business cycle (BC), which is measured by GDP and Total Loan, in order to measure the business cycle as our main independent variable (Altunbas, 2016).

Control Variable

Monetary policy, bank-specific, and bank risk as control variables are also considered in this study. Monetary policy includes interest rate, Bank-specific control variables include the natural logarithm of total assets (*Size*), the ratio of total loan to total deposits (*LDR*), and bank risk control variable use concentration ratio level 3 big banks.

In addition, We use interest rates are always related to bank business activities in deposit and credit because the intermediation of banks incurs spread costs from interest rates (Altunbas et al., 2016). This study adds SIZE as a control variable because banks with large sizes are more involved in managing larger assets than small banks, causing the effect of "too big to fail subsidies" (Yusgiantoro et al., 2019). However, liquidity is main important while the economy is down. The bank increases its liquidity level in order to keep large

customer withdrawals from occurring but incurs more costs that depress bank margins (Adelopo et al., 2017). Finally, we add bank risk measured concentration as the control variable, and Market concentration can also pose a risk in the competition, which causes a decrease in bank margins.

To achieve the objectives in this study, we use the GMM system to regress, including business cycle, bank-specific, and bank risk to price-cost margin in Indonesian banking. Then we regress two stages. In the first stage, we perform regression of Business cycle indicators such as GDP, bank-specific, and bank risk on price-cost margin in Indonesian banking. In the second stage, we perform regression of Business cycle indicators such as Total Loan, bank-specific, and bank risk on price-cost margin in Indonesian banking.

In estimating the above model, this study uses dynamic panel data analysis from several previous studies (Altunbaş et al., 2016; Santoso et al., 2020; Yusgiantoro et al., 2019). However, the relationship between price-cost margin, business cycle, bank-specific, and bank risk in the banking sector may lead to reverse causality problems. Therefore, we use dynamic panel data model analysis to solve this problem. In using GMM, there are two steps, namely (General Moment Method) or the GMM system following Blundell & Bond (1998). Then, this research is said to be valid if the AR (2) test and the Hansen-J test are not rejected as a whole.

3. RESULTS

Descriptive Statistic
This study shows descriptive statistics in this study are presented in the table below.

Table 1. Descriptive Statistics

Variables	Obs.	Mean	Std. Dev	Min.	Max.
PCM1	940	0.0783525	0.0812455	-1.70347	0.2993739
PCM2	940	0.0775328	0.0377168	-0.0565089	0.4874935
GDP	940	4.586585	2.260877	-2.069544	6.169784
Credit	940	6.99597	0.7157291	4.537328	8.94482
BI Rate	940	5.94335	1.065672	4.25	7.54
Size	940	16.59627	1.615216	11.98129	21.07518
Liquidity	940	100.3268	64.35668	0	996.74
Concentration	940	37.57714	1.507326	35.3322	40.42132

Source and note: Author Calculation (2022), in this study there are some extreme data that can interfere with the results of the study so that we use winsorize all variable with 5% except BI rate and Market Concentration, from 940 observations to 846 observations (Risfandy et al., 2020).

Table 1 shows that the mean value for PCM 1 and PCM 2 has mean value of 0.0783525 and 0.0775328, where this value means that the bank's income margin level is greater than the bank's cost margin level. Then the average growth of GDP and credit was 4.586585 and 6.99597. Then, the average BI interest rate is 5.9%. The average level of liquidity in banks is at the level of 100.3268, which means that the credit ratio is higher than the total deposit held. Finally, the average level of market concentration is at the level of 37,57714, which indicates the level of market competition is still competitive.

Table 2. Correlation Matrix

	GDP	**Loan**	**BI Rate**	**Size**	**Liquidity**	**Concentration**
GDP	1.0000					
Loan	0.1617	1.0000				
BI Rate	0.5156	0.1199	1.0000			
Size	-0.1287	-0.1616	-0.1284	1.0000		
Liquidity	-0.0093	0.0733	0.0030	-0.0688	1.0000	
Concentration	-0.7029	-0.1890	-0.6650	0.1982	-0.029	1.0000

Source and note: author calculation (2022)

According to the research findings in table 2, only GDP and Market Concentration have a greater value with 0.7029. If the correlation between two variables is 0.9 or above, the model has a multicollinearity problem (Ali & Puah, 2018). As a result of the results, the dependent variable in Table 2 does not exceed the minimum threshold level, indicating that multicollinearity is not an issue in this study.

Table 3. Business Cycle and Price-cost margin; Baseline

Explanatory Variables	**Variabel Dependen: Price-cost Margin**	
	PCM1	**PCM2**
PCM1$_{-1}$	0.577**	
	(3.18)	
PCM2$_{-1}$		0.650***
		(4.69)
Business Cycle:		
1. GGDP	0.0000631	-0.0000562
	(0.18)	(-0.18)
2. Loan	-0.0413***	-0.0393***
	(-7.09)	(-7.90)
BI Rate	0.000440	-0.000349
	(0.68)	(-0.57)
Size	-0.00114	-0.000697
	(-1.33)	(-1.05)
Liquidity	-0.000305***	-0.00000875
	(-3.42)	(-0.20)
Concentration	-0.00119*	-0.00199***
	(-2.04)	(-3.73)
Constanta	0.127**	0.120***
	(2.73)	(3.77)
Observations	573	561
Num. of Groups	82	83
AR (1) test	0.047	0.002
AR (2) test	0.312	0.103
Hansen-J test	0.125	0.247
Sargan test	0.084	0.183

Sources and notes: author calculation (2022). In this table, we analyze dynamic panel data using the one-step GMM System in Indonesian Banking period 2011-2020. t-statistics in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. The standard error of each coefficient is in parentheses.

Based on Table 3, the following presents the results of research on the business cycle, interest rate, and bank-specific price-cost margin in Indonesian banking. Table 3 shows the results of the dynamic panel specification test where when one instrument does not meet the requirements. This model is not dynamic. The AR1 test results have a p-value of 0.047

on PCM1 and 0.002 on PCM2, so that the p-value of both models is <0.05, then the AR1 test instrument is accepted. Then the AR2 test results have a p-value of 0.312 on PCM1 and 0.103 on PCM2, so that the p-value of both models is > 0.05, then the AR2 test instrument is accepted. Furthermore, the Hansen J test has a p-value of 0.125 on PCM1 and 0.247 on PCM2, so that the p-value of both models is > 0.05, then the Hansen J test instrument is accepted. Finally, the Sargan test has a p-value of 0.084 on PCM1 and 0.183 on PCM2, so that the p-value of both models is <0.05, then the Sargan test instrument is accepted. These results indicate that this study meets the requirements of the dynamic panel specification test, so the model in this study is panel dynamic (Yusgiantoro, 2019).

We documented the effect of Gross Domestic Product on PCM 1 has a positive coefficient value of 0.0000631, and a significance value of 0.859, and PCM 2 has a negative coefficient value of 0.0000481 and a significance value of 0.881, which shows the effect of gross domestic income on PCM 1 and PCM 2 has a p value> 0.10, so it has no effect. Significant. The effect of credit on PCM 1 and PCM 2 has a negative coefficient value of -0.0413, -0.0383422, and both significance values of 0.000, which indicates the effect of credit on PCM 1 and PCM 2 has a p-value <0.001, so it has a significant effect.

In addition, the effect of interest rate on PCM 1 has coefficient has a positive coefficient of 0.0004397 and a significance value of 0.496, the interest rate has an influence on PCM 2 has a negative coefficient value of -0.0005184 and a significance value of 0.572, based on the p-value of both > 0.10, this result shows that the interest rate has no significant effect on the PCM

Meanwhile, the effect of the bank size against PCM 1 is equal to the negative coefficient value of -0.0011428 and the significance value of 0.184, and against the negative PCM 2 has a coefficient of -0,0007785 and the significance value of 0.319, based on the p-value of both > 0.10, this result shows that bank size has no significant effect on the PCM.

Furthermore, the results of this study show that liquidity has a negative and significant effect on PCM 1, which has a negative coefficient of -0.0003049 and a significance value of 0.001. While the negative and insignificant effect on PCM 2 has a negative coefficient of -0.0000257 and a significance value of 0.608.

Finally, our research shows that market concentration has a negative and significant effect on PCM 1 and PCM 2 with coefficients of -0.0011851 and -0.0019586. Both have a significance value of 0.041 and 0.000. The value is <0.05, which indicates that market concentration has a significant effect on PCM in Indonesian banking.

4. DISCUSSION

Based on the results of the analysis in this study, it was found that credit has a negative and significant effect on Price-cost margin one and Price-cost margin 2. This indicates that there is a financial acceleration mechanism in Indonesian banking. These findings suggest that when the economy is contracting, banks react by holding potential loans in order to pay high-interest rates and by charging higher fees to risky borrowers in order to enhance their price-cost margins. This reaction has the potential to enhance macroeconomic shocks. In Indonesia, as a developing country, the banking industry is the most important route of financial intermediation. The bank's countercyclical behavior might limit lending prospects as well as a company's investment and production plans. This practice has the intrinsic result of deepening the economic crisis.

Then these results support base theory Cao (2022) states the "financial acceleration" framework of the theory revealed that When a borrower has fewer funds to put into a project, the possibility for a conflict of interest between the borrower and the external

funder is greater. As a result of the increased costs, the lender must compensate for the higher fees by charging a higher premium.

The results of this study are in accordance with research Altunbaş et al. (2016) which shows that credit has a significant negative effect on price-cost margins in European banks. This indicates that credit has an opposite cycle to bank price-cost margins. When credit begins to experience a decline due to weak demand for credit caused by the economic downturn, banks actually increase their price-cost margins.

In addition, the results of This research are in line with the findings of Yudaruddin (2017b) revealed that credit has a negative effect on bank margins during a recession. When the demand for credit experiences a very extreme decline during a crisis, banks will increase fees on new borrowers or hold their funds to avoid the risk of borrower default.

Besides that, our result liquidity had a negative and significant effect on Price-cost margin 1 in Indonesian banking. These results indicate that banks always increase liquidity in order to hold deposits. It can actually reduce the bank's price-cost margin. This is because the more banks increase liquidity during a declining business cycle, it actually increases costs, thereby suppressing the bank's margin. The results of the study, according by Adelopo et al. (2017), show that liquidity has a negative influence on bank profitability during times of crisis. This indicates that when the economy experiences a downturn, the higher the liquidity of the bank, the more the bank's margin will decrease. This is due to banking concerns about the risk of default so banks must maintain very high liquidity to meet depositors' demands, so banks increase high-interest rates to cover the additional risk.

Then, we documented market concentration has a negative and significant effect on Price-cost margin one and Price-cost margin 2 in Indonesian banking. These findings suggest that the more concentrated the market is by large banks, and the less competition there is, the higher the risk of competition, which leads to a drop in bank price-cost margins. The study's findings, following research by (Altunbas et al., 2016) showed that market concentration had a negative effect on bank price-cost margins. This shows that market concentration can also pose a risk in a competition which causes a decrease in bank margins. In contrast, The results of this study contradict the research of Khan et al. (2018)analyzing market structure on bank performance. The findings show that market concentration has a positive effect on bank performance. This indicates that the more concentrated a market creates anti-competition, which leads to higher profits.

5. CONCLUSION, LIMITATIONS, AND SUGGESTIONS

Conclusion

In this paper, we investigate the effect of the business cycle on price-cost margin in Indonesian banking. The study employs a panel of 94 banks in Indonesia during the period 2011-2020. To achieve this goal, we use the dynamic panel system GMM (Blundell & Bond, 1998) to address the problem of reverse causality and endogeneity.

The results of this study indicate that the business cycle has two effects on the price-cost margin in Indonesian banking. First, GDP has no effect on the price-cost margin. Second, credit has a negative effect on price-cost margins in Indonesian banks. These results indicate that there is a financial accelerator mechanism in Indonesian banks after being controlled, reducing liquidity and reducing market concentration. Our result study is to prove the results of research on "financial accelerators" in previous studies.

Limitation and suggestions

This research only focuses on Indonesian banking with limited control variables. For further research, it can be expanded by discussing cross-country at the ASEAN level or Asian Banking.

This study suggests banks and policymakers in Indonesia must be able to assist the economy in providing credit to accelerate economic recovery, which can reduce the default risk.

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