

# THE IMPACT OF GLOBAL ECONOMIC CONTRACTION TOWARDS LENDING BEHAVIOR OF BANKS IN INDONESIA

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## **Abstract**

*The global financial crisis of 2008 that hit many countries had become an important concern, especially the banking industry in Indonesia. This was because first, the experience of the economic crisis of 1997-1998. Second, the nature of the crisis could spread to other countries. So this study aimed to examine empirically the impact of the global economic contraction on the behavior of bank credit in Indonesia. Using panel data source from the World Bank and Bank Indonesia Year 2004-2012, the data were analyzed with Dynamic Panel Data using E-views program 8. The results showed that the global economic contraction had a significant effect on the behavior of credit in foreign and joint venture banks in Indonesia in 2004-2012.*

**Keywords:** *credit behavior, crisis, interest rate, global economic contraction*

Economic behavior economics has become an interesting study from many world researchers at the world. One of the studies is the lending behavior. Lending behavior judged from the increase and decrease in the growth of the credit amount that banks channeled. Current economic conditions are one of the things that influence lending behavior banks, especially when economic integration increases. Kotz (2010) revealed a long-term perspective that the liberalization of trade and international capital markets has gone hand in hand, with increasing economic integration at the global level. The internationalization

of banking activities has naturally contributed to the bank itself due to the universal impulse toward economic integration between countries. Global integration has paved the way for other countries to transfer how to run an international standard banking activities. The goal is to become more efficient in the use of resources. But at the same time, financial integration also facilitates the transmission of shockwaves across countries. As a result, a crisis in a country will have an impact on other countries.

The study conducted by Raz et al. (2012) found the impact of the crisis on the Economic of East Asian region, both East Asian financial crisis

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in 1997 and the global financial crisis of 2008. But there is a difference between the two crises, in which the East Asian financial crisis in 1997 has provided knowledge for each country to be better prepared so when the 2008 global financial crisis hits, compared with crisis in 1997. Micco & Panizza (2006) found that state-owned banks may play a credit smoothing role. It shows that their lending is less responsive to macroeconomic shocks than the lending of private banks (both domestically and foreign-owned). This suggests that state-owned banks could play a useful role in the transmission of monetary policy.

When viewed from the theoretical framework, the 2008 crisis that occurred in the United States has become evidence that the instability of the financial sector due to subprime mortgage have caused global economic contraction. That is, the credit behaviors of the banking industry have triggered the onset of the crisis. This is consistent with the theory of disaster myopia. Davis (2001) in Raz et al. (2012) describes the theory of disaster myopia, that financial instability occurs when the behaviors of financial institutions ignore the credibility of the borrower and the risk is reduced.

Indeed, the impact of general economic crisis started from the turmoil of the financial sector. Although Prasetyantoko (2008) describes the dynamics of economic fluctuations become commonplace in the financial sector, that is when the fluctuations are too large, it can cause symptoms of instability over a long time and continuously can lead to a crisis. But a crisis can occur if the control measures against the turmoil in the financial sector cannot be addressed, followed by contraction of the overall economy. So crisis begins with instability in the financial sector.

Despite the crisis, to Scuhmpeter (Prasetyantoko, 2008), this condition is common in the dynamics of the capitalist economic system. In accordance with the theory of the business cycle, Scuhmpeter assess the economy will move to the

stage of recession and boom. If the injections of capital (lending) banks do not support the innovation process of economic actors, then the economy is in recession. In contrast, when the innovations have a positive impact, as a result of the capital injection, the economy would be booming. But Minsky in the Financial Instability Hypothesis assess the boom period creates financial insecurity. Periods of economic boom creates overly optimistic behavior that tends to take risk and less cautious in debt. As a result, low quality loan portfolio and risk in the economic sectors are increased.

Allen et al. (2011) who studied foreign-owned banks and government-owned banks in Central and Eastern Europe, found different reactions during the global financial crisis in 2008. The study found that foreign banks reduced credit during crisis, while the government-owned banks increased credit. As a result, the risk transmission is increased from foreign banks, but the government-owned banks may hamper it. While De Haas & van Lelyveld (2006) that examines the specifics foreign and domestic banks in Central and Eastern Europe, found different reactions to the business cycle and the crisis conditions of the banks country of origin. The result is that the bank country of origin has an important condition for the growth of the foreign banks, because there is a significant and negative relationship between country of origin economic growth (home country) and the host country with credit in foreign banks. Pontines & Siregar (2012) who also specifically examined the ASEAN region's foreign banks and joint venture banks when the global economic crisis in 2008 with the result that foreign banks tend to come out or pull out from the host country when recession occurs, resulting in the reduced of total outstanding loans of foreign banks to the host country.

The study shows that the crisis does not necessarily indicate an impact on the reduction in lending. The impact of the crisis is likely causing

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varying results, where some banks decreases lending, but others increase lending. For those who increase lending, it is because affiliate offices of foreign banks in the host country can rely on its parent bank to gain support in the event of a crisis, so that foreign banks become insensitive to the crisis. As for banks that reduce lending, it is because of the nature and scale of the sharpness of the global financial crisis has recently led to a reduction of capital of the parent bank, so that the crisis affects loan distribution reductions in the home country and the host country as found in De Haas & van Lelyveld (2010), Silalahi et al. (2012), Choi et al. (2013), and De Haas & Lelyveld (2014). Signs of economic crisis can also be seen from the decline in Gross Domestic Product (GDP) of a country. For GDP, Mohanty et al. (2006), Bebczuk, et al. (2010), Guo & Stepanyan (2011), and Silalahi, et al (2012) found a significant positive effect increasing GDP led to the increase of lending.

### METHOD

The model in this study adapted to the studies by Pontines & Siregar (2012) and Allen et al. (2011) that look at the impact of economy crisis on a country. Pontines & Siregar (2012) specifically studied ASEAN countries' foreign and private Banks Ni 2008. Allen et al. (2011) also studied the global crisis impact to lending from private and government owned banks in Europe. This study aims to complete both previous studies that is to examine the effect of global economic contraction which was mark with global economic crisis in 2008 and 2009 towards Indonesia's banking credit from foreign, joint venture and domestic (including government owned) in 2004-2012 which can be seen in Table 1 with the following model:

#### Foreign and Joint Venture Banks

$$GLoan_{i,t} = GLoan_{i,t-1} + Crisis_{i,t} + Crisis*JoinVenture_{i,t} + GGDPHome_{i,t} + IntRateHome_{i,t} +$$

$$GGDPHost_{i,t} + IntRateHost_{i,t} + Profitability_{i,t} + Solvence_{i,t} + Size_{i,t} + \epsilon_{i,t}$$

#### Domestic Banks

$$GLoan_{i,t} = GLoan_{i,t-1} + Crisis_{i,t} + Crisis*Government_{i,t} + GGDPHost_{i,t} + IntRateHost_{i,t} + Profitability_{i,t} + Solvence_{i,t} + Size_{i,t} + \epsilon_{i,t}$$

The independent variables used in this study is Lending Behavior proxied from Credit Growth (GLoan) of foreign, joint venture and domestic banks in year t or 2004-2012. The global economic contraction was marked with global economic crisis which occur in 2008 and 2009. The crisis variable is expected to be negative. For the other dummy variables, an interaction was done between crisis variable and bank ownership. The purpose is to see the behavior difference between foreign and joint venture banks (Crisis\* Join Venture) and Government owned banks with other Domestic Banks (Crisis\* Government). For the macro economy variables used are GDP of the banks' home country (GGDPHome) and the interest rate banks' home country (IntRateHome) and also Indonesia's GDP (GGDPHost<sub>i</sub>) and Indonesia's interest rate (IntRateHost<sub>i,t</sub>). But for the Domestic Banks only uses GGDP variable and IntRateHost. Studies by Pontines & Siregar (2012) and Allen et al. (2011) found that GDP (GGDPHome and GGDPHost) and interest rate (IntRateHost) pushes bank to be expansive in credit lending so the expectation of GDP variable (GGDPHome and GGDPHost) and interest rate (IntRateHost) towards credit lending is positive. Meanwhile the IntRateHome variable pushes bank to lend credit more at the home country so the expectation of credit lending variable is negative. Not only the macro economy variable, the company characteristic also used as profitability proxied with Return on Asset (ROA). The variables of profitability, solvency, and the size of company (SIZE) are expected to be positive. Meaning

that all three variables (profitability, solvency, and size) pushes banks to be expansive towards credit.

Data used are secondary data from bank unaudited monthly financial report from January 2004 to December 2012, as published at Bank Indonesia website ([www.bi.go.id](http://www.bi.go.id)) which then aggregated into yearly data. While the macro economy data used in this study are GDP and interest rate of home country of foreign and joint venture banks from World Bank and BI rate data

and GDP each year as published by Bureau of Statistic and Bank Indonesia. The sampling method used is purposive sampling. The criteria used is thoroughly examined variable with regular financial report published each month. So from 110 banks made as samples are 96 banks which consist of 73 domestic banks (4 public banks, 28 national private banks, 17 national non private bank, and 24 regional banks) and 23 foreign and joint venture banks (8 foreign banks and 15 joint venture banks).

**Table 1.** Research Variables Operational Definitions

Dependent Variable		Descriptions	Data Sources
Credit Behavior	$GLoan_{i,t}$	Credit growth of bank i in year t	Bank Indonesia
<b>Independent Variables</b>			
Crisis	$Crisis_{i,t}$	Dummy variable; where 1 = global financial crisis in 2008 and 2009, 0 = others	
Crisis interaction with joint venture banks	$Crisis*Join\ Venture_{i,t}$	Dummy variable; where 1 = global financial crisis in 2008 and 2009, 0 = others	World Bank
Crisis Interaction with Governement Owned Banks	$Crisis*Governmen\ t_{i,t}$	Dummy variable; where 1 = global financial crisis in 2008 and 2009, 0 = others	World Bank
GDP of foreign and joint venture banks' home country.	$GGDPHome_{i,t}$	The indicator of macroeconomic condition at home country of foreign and joint venture banks as financing source.	World Bank
Rate interest at home country of foreign and joint venture banks.	$IntRateHome_{i,t}$	The indicator of macroeconomic condition at home country of foreign and joint venture banks as financing source.	World Bank
GDP of host country	$GGDPHost_{i,t}$	The indicator of macroeconomic condition at host country (Indonesia) as financing destination.	BPS
Interest rate of host country.	$IntRateHost_{i,t}$	The indicator of macroeconomic condition at host country (Indonesia).	Bank Indonesia
Bank profitability rate.	$Profitabilitas_{it}$	Return On Asset	Bank Indonesia
Size comparison between capital and asset.	$Solvence_{it}$	Ratio of Equity and Total Asset.	Bank Indonesia
Company size.	$SIZE_{it}$	Log Natura of Total Asset	Bank Indonesia
$\beta_2- \beta_9$		Regression coefficient	
$\epsilon_{it}$		Residual value (error)	

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The analysis tools used in this study is dynamic panel (GMM method) with help from E-Views 8 programs. The reliability of the dynamic panel model is determine by test such as (1) unbiased test by comparing coefficient estimation result with OLS and Fixed Effect. If the dynamic variable coefficient estimated below OLS and above all fixed effect estimation, the model is not biased. (2) Validity test with Sargan test, is valid if there is no correlation between instruments with error component. Zero hypothesis from Sargan test declared that the instrument has no problem

**Tabel 2.** Summary Statistic of Dependent and Explanatory Variables

	Gloan	Crisis	Crisis* Subs.	Crisis* Gov	GGDP Home	Int Home	GGDP Host	Int host	Prof.	Solv.	Size
<b>Model 1: Foreign and Joint venture Banks</b>											
Mean	6.414	0.222	0.135	-	7.826	2.675	5.798	7.992	1.548	0.143	15.66
Max.	180.7	1.000	1.000	-	31.39	11.78	6.490	12.75	7.390	0.960	17.79
Min.	0.000	0.000	0.000	-	-17.85	-3.90	4.630	5.750	0.000	0.000	12.77
Std. Dev.	19.07	0.416	0.342	-	9.622	2.308	0.604	2.141	0.149	0.128	1.259
<b>Model 2: Domestic Banks</b>											
Mean	2.311	0.222	-	0.012	-	-	5.798	7.992	1.296	0.129	15.22
Max.	30.14	1.000	-	1.000	-	-	6.490	12.750	9.180	2.490	20.05
Min.	-5.530	0.000	-	0.000	-	-	4.630	5.750	-9.380	-0.020	11.29
Std. Dev.	3.056	0.416	-	0.110	-	-	0.603	2.138	1.025	0.113	1.835

**Table 3.** Correlation Matrix for the Explanatory Variables

	Crisis	Crisis* Subs.	GGDP Home	Int Home	GGDP Host	Int host	Prof.	Solv.	Size
<b>Model 1: Foreign and Joint venture Banks</b>									
Crisis	1.000	0.740**	-0.317**	-0.002	-0.423**	-0.029	0.018	-0.024	0.061
Crisis*Subs.		1.000	-0.256**	0.056	-0.313**	-0.022	0.011	0.061	-0.079
GGDPHome			1.000	-0.136	0.266**	0.073	0.056	-0.155*	-0.071
IntHome				1.000	-0.126	0.162*	0.055	0.110	-0.099
GGDPHost					1.000	-0.140*	-0.138*	0.032	0.177*
IntHost						1.000	0.045	-0.105	-0.226**
Prof							1.000	0.286**	0.013
Solv.								1.000	-0.334**
Size									1.000
<b>Model 2: Domestic Banks</b>									
Crisis	1.000	0.208**	-0.423**	-0.029	-0.084*	0.034	0.019		
Crisis*Gov		1.000	-0.088*	-0.006	-0.047	-0.040	0.221**		
GGDPHome			1.000	-0.140**	-0.081*	-0.050	0.136**		
IntHost				1.000	-0.027	-0.009	-0.181**		
Prof					1.000	0.069	0.025		
Solv.						1.000	-0.183**		
Size								1.000	

Notes: The table presents the results from Spearman  $\rho$  correlation coefficients.\*\*\* and \*\* indicates significance at 1% and 5% levels

with validity and (3) Consistency test with Arrellano-Bond is when probability of order 1 shows value under significant at 10% (significant), while order 2 with probability smaller than significant at 10% (not significant), then this model is consistent (Baltagi, 2005, Pontines & Siregar, 2012).

## RESULT

This study aims to complete both previous studies that is to examine the effect of global eco-

nomie contraction which was mark with financial crisis in 2008 and 2009 towards Indonesia's banking credit from foreign, joint venture and domestic (including government owned) in 2004-2012. The present study uses an balanced panel of Indonesia commercial banks (summary statistics of the variables used are presented in Table 2).

Table 3 provides information on the degree of correlation between the explanatory variables used in the multivariate regression analysis. The matrix shows that in general the correlation be-

**Table 4.** Result of Dynamic Panel Model of Banking Credit Model in Indonesia in 2004-2012

Variable	Foreign and Joint venture Banks		Domestic Banks	
	Model 1		Model 2	
GLoan <sub>i,t-1</sub>	0,136939**	(25,57253)	-0,018051	(-0,865446)
Dummy Crisis <sub>i,t</sub>	-10,68507**	(-15,78181)	0,232438	(1,271179)
Dummy Crisis*Subsidiary <sub>i,t</sub>	17,54189**	(15,06559)		
Dummy Crisis*Government <sub>i,t</sub>			0,041820	(0,050643)
GGDPHome <sub>i,t</sub>	0,226585**	(5,087937)		
IntHome <sub>i,t</sub>	0,862626**	(3,682150)		
GGDPHost <sub>i,t</sub>	-2,159636**	(-5,445451)	0,273622**	(2,264681)
Inthost <sub>i,t</sub>	-1,832602**	(-15,99106)	-0,258182**	(-4,671999)
Profitabilitas <sub>i,t</sub>	1,811577**	(5,853748)	0,266674**	(3,569467)
Solvence <sub>i,t</sub>	8,926197*	(2,168553)	1,473594	(0,715807)
Size <sub>i,t</sub>	-7.902415**	(0,0000)	-1.921114	(-6,302679)
Koefisien GLoan <sub>i,t-1</sub>				
OLS	0,248762		0,145070	
Fixed Effect	0,108262		-0,016074	
AR1	0,000000		0,0000	
AR2	0,000000		0,0005	
Hansen J	0,418982		0,609544	
Number of obs.	207		657	

Note: \*\*significant at 99% confidence level; \*significant at 95% confidence level

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tween explanatory variables are not strong, thus suggesting that multicollinearity problems are not severe or non-existent.

On the estimation of crisis impact to credit behavior by using dynamic panel approach there were endogenous variable lag that appears at the exogenous variable, as the reliability test result shows in Table 2. On Arrellano-Bond test, either model 1 and 2 shows probability of significant order 1 or order 2 as significant. And so from the Arrellano-Bond test declared that the model has consistency problems. Next is the Sargan probability test that shows model 1 and 2 values 0,418982 and 0,609544 respectively, meaning that the test reject zero hypothesis. And thus this model did not have validity issue (valid model). For biased test, either model 1 and 2 found variable lag estimated coefficient under OLS estimated coefficient and above fixed effect estimated coefficient, and so model 1 and 2 is not biased.

## DISCUSSION

The impact of crisis to the lending behavior are different between foreign joint venture banks and domestic banks. The negative crisis has sig-

nificant effect towards lending behavior and not significant to domestic banks. This shows that foreign and joint venture banks experienced contraction during crisis by lowering credit lending. This means that the global financial crisis in 2008-2009 has impacted more foreign and joint venture banks compared with domestic banks, whereas foreign and joint venture banks behavior is to reduce distributed credit. This study support studies conducted by Pontines & Siregar (2012), Allen et al. (2011), Silalahi et al. (2012).

The result gave description of different behavioral reaction between foreign and domestic banks in global financial crisis of 2008. Looking at graphic 1 and 2 below, foreign and joint venture banks has contraction that caused credit distribution to decrease and then rises again after the crisis. A positive significant effect towards credit growth is shown by seeing the interaction between crisis variables and joint venture banks, which means joint venture bank credits behavior is to keep increasing the credit distribution as the reaction from joint venture banks towards transfer of risk from the main banks that experiencing crisis effect.

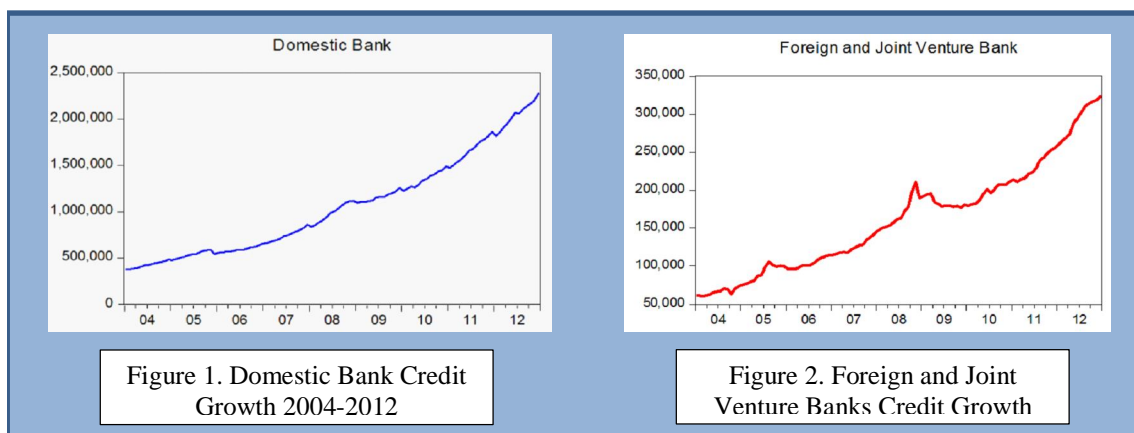


Figure 1. Credit Growth of Foreign, Joint Venture And Domestic Banks in Indonesia Years 2004-2012.

For the macro economy variables GGDPHome and GGDPHome is exactly as expected. But for the IntHome, Inthost and Size variables has different result with the expectation and with previous studies by Pontines & Siregar (2012), Allen et al. (2011), Silalahi et al. (2012). The IntHome variables of foreign and joint venture is positive, meaning that increasing interest rate of banks at home country did not have any effect to bank behavior in decreasing credit distribution in host country. The same condition also happened at Inthost variable that has significant negative effect, where the decrease of rate interest in home country did not have any effect on bank behavior in decreasing the amount of credit. This condition happened because of bank behavior to practice high interest rate to get significant profit margin. So even though Bank Indonesia has decrease BI rate, this decrease was not followed by the decrease in credit rate interest. And that is why, banks in Indonesia has the highest Net Inters Margin in ASEAN. Bank will increase its credit distribution to get above average profit even though BI rate is decreasing.

For the characteristic of the company, the profitability and solvence is exactly as expected. But the Size variable has significant negative effect towards foreign and joint venture banks. This result is different with studies from Pontines & Siregar (2012) and Silalahi et al. (2012), but support studies by De Haas & Lelyveld (2010) and De Haas & Lelyveld (2014). This is indicate foreign and joint venture banks have expensive capital and thus the return of capital proportion from credit sector is minimized.

## CONCLUSION AND SUGGESTION

### Conclusion

This study aims to empirically examine the impact of the global economic contraction towards credit behavior of banks in Indonesia. Based on the analysis of the impact of economic contraction

to the credit behavior of banks in Indonesia in 2004-2012, can be concluded as follows: there is a different behavioral reaction between foreign and domestic banks in the global financial crisis of 2008. The financial crisis only has significant effect on foreign and joint venture banks. Foreign and joint venture banks credit behavior when crisis occur is by reducing the distributed credit.

### Suggestion

For the Government, to maintain the stability of credit growth, the government through state-owned banks need to push credit growth during the crisis. As for Bank Indonesia needs to prepare a plan for domestic banks to become "crisis-mitigating impact" for the Indonesian economy as a result of the decline in credit growth of foreign banks.

For the next studies, further views on other credit behavior such as credit consumption behavior, investment, and working capital, is needed.

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