

# Financial Intermediation. Analysis of Implementation and Development on Government Domestic and Foreign Banks in Indonesia

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*In the economy, a bank serves as an intermediary institution of which its functions are to collect liquidities from depositors and then distribute them to the third parties, which are the public, such as debtors. Banks do not only assist depositors and debtors as 'brokers', they also serve as a monetary institution with the aim to develop and to maintain a sound climate of economic condition. In addition, both internal and external factors such as financial performance throughout the economic cycle are crucial to support their functions. The former is usually influenced by financial ratios, while the latter is dominated by macroeconomics determinants. The purpose of this research is to analyse the factors that influence banks' function as an intermediary, and to compare the implementation of the function as intermediary between domestic and foreign banks along with major factors affecting the development of the intermediary function. Loan to Deposit ratio as the control variable is applied as a surrogate of the intermediary function because it consists of the proportionality between loans and third party funds. The independent variables are divided into two main categories, which are 1) The macroeconomic elements which are Gross Domestic Product (GDP), BI Prime Rate, and Inflation, and 2) the financial ratios, which are; Return on Assets (ROA), Net Interest Margin (NIM), and Capital Adequacy Ratio (CAR). This research applied multiple linear regressions in processing the data. These data are being limited from the period of 2008 until 2013. The results obtained after data processing suggest that all of the independent variables are correlated towards the control variable, with ROA as the only significant variable. To summarise, this research indicated that the implementation of intermediary function in Indonesia is still relatively low and mainly enforced by the issuance of PBI no 12/19/PBI/2010 concerning cash reserve according to LDR level.*

**JEL Codes:** G21, G32

## 1. Introduction

The intermediary function arises as the consequences of high monitoring cost, liquidity cost and price risk by the asymmetric information flows between debtors and depositors (Diamond & Rajan, 2000), thus needed an institution which has the ability to accommodate both parties (Saunders & Millon, 2008). Banking industry is one of the monetary institutions that has the ability to interact with public and to become the implementer of monetary policies. Therefore banks will serve as liquidity broker in the economy, while the mediator role for both participators can only be portrayed by banks if and only if banks have gained trust from the public.

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Liquidity broker is an agent in the economy which is available to support and accommodate funds circulations. Since economy is a cycle that keeps rotating globally, financial institutions such as banking industry has to perform optimally for the sake of a nation economic condition. Economic condition of a nation can be determined by several major factors, such as total output per capita, volatility to interest, and inflation level (Brock & Suarez, 2000).

By being the intermediary of liquidities, banks will have to finance themselves with adequate capitals by not only accumulating wealth from depositors (Diamond & Rajan, 2000), but also by proportioning those with sufficient loan distributions. A bank's capital structure consists of higher debt percentage in form of third party funds compared to its equity which causes its financial leverage to increase as well (Athanasglou, et al., 2005). On the contrary, high leverage is assumed as high risk, thus public will prefer a bank with adequate capital based on its risk-weighted assets. Preceding research found that in Indonesia, bigger banks are preferred since there are a lot of customer migrations to banks with higher core capital (Buchory, 2013).

Acquiring liquidity and distributing wealth from and to the public are banks' main activities, which are also their functions as the intermediary in the economy (Siringoringo, 2012). It is supposedly that by doing its core business as liquidity broker, it also functions as an intermediary. By that, it can be assumed if bank's business is running well, its profit yielded from the spread between interest imposed to debtors and the one must be paid to depositors will also be optimal, furthermore its intermediary function will be as well implemented.

Since preceding researches found that intermediary function by banks in Indonesia are not as well as their financial performance developments (Siringoringo, 2012), and the implementation of intermediary function by banks in Indonesia are still relatively low (Irwan, 2010). On the contrary, rapid loan channellings have been implemented since 2008, thus supposedly intermediation has been functioning as well. As a guidance, foreign banks are less affected by the host country's monetary policy compared to domestic banks (Wu, et al., 2011).

However, there is no specific research on government domestic banks and foreign banks in Indonesia, which is purposed to identify the correlation of banks' intermediary function in Indonesia towards their financial performance addressing the nation economic condition and major factors that stimulate those development in the period of research of 2008 - 2013. With the aim to present the process of this research properly, the paper is divided into five sections, which are introduction on which express the main issues and from which the problems arise; literature review on which theories and previous researches are being explained thoroughly; methodology on which the process of this research is being explained; results and analysis on which findings are being analysed and linked towards previous indications; and conclusions on which summarisation are presented based on both findings and theories applied on this research.

## 2. Literature Review

### 2.1 Intermediary in the Economy

The implementation of banks' function as the intermediary are affected by the economic condition. Having mentioned those before, total output per capita, volatility to interest rate, and inflation are major elements of economic determinants (Brock & Suarez, 2000). Total output per capital which is more commonly known as GDP describes economic utilization. A

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fully utilized economy can lead to inflation which causes interest rate to be risen by the central bank as an implementation of tight money policy (Colander, 2010). The linkage between intermediation and economy are that a fully utilized nation will generate high level of income, and the income will later be spent causing the amount of liquidities circulating to increase. Since there are excessive amount of funds in the economy, their values will decrease, causing the nation to suffer inflation (Lanskroner & Ruthenberg, 1985).

The implementation of intermediary function will respond positively to high level of income since fund circulations are rapid, but this condition will not remain constant for a long time because during inflation, the central bank will increase the prime rate to stimulate savings and reduce spendings. Depositors will find this situation as the right moment to deposit funds in the banks because their return should be higher than usual, but siding on the debtors' side the cost of capitals are more expensive since the same amount of funds will be imposed by higher interest as the compensation to depositors. Enormous deposit accounts that are not being equalised by the same proportion of loan distributions will aggravate banks' intermediary function.

### **2.2 Bank as an Intermediary**

The implementation of intermediary function by banking sector is commonly delegated by the proportion of total loans channelled compared to the total amount of third party funds deposited in a bank (Cochran, et al., 1999). This proportionality is formulated into a ratio named Loan to Deposit Ratio. Several preceding papers also delegated a bank's intermediary function using this ratio.

### **2.3 Bank's Financial Performance and Intermediation**

A bank's financial performance is usually assessed using CAMELS method, thus this paper will specifically use several determinations from the method to determine a bank's financial performance. Since the intermediary function is closely related to a bank's business as liquidity broker, it is assumed that by running its business to collect liquidities and to distribute capitals back and forth in the economy, which yields to interest spread or margin (Espinosa, et al., 2011), the intermediary function is conjointly positive to a bank's revenue and profitability level.

These assumptions have been applied by several authors on previous researches with similar objectives which found that interest margin (NIM) and ROA are in tune with LDR (Siringoringo, 2012). Nevertheless, results from a research in Indonesia on 2010 indicated that Indonesian banks' LDR levels did not adjust themselves based on the financial performance (Irwan, Des 2010).

Not only that, adequate level of capitals (CAR) will support the implementation of a bank's function as an intermediary because stable and sufficient buffer of capitals will increase public trust to a bank (Diamond & Rajan, 2000), but preliminary analysis on this research suggested that government domestic banks of which have more sufficient capitals were not able to maintain satisfying levels of LDR compared to foreign banks with lower capital adequacy ratio (CAR).

### 3. The Methodology and Model

Applying those theories and combining them with previous findings, we formulate a model that is supposedly able to proxy the correlation between banks' intermediary function towards economic condition and banks' financial performance. The model is as follows:

$$LDR = \alpha_0 + \alpha_1GDP + \alpha_2Inf + \alpha_3Int + \alpha_4ROA + \alpha_5NIM + \alpha_6CAR + \mu$$

Whereas:

LDR: Loan to Deposit Ratio (%)

GDP: Gross Domestic Product growth (%)

Inf: Inflation Rate (%)

Int: BI Prime Rate (%)

ROA: Return on Assets (%)

NIM: Net Interest Margin (%)

$\alpha_0, \alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6$ : regression coefficient

$\mu$ : error term

Temporary hypotheses are created as preliminary guidance for use, the hypothesis are as follows:

**Table 1: Hypotheses Formulation**

Correlation	LDR	
	Government Domestic Banks	Foreign Banks
GDP	+	-
Inflation	-	+
Interest	-	+
ROA	+	+
NIM	+	+
CAR	+	+

This methods applied on this paper is compiled by obtaining secondary data from The Bank of Indonesia and Financial Authority Service as inputs, and later those data are being processed and analysed by SPSS Statistical 22 using multiple linear regression. The outputs of this paper are the correlations between LDR as control variable with other variables as the explanatory variables. Descriptive analysis is also practiced to describe the intermediary function development by banking sector in Indonesia.

4. Results and Analysis

Table 2: Regression Results

Variables	LDR = $\alpha_0 + \alpha_1GDP + \alpha_2Inf + \alpha_3Int + \alpha_4ROA + \alpha_5NIM + \alpha_6CAR + \mu$					
	Sample 1			Sample 2		
	Regression Coefficient	Std. Error	Goodness of Fit	Regression Coefficient	Std. Error	Goodness of Fit
GDP	0.334	0.215	43.40%	-0.217	0.941	17.30%
Inflation	-0.25	0.035		0.163	0.142	
Interest	-1.39	0.911		0.094	4.692	
ROA	6.274 ***	1.764		-3.653	4.316	
NIM	-6.065	3.849		-10.065	5.956	
CAR	0.061	0.495		1.066	0.896	

Note \* Significant at  $\alpha = 0.1$   
 \*\* Significant at  $\alpha = 0.05$   
 \*\*\* Significant at  $\alpha = 0.01$

The table above shows the summary of the regression model. The values of adjusted R squared indicate how representative the explanatory variables are in explaining the control variable. The independent variables are 43.4% explanatory on the government domestic banks samples and 17.3% explanatory on the foreign banks samples. According to the F tests, the independent variables simultaneously give significant effects towards the control variable on the government domestic banks samples, while the result came up differently on the foreign banks samples whereas the independent variables do not simultaneously give significant effects towards the control variable.

As for a brief outlook of recent development on the implementation of intermediary function by banking sector in Indonesia, the outgrowth for each bank is as plotted on the figures below.

Chart 1: LDR of Domestic Government Banks Sample

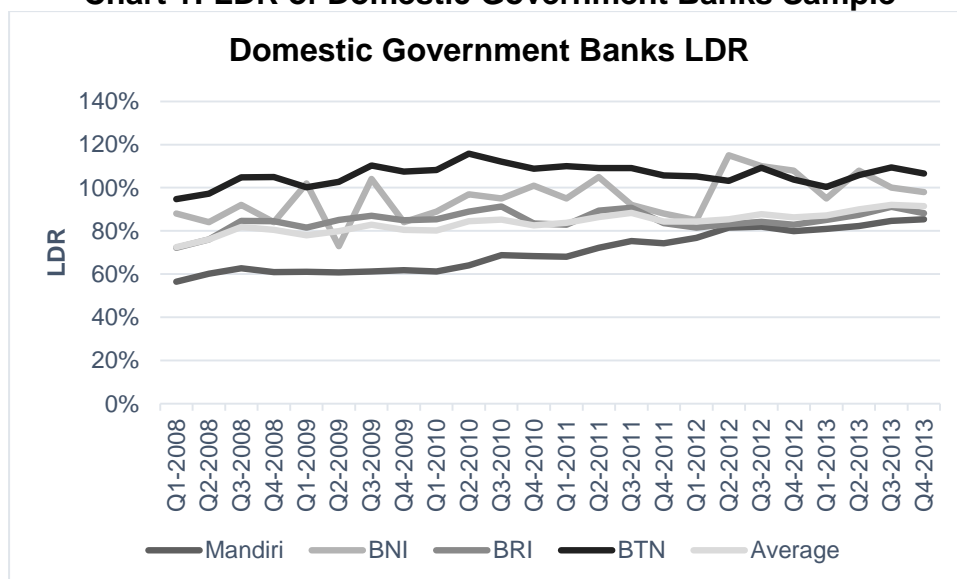
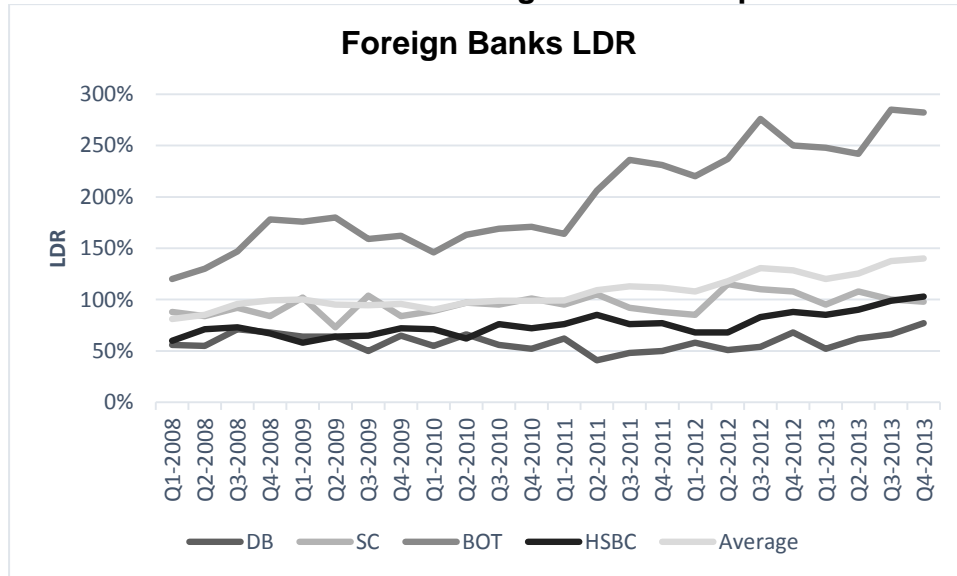


Chart 2: LDR of Foreign Banks Sample



The summarisation of the intermediary function implementation by banks operating in Indonesia are as follows. The implementations have been improving annually during the period of research, all banks have the indications of upward progress. To be noted, BTN's LDR level is significantly higher compared to other government domestic banks samples. The main cause is that during the period of research, BTN had been channelling its credits to mortgage loans, which included as investment loans. Since loan distributions in Indonesia are mainly allocated to consumption loans, causing the intermediary function to be not implemented well (Irwan, 2010). But since mortgage loan is a type of loan classified as investment loan, BTN's LDR is higher compared to others. This findings indicates that to implement the intermediary function well, banks should allocate credits into investment loans and / or working capital loans.

The other thing that should be concerned is that BOT's LDR is above another samples in the same classification. This result indicates that lesser-capitals banks perform better than the ones with more capitals. In addition to this argument, BTN which had been previously explained is also considered to be "smaller" compared to other samples had managed to implement its intermediary function better than "big" banks.

## 5. Conclusions

Based on the regression model, the intermediary function implementation is affected by all independent variables included in the model. In order to classify the summaries, first we will specifically explain the indications based on the regression model. During a state of economy with high level of income or output, public will deposit their liquidities on the government domestic banks, since the trust from public to domestic banks are gained in order to redistribute capitals efficiently throughout the nation. If an economy is fully utilized, at some point when the amount of liquidities circulating in the economy are excessive, their values will decrease as well causing the economic condition to enter inflation period. Bank of Indonesia as the central bank and of which also ministers as the monetary regulator will implement tight money policy by increasing interest rate in order to decrease the amount of liquidities in the economy and to stimulate public to deposit capitals on banks. During inflation, government domestic banks will likely to suffer financial distress because the amount of deposits are excessive but are not funded for equal proportions of loan distributions (Wu, et al., 2011). This

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findings are according to the indications based on the regression model that shows inflation and interest rate are negatively correlated to the intermediary function on domestic banks since these banks are more likely to be affected by tight money policy causing their performance to decay during inflation (Lanskrone & Ruthenberg, 1985).

But on the other hand, foreign banks are assumed to be more stable financially during inflation since the performance of a foreign bank in its host country will be affected significantly by its performance in the origin country (Chen & Liao, 2011). While assuming the home country is not in inflation period, public will prefer foreign banks since foreign banks perform better during tight money policy (Bhaumik, et al., 2011). This findings are indicated by the contradictive results of GDP, inflation, and interest rate to the foreign banks samples compared to domestic banks samples.

But as the result of risk taking actions by foreign banks during inflation by channelling credits which mean that the risk of same amount of capitals are accompanied by higher level of risk, foreign banks' profitability ratio such as ROA is low and negatively correlated to the intermediary function. The results from the regression model indicate a specific finding on the government domestic banks samples, ROA is the only significant variable towards the implementation of intermediary function and its correlation is positive. This result indicates that by implementing the intermediary function and responding to the monetary policy regulated by the central banks, their performance will improve.

Interest margin as the primary yield of banking business responds negatively to the intermediary function, which support the argument of intermediation by banking sector is not always delegated by credit creation (Cochran, et al., Fall 1999). Financial performance in term of capital adequacy as the main measurement of a bank's capital sufficiency based on the risk-bearing assets respond positively to the intermediary function for both samples, these indications suggest that by creating liquidity and stable condition a bank's function as an intermediary is implemented harmonically (Siringoringo, 2012).

At the starting period of this research, banking sector in Indonesia was still recovering from the global crises, since banking sector is one the sectors that affected directly by the crisis, it is supposedly that their function as intermediary were worsen. The main stimulation causing the improvement of the intermediary function by banking sector in Indonesia was the issuance of *Peraturan Bank Indonesia no 12/19/PBI/2010*, concerning the amount of cash reserve based on the LDR level. Since then, the implementation of banks' function as intermediary have been boosted, or else the bank must deposit additional cash into the central bank. Since 2010, all banks operating in Indonesia must maintain their LDR target level between 78% - 100%.

To sum up, the intermediary function implementation by banks operating in Indonesia are correlated with GDP, inflation, interest rate, ROA, NIM, and CAR. However, ROA is the only one significant independent variable responding to the intermediary function by government domestic banks. The regression model indicates that intermediary function on government domestic banks are positively correlated towards GDP, ROA, and CAR while negatively correlated towards interest rate, inflation and NIM. The indication based on the regression model on the foreign banks indicates that their intermediary function are correlated positively towards interest rate, inflation and CAR while negative correlations found on GDP, ROA, and NIM. Moreover, the improvement of the intermediary function by banks in Indonesia are mainly caused by the issuance of LDR target that must be maintained by all banks operating

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in Indonesia, or otherwise there will be additional compulsory cash reserve to be deposited in the central bank.

However, due to data unavailability and the lack of capability to fetch the deposit insurance values for the proper period, we did not manage to put those data to the regression model. This condition inevitably limits the research along with the findings, nevertheless deposit insurance is indicated to weaken the intermediary function by banking sector (Diamond & Rajan, April 2005), not only that deposit insurance is the closest proxy of market discipline which is simultaneously implemented along with intermediation (Cochran, et al., Fall 1999). In light of this limitation, suggestion to include deposit insurance as a part of the model to identify its entanglement to financial intermediation by banks is considered to be the most important as far as this research was conducted.

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