

# Analysis the Influence of Effectiveness Intermediation Function Banks on Efficiency Bank (Case Study: Conventional Banks and Islamic Banks in Indonesia)

Lia Amaliawiati<sup>1</sup>, Lasmanah<sup>2</sup>

<sup>1,2</sup> Faculty of business management, Widyatama University

**Abstract:** Commercial banks can be said to be effective in intermediary function as an institutions intermediaries when followed by a high level of efficiency in their business activities. This study aims to determine: 1. Is of banks ( measured by LDR or FDR ) influence on the efficiency of Conventional Banks and Islamic Banks ( measured by OEOI ), 2. Is there a difference level of effective intermediation function between Conventional Banks and Islamic Banks ? The analysis technique used by multiple regression is to obtain an overall picture of the relationship and influence between the dependent and independent variables , and used different tests to see the difference in the level of efficiency. The object of this research is a conventional banks and Islamic banks operating in Indonesia starting in April of 2010 ( the start time separated financial statements of a conventional bank and Islamic banks ) until September 2013 by using the times series of data monthly. The samples were used together with the population. The analytical method used is multiple regression analysis using secondary data and to determine the accuracy of the model testing of some of the underlying assumptions of classical regression models include test, multicollinearity, and autocorrelations heteroscedatis, and use average different test analysis. LDR and FDR has a negative effect on ROA and showed statistically significant, it means when the effective intermediation functioning of conventional banks and Islamic banks increases, there will be increase in efficiency (because the value OEOI down). Based on the average difference test showed that there were significant differences between the effectiveness of intermediation between Conventional Banks with Islamic Banks.

**Keywords:** OEOI, LDR, FDR, CAR, NPL, NPF, NIM and NOM.

## 1. Introduction

Financial institutions in Indonesia have an important for economic development as a Financial Intermediary between communities who have excess fund and communities that lack of fund, so that bank intermediation function can run as expected, then the use of the funds must be optimal and efficient which will result in the increase productive activity of the funds lent.

Conventional Banks and Islamic Banks are financial institution operating in Indonesia where the number is increasing with the various products and services are offered, the bank business activities in collect of funds from the public is a source of bank funds in which the allocation of these funds should be careful in order to profits can be optimal, due to financial and non-financial conditions of banks is an important part of all parties involved (owners, service user community as a bank or Bank Indonesia as the monetary authority), which in turn banking activities can contribute a great in expediting the real sector.

Principled banking activities on the basis of trust from the public, when people feel safe and get good service then they are willing to save and borrow money from the bank, therefore, good performance of the bank became a major factor for the bank to get the trust of the public.

One important aspect in the measurement of bank performance is efficiency, which can be improved through the reduction of operating expenses in the production process or by an increase in revenue. Because business activities of

the bank by collect funds and allocations funding / financing or the function as an intermediary institution, then the efficiency factors will greatly affect the profitability bank so that it can be said that the level of efficiency achieved is a measure of the quality of a good performance.

Loan to Deposit Ratio (LDR) or Financial to Deposit Ratio (FDR) is a ratio to measure the success / effectiveness of the bank in carrying out its function as an intermediary, based on Bank Indonesia Circular Letter No. 15/41/Dkmp Date October 1<sup>st</sup>, 2013 that the bank's lower limit of the LDR the target is set at 78% (seventy-eight percent) and the upper limit of the LDR target set at 92%, the higher the LDR value indicates that the bank has been successful (effective) perform as intermediary institution.

Based on the development of Islamic banking in 2012 report that is published by the Bank of Indonesia that has been an increase intermediation function and improved efficiency, during the year 2012, the total assets of conventional banks grew by 16.7% to Rp4.262, 6 trillion, one of which is driven by the expansion credit of bank conventional which reached Rp507, 8 trillion or 23.1% in general and banking intermediation functions showed continued improvement with LDR value improved to 83.6%, from the prior year by 78.8%., this happens as more the contribution of credit to the productive sectors of investment and working capital loans (70.5%, from 69.7% the previous year)

Islamic banking business volume increased by 34.0% from Rp149, 0 billion in 2011 to Rp199, 7 billion in 2012 and a growth rate of Islamic banking assets is higher than the national growth of banking assets, so that the share of

Islamic banking the banking industry increased from 4.0% to 4.6%. In addition, the fixed asset growth followed by the implementation of a third-party intermediary funds collected to reach Rp150, 5 billion, to various segments optimally financing, this is reflected by the amount of funding that is reached Rp151, 1 trillion, which up financing to deposit ratio (FDR) Islamic banking from 86.7% in 2011 to 95.4% at the end of the reporting period of 2012.

Banking efficiency in period 2012 also improved, signed by a decrease in the ratio of operating expenses to operating income (OEOI) on Conventional Banks from 85.4% to 74.1%, a decrease that ratio will be followed of the increase in revenue as the continued expansion of credit, and operational efficiency improvements, such as reduced overhead costs. While efficiency in Islamic Bank in 2012 showed that operating expenses have increased, but the growth rate is slightly lower than operating income, which amounted to 33.3%. The decrease in the growth rate of operating expenses is influenced by the growth in overhead costs such as labor costs; rent and promotions only reach 28.9%. The ratio of overhead costs to operating income referred to Islamic Banks also decreased from 37.6% in 2011, to 36.2% in 2012, reflecting an increase in the operating efficiency of Islamic banks in the reporting period. Increased efficiency is also reflected in the ratio of 82.6% OEOI, lower than at 85.6% in 2011

Based on the report Indonesian Bank, FDR values in Islamic Banks is greater than LDR in Conventional Bank shows that intermediation functions in Islamic Banks are more effective but efficient performance as indicated by OEOI in Conventional Banks greater than Islamic Bank.

### 1.1 Problem Identification

Based on the background research, the issue to be examined in this study are:

1. Is the effectiveness of bank intermediation function affect to the efficiency of banks (the Conventional Bank and Islamic Bank),
2. Is there a difference in effectiveness on intermediation function between Conventional Banks and Islamic Banks

### 1.2 The Aim of Research

1. To determine the effect of the effectiveness of bank intermediation function to the efficiency of banks (the Commercial Bank of Conventional and Islamic Commercial Bank),
2. To determine whether there are differences in effectiveness on intermediation function between Conventional Banks and Islamic Banks

### 1.3 The Utility of Research

1. Theoretical: development of effective implementation bank intermediation function of the efficiency bank performance
2. Practical: For the banking sector can be used as a basis for financial decision making to improve the prudential banking principle

3. Academic: This research is hoped to give literature contribution in the field of the bank can encourage the developing the science of bank financial

## 2. Literature Survey

### 2.1 Definition of Bank

Banks are financial institutions that contribute greatly to the financial sector in a country, definition of the Bank according to Act No.10 of 1998 are:

"Business entities that collect funds from the public in the form of savings and allocations them to the public in the form of credit and or other forms in order to improve the living standard of the people".

Based on that definition, bank has the main function as a collector and distributor of public funds or can be said as intermediary institution for people with surplus funds to the people who deficits funds. It means that the banks were given the freedom to determine the principles of business activities to be done. According to Kashmir (2000), bank views of how to determine the price were divided into 2 groups, namely:

1. Bank is conducting its business activities based on the principles of conventional (conventional banks), which get profit and pricing to clients using the interest as the selling price.
2. Bank is conducting its business activities based on the principles of shariah (Islamic banks) that apply the rule of Islamic law based on the agreement in the form of profit sharing.

Banks collect funds from the public, like demand deposits, savings deposits, time deposits, certificates of deposit and so on then the funds will be distributed in the form of productive assets, where most of the sources of funds used to credit (for a conventional bank) or financing (for Islamic banks), credit or financing portfolio by an average of 55% to 60% of total assets.

The success of the bank in managing its business will improve of public trust, so that business activities of fund collection and distribution of funds must be considered together, a successful bank is not only able to absorb funds from the community but also capable of distribution funds effectively to people and is expected to increase bank profits.

### The definitions of Bank Efficiency Concept

Efficiency in banking is measuring to the performance of the bank, where the efficiency indicator can be seen with regard to the ratio of operating expenses to operating income (OEOI). Banking performance can be said to be efficient if the OEOI ratio decreased. Besides that, the efficiency can also be seen by observing the growth rate of bank performance indicators such as the number of deposits, financing, and total assets. The greater the number of deposits, financing, and total assets showed the better and productive bank in its operations.

According to Kwan (2002) and Berger and Humphrey (1997) intermediation approach is widely used in research of bank

efficiency. They suggest that the intermediation approach is most appropriate to evaluate the efficiency of the entire bank as interest expense includes the amount of half or two-thirds of the total cost.

#### **Operating Expenses to Operating Income (OEOI)**

OEOI Ratio (Operating Expenses to Operating Income). This ratio is often called the efficiency ratio is used to measure the ability of bank management to control operating expenses to operating income. The smaller this ratio means more efficient operating costs, bank is concerned that the possibility of non performing is getting smaller, which means the better the performance of the bank.

#### **Financing to Deposit Ratio (FDR) or Loan to Deposit Ratio (LDR)**

Financing to Deposit Ratio (FDR) or Loan to Deposit Ratio (LDR) is a ratio that measures a bank's ability to pay the financial obligations, LDR / FDR can be known how bank management to do the right fund, LDR is calculated from the ratio of financing / credits granted by banks to third party funds that have been collected by the bank, so that this ratio can indicate the effectiveness of the bank in carrying out its function as an intermediary institution that collector of funds from public agencies (third party funds) then allocated back to the community in the form of credit / financing. The ratio of FDR / LDR can also be used to measure the level of bank liquidity which shows the ability of banks to fulfill the credit demand by using the total assets of the bank.

#### **Non-Performing Financing (NPF) or non-performing loans (NPLs)**

Non-Performing Financing (NPF) for Islamic banks and non-performing loans (NPLs) in the conventional banks are financial ratios relating to credit risk. Non Performing Financing / Loan determined the ability of bank management to manage non performing financing provided by the bank. So the higher this ratio the more worse credit quality banks that caused the greater number of non performing loans then the chances of a bank in the greater problematic conditions. Credit in this case is a credit given to third parties excluding loans to other banks. Nonperforming loans are loans classified as substandard, doubtful and loss

#### **Capital Adequacy Ratio (CAR)**

Capital adequacy ratio is an important factor for banks in order to accommodate the business development and risk of loss, in other words the ratio that shows how much of the sum of all the bank's assets that contain an element of risk (credit, investments, securities, bills other banks) who co-financed from its own capital in addition to obtaining funds from outside sources or auxiliary bank assets that contain or produce risk. CAR aims to maintain long-term business sustainability (solvency), the provision of adequate capital is essential to balance of dependence on third-party funds, in other words Adequacy Capital Ratio is the ratio of a bank's performance to measure the adequacy of a bank's capital to support assets that contain risk.

#### **Net Operational Margin (NOM)**

NOM is used to determine productive assets to earn profit, that ratio can be regarded as a measure to determine the profit rate of Islamic banks, in other words, is a profitability ratio that is as a tool to analyze or measure the level of

efficiency of the business and the bank's ability to generate earnings (Regulation No. 01/09/2007 ). Profitability ratio used in this research is NOM (Net Operating Margin) Bank healthy is measured bank earnings continue to rise.

#### **The relationship between LDR / FDR and OEOI (rate of bank efficiency)**

Bank Indonesia evaluates to the bank's ability in collect and distributes funds with loan to deposit ratio (LDR) for a conventional bank or financing to-deposit ratio (FDR) for Islamic banks. LDR / FDR is a measure of how much the bank's ability to repay the withdrawal of funds by depositors and rely on loans as a source of liquidity, the higher this ratio will be the lower ability of bank liquidity. LDR / FDR can also be used to evaluate management strategy of a bank, the bank's conservative management usually tends to have a relatively low LDR, whereas if a large value of LDR can be said that the concerned bank management is very expansive or aggressive.

Loan to Deposit Ratio (LDR) or Finance to Deposit Ratio (FDR) shows the rate of expansion of bank financing, the greater of LDR / FDR implies that the larger banks use the funds and more effective in carrying out its intermediary function. The greater of LDR / FDR that the opportunity for banks to obtain greater revenue from its financing, but on the other hand the large amount of funds of financing / loans relative to deposits get the consequences of the growing banks carry the risk borne by the bank concerned (Sri Susilo, 2003).

The amount of funds allocation in the form of bank financing / bank loans is the main activity of the bank, therefore the main source of income comes from the bank's business activities, or it can be said management of the fund's assets is a source of bank revenue will be used to finance the bank's overall operational costs including interest expense / profit sharing, labor costs and other operating costs, if the bank's overall operational costs relatively less than the bank's total operating income can be said that the bank has done its business activities efficiently (by measuring the ratio of OEOI).

#### **The relationship between NPL / NPF with OEOI (rate of bank efficiency)**

The Risk of financing/credit activities will be borne by the bank if uncollectible debts from customers who are classified in substandard loans, doubtful, and loss, all three categories called credit / financing problems / non-performing loans / finance (NPL / NPF), the amount of non-performing loans / finance would reduce the revenue to be received and the bank will affect the level of bank efficiency (BOPO). Ratio NPL / NPF is the ratio between the number of non-performing loans / finance with a number of credit / financing granted.

The High NPL / NPF showed that bank health is being affected, so that the ratio of NPL / NPF smaller then the bank should expand credit / financing are assessed productive thereby decreasing the ratio of NPL / NPF by assuming the number of NPL / NPF is fixed or the increase was less than increase in credit expansion / financing, increasing the number of credit / financing productive this in turn will increase operating income so that OEOI ratio will be smaller,

in other words NPL / NPF will affect the bank's level of business efficiency.

#### The relationship between NIM / NOM with ROA (rate of bank efficiency)

The business activities of the bank is in principle act as an intermediary of collecting and distributing funds, the operating expense and operating income of conventional banks largely comes from interest expense and interest income, and can sometimes lead to negative spread (occurs if the interest to be paid as a result greater than customer deposits of interest to be received). While the Islamic banks that do business based on the principle of profit sharing) in which profits were distributed to banks and to customers with the correct proportion of the contract which has been agreed by both parties.

Interest rate for conventional banks are part of the greatest revenue in connection with the provision of credit, and is part of the bank's operating income, on the other hand may also be of interest bank operating costs due to the activities of collecting fund of third parties, so that interest on the loan and deposit rates will affect OEOI.

#### The relationship between CAR and OEOI (rate of bank efficiency)

Capital adequacy is an important factor for a bank in order to accommodate the business development and the risk of losses or failures in achieving the profit, the higher CAR of the bank's ability to bear the risk of loss of business and the higher banks to fulfill their liquidity needs so that the higher customer confidence to the bank, the higher of the CAR indicates that the optimal lending so that will increase revenue and will ultimately affect the OEOI

### 3. Previous Work

#### Previous research on the function and efficiency of bank intermediation is as follows:

1. Anupam Mehta (2012), ratio used to measure the liquidity position of banks is LDR (Loan to deposits ratio). It reflects the utilisation policy of the bank. A very high LDR indicates that the banks have been deploying more funds in Loans. It results in lesser liquidity but more profitability whereas low ratio indicates more liquidity but low profitability.
2. Buyung Sarita, Gholamreza Zandi & Alireza Shahabi (2012). The findings of their research show that bank performance persists to a moderate extent, indicating that departures from perfect competitive market structure may not be that large in the Indonesian banking sector. Additionally, the findings also show a negative relationship between loans to business groups and bank performance
3. Thorsten Beck, Demirgüç-Kunt and Ouarda Merrouche (2010), the authors find few significant differences in business orientation, efficiency, asset quality, or stability. While Islamic banks seem more cost-effective than conventional banks in a broad cross-country sample, this finding reverses in a sample of countries with both Islamic and conventional banks. However, conventional banks that operate in countries with a higher market share of Islamic banks are more cost-effective but less stable. There is also consistent evidence of higher capitalization

of Islamic banks and this capital cushion plus a higher liquidity reserve explains the relatively better performance of Islamic banks during the recent crisis.

4. Allen N. Berger & Robert DeYoung (1997), the results of their analysis suggest that the intertemporal relationships between loan quality and cost efficiency run in both directions. The data provide support for the bad luck hypothesis – increases in nonperforming loans tend to be followed by decreases in measured cost efficiency.
5. Muh. Sabir. M, Muhammad Ali, Abd. Hamid Habbe (2012) which concluded LDR and a significant negative effect on the return on assets in conventional banks in Indonesia, FDR positive and significant impact on the return on assets on Islamic Banks in Indonesia. and Financial Performance differences between Islamic Banks with conventional banks in Indonesia.

Based on the theoretical framework that has been described, formed the model specification efficiency equation econometric model as follows:

The Equation od OEOI for Conventional Bank:

$$OEOI = a_0 + a_1LDR + a_2NIM + a_3NPL + a_4CAR$$

The Equation od OEOI for Islamic Bank:

$$OEOI = a_0 + a_1FDR + a_2NOM + a_3NPF + a_4CAR$$

#### The hypotheses of this research are:

- H1: LDR negative effect on OEOI  
 H2: There is a difference between the effectiveness of intermediation functions between Conventional Banks and Islamic Banks

### 4. Methods

This research use the method of hypothesis testing empirical study that is hypothesis test which is kept and explained both of consistent and un consistent with theory and research before by using theory alternative which is present. To comparative study using descriptive (descriptive comparative) research that compares same variables but for different samples to determine differences.

In accordance with the formulation of the problem and research objectives, then it can simply be compiled research design as below:

1. OEOI Model will be estimated using Ordinary Least Square (OLS)
2. To strengthen the analysis of assessment results, this research include validation testing assumptions owned by OLS, the testing related to the presence or absence of multicollinearity, heteroscedasticity, and autocorrelation (Gujarati, 2010; Wing Revelation, 2011).

- Multicolinier means inter dependent variables which belongs to perfect correlation or approach to perfect (high correlation coefficient or approach to 1)
- Heteroscedasticity means variables in the model is not the same to all observation, in other words, heteroscedasticity occurs in the form large residual if

observation is bigger. Detecting of heteroscedasticity use park test, white test, glejser test, spearman correlation test others.

- Autocorrelation, means there is correlation inter member of sample which gets down based on time. To detect autocorrelation in the time of regression model, which is done by Durbin-Watson test of counting  $d$  (describing coefficient DW). The value of  $d$  will be in about  $0 - 4$ , if  $d < d_l$  it means there is positive autocorrelation, if  $d_l < d < d_u$  and  $4 - d_u < d < 4 - d_l$  it means does not detect there is autocorrelation or not, if  $d_u < d < 4 - d_u$  means there is no autocorrelation; if  $d > 4 - d_u$  there is negative autocorrelation.
3. The next step perform data processing using statistical techniques such as two different test average (independent sample t-test). The difference between average of the two samples sought by calculating the ratio of  $t$ .  $t$  ratio is calculated to find the difference between the average of the sample group of the 2nd standard deviation divided by mean difference of sample groups 1st and 2nd. The purpose of a test of the hypothesis that two different test average in this study is to verify the correctness / error hypothesis, or otherwise determine to accept or reject the hypotheses that have been made. Significance that will be used is 95%.

#### Operationalization of variables

##### A. Operating Expenses to Operating Income (OEI)

OEI is the ratio of operating expenses to operating income. Operating costs are costs incurred by the bank in connection with its principal business activities (such as interest expense, labor costs, marketing costs and other operating costs). Operating income is the main income of the bank's interest income earned from the placement of funds in the form of credit and other operating income, with the formula:

$$OEI = \frac{\text{Operational Expenses}}{\text{Operational Income}}$$

##### B. Loan to Deposit Ratio (LDR)

LDR is calculated from the ratio of total loans to deposits. Total loans in question are loans granted to third parties (excluding loans to other banks). Third party funds in question, among other demand deposits, savings and time deposits (excluding inter-bank), with the formula:

$$LDR = \frac{\text{Loan}}{\text{Deposit}}$$

##### C. Financing to Deposit Ratio (FDR)

Financing to Deposit Ratio (FDR) is the ratio between the financing granted by banks to fund third party successfully deployed by banks. Ratio FDR analogous to the Loan to Deposit Ratio (LDR) on a conventional bank, calculated as follows:

$$FDR = \frac{\text{Total Financing}}{\text{Total Fund Third Party}}$$

##### D. Adequacy Capital Ratio (CAR)

CAR is measured from the ratio of capital to risk weighted assets (RWA), using the following formula:

$$CAR = \frac{\text{Individual Equity}}{\text{RWA}}$$

Individual equity is derived from the company (bank), which consists of paid up capital, undivided profits and reserves of the bank formed. While the calculation of the amount of Risk Weighted Assets (RWA) is done by calculating the weighted sum of the values of assets which are used as a factor weighing estimate the magnitude of risk inherent in each element of the bank's assets.

##### E. Non Performing Loan (NPL)

Non Performing Loan (NPL) is one of the measuring from business risk ratio indicates the extent of credit risk problems that exist in a bank, by using formula:

$$NPL = \frac{\text{Credit Problem}}{\text{Totally Credit}}$$

##### F. Non Performing Financing (NPF)

Non-Performing Financing (NPF) is analogous to non-performing loans (NPLs) in the conventional bank is a financial ratio that relation with credit risk. NPF can be formulated as follows:

$$NPF = \frac{\text{Non performing Financing}}{\text{Total Financing}}$$

##### G. Net Interest Margin (NIM)

Ratio Net Interest Margin can be calculated as follows:

$$NIM = \frac{\text{Net Interest Income}}{\text{Credit Outstanding}}$$

Net interest income derived from interest income minus interest expense. A productive asset is the placement of assets by the bank will result in benefits such as placing to other banks, securities, investments, and loans. Net Interest Margin (NIM)

##### H. Net Operational Margin (NOM)

Operational Net Margin Ratio is calculated as follows:

$$NOM = \frac{\text{Net Operating Income}}{\text{Average Assets}}$$

Net Operational Income derived from operational revenue reduced sharing funds minus operational expenses. A productive asset is the placement of assets by banks that will earn profits as borrowed fund to other banks, securities, investments, and financing granted.

#### Sample and data collection method

The population in this research is a commercial bank operating in Indonesia, sampling is a sampling technique of determining sampling is a sampling (census) where all members of population is used for sample which means used the same sample population. All Samples are taken from the

business activities of conventional banks and Islamic bank in Indonesia conducted by Bank Indonesia. The larger of the sample size approaches the population, the smaller the chances of generalization error the greater the generalization error (Sugiyono, 2001). The data required in this study is a secondary data are monthly time series data (from Jan 2010 to Sept 2013), the data obtained from Bank Indonesia (Indonesian Banking Statistics, Monthly Report).

**5. Results**

**Result of Data Processing**

The estimation results for the OEOI equation Conventional Banks as follows:

$$OEOI = 215.164 - 1.725 * LDR + 1.211 * CAR - 2.065 * NPL - 1.981 * NIM$$

*p-value* (0.0000) (0.0001) (0.2762) (0.5462) (0.0043)

$R^2 = 66.08$   $F_{STAT} = 19.41$   $DW_{STAT} = 1.90$

The estimation results for the OEOI equation Islamic Banks as follows:

$$OEOI = 97.664 - 0.206 * FDR + 0.025 * CAR + 1.565 * NPF - 3.045 * NOM$$

*p-value* (0.0000) (0.0004) (0.8633) (0.0003) (0.0328)

$R^2 = 52.14$   $F_{STAT} = 10.89$   $DW_{STAT} = 1.78$

**Test and Repair Deviation Linear Regression Assumptions**

**Autocorrelation**

Determination autocorrelation in the model is comparing value between  $DW_{TABEL}$  and  $DW_{STAT}$ . can be seen in the table below:

$H_0$ is rejected, there is a positive autocorrelation	Can't be decided	$H_0$ is accepted, there is no autocorrelation	Can't be decided	$H_0$ is rejected, there is a negative autocorrelation
dl	Du	2 4du	4-dl	4
0	1.287	1.776	2.223	2.713

$DW_{STAT}$  OEOI equation of 1.90 for conventional banks and Islamic banks to be in the region of 1.78  $H_0$  accepted means of data does not contain autocorrelation.

**Multicollinieritas**

In OEOI equation for conventional banks there are 2 of the four independent variables that nonj significant can be seen from the significant *p-value* greater than 5%, while the OEOI equation in Islamic bank only one is not significant, The way to know which variable causes collinier by calculating the correlation between independent variables, the results obtained by the large value of the correlation between the independent variables are as follows table 1 and table 2:

**Table 1:** Correlation Testing collinear equation OEOI in conventional banks

	CAR	LDR	NPL	NIM
CAR	1.000000	0.187240	-0.179536	0.398774
LDR	0.187240	1.000000	-0.876172	0.053440
NPL	-0.179536	-0.876172	1.000000	-0.045317
NIM	0.398774	0.053440	-0.045317	1.000000

**Table 2:** Correlation Testing collinear equation OEOI in Islamic banks

	CAR	FDR	NPF	NOM
CAR	1.000000	0.906830	0.846445	-0.158984
FDR	0.906830	1.000000	0.830150	-0.207401
NPF	0.846445	0.830150	1.000000	-0.382464
NOM	-0.158984	-0.207401	-0.382464	1.000000

Based on Table 1 that there is a correlation between the NPL and LDR with correlation coefficient of 0.876 for OEOI equation conventional banks, in Islamic banks, while for the strong correlation between CAR and FDR. To determined multikolinier between independent variables by using Variance Inflation Factor (VIF) or Tolerance (1/VIF), if the variables no contained multikolinier, the value of VIF have around one, but if an independent variable VIF value of ten or more is said to occur collinearity strong among the independent variables (Dedi Rosadi, 2012). Using Eviews tolerance values obtained from the ROA equation as shown in the following table:

Dependent Variable	Conventional Bank			Islamic Bank		
	$R^2$	TOL = $1 - R^2$	VIF = $1/TOL$	$R^2$	TOL = $1 - R^2$	VIF = $1/TOL$
OEOI	0.66	-	-	0.52	-	-
CAR	0.18	0.82	1.21	0.84	0.16	6.25
LDR/FDR	0.77	0.23	0.04	0.86	0.16	6.25
NPL/NPF	0.77	0.23	4.34	0.79	0.21	4.76
NIM/NOM	0.16	0.84	1.19	0.24	0.76	1.31

We can see from the calculation of the VIF in Table 3. There is no apparent regression model whose value is greater than 10 so it can be concluded that the strong collinearity does not happen between the independent variables is between CAR, LDR / FDR, NPL / NPF, and NIM / NOM.

**Heteroskedastis**

To detect heteroscedastis will use the White test with regress by the square of the regression equation residuals ( $e_2$ ) with the independent variables, the results of the regression OEOI in conventional bank equation and islamic bank equation are as follows:

The estimation results for the OEOI equation in Conventional Bank as follows:

$$OEOI = 215.164 - 1.725 * LDR + 1.211 * CAR - 2.065 * NPL - 1.981 * NIM$$

*p-value* (0.0002) (0.0024) (0.0886) (0.5932) (0.0331)

$R^2 = 66.08$   $F_{STAT} = 19.48$   $DW_{STAT} = 1.90$

The estimation results for the OEOI equation in Islamic Bank as follows:

$$OEOI = 97.664 - 0.206 * FDR + 0.026 * CAR + 1.565 * NPF - 3.045 * NOM$$

*p-value* (0.0000) (0.0033) (0.9052) (0.0013) (0.0107)

$R^2 = 52.14$   $F_{STAT} = 10.89$   $DW_{STAT} = 1.79$

The result of estimation Equation heteroscedastis repaired that will be used for model analysis, the analysis of the effectiveness of the model equations as follows:

1. In the case of the effectiveness intermediary function to efficiency of conventional bank as measured by using with

the ratio LDR to OEOI, LDR has a consistent direction with hypothesized, that when the value of LDR increases the OEOI ratio will decrease, by setting an error rate of 5 % showed statistically significant numbers ( $p$  value 0.0024) means LDR has a negative effect on OEOI, LDR coefficient shows a value of -1752 which means if the LDR increased 1 percent cause OEOI fell 1,752 percent, it also means that when the effectiveness intermediation function increases, conventional banks will increase efficiency (because the value of OEOI down)

2. In case of effectiveness intermediation function to efficiency of Islamic Banks as measuring by using with the ratio FDR to OEOI, FDR has a consistent direction with hypothesized, that when the value of the FDR increases the OEOI ratio will decrease, by setting the error rate of 5% showed statistically significant numbers ( $p$  value 0.0033) means a negative effect on OEOI, FDR coefficient shows a value of -0206 which means when FDR was increased 1 percent cause OEOI down 0206 percent, it also means that if the effectiveness intermediation function rise of Islamic banks, there will be an increase in efficiency (because the value of OEOI down).
3. CAR had no influence on both OEOI equation Islamic Banking and Conventional Banks at 95% confidence level, the coefficient of 1,211 CAR conventional banks which means if CAR rose 1%, then the value of OEOI will increase by 1,211%, which means a decrease in the level of efficiency and significant only in confidence level of 90%. While the CAR for Islamic banks do not significantly affect to the OEOI with the  $p$ -value of 0.90.
4. NPL in conventional banks equation do not significantly affect the value of OEOI, while NPF equation in Islamic banks shows significant effect on OEOI and has a positive direction ( $p$ -value 0.0013) with a coefficient of 1.565 NPF, which means when the NPF Islamic banks increased by 1% then OEOI will increase by 1.565% which means a lot of funding is problematic when it will decrease level of efficiency.
5. NIM in conventional banks equation would significantly affect the value of OEOI and has a negative direction ( $p$ -value 0.0331) with a coefficient of -1981 which means when NIM rose 1%, then the value of OEOI will decrease by 1.981% it means that when NIM rose the level of efficiency of conventional banks will rise (OEOI value down). While NOM for equality in Islamic banks would significantly affect the value of OEOI and has a coefficient value of -3045 which means when NOM rose 1%, then the value of OEOI will decrease by 3,045%, it means when NOM increases the efficiency level of Islamic banks will rise.

#### Two Different Average Tests (independent sample t-test)

To see there is a difference between the effective functioning of conventional banks and Islamic banks (with LDR measuring tool for conventional banks and FDR to Islamic banks), we used the  $t$  test statistic ( $t$ -test), with the following results:

	Sample mean	Sample standard deviation	Value	Probability
LDR Conventional Bank	80.36444	4.285201	10.84097	0.00000
FDR Islamic Bank	106.9876	16.47394	-41.67682	0.00000

Because the value of probability less than 5% so  $H_0$  is rejected, in other words, both the average LDR Conventional Banks and FDR Islamic Banking totally different, meaning the hypothesis that there is a significant difference between the effectiveness of intermediation function between Conventional Banks and Islamic Banks accepted. Islamic Bank has intermediation average more than Conventional Banks.

## 6. Discussion

1. Based on the analysis model of OEOI (efficiency) which states that the LDR significant negative effect on the level of support the efficiency of research results:

- Anupam Mehta (2012) said that A very high LDR indicates that the banks have been deploying more funds in Loans. It results in lesser liquidity but more profitability whereas low ratio indicates more liquidity but low profitability.
- Buyung Sarita, Gholamreza Zandi & Alireza Shahabi (2012). That findings also show a negative relationship between loans to business groups and bank performance
- Muh. Sabir. M, Muhammad Ali, Abd. Hamid Habbe (2012) which concluded LDR has a significant negative effect on the efficiency (measured by return on assets) on Conventional Banks in Indonesia, while the results of this study do not support FDR stating that FDR positive and significant impact on the (efficiency measured by return on assets) in Islamic Banks in Indonesia. and support the conclusions of the different test results mean that states there is a difference between the Financial Performance of Islamic Banks by Conventional Banks in Indonesia.

2. Based on the analysis model of OEOI (efficiency) in stating that Islamic banks NPF significant positive effect on OEOI or when NPF increases will decrease the efficiency of the banks supporting the research Allen N. Berger & Robert DeYoung (1997) which said that increases in non-performing loans growing niche to be Followed by a Measured decreases in cost efficiency.

3. Based on the results of the analysis have stated that Islamic Banking has intermediation fuction average more than conventional banks, supporting the research of Thorsten Beck, Demirgüç-Kunt and Ouarda Merrouche (2010), that conventional banks, operate in countries with a higher market share of Islamic banks are more cost-effective but less stable. There is also consistent evidence of higher capitalization of Islamic banks and this capital cushion plus higher liquidity reserves Explains the Relatively better.

## 7. Conclusion

Based on the research and discussion that has been done, the author has the following conclusion:

1. LDR has a negative effect on OEOI and showed statistically significant figures, the value of FDR has a negative effect on OEOI and showed a statistically significant number, meaning its effectiveness intermediation function affect the level of efficiency both occur in conventional banks and the Islamic banks.
2. Based on the calculation of the average difference test, there is a significant difference between the effectiveness of intermediation function between Conventional Banks and Islamic Banks, and Islamic Banking has intermediation average more than conventional banks.

## 8. Suggestion

Measuring the level of efficiency in this research is only seen from the ratio of OEOI, it is necessary to be measured by others method, so it will improve the weaknesses of this study.

## References

- [1] Allen N. Berger & Robert DeYoung, Problem Loans and Cost Efficiency in Commercial Banks Journal of Banking and Finance, Vol. 21, 1997
- [2] Anupam Mehta, International Journal of Economics and Finance Studies Vol 4, No 2, 2012 Issn: 1309-8055 (Online).
- [3] Bank Indonesia, SE BI No.10/14/DPbS March 17<sup>th</sup> 2008. www.bi.go.id
- [4] Bank Indonesia. , 2010, 2012, 2013: Moontly Indonesian Banking Statistics. www.bi.go.id
- [5] Berger, A.N. dan Humphrey, D.B. (1997). Efficiency of financial institutions: International survey and directions for future research. European Journal of Operational Research, 98, 175-212.
- [6] Buyung Sarita, GholamReza Zandi & Alireza Shahabi, Determinants Of Performance In Indonesian Banking: A Cross-Sectional And Dynamic Panel Data Analysis, International Journal Of Economics And Finance Studies Vol 4, No 2, 2012 Issn: 1309-8055 (Online)
- [7] Dedi Rosadi, 2012: Econometrics, Analysis Applied Time Series with EViews. Andi Yogyakarta Gujarati Damodar and Dawn C porter, 2009: Basic Econometrics. 5<sup>th</sup> edition , McGraw-Hill
- [8] Husnan, Suad. 1994. Financial Management Theory and Practice, Decision
- [9] Isik, I. and Hasan, M.K., (2002), "Technical, Scale, and Alloctive Efficiencies of Turkish Banking Industry", Journal of Banking and Finance, 26, 719-766.
- [10] Islamic Banking Statistics, December, 2010, 2011, 2012, 2013 Kasmir., 2000 , Bank and Other Institution . PT Raja Grafindo Persada, Jakarta
- [11] Law of Banking the Republic of Indonesia Number 23 of 2004 Muh. Sabir. M, Muhammad Ali, Abd. Hamid Habbe, Manajemen dan Keuangan, Fakultas Ekonomi dan Bisnis Unhas Makassar Jurnal Analisis, Juni 2012, Vol.1 No.1 : 79 – 86
- [12] Munawir, S. 2002. Financial Statement Analysis. Yogyakarta: Liberty. Rachma Putri Vicky and Niki Lukviarman, Measurement of Commercial Banks Performance with Efficiency Approach: Case Studu to Go-Public Banking in Indonesia, , JAAI Vol.12 No.1, June 2008 page 37-52
- [13] Riyanto, Bambang. 1993. Fundamentals of Corporate Spending. Yogyakarta: BPFE.
- [14] Sekaran, U. (2006). Research Methods For Business. Jakarta: Four Salemba.
- [15] Siamat, Dahlan. , 2005. Management of Financial Institutions. Jakarta: Faculty Economics, University of Indonesia.
- [16] Sudiyatno Bambang & Jati Suroso, The Analysis of Influence DPK, BOPO, CAR Dan LDR to Financial Performance in Go Public Banking Industrial Sector at BEI (Period 2005-2008), Financial
- [17] Dynamic and Banking, May 2010<sup>th</sup> , page: 125 -137 Vol. 2, No. 2 ISSN :1979-4878
- [18] Thorsten Beck, Asli Demirgüç-Kunt & Ouarda Merrouche , Islamic vs. Conventional Banking Business Model, Efficiency and Stability, Policy Research Working Paper 5446 The World Bank Development Research Group Finance and Private Sector Development Team October 2010
- [19] Triandaru Sigit. , The Influence of Ratio Financial Results For Bank of Islamic Banks and Conventional Banks in Indonesia 2006. Banks and Other Financial Institutions. Edition 2. Salemba Four. Jakarta.
- [20] Uhomoihi, Toni 2008 : Determinant of Bank Profitability Macroeconomic Evidence from Nigeria, Working Paper Series.
- [21] Uppal RK & Amit Juneja, Determining factor of profitability and Banks Performance an Empirical Study, APJEM (Arth Prabhand: A Journal of Economics and Management). Vol.1 Issue 3, June 2012, ISSN 2278-0629
- [22] Vishnu Mawardi. , 2005. Analysis Influence Analysis of Financial Ratios Performance Against Banks in Indonesia
- [23] Vishnu Mawardi. , 2005. Analysis of Factors Affecting Financial Performance Bank Common in Indonesia (Case Study on Commercial Banks with Total Assets less 1 Trillion). Journal of Business and Strategy. Vol.14. No.1. July 2005.
- [24] Winarno Wing Wahyu, 2011. Analysis Econometrics & Statistics with EViews, UPP STIM YKPN, 2011 Z. Dunil. , 2005. Bank Risk-Based Audit Auditing in Bank Credit Examination

## Author Profile



**Amaliawiati Lia** was born in Bandung on September 23<sup>rd</sup>, graduated S1 Department of Economics and Development Studies in 1991 at Padjadjaran University Bandung, and graduated S2 Department of Economics and Development Studies in 2003 also at the University of Padjadjaran in Bandung. The researcher is a lecturer at Widyatama University Bandung since 1992 (formerly STIEB) until now. The researcher teaches: Introduction to Economics, Micro Economics, Macro Economics, Managerial Economics, Banks and other Financial Institutions, and International Economics. In 2012 researchers joint with Asfia Murni authored a book titled "Micro Economics", published and printed by PT Refika Aditama Bandung, The first printed in July



2012 and the second in December 2013 and April 2014 Revised Edition.



**Lasmanah** received B.S. degree in management from Sekolah Tinggi Ilmu Ekonomi Bandung/Bandung Economic College (now Widyatama University), Indonesia, in 1993; then Master degree in financial management from Padjadjaran University in 2004.

Since 1996, she has been working at Widyatama University, Bandung, West Java, Indonesia, as a lecturer at the Business Management Faculty, majoring financial management. She also works on several projects related to financial management analysis for some companies. At this moment, she studies at management doctoral program in UPI.



**IJSR**