

## ***THE INFLUENCE OF INTEREST INCOME, NON-INTEREST INCOME, AND INCOME DIVERSIFICATION ON RISK-ADJUSTED RETURN ON ASSET OF STATE-OWNED COMMERCIAL BANKS IN INDONESIA LISTED IN THE INDONESIA STOCK EXCHANGE PERIOD 2003-2014***

Haifa<sup>(1)</sup>, Irm Yunita<sup>(2)</sup>

Business Management of Telecommunications and Informatics, Telkom University  
irniyunita81@yahoo.com

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### **Abstract**

*This study investigated the influence of interest income, non-interest income, and diversification income toward profitability which is proxied by Risk-adjusted return on assets (RAROA), using 4 sample of state-owned commercial banks in Indonesia listed at Indonesia Stock Exchange period 2003-2014.*

*In this study, researcher using panel data analysis. Variables used in this research are the interest income, non-interest income, and income diversification as an independent variable and profitability of the bank which is proxied by Risk-adjusted Return on Assets as the dependent variable with a significance of 95%.*

*Based on test results using panel data regression, it can be concluded that the interest income, non-interest income, and income diversification, simultaneously have a significant influence on Risk-adjusted Return on Assets. Non-interest income partially not have a significant impact Risk-adjusted Return on Assets., whereas interest income and income diversification has a significant influence partially on Risk-adjusted Return on Assets.*

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*Keywords: Interest income; Non-interest income; Income Diversificatio; Profitability; Risk-adjusted Return On Asset.*

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### **1. Introduction**

The financial results of the ten biggest banks showed that since 2004 the percentage of total interest income to total operating income reached 89% and then decreased to the level of 82% in 2010<sup>[1]</sup>. However, non-interest income showed the contrary, which has been increasing since 2004 at the level of 11% and continuing to a level of 18% in 2010. The research department of Indonesia Finance Today<sup>[1]</sup> showed that the activity of non-interest bank such provisions, commissions, profit / losses, assets recovery, derivative transactions, securities and other banking operations have sustained income. The trend of increasing non-interest income is attributable to compete in banking credit increasingly tight so that the profitability of the banks obtained from credit was reduced.

The increase of non-interest income turns out the latest trends in the world economy. The trends of world economy integrated with intense competition driven by financial deregulation in Indonesia has encouraged commercial banks to diversify the range of financial services they offer to clients<sup>[2]</sup>. Diversification of products under this new environment tends to increase the share of non-interest income gains.



Diversification of income is the ability of banks to earn fee-based income, and diversification of fund placements, as well as the application of accounting principles in the recognition of revenues and costs<sup>[3]</sup>. Fee based income is an income earned from banking services provided by banks. At the same time, Bank Indonesia has also adopted a banking policies to encourage commercial banks to diversify their revenue to the activities of non-traditional.

Diversification of revenue to non-traditional activities important in balancing the traditional earnings decline since the Asian financial crisis of 1997<sup>[2]</sup>. Lessons learned from the global financial crisis is the importance of bank lending aware of the risk of excessive<sup>[4]</sup>. If these conditions occur, can lead to the banks experiencing financial problems, so it can have an impact on the profitability and soundness of banks. Therefore, banks do strategies to attract outside interest income revenue, namely by diversifying revenues, by exploiting the potential of non-interest income<sup>[4]</sup>.

Potential dig earnings in the sector non-interest income was driven by various factors such as competition in the banking credit is getting tighter, changes in information and communication technology that causes a change in the strategy of production and distribution and government deregulation, globalization, the integration of financial markets, as well as a set of communities, which bans interest transactions<sup>[5]</sup>.

Bank of Indonesia urged banks in Indonesia to increase revenue in terms of non-interest income. That is because the income derived from interest income is considered unstable, because the movement of lending depends on the cycles of economic activity. The tight competition in the pursuit of interest income, made it difficult to lower the cost of funds and make loan interest rate is higher than other countries<sup>[6]</sup>.

Based on this phenomenon, hence the need for a study to determine the effect of interest income, non-interest income and income diversification towards Risk-adjusted Return On Asset. In conducting this study, researchers used a method of panel data, and hypothesis testing by F test and t test.

## 2. Basic Theory and Methodology

### 2.1 Profitability Bank

Profitability is one of the assessment factors of the Bank. Profitability indicators are as Net Interest Margin (NIM), Net Non-Interest Margin (NNIIM), Net Operating Margin (NOM), Return on Assets (ROA) and Return on Equity (ROE)<sup>[7]</sup>. Profitability assess the company's ability to make a profit on the level of sales, assets, and certain share capital<sup>[8]</sup>.

### 2.2 Operational Risk Bank

Risk is the uncertainty associated with a particular event<sup>[7]</sup>. Here is a popular risk measurement in financial corporations<sup>[7]</sup>:

1. The standard deviation ( $\sigma$ ) or variance ( $\sigma^2$ ) of the stock price.
2. Standard deviation or variance of net income.
3. Standard deviation or variance of return on assets and return on equity.

#### Risk-adjusted Return on Assets

As profitability measures<sup>[10]</sup>, researchers using Return On Assets (ROA). To adjust this measures for risk (volatility), researchers calculated the standard deviation of each sample bank into the entire period. So, the researchers describe the profitability and risk variables into Risk-adjusted Return on Assets (RAROA). RAROA calculation is done as follows<sup>[10]</sup>:

$$RAROA = ROA_{i,t} / \sigma ROA_i \tag{1}$$

Where,

$\sigma$  = standard deviation of ROA;

i = bank;

t = year.

### 2.3 Interest income

Interest income represents income received in the form of interest on loans as a conduit of funds to the community, both people and other financial intermediaries<sup>[8]</sup>. Interest income includes working capital, investments and foreign currency loans, installment, overdraft and credit card<sup>[11]</sup>. In this study, researchers used the proportion

of interest income (NIIs) to net operating income to measure the proportion of interest income. The calculation of net operating income is done by summing net interest income to net non-interest income.

Thus, NIIs calculation is done as follows<sup>[10]</sup>:

$$\text{NIIs} = \frac{\text{Net interest income}}{\text{Net operating income}} \tag{2}$$

### 2.4 Non-interest income

Non-interest income is income derived from the provision, fees or commissions obtained a bank that is not an interest income[8]. This revenue can also be obtained from the marketing of products, transaction banking services, knowledge-based income, which includes fee-based or income earned from non-traditional banking business<sup>[11]</sup>. In this study, researchers used the proportion of net non-interest income (NNIIs) to net operating income. The calculation of net operating income is done by summing net interest income to net non-interest income.

Thus, NNIIs calculation is done as follows<sup>[10]</sup>:

$$\text{NNIIs} = \frac{\text{Net non-interest income}}{\text{Net operating income}} \tag{3}$$

### 2.5 Diversified Income

Diversification of income is the ability of banks to earn fee-based income, and diversification of fund placements, as well as the application of accounting principles in the recognition of revenues and costs<sup>[3]</sup>. The aim is to measure the bank's ability to generate revenues from fee-based services. The higher fee-based income of banks indicating diminishing dependence on revenues from the distribution of funds.

Here is the calculation of income diversification using the HHI<sup>[10]</sup>:

$$\text{DIV} = 1 - (\text{NIIs}^2 + \text{NNIIs}^2) \tag{4}$$

Where:

DIV = Diversified Income

NIIs = The proportion of net interest income (Net Interest Income share)

NNII = The proportion of net non-interest income (Net Non-Interest Income share)

## 3. Framework

Based on the previous research and their theory, the framework in this research are:

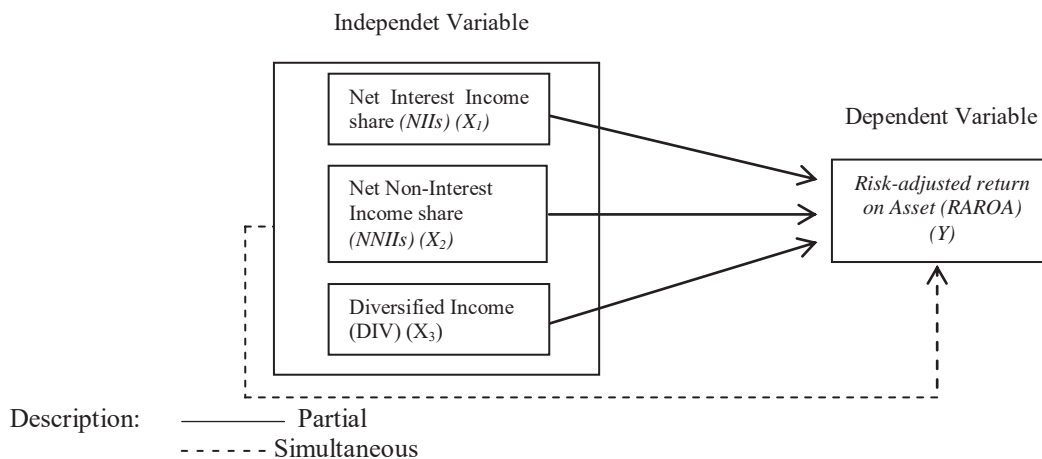


Fig. 1 Framework  
 Source: Data processed

## DISCUSSION

Data analysis technique used is the panel data regression. Hypothesis testing techniques used were F test and t test. In using panel data analysis, the researcher tested the suitability of the model using the Chow test to determine the model of the Common Effect (H0) or model Fixed Effect (H1) that is suitable for this study.



Table 1. Chow Test Results  
 Redundant *Fixed Effects* Tests  
 Pool: BUMN  
 Test cross-section *Fixed Effects*

Effects Test	Statistic	d.f.	Prob.
Cross-section F	121.414064	(3,41)	0.0000
Cross-section Chi-square	109.963816	3	0.0000

Source: data processed (2016)

Based on Table 1, note that the value of F 0.0000 prob.cross-section < 0:05, so that H1 is accepted, so that the model used is a model Fixed Effect. Then the test model will be followed by Hausman test, to determine the model of random effect (H0) and a model Fixed Effect (H1) that is suitable for this study.

Table 2. Hausman Test Results  
 Correlated Random Effects - Hausman Test  
 Pool: BUMN  
 Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	364.242192	3	0.0000

Source: data processed (2016)

Based on table 2, note that the value prob.cross-section random is 0.0000 < 0.05, then H0 is rejected. So this research using a model Fixed Effect.

Table 3. The test results by Fixed Effect Model  
 Dependent Variable: RAROA?  
 Method: Pooled Least Squares  
 Date: 05/02/16 Time: 21:22  
 Sample: 2003 2014  
 Included observations: 12  
 Cross-sections included: 4  
 Total pool (balanced) observations: 48

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.569795	2.494327	3.836624	0.0004
NII?	-5.457859	2.568361	-2.125035	0.0397
NNII?	3.306962	3.952249	0.836729	0.4076
DIV?	-6.064968	2.809430	-2.158790	0.0368
<i>Fixed Effects (Cross)</i>				
_BBNI—C	-2.887348			
_BBRI—C	2.889884			
_BMRI—C	2.368823			
_BBTN—C	-2.371359			
Effects Specification				

(continued)

(continuation)

Cross-section fixed (dummy variables)

R-squared	0.908534	Mean dependent var	4.715625
Adjusted R-squared	0.895148	S.D. dependent var	2.673749
S.E. of regression	0.865781	Akaike info criterion	2.683669
Sum squared resid	30.73266	Schwarz criterion	2.956552
Log likelihood	-57.40805	Hannan-Quinn criter.	2.786792
F-statistic	67.87546	Durbin-Watson stat	0.969345
Prob(F-statistic)	0.000000		

*source*: data processed (2016)

Based on Table 3, it can be seen the value of constant coefficients, so that panel data regression equation can be formed as follows:

$$\text{RAROA} = 9.569795 - 5.457859 \text{ NNIIS NIIS} + 3.306962 - 6.064968 \text{ DIV.}$$

From the equation above, it can be seen intercept equation coefficients of each company, namely:

1. BBNI :  $(-2.887348 + 9.569795 = 6,682447)$  means that the intercept coefficient is 6.682447, which means if the variable of interest income, non-interest income and income diversification value is 0, then the level of RAROA Bank BNI will increase by 9.569795.
2. BBRI :  $(2,889884 + 9.569795 = 12,459679)$  means that the intercept coefficients is 12.459679 which means that if the variable of interest income, non-interest income and income diversification value is 0, then the level of RAROA Bank BRI will increase by 9.569795.
3. BMRI :  $(2,368823 + 9,569795 = 11,938618)$  means that the intercept coefficients is 11.938618 which means that if the variable of interest income, non-interest income and income diversification value is 0, then the level of RAROA Bank BMRI will increase by 9.569795.
4. BBTN :  $(-2,371359 + 9,569795 = 7,198436)$  means that the intercept coefficient is 7.198436, which means if the variable of interest income, non-interest income and income diversification value is 0, then the level of RAROA Bank BBTN will increase by 9.569795.

In general, the above equation means RAROA coefficient (Risk-adjusted return on assets) amounted to 9.569795, which means that if the variable of NIIs, NNIIs, as well as the company DIV constant, then the level RAROA of BUMN banks will increase by 9.569795. NIIs coefficient (net revenue interest) of -5.457859, which means if there is a change, NIIs rise by 1 unit (assuming other variables constant) then the level RAROA of BUMN banks will be decreased by 5.457859 units. NNIIs coefficient (net non-interest income) amounted to 3.306962, which means if there is a change, NNIIs rise by 1 unit (assuming other variables constant) then the level RAROA of BUMN banks will increase by 3.306962 units. The coefficient DIV (diversification of income) of -6.064968, which means if there is a change, DIV rise by 1 unit (assuming other variables constant) then the level RAROA of BUMN banks will be decreased by 6.064968 units.

Table 3 shows that the value of prob (F-Statistics) is 0.00000, then,  $0.00000 < 0.05$ . Then  $H_0$  is rejected, which means the net interest income (NIIs), net non-interest income (NNIIs), and income diversification (DIV) together have a significant effect on the BUMN bank in Indonesia RAROA period 2003-2014.

The value of the coefficient of determination is determined by R-squared, is equal to 0.908709 or at 90.8709%. This indicates that the independent variables consisting of NII, NNII, and DIV able to explain the dependent variable is RAROA amounted to 90.8709%, 9.1291% and the rest is explained by other variables outside the research.

Based on table 3, obtained test results and analysis of the interest income (NIIs), the value of -5.457859 NIIs coefficient, and the value of Prob. 0.0398. Prob value of 0.0398  $< 0.05$  means that  $H_0$  is rejected, means that NIIs partially has significant effect on RAROA of Indonesian BUMN bank in the period 2003-2014. Based on these in accordance with the provisions of decision making, then  $H_2$  is accepted. Then, NIIs coefficient is -5.457859,



indicating that any rise in interest income of 1 unit will lead to a reduction of the bank amounted to 5.451121 RAROA. The effect is negative, which means the higher NIIs then the lower RAROA would be.

Based on the test results and analysis conducted on non-interest income (NNIIs), obtained NNIIs coefficient of 3.306962, and the value of Prob. 0.4070. Value Prob.  $0.4070 \geq 0.05$  states that  $H_0$  is accepted. This means non-interest income (NNIIs) had no significant effect partially on RAROA of Indonesian BUMN bank in the period 2003-2014. Based on these matters in accordance with the provisions of decision making, the  $H_3$  is rejected. Then, from the test data, obtained NNIIs coefficient of 3.306962 indicating that any rise in NNII by 1 unit, then it will lead to an increase of 3.306962 RAROA unit, assuming that other variables are constant. The effect is positive which means that the higher NNIIs then the higher RAROA would be.

Based on the test results and analysis conducted on income diversification (DIV), obtained a coefficient of -6.064968, and the value of Prob. 0.0357. The value prob.  $0.0357 < 0.05$ , this shows that  $H_0$  is rejected, which means DIV partially has significant effect on RAROA of Indonesian BUMN bank in the period 2003-2014. Based on these in accordance with the provisions of decision making, the  $H_4$  is accepted. Then, it is known that the coefficient of DIV is -6.064968. Thus, the effect that formed is negative, which means the higher the DIV then RAROA would be lower. Conversely, if the DIV has low value, then the value of RAROA will be higher.

## Conclusion

Based on the results of the testing and analysis of data, it could be concluded as follows:

1. Net interest income, net non-interest income, and income diversification affected simultaneously on Risk-adjusted return on assets (RAROA) of BUMN banks in Indonesia which are listed on the Indonesia Stock Exchange and report the financial reports completely from the period 2003-2014;
2. Net interest income partially had significant effect on the risk-adjusted return on assets (RAROA) of BUMN banks in Indonesia which are listed on the Indonesia Stock Exchange and report the financial reports completely from the period 2003-2014;
3. Net non-interest income had no significant effect partially on Risk-adjusted return on assets (RAROA) of BUMN banks in Indonesia which are listed on the Indonesia Stock Exchange and report the financial reports completely from the period 2003-2014;
4. Diversified revenue partially had significant effect on the risk-adjusted return on assets (RAROA) of BUMN banks in Indonesia which are listed on the Indonesia Stock Exchange and report the financial reports completely from the period 2003-2014.

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