# State Owned Foreign Exchange Banks Analysis to Import Loans of Non-Oil and Gas Sectors in Indonesia 2010 - 2015

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***Abstract:*** Imports are essential for the growth and development of micro and macro economy in Indonesia. The decline in imports from year 2010 until 2015 in Indonesia is due to currency exchange rate, inflation, the role of Indonesian state owned banks, and also depression in global market. This paper discusses the role of Indonesian state owned foreign exchange banks to the aggregate loans granted for non-oil and gas imports in Indonesia. The independent variables used are Non Performing Loan (NPL), Nett Interest Margin (NIM), Loan to Deposit Ration (LDR), while the intervening variable is the aggregate import loans granted by Indonesian state owned banks, the dependent variable is the non-oil and gas imports, with the moderating variables of inflation and exchange rate. The banking concept or system in Indonesia, inflation, exchange rate and international trade theory are used as the base support in this paper. The data used is secondary in quarterly form from year 2010 until 2015. The analysis adopted is using panel data regression analysis and path analysis using E Views software. The study in this paper has obtained the following; 1) Simultaneously NPL, NIM and LDR variables have a significant influence on the variable of aggregate import loans granted by Indonesian state owned foreign exchange banks, 2) Partially, the aggregate import loans variable to support imports, provides significant and positive effects on the variable of non-oil & gas imports in Indonesia, 3) The aggregate import loans variable mediates the effects of NPL and LDR on the variable of non-oil & gas imports in Indonesia, while NIM variable does not. 4) Interaction of inflation with the aggregate import loans granted by Indonesian state owned foreign exchange banks indicates a significant result, 5) While interaction of USD to IDR Indonesian currency rate with the aggregate import loans granted by Indonesian state owned foreign exchange banks indicates insignificant result. This is also evidenced that Indonesia is still importing raw materials for industrial basic needs although the exchange rate of domestic currency weakens. Therefore it is necessary to have balance in banks performance, inflation and exchange rate effects, with imports to maintain a healthy economic growth.

***Keywords:*** Indonesian State Owned Banks Analysis, Non-oil and gas imports, Indonesia

## I. INTRODUCTION

The growth of global economy is currently still slow both in developed and developing countries. The economic growth in developed countries from year 2014 to 2015 is stagnant at an average of 2 percent, and decreasing trend occurs in developing countries with an average of 4 percent growth, while the world average economic growth is 3 percent (Indonesian Economic Report/LPI, 2015).



Imports are essential for the growth and development of micro and macro economy in Indonesia. Indonesia's economic growth in year 2010 grows from 6.01 percent but continue to decline gradually until year 2015 reaching 4.79 percent as shown in Figure 1.1
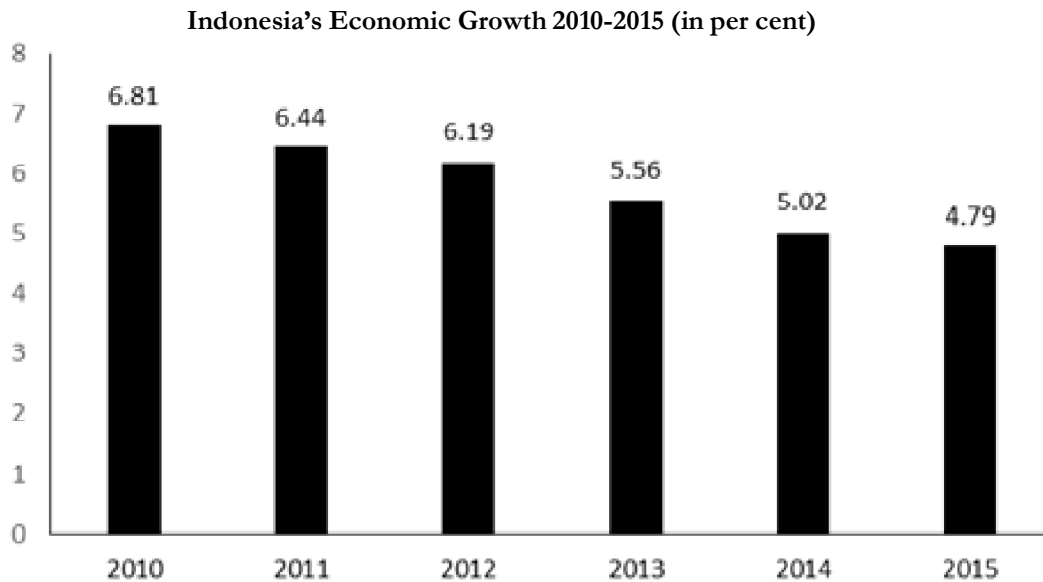
**Indonesia's Economic Growth 2010-2015 (in per cent)**



**Figure 1.1: Indonesia's Economic Growth Year 2010 - 2015**

*http://bisniskeuangan.kompas.com/read/2016/02/07/182803626/Pertumbuhan.Ekonomi.2015.Terendah.dalam.Enam. Tahun.Terakhir,*
*http://www.bbc.com/indonesia/majalah/2016/04/160411_majalah_ekonomi_indonesia_bankdunia)*

The total imports of non-oil and gas in Indonesia in all categories from consumption goods, raw material goods, and capital goods, in total show declining rate of 25,5 percent from amount of US$ 191.691.000 in year 2012 to US$ 142.694.800 in year 2015 (Figure 1.2).
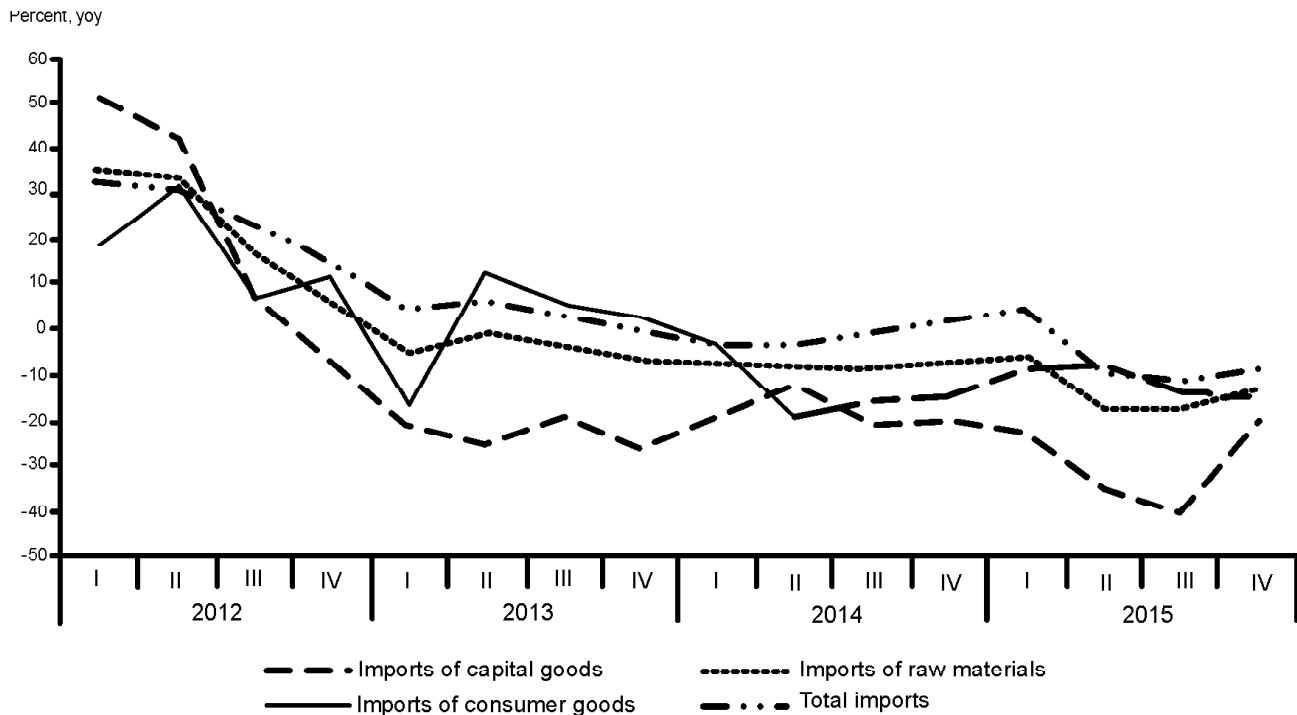
Percent, yoy



**Figure 1.2: Non-Oil and Gas Imports in Indonesia in Good Categories**
(*Source:* Bank of Indonesia, Indonesian Economic Report/LPI, 2015)

The decline in non-oil and gas imports is further driven by the weakening in exchange rate and inflation, resulting higher price of imported goods (more expensive). For exporters and importers, the foreign exchange banks are necessary and indispensable financial institutions as the lender as well as the intermediary in procuring collections from debtors abroad. All banks operations in Indonesia are under the regulation and supervision from the Board of the Financial Services Authority (OJK) in Indonesia (BI, 2014).

Those banking institutions in performing their operation are dealing with various possibilities, especially the lending activities which will face with varies of risks in connection with the activities of granting loan. Such risks include: 1) Market risk, 2) Loan risk, 3) Operational risk, 4) Others such as business risk, strategic risk and reputation risk (Basel, 1991). The aggregate quarterly loan values of non-oil and gas imports of four Indonesian state owned foreign exchange banks from year 2010 until 2015 are shown in Table 1.1.

The inflation rate in Indonesia from year 2010 TO 2015 is shown in Figure 1.3. It shows that the inflation rate drops from 6.96 percent in year 2010 to 3.35 percent in year 2015.

The exchange rate of IDR Indonesian currency to USD from year 2010 until year 2015 is shown in Figure 1.4. The IDR depreciation will reduce the imports volume, however imports are necessary and will still be carried out especially for raw materials and capital goods for industrial and domestic needs.

**Table 1.1**
**Aggregate Quarterly Loan Values on Non-Oil & Gas Imports**
**Year 2010-2015 (Million Rp)**

| Year | | Quarterly | Year | | Quarterly |
|------|---|-----------|------|---|-----------|
| **2010** | 1. | 8.233.370 | | 1. | 17.733.318 |
| | 2. | 6.048.335 | **2013** | 2. | 36.427.108 |
| | 3. | 6.063.779 | | 3. | 58.820.155 |
| | 4. | 8.563.715 | | 4. | 60.138.246 |
| **2011** | 1. | 9.363.343 | | 1. | 44.579.951 |
| | 2. | 7.815.761 | **2014** | 2. | 33.139.998 |
| | 3. | 7.410.942 | | 3. | 14.206.455 |
| | 4. | 12.342.646 | | 4. | 5.986.418 |
| **2012** | 1. | 13.369.668 | | 1. | 6.629.389 |
| | 2. | 13.261.226 | **2015** | 2. | 6.924.235 |
| | 3. | 15.553.374 | | 3. | 6.401.081 |
| | 4. | 16.126.103 | | 4. | 5.976.403 |

(*Source:* Board of the Financial Services Authority/OJK, 2016)
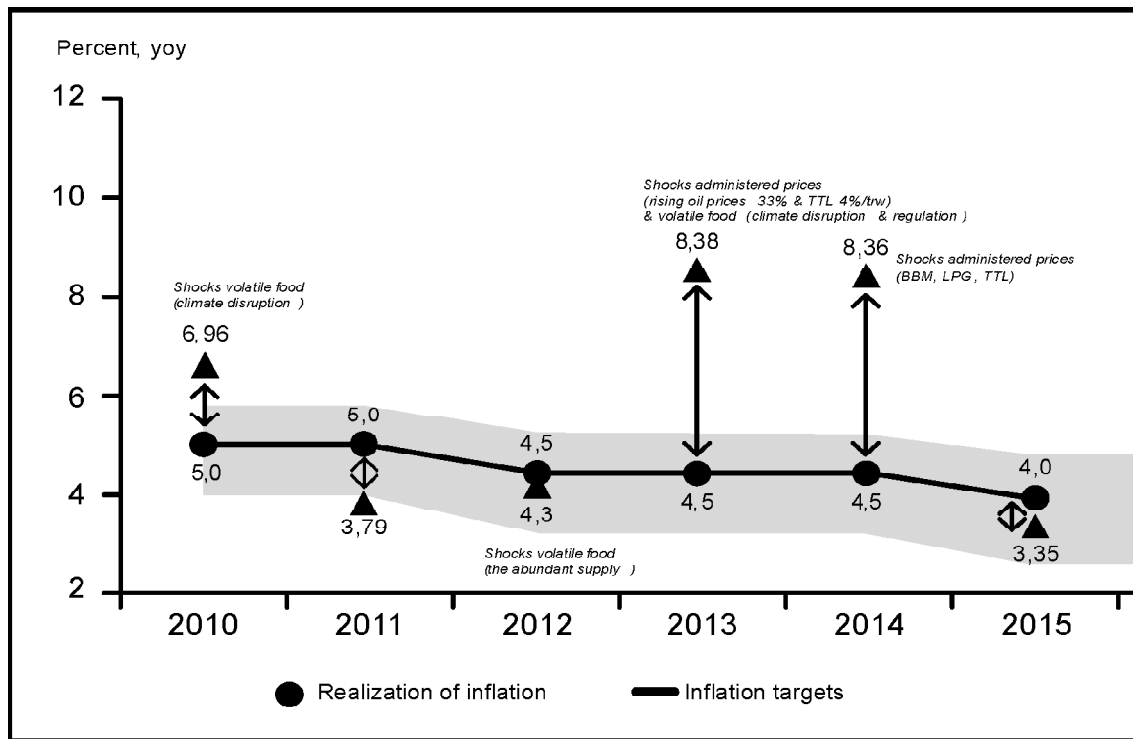


**Figure 1.3: Inflation Year of Year 2010-2015**

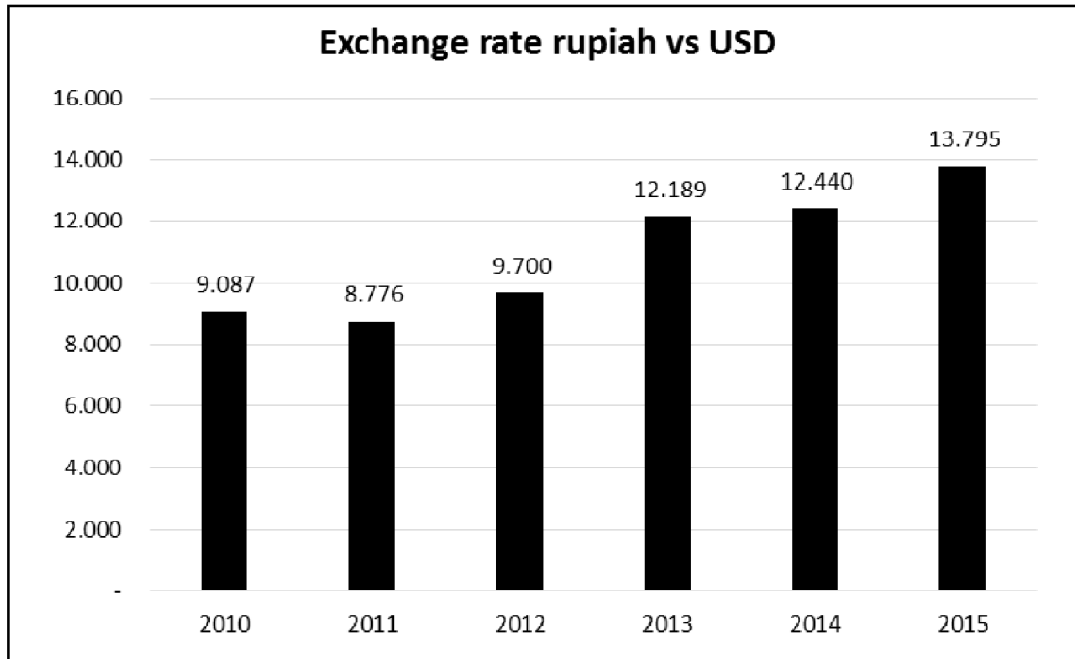(*Source:* Indonesian Economic Report/LPI, 2015)

**Figure 1.4: Money Exchange Rate Year of Year 2010-2015**

(*Source:* Bank of Indonesia, 2015, Monetary Policy Evaluation)

One of the factor for Indonesia's financial system stability is supported by a strong banking industry to a boost economic growth. Risk factors of loan, liquidity and market risk are absolutely necessary as the internal factors, while the external factors are inflation and currency exchange rate.
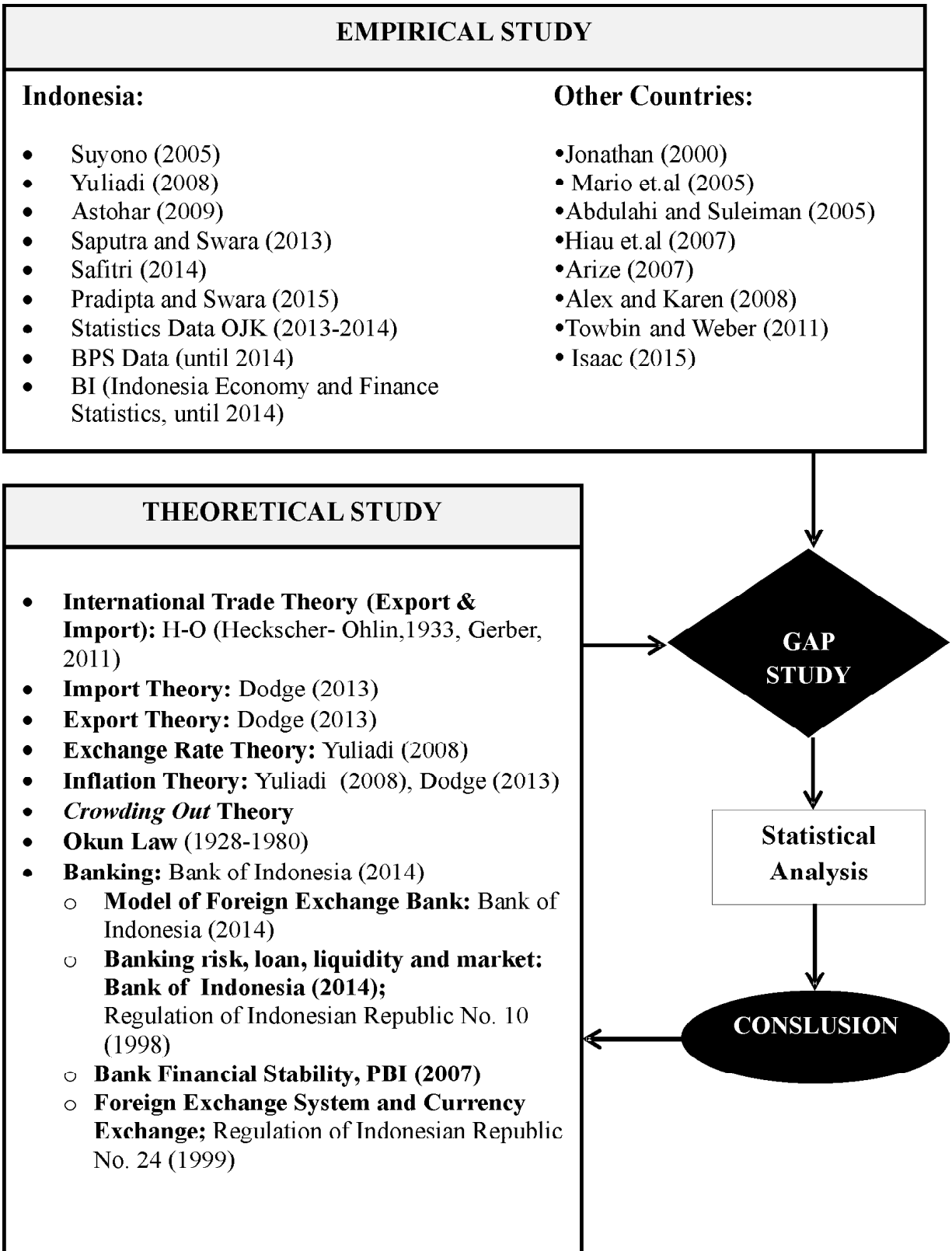
## II. GAP STUDY

Based on the above discussion, the problems in this study can be summarized as follows.

1. How does the influence of loan risk, market risk and liquidity risk of Indonesian state owned foreign exchange banks to the granted aggregate import loan values?

2. How does the influence of aggregate import loan values from Indonesian state owned foreign exchange banks to the non-oil and gas imports in Indonesia?

3. Do the aggregate import loan values from Indonesian state owned foreign exchange banks mediate the effects of loan risk, market risk and liquidity risk to the non-oil and gas imports in Indonesia?

4. How inflation and USD exchange rate moderate the relationship between the aggregate import loan values from Indonesian state owned foreign exchange banks with the non-oil and gas imports in Indonesia?
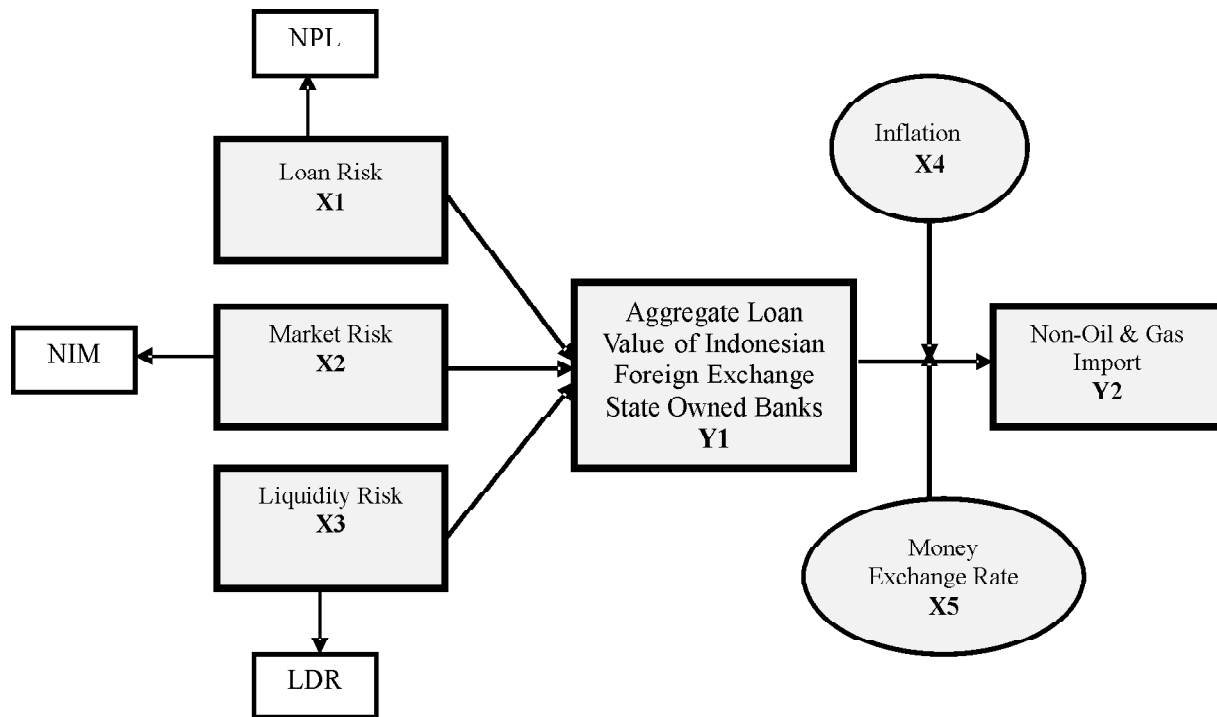
## III. METHODOLOGY

The paradigm of this study can be illustrated in the following.

**Study Paradigm**

## EMPIRICAL STUDY

**Indonesia:**

- Suyono (2005)
- Yuliadi (2008)
- Astohar (2009)
- Saputra and Swara (2013)
- Safitri (2014)
- Pradipta and Swara (2015)
- Statistics Data OJK (2013-2014)
- BPS Data (until 2014)
- BI (Indonesia Economy and Finance Statistics, until 2014)

**Other Countries:**

- Jonathan (2000)
- Mario et.al (2005)
- Abdulahi and Suleiman (2005)
- Hiau et.al (2007)
- Arize (2007)
- Alex and Karen (2008)
- Towbin and Weber (2011)
- Isaac (2015)

## THEORETICAL STUDY

- **International Trade Theory (Export & Import):** H-O (Heckscher- Ohlin,1933, Gerber, 2011)
- **Import Theory:** Dodge (2013)
- **Export Theory:** Dodge (2013)
- **Exchange Rate Theory:** Yuliadi (2008)
- **Inflation Theory:** Yuliadi (2008), Dodge (2013)
- *Crowding Out* **Theory**
- **Okun Law** (1928-1980)
- **Banking:** Bank of Indonesia (2014)
  - **Model of Foreign Exchange Bank:** Bank of Indonesia (2014)
  - **Banking risk, loan, liquidity and market: Bank of Indonesia (2014);** Regulation of Indonesian Republic No. 10 (1998)
  - **Bank Financial Stability, PBI (2007)**
  - **Foreign Exchange System and Currency Exchange;** Regulation of Indonesian Republic No. 24 (1999)

**GAP STUDY**

**Statistical Analysis**

**CONSLUSION**

The concept of study is based on the folowing variables.



1. The independent variables consist of loan risk (X1), market risk (X2) and liquidity risk (X3).

2. The dependent variable is non-oil and gas import (Y2).

3. The intervening variable (intermediate) is aggregate loan value from Indonesian state owned foreign exchange banks (Y1), and

4. The moderating variables (moderation) consist of inflation (X4) and USD exchange rate (X5).

The data used in this study are secondary data from the year 2010 until 2015 published by the Board of the Financial Services Authority/OJK (2016). Saturated sample used consists of data from four Indonesian state owned foreign exchange banks, Mandiri Bank, BNI (Bank Negara Indonesia), BTN (Bank Tabungan Negara) and BRI (Bank Rakyat Indonesia).

The statistical analysis used is by panel regression and path analysis, due to the presence of intervening variables (Y1). E-Views software (ed. 9) is used to analyse the data.

Following is the adopted panel data regression model.

$$Y_{1it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \varepsilon_{it}; \quad i = 1,2,...., n; \, t = 1,2,.....,T \tag{3.1a}$$

$$Y_{2it} = \beta_0 + \beta_4 X_{4it} + \beta_5 X_{5it} + \beta_6 Y_{1it} + \beta_7 X_4 * Y_{1it} + \beta_8 X_5 * Y_{1it} + u_{it};$$

$$i = 1, 2,...., n; \, t = 1, 2,....., T \tag{3.1b}$$

Where:

$n$    : 4 Indonesian state owned foreign exchange banks

$t$    : 5 years (2010 – 2015) or 24 quarter

| | | |
|---|---|---|
| $n \times t$ | : | the number of panel data |
| $Y_1$it | : | Aggregate loan value from Indonesian state owned foreign exchangebanks (variable between individual i, periode t) |
| $Y_2$it | : | Non-oil and gas import (dependent variable individual i, period t) |
| $X_{1it}$ | : | Loan risk (NPL, independent variable individual i, period t) |
| $X_{2it}$ | : | Market risk (NIM, independent variable individual i, period t) |
| $X_{3it}$ | : | Liquidity risk (LDR, independent variable individual i, period t) |
| $X_{4it}$ | : | Inflation (moderating variable individual i,period t) |
| $X_{5it}$ | : | USD exchange rate (moderating variable individual i,period t) |
| $X_{4it}*Y_{1i\,t}$ | : | interaction of inflation and aggregate loan value |
| $X_{5it}*Y_{1it}$ | : | interaction of USD exchange rate and aggregate loan value |
| $\varepsilon_{it}$ dan $u_{it}$ | : | *error term* |
| $\alpha$ dan $\beta_0$ | : | *intercept* |
| $\beta_1 - \beta_8$ | : | *slope* |

(Gujarati, 2009)

## IV. ANALYSIS

The analysis in this study consists of 1) Regression analysis of sub-structure 1, 2) Regression analysis of sub-structure 2, and 3) Direct and indirect effects of variable XI, X2, X3 and Y1 toward Y2.

1.  **Regression analysis of sub structure-1**

    Regression analysis of sub structure-1 (Random Effect Model) produces the following results (Table 4.1).

**Table 4.1**
**Direct Effects Analysis of NPL, NIM and LDR and Their Causality Relationship to Import Loan Values (Y1)**

| Path | b | $S_X$ | $S_{Y1}$ | Beta | Prob | $\alpha$ | Result |
|---|---|---|---|---|---|---|---|
| NPL = X1 → Y1 | -5231,6350 | 1,0452 | 16231,23 | -0,3369 | 0,0039 | 0,05 | Prob < 0,05; significant |
| NIM = X2 → Y1 | -768,0602 | 1,5048 | 16231,23 | -0,0712 | 0,4868 | 0,05 | Prob > 0,05; not significant |
| LDR = X3 → Y1 | 317,2590 | 13,5070 | 16231,23 | 0,2640 | 0,0199 | 0,05 | Prob < 0,05; significant |

(*Source:* EViews 9, processed data from attachment 1)

Table 4.1 shows:

(a)  Variable NPL with regression coefficient = -5231,6350; path coefficient = -0,3369; significantcy and (probability) result of 0,0039 < 0,05, therefore it is significant.

(b) Variable NIM with regression coeffiecien = -768,0602; path coefficient = -0,0712; significancy result = 0,4868 > 0,05, therefore it is not significant.

(c) Variable LDR with regression coefficient = 317,2590; path coefficient = 0,2640; significancy result = 0,0199 < 0,05, therefore it is significant.

2. **Regression analysis of sub structure-2**

Regression analysis of sub structure-2 (Common Effect Model) produces the following results (Table 4.2).

**Table 4.2**
**Regression Analysis of Sub Structure 2**

| Path | $b$ | $S_X$ | $S_{Y2}$ | Beta | Prob. | $\alpha$ | Result |
|------|-----|-------|----------|------|-------|----------|--------|
| Y1 → Y2 | 5,5986 | 16231,23 | 3631,27 | 25,0248 | 0,0009 | 0,05 | Prob < 0,05; significant |
| Y1_X4 → Y2 | -0,4796 | 139829,70 | 3631,27 | -18,4668 | 0,0002 | 0,05 | Prob < 0,05; significant |
| Y1_X5 → Y2 | -8,39E-05 | 1,88E+08 | 3631,27 | -4,3437 | 0,6165 | 0,05 | Prob > 0,05; not significant |

(*Source:* EViews 9, processed data from attachment 2)

Table 4.2 shows

(a) Import loan value variable from Indonesian state owned foreign exchange banks (Y1) with regression coefficient = 5,5986; path coefficient = 25,0248; and significancy result of 0,000<0,05; therefore it is significant and positive direction.

(b) Interaction of inflation with import loan value from Indonesian state owned foreign exchange banks (X4*Y1) with regression coefficient = -0,4796; path coefficient = -18,4668 and significancy result of 0,0002 < 0,05; therefore it is significant and therefore variable inflation (X4) is as a moderator.

(c) Interaction of USD to IDR currency rate with import loan value from Indonesian state owned foreign exchange banks (X5*Y1) with regression coefficient = -8,39E-05; path coefficient = -4,3437 and significancy result of 0,6165 < 0,05, therefore it is not significant, and variable USD to IDR currency rate (X5) is not as a moderator.

3. **Direct and indirect effects of variable XI, X2, X3 and Y1 toward Y2**

Direct and indirect effects of variable XI, X2, X3 and Y1 toward Y2 are shown in Table 4.3.

**Table 4.3**
**Direct Effects of NPL, NIM, LDR and Aggregate Loan Values for Non-Oil & Gas Imports**

| Variable | Influence | | | | |
|----------|-----------|---|---|---|---|
| | Direct to Y1 | Indirect to Y2 via Y1 | Direct to Y2 | Total to Y2 | Significancy |
| X1: NPL | -0,3369 | (-0,3369x25,0248) = -8,4304 | - | -8,7673 | significant |
| X2: NIM | -0,0712 | (-0,0712x25,0248) = -1,7820 | - | -1,8532 | Not significant |
| X3: LDR | 0,2640 | (0,2640x25,0248) = 6,6068 | - | 6,8708 | significant |
| Import Loan Value | | | 25,0248 | 25,0248 | |

(*Source:* EViews 9, processed data from attachment 2)

Table 4.3 shows

1) Direct effect to import loan value from Indonesian state owned foreign exchange banks (Y1):

    a) NPL = -0,3369, and significant.

    b) NIM = -0,0712, and not significant.

    c) LDR = 0,2640, and significant.

2) Direct effect to non-oil & gas import (Y2)

    a) Y1 to Y2 = 25,0248 and significant.

3) Indirect effect to non-oil & gas import through intervening variable (Y1)

    a) NPL (X1) to Y2 = (-0,3369 X 25,0248) = -8,4304

    b) NIM (X2) to Y2 = (0,0712 X 25,0248) = -17,820

    c) LDR = (0,2640 x 25,0248) = 6,6068

4) Total effects (indirect + direct) to non-oil & gas import (Y2)

    a) NPL (X1) to Y2 = -8,7673

    b) NIM (X2) to Y2 = -1,8532

    c) LDR (X3) to Y2 = 6,8708

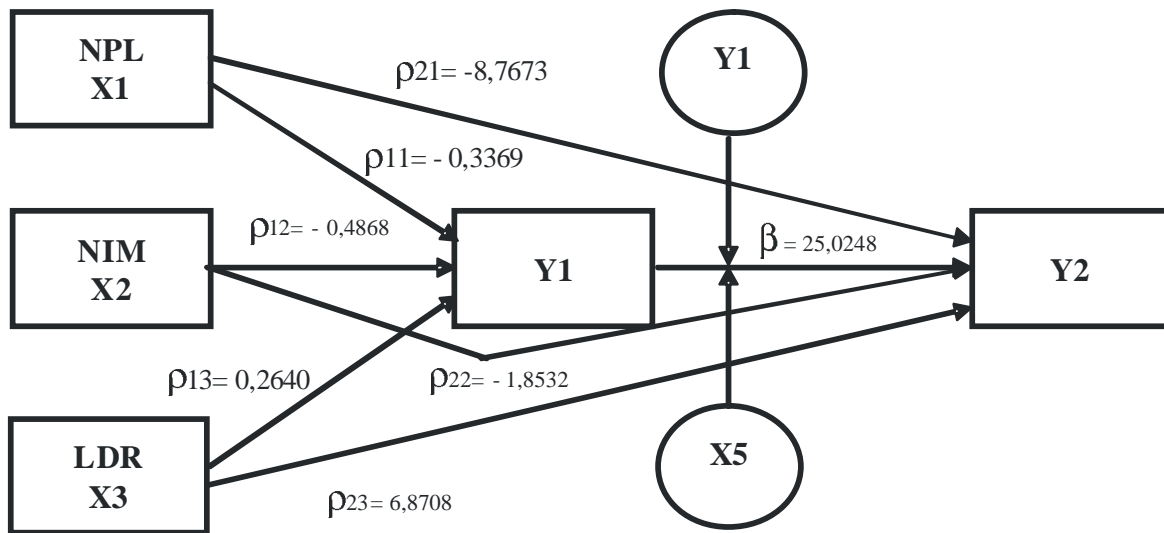From the analysis results, it can be illustrated the path and regression coefficients (b) as presented in Figure 4.1.



**Figure 4.1: Relationship of All Variables with Regression and Path Coefficients.**

## V. CONCLUSION

1. Simultaneously NPL, NIM and LDR variables have significant influences on the variable of aggregate import loan value from Indonesian state owned foreign exchange banks.

2. Partially, the variable of aggregate import loan value from Indonesian state owned foreign exchange banks provides positive and significant effect on the variable of non-oil and gas imports in Indonesia.

3.  The variable of aggregate import loan value from Indonesian state owned foreign exchange banks mediates the effects of NPL and LDR to the variable of non-oil and gas imports in Indonesia, the NIM variable does not.

4.  Interaction of inflation with the aggregate import loan value from Indonesian state owned foreign exchange banks indicates significancy results, therefore inflation is a moderating variable.

5.  Interaction of USD to IDR currency rate with the aggregate import loan value from Indonesian state owned foreign exchange banks indicates insignificant, USD exchange rate is not a moderating variable.

6.  Indonesia is still importing the capital, raw materials and consumer goods to spur economic growth.

## VI. LIMITATION

The study in this paper is limited to analysis of four Indonesian state owned foreign exchange banks due to the confidentiality nature of the researched data from others especially private banks. The data used are secondary data and made available mainly from the Board of the Financial Services Authority (Otoritas Jasa Keuangan, OJK) and the Indonesian Ministry of Trade. The availabilty data are also limited from year 2010 to 2015 in quarterly data.

## ACKNOWLEDGEMENTS

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**Attachment 1. Regression Analysis (Random Effect) Sub Structure-1**

Dependent Variable: Y1

Method: Panel EGLS (Cross-section random effects)

Date: 01/02/17 Time: 21:14

Sample: 2010Q1 2015Q4

Periods included: 24

Cross-sections included: 4

Total panel (balanced) observations: 96

Swamy and Arora estimator of component variances

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | 10074.59 | 13484.23 | 0.747138 | 0.4569 |
| X1 | -5231.635 | 1769.312 | -2.956875 | 0.0039 |
| X2 | -768.0602 | 1099.968 | -0.698257 | 0.4868 |
| X3 | 317.2590 | 133.8693 | 2.369916 | 0.0199 |

| Effects Specification | | | | |
|---|---|---|---|---|
| | | | S.D. | Rho |
| Cross-section random | | | 0.000128 | 0.0000 |
| Idiosyncratic random | | | 15651.66 | 1.0000 |

| Weighted Statistics | | | | |
|---|---|---|---|---|
| R-squared | 0.099576 | Mean dependent var | | 17504.79 |
| Adjusted R-squared | 0.070215 | S.D. dependent var | | 16231.23 |
| S.E. of regression | 15651.02 | Sum squared resid | | 2.25E+10 |
| F-statistic | 3.391370 | Durbin-Watson stat | | 0.307481 |
| Prob(F-statistic) | 0.021281 | | | |

| Unweighted Statistics | | | | |
|---|---|---|---|---|
| R-squared | 0.099576 | Mean dependent var | | 17504.79 |
| Sum squared resid | 2.25E+10 | Durbin-Watson stat | | 0.307481 |

**Attachment 2. Regression Analysis (Common Effect) Sub Structure-2**

Dependent Variable: Y2
Method: Panel Least Squares
Date: 01/02/17 Time: 21:19
Sample: 2010Q1 2015Q4
Periods included: 24
Cross-sections included: 4
Total panel (balanced) observations: 96

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C | -94994.08 | 20477.38 | -4.638976 | 0.0000 |
| Y1 | 5.598576 | 1.627602 | 3.439770 | 0.0009 |
| X4 | 6833.373 | 2492.456 | 2.741622 | 0.0074 |
| Y1_X4 | -0.479569 | 0.121612 | -3.943427 | 0.0002 |
| X5 | 24.28723 | 1.842873 | 13.17900 | 0.0000 |
| Y1_X5 | -8.39E-05 | 0.000167 | -0.502608 | 0.6165 |
| R-squared | 0.885278 | Mean dependent var | | 227440.6 |
| Adjusted R-squared | 0.878905 | S.D. dependent var | | 48746.09 |
| S.E. of regression | 16963.04 | Akaike info criterion | | 22.37592 |
| Sum squared resid | 2.59E+10 | Schwarz criterion | | 22.53619 |
| Log likelihood | -1068.044 | Hannan-Quinn criter. | | 22.44071 |
| F-statistic | 138.9010 | Durbin-Watson stat | | 1.748599 |
| Prob(F-statistic) | 0.000000 | | | |