

Effects of Bonds Issuance on Banking Performance

Adler Haymans Manurung¹

Abstract

The paper aims to explore how bonds issuance affects banking performance. This paper uses data panel to analyse the data for the period of 2008 to 2012. The result are as follows: BOPO (operational cost to Operational revenue), CAR (capital adequacy ratio), LDR (loan deposits ratio), NIM (Net Interest Margin) statistically significant affected the RoE (return on equity) but NPL (non-performance loan) does not affect RoE. BOPO, CAR, NIM and NPL statistically significant affected the RoA (return on assets), but LDR does not affect the RoA. Bonds issuance does not affect the RoE but affected to the RoA. Crisis period affected the RoE and RoA. The interaction between bond issuance and crisis period affected the RoE and RoA.

JEL classification numbers: G01, D63

Keywords: Bonds Issuance, Banking Performance, Banking Crisis, Return on Equity (RoE), Return on Assets (RoA), Net Interest Margin

1 Introduction

Banking has been being discussed or explored by researchers, academicians and government to get idea for decision making for a long time. Banking is not only being the central discussion topic for the government to formulate the right monetary policy, but also very important to company as resources of fund to expansion. Banking has big contribution to economic development to one country. Data from PT Finansial Bisnis Informasi showed that bonds issuance by bank increased from IDR 2,74 trillion at 2008 to IDR 8.23 trillion at 2012. Meanwhile, corporate's bonds issuance is higher than it. Bank should issue more long term bond that called subordinated debts to increase CAR. Capital is very important for bank to grow as it is used by bank for its operations which are to raise and to lend the money. Central Bank of Indonesia allows banks' issuance of subordinate debts or long term bond to become one of capital to calculate CAR, based on its regulation No. 10/15/PBI/2008 about sufficiency of minimum bank capital. It also

¹University of Bina Nusantara, Jakarta, Indonesia.

required by BIS that should have minimum capital of 8%.

This paper is an expansion of paper by Sapulete and Manurung (2014). On that paper, Sapulete and Manurung (2014) did not consider 2009/2009 crisis as a variable. As have been commonly known, USA had problem in the economy, triggered by the collapse of Lehman Brothers in 2008 and continued to following year 2009. This period has given major impact to bank performance and also to bank capital.

Research in banking especially bonds issuance or subordinated debt has been done by numerous researchers in the world, such as Gorton and Santomero (1990), Blum (2002), Esho et.al (2005), Svec (2003), Chen and Hasan (2011). Most researches focused on international evident and big countries, while few analyzed Indonesia especially to investigate special event like bond issuance. Lubis (2012) investigates about bank market power. Sapulete and Manurung (2014) investigate about bond issuance by bank.

Based on the previous explanation, this paper aims to do research to answer with objectives (1) to explore banking performance, (2) to explore issuance bonds to banking performance, and (3) to investigate crisis period to banking performance.

2 Theoretical Review

Before we analyze to topic this research, we discuss about bank concept and its duty and responsibility to economics. Bank is an institution to collect money from society and to distribute to through credit to deficit unit or someone need it to support economics a country. Choudry (2012) cited Bank concept from internet as follows:

Engaging in the business of keeping money for savings and checking accounts or for exchange or for issuing loans and credit etc.:

(www.wordnetweb.princeton.edu/perl/webwn)

A bank is a financial institution that accepts deposits and channels those deposits into lending activities. Banks primarily provide financial services to customers while enriching investors. Government restriction on financial activities by bank vary over time and location. (www.en.wikipedia.org/wiki/Banking)

As concept explained previously that bank collected fund from surplus unit or owner the fund and then distribute to deficit unit which called loan so Bank can be as intermediary institutions. Bank manage the public asset and the asset can be withdraw in one time or at maturity. Its mean that bank hold risk, because bank customer can not repaid the fund from bank. Internal and external are very difficult to calculate risk that banks face every day (Morgan, 1997). So, bank need to be supervised for the public interest (Diamond, 1983 and Wallison, 2005). Bank also include in an opaque industry because the asset change every time that affected by the saving and redemption (Haggard and Howe, 2007; Jones et. al, 2011; Morgan, 1997).

Regarding to understanding the concept bank, bank was be started with a capital and growing by deposits and retained earnings. Deposits, Paid capital, issuing Debts and retained earning distributed to consumer through loan. If deposits withdraw in one time and bank does not have fund, bank will look fund from other bank. So bank can have negative spread in short time to do going concern. Balance sheet of Bank can see as follows:

L	D
	E

Figure 1: Balance sheet of L = Loan; D = deposits; E = Equity

Figure 1 shows that $L = D + E$; which explained in MM theory, D is debt and E is capital so D and E is capital the bank. In the company, D has certain in time when the company should pay, but D is uncertainty in Bank, even there is time deposits but for saving does not certain to maturity. Bank preferred the deposits does not certain the maturity to get low cost. It means, D has risk because it does not have certain maturity. L also has risk because the customer could not pay that affected it business does not work well. Even bank has collateral for the loan but the value of collateral can drop that affected by time and liquidity. The liquidity collateral also become a risk to the bank.

Because bank face risk for D and L, so E (equity) has higher role in capital bank, that also mentioned in Indonesia Central Bank Rule and Basel Rule. Kjeldsen (2004) and Svitek (2001) said that role of Bank capital to continue operational bank (going concern) and also to face loss in the future. All country required the bank to have higher capital that comprised as paid capital, retained earnings, reserve on loan, current profit and agio/disagio (Svitek, 2001). Basel 1 and 2 divided bank capital into two group that was known risk-based capital such as core capital and Supplementary capital as follows:

Table: Summary definition of qualifying capital for bank

Components	Minimum Requirements
Core Capital (Tier I)	Must equal or exceed 4% of weighted-risk assets
Common Stockholder's Equity	No Limit
Qualifying cumulative and noncumulative perpetual preferred stock	Limited to 25% of the sum of common stock, minority interests, and qualifying perpetual preferred stock
Minority interest in equity accounts of consolidated subsidiaries	Organizations should avoid using minority interests to introduce elements not otherwise qualifying for Tier I capital
Less: Goodwill	
Supplementary Capital (Tier II)	Total of Tier II is limited to 100% of Tier I
Allowance for Loan and Lease Losses	Limited to 1.25% of weighted-risk assets
Perpetual preferred stock	No limit within Tier II
Hybrid capital instruments, perpetual debt, and mandatory convertible securities	No limit within Tier II
Subordinated debt and intermediate-term preferred stock (original weighted-average maturity of five years or more)	Subordinated debt and intermediate-term preferred stock are limited to 50% of Tier I; amortized for capital purposes as they approach maturity.
Revaluation reserve (equity and buildings)	Not Included; organizations encouraged to disclose; may be evaluated on a case-by-case basis for international comparisons and taken into account in making an overall assessment of capital
Deductions (from sum of Tier I and Tier II)	
Investments in unconsolidated subsidiaries	
Reciprocal holdings of banking organizations' capital securities	As a general rule, one-half of the aggregate investments would be deducted from Tier I capital and one-half from Tier II capital
Other deductions (such as other subsidiaries or joint ventures) as determined by supervisory authority	On a case-by-case basis or as a matter of policy after formal rule making
Total Capital (Tier I + Tier II - Deductions)	Must equal or exceed 8% of ewighted-risk assets

Sumber: Anthony Sanders and M. M. Cornett (2011); Financial Institutions Management: A Risk Management Approach; McGraw Hill.

Capital Bank Criteria that is required by Basel also used by Central Bank of Indonesia for all bank in Indonesia. So there is no different capital requirement between Basel and Indonesia Rule for Indonesia Bank.

Equation for Bank Capital can be written as follows:

$$\begin{aligned}
 E_1 &= E_0 + \pi_1 \\
 E_2 &= E_1 + \pi_2 = E_0 + \{\pi_1 + \pi_2\} \\
 E_n &= E_0 + \{\pi_1 + \pi_2 + \dots + \pi_n\}
 \end{aligned}
 \tag{1}$$

Equation (1) showed that bank capital is very depend to two sources such as profit of the bank (Svitek, 2001) and also increase the capital by issuing share to public or private investor. Kleff and Weber (2008) added that issuing debt has long period which called subordinate debt. Issuing stocks is not choice by bank because it is cost to high. Profit Equation for the bank in mathematics as follows:

$$\pi = (1 - T)(r * L - i * D)
 \tag{2}$$

If $L = (1 - \alpha)(E + D)$, where α is cash ratio that should be provided by bank which called reserve (Jiang, 2010). In Indonesia, it is called *giro wajib minimum* (minimum reserve requirement) or GWM, so Bank Profit Equation will show by equation that could be written as follows:

$$\begin{aligned}\pi &= (1 - T) * [r * \{(1 - \alpha) * (E + D)\} - i * D] \\ \pi &= (1 - T) * [E * (1 - \alpha) * r + \{r * (1 - \alpha) - i\} * D] \\ \frac{\pi}{E} &= (1 - T) * [\{(1 - \alpha) + r\} + \{r * (1 - \alpha) - i\} * \frac{D}{E}] \quad (3)\end{aligned}$$

$$\begin{aligned}\frac{\partial(\pi/E)}{\partial(D/E)} &= (1 - T) * \{r * (1 - \alpha) - i\} \\ \frac{\partial(\pi/E)}{\partial(D/E)} &= 0 \Rightarrow r * (1 - \alpha) = i\end{aligned}$$

Bank can get profit with increasing bank capital so its required as follows:

$$r \geq \frac{i}{1 - \alpha} \quad (4)$$

Equation (4) showed that bank can get profit if r is greater $i/(1 - \alpha)$. If r provided, it will effect bank to have profit and to increase bank capital. So bank capital affected by bank profit and also increase bank capital as business institution.

As explanation previously, the owner of fund can withdraw fund immediately for himself or together collectively that is called Bank Run. Bank has fund and disseminate to businessman through loan with collateral. The value of collateral can be fluctuated as its quality and how the use the collateral continuously. Diamond and Rajan (2000) says that bank should create liquidity for going concern bank. Bank should increase its capital to avoid bankruptcy and also to reduce creating liquidity. (Daimond and Rajan, 2000). Bank should give guarantee to owner of deposits that their fund will be paid if bank run occurred (Diamond and Dybfig, 1983). Bank capital is required to have higher or preferred if bank operated in highly competitive environment (Schaek dan Cihak, 2007). Beside internal factor, Berger et al. (1995) also said that external factor is very important to determine bank capital. Alfon et al. (2004) said that bank capital determined by internal bank; market discipline and regulation requirement. This three factor still discuss by practitioners, academic and researchers for development of banking.

3 Methodology

Data was used in this paper based on the Sapulete and Manurung (2014), and also used data crisis period as dummy year 2008 and 2009. Model that will estimate on this paper as follows:

$$RoE_{i,t} = a_1 + b_{1,1}BOPO_{i,t} + b_{1,2}CAR_{i,t} + b_{1,3}DER_{i,t} + b_{1,4}LDR_{i,t} + b_{1,5}NIM_{i,t} + b_{1,6}ISB_{i,t} + b_{1,7}PC_{i,t} + b_{1,8}ISB_{i,t} * PC_{i,t}$$

$$RoA_{i,t} = a_2 + b_{2,1}BOPO_{i,t} + b_{2,2}CAR_{i,t} + b_{2,3}DER_{i,t} + b_{2,4}LDR_{i,t} + b_{2,5}NIM_{i,t} + b_{2,6}ISB_{i,t} + b_{2,7}PC_{i,t} + b_{2,8}ISB_{i,t} * PC_{i,t}$$

RoA = return on Asset

RoE = return on Equity

BOPO = operational cost to Revenue operational

CAR = capital adequacy ratio

DER = Debt equity Ratio

LDR = Loan to deposits ratio

ISB = Bond Issuance

PC = crisis period

NIM = Net interest Margin

Model panel data that use to estimate all constants at the model.

4 Analysis

In this topic, we discuss about descriptive statistics and variable banking ratio and issuance of bonds affect the RoE and RoA as variable banking performance. The analysis will start from descriptive analysis and follow by analysis as mentioned in objectives.

4.1 Descriptive Analysis

In this sub analysis will explain about bonds issuance by in Indonesia and descriptive analysis about investigation in this research.

Table 1: Outstanding and Bonds Issuance in Trillion Rupiah

Year	OGB	OCB	GBI	CB	BBI
2008	525.70	73.01	126.2	12.86	2.74
2009	581.75	88.45	148.5	29.68	5.50
2010	641.22	114.82	167.6	38.38	6.42
2011	723.61	146.97	207.1	45.93	5.26
2012	820.27	187.46	209.41	69.26	8.23

Source: PT Finansial Bisnis Informasi

Table 1 showed that Outstanding and Bonds Issuance in Indonesia for period 2008 to 2012. Outstanding Government increase from IDR 525,7 trillion at 2008 to IDR 820.3 trillion at 2012. It means that the growth of outstanding Government Bonds is average of 11.76% per year within the period. Outstanding Corporate Bonds increase from IDR. 73.01 trillion at 2008 to IDR 187.46 Trillion at 2012. It means that growth of outstanding Corporate Bond is average of 26.58% per year within the period. Growth of Outstanding corporate bond is higher than growth of outstanding government bonds. It is affected by the corporate want to grow issuing bond and bank did not increase the loan. Bank did not expansion very past because rule made them to do it and to avoid risk for default the loan.

Government Bond Issuance (GBI) increase from IDR 126.2 trillion at 2008 to IDR 209.41 trillion at 2012. It means that growth of (GBI) is average of 13,50% per year within the period. Corporate Bond Issuance (CBI) increase from IDR 12.86 trillion at 2008 to IDR 69.26 trillion at 2012. It means that growth of CBI is average of 52.34% per year within the period. This data supported statement of corporate seek financing through issuing bond because bank made policy to decrease expansion through loan.

Table 1 also shows bank issuance of bond. Bank Bond Issuance (BBI) increase from IDR. 2,74 trillion at 2008 to IDR. 8.23 trillion at 2012. It means that has growth of 31.65% per year within the period. This growth is still less than growth GBI, but it is higher than growth of CBI. BBI has contribution to CBI 21.31% at 2008 to become 11.88% at 2012. It means that BBI has decreased contribution from 2008 to 2012. BBI is affected wanting to increase capital so the CAR will increase to fulfill rule by Central Bank and international requirement.

Table 2 below represented about descriptive statistics all variable that used in this research. BOPO has mean of 77.38% and standard of deviation 14,28%. This ratio has median of 80.03% and Maximum of 100.77% and Minimum of 41.6%. This data can explain that there is a bank to have Operation Expenses more than income from operation. It also can explain that bank has loss in income statements.

Table 2: Descriptive Statistics for Empirical Research

	BOPO	CAR	DER	LDR	NIM	NPL	ROA	ROE	PO
Mean	0.773412	0.145591	0.105187	0.829457	0.06416	0.027319	0.023351	0.210916	0.306667
Median	0.8003	0.1407	0.1009	0.8439	0.0563	0.0265	0.021	0.1968	0
Maximum	1.0077	0.2277	0.172484	1.0888	0.1164	0.0576	0.0515	0.4383	1
Minimum	0.416	0.0834	0.0616	0.4022	0	0.0051	0.0007	-0.0076	0
Std. Dev.	0.142885	0.028168	0.025941	0.133791	0.024856	0.011039	0.010296	0.097021	0.464215
Skewness	-1.29967	0.595739	0.65497	-0.68942	0.250036	0.411	0.640473	0.35871	0.838557
Kurtosis	3.853502	3.339779	2.770183	3.625154	2.729633	2.969469	3.275591	2.545567	1.703177
Jarque-Bera	23.39058	4.797094	5.527373	7.162549	1.009907	2.114428	5.364917	2.253748	14.04518
Probability	0.000008	0.09085	0.063059	0.02784	0.603534	0.347422	0.068395	0.324045	0.000892
Sum	58.0059	10.9193	7.889009	62.2093	4.812	2.0489	1.7513	15.8187	23
Sum Sq. Dev.	1.510788	0.058713	0.049798	1.324612	0.045719	0.009018	0.007844	0.696565	15.94667
Observations	75	75	75	75	75	75	75	75	75

CAR has mean of 14.56% and standard of deviation 2,82%. This ratio has median of 14.07% and Maximum of 22.77% and Minimum of 8.34%. This data can explain that there is a bank to have CAR near to regulation of car by 8%. It also can explain that bank should increase the capital as soon as possible to avoid problem in the future. The bank can also offer subordinated debt to avoid Car near to 8%.

Table 1 also showed the Jarque-Bera that used to test normality distribution the variable. Based on Value of Jarque-Bera, variable NIM, NPL and RoE has normality distribution. It means, that we can use Ordinary Least Square (OLS) Method to estimate coefficient of model. But, Variable BOP, CAR, DER, LDR, and ROA have non-normality distribution. It means that we used other method to estimate coefficient of model instead OLS.

Table 2 represented coefficient correlation among variable that will investigate including t-testing. Right Side of the number 1 is the coefficient correlation among variable and the

left side of number 1 is the t-testing.

Coefficient of Correlations among variables is between -0.5733 to 0,8482. It means that variation is enough highest and positive and negative relationship. The highest coefficient of correlations is 0,8482 that relationship between RoE and RoA. Because the two variable is dependent variable so it does not effect the model that will estimate later. The lowest positive coefficient of correlation is 0.01282 that relationship between bonds issuance and RoE. It means also that relationship is not statistically significant.

Table 3: Coefficient Correlation and T testing variable

	BOPO	CAR	DER	LDR	NIM	NPL	ROA	ROE	PO
BOPO	1	-0.2783	0.4953	0.2077	-0.0033	-0.0282	-0.4899	-0.2479	-0.0660
CAR	-2.4757	1	-0.5753	-0.1535	-0.1122	-0.1628	-0.0759	-0.3074	-0.0245
DER	4.8717	-6.0098	1	-0.0580	-0.0223	0.2778	-0.2720	0.1054	0.0929
LDR	1.8137	-1.3271	-0.4967	1	0.52789	-0.44618	0.12100	0.22964	0.07019
NIM	-0.0284	-0.9651	-0.1910	5.3106	1	-0.2895	0.6293	0.5510	-0.0717
NPL	-0.2414	-1.4099	2.4703	-4.2597	-2.5840	1	-0.2403	-0.1832	-0.0278
ROA	-4.8009	-0.6502	-2.4153	1.0415	6.9185	-2.1153	1	0.84822	-0.09717
ROE	-2.1860	-2.7598	0.9057	2.0159	5.6417	-1.5920	13.6833	1	0.01282
PO	-0.5648	-0.2092	0.7972	0.6012	-0.6138	-0.2373	-0.8341	0.10955	1

The highest negative relationship between variable is 0,5753 that relationship between DER and CAR. The relationship should be positive or negative because the increasing DER through increasing subordinate debt will increase CAR and Decreasing DER through increasing of equity will increase CAR. The relationship is statistically high significant. The lowest of negative coefficient of correlations is 0.0033 that it is relationship NIM and BOPO. The relationship is not statistically significant. RoA and BOPO has statistically negative significant. It will explain in the model later. RoA and DER has statistically negative significant. It will explain in the model later. RoA and NIM has statistically positive significant. It will explain in the model later. RoA and NPL has statistically negative significant. It will explain in the model later. RoE and BOPO has also statistically negative significant. It will also explain again in the model. RoE and CAR has also statistically negative significant. It will also explain again in the model. RoE and BOPO has also statistically negative significant. It will also explain again in the model. RoE and LDR has also statistically positive significant. It will also explain again in the model.

4.2 Return on Equity (RoE)

In this sub analysis will explain about bonds issuance by in Indonesia and descriptive analysis about investigation in this research.

In this paper, RoE is a proxy banking performance that will investigate using model data panel. Table 4 represented variable that affected RoE. This model has coefficient of determination (R^2) of 58,11%. It means that all independent variable could explained variation of RoE by 58.11% and remain by other variable. Hausman test has been done to investigate which model will use to analys banking ratio to performance of Bank. The result of Hausman test stated that the model of Random Effect will be used for investigation relationship financial ratio bank with performance bank. BOPO has

significantly negative relationship with RoE. BOPO decrease 1% that will affect RoE to increase less than 1% about 0,3213%. This results support the previous research and theory.

Table 4: Model Panel Data for ROE

C	0.38167	0.086417	4.416608	0
NPL?	-0.28413	0.577518	-0.49198	0.6244
BOPO?	-0.32128	0.063929	-5.02554	0
CAR?	-0.55819	0.187545	-2.97631	0.0041
LDR?	0.098156	0.058792	1.669555	0.0997
NIM?	1.619698	0.364167	4.447678	0
ISB?	-0.00242	0.010959	-0.22081	0.8259
PC	-0.05408	0.010882	-4.96984	0
ISBPC?	0.032434	0.020777	1.561075	0.1233
Random Effects (Cross)				
_1--C	0.024933			
_2--C	0.022142			
_3--C	0.087138			
_4--C	0.04358			
_5--C	-0.04524			
_6--C	-0.01678			
_7--C	-0.06303			
_8--C	-0.00852			
_9--C	0.021625			
_10--C	0.031001			
_11--C	0.023059			
_12--C	0.066005			
_13--C	-0.04925			
_14--C	-0.10921			
_15--C	-0.02746			

CAR has significantly negative relationship with the RoE that level of significant about 1%. CAR increase by 1% that will affect the ROE to decrease small than CAR about 0,558%. The result supported theory and previous research. LDR (Loan to Deposits Ratio) has significantly positive relationship with the RoE that level of significant about 10%. LDR increase by 1% that will affect the RoE to increase small than LDR about 0,0981%. The result supported theory and previous research. NIM (Net Interest Margin) has significantly positive relationship with the RoE that level of significant about 1%. NIM increase by 1% that will affect the RoE to increase highest than NIM about 1,620%. The result supported theory and previous research. Crisis period (showed by PC in model) has significantly negative relationship with RoE that level of significant about 1%. Crisis increases 1% that will affect RoE to decrease very small 0.054%. This result supported theory and previous research. The interaction crisis period and bond issuance (showed by ISBPC) has significant positive with the RoE. The level of significant is 15 percent. This results supported theory and previous research.

Variable ratio of NPL; and bonds issuance did not affect to the RoE. The bond issuance dose not affect the ROE that has been explained in testing coefficient correlation. Even

though it does not have statistically relationship, but based in economic thinking they have relationship so why bond issuance entered to model. The results did not support theory and previous research.

4.3 Return on Asset (RoA)

In this paper, RoA is a proxy banking performance instead RoA that will investigate using model data panel. Table 5 represented variable that affected RoA. This model has coefficient of determination (R^2) of 75.470%. It means that all independent variable could explained variation of RoA by 75.47% and remain by other variable. BOPO has significantly negative relationship with RoA. BOPO decrease 1% that will affect RoA to increase less than 1% about 0,0542%. This results support the previous research and theory.

Table 5: Model Panel Data for ROA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.058695	0.005822	10.08167	0
NPL?	-0.09526	0.036024	-2.64429	0.0102
BOPO?	-0.0542	0.004453	-12.1701	0
CAR?	-0.04211	0.011548	-3.64628	0.0005
LDR?	0.001921	0.003757	0.511367	0.6108
NIM?	0.235604	0.024348	9.676577	0
ISB?	-0.00209	0.00067	-3.12014	0.0027
PC	-0.003	0.00067	-4.48481	0
ISBPC?	0.00329	0.001272	2.58576	0.0119
Random Effects (Cross)				
_1--C	0.001598			
_2--C	-0.00174			
_3--C	0.008718			
_4--C	0.001691			
_5--C	-0.00626			
_6--C	0.001972			
_7--C	-0.00231			
_8--C	0.000484			
_9--C	0.001833			
_10--C	-0.00296			
_11--C	0.001798			
_12--C	0.008907			
_13--C	-0.00104			
_14--C	-0.0125			
_15--C	-0.00019			

CAR has significantly negative relationship with the RoA that level of significant about

1%. CAR increase by 1% that will affect the RoA to decrease very small 0,0421%. The result supported theory and previous research. Ratio of Net Interest Margin (NIM) has significantly positive relationship with the RoA that level of significant is 1%. NIM increase by 1% that will affect to increase RoA by small value 0,236%. This result supported theory and previous research.. Bonds Issuance (showed by ISB in the model) has significantly negative relationship with the RoA that level of significant is 1%. The ISB increase by 1% that will affect to decrease the RoA by 0.0021%. The results supported theory and previous research. The Crisis period (showed by PC in model) has significantly negative relationship with RoA that level of significant about 1%. Crisis period increase by 1% that will affect RoA to decrease very small 0.00105%. This result supported theory and previous research. The interaction crisis period and bond issuance (showed by ISBPC) has significant positive with the RoA. The level of significant is 5 percent. This results supported theory and previous research. NPL has significantly negative relationship with the RoE that level of significant about 1%. NPL increase by 1% that will affect the ROE to decrease small than NPL about 0,095%. The result supported theory and previous research.

Variable Loan Deposits ratio did not statistically significant affect to the RoA. The results did not support theory and previous research.

5 Conclusion

Based on the previous analysis, this paper has conclusion as follows:

1. BOPO, CAR, LDR, NIM statistically significant affected the RoE but NPL does not affect ROE. BOPO, CAR, NIM and NPL statistically significant affected the RoA, but LDR does not affect the RoA.
2. Bonds issuance does not affect the RoE but affected to the RoA
3. Crisis period affected the RoE and RoA.
4. The Interaction bond issuance and crisis period affected the RoE and RoA.

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