

The Impact of Internal Performance and Macroeconomic Conditions on Profitability in Indonesian Banking From 2015-2017

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Abstract

The purpose of this study is to analyze and measure the effect of internal performance and macroeconomics conditions on profitability in Indonesian banking (conventional and syariah bank) from 2015-2017. This research uses Granger of Causality and Vector Autoregressive (VAR)/Vector Error Correction Model (VECM) as a data analysis tool. The conclusions of this research are: 1) For conventional banks: the factors that have a positive influence to profitability (ROA) are BI Rate, NPL, inflation, and loan to deposit ratio; 2) For Islamic banks: the factors that have a positive influence to profitabilty (ROA) are exchange rate and inflation

Keywords: Internal Performance, Islamic Banking, Macroeconomics Conditions, Profitability

INTRODUCTION

The financial institutions have always been concerned with limiting the bank size in order to ensure financial stability. But, after the recent financial crisis of 2007/2008, this issue has gained much more importance in recent days and requires more explanations. The possible reason could be that empirical evidence accounted larger banks for the crisis, whereas these banks provide significant damage to several countries across the globe. (Muhammad Ali and Chin-Hong Puah, 2018).

The banking industry in Indonesia is very important in its role economy. The bank is one of the financial institutions has an important role in the economy of a country as financial intermediary institution. Bank in article 1 paragraph (2) Law No. 10 years 1998 concerning changes to Law No. 7 of 1992 concerning banking is business entity that collects funds from the public in the form of credit or loans and other forms in

order to improve living standards people. The types of banks in Indonesia are divided into two types of banks, namely banks conventional and Islamic banks. This is because banking is one of the functioning financial systems as Financial Intermediary, which is an institution that has a role to bring together the owners and users of funds (Yenni Annor Vivin and Budi Wahono, 2017).

The development of these two banking systems from 2015 to 2017 in Figure 1.

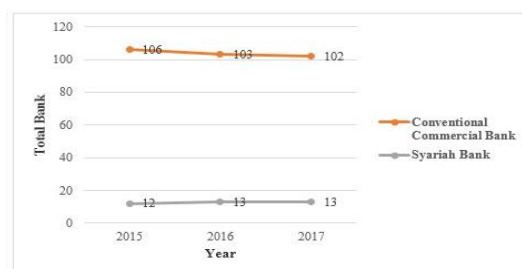


Figure 1. The development of the number of banks in Indonesia for the period 2015-2017

Source : Otoritas Jasa Keuangan (OJK)

In Figure 1 shows the development of banking syariah rises in Indonesia. In accordance with the research by Siraj and Pillai (2012) comparing the performance of conventional and syariah banks in the The Gulf Cooperation Council (GCC) proves that operating profit on syariah banks is increasing rapidly compared to conventional banks. Research on syariah and conventional banking by Abdalla Salih, et.al (2018) One might have predicted that the mismanagement of the assets due to excessive investments and loans that the conventional banks have undertaken during the boom period that preceded the crisis would have generated worse profitability (ROA) and efficiency (revenue/assets) performance than Islamic Banks. More analysis continued from Return on Equity (ROE) and Profit Expenxe Ratio (PER) reveals that syariah bank getting closer to conventional banks in the trend, not inconceivable that in the near future banks Islam may outperform conventional banks. The development of conventional bank ROA and syariah period 2015-2017 in Table 1.

Table 1. The ROA development of conventional commercial bank and syariah period 2015-2017

No	Type of Bank	2015	2016	2017
1	Conventional commercial bank			
	a. Book I	1.58	1.76	1.86
	b. Book II	1.86	1.87	1.69
	c. Book III	1.49	1.63	2.01
	d. Book IV	3.44	3.15	2.98
2	Syariah Bank			
	a. Book I	0.44	-0.75	-0.49
	b. Book II	0.61	0.91	1.30
	c. Book III	0.00	0.58	0.57

Source : Otoritas Jasa Keuangan (OJK) Indonesia
(Data is processed)

The success of a banking industry can be seen of the profitability ability that has been generated. Expressed by (Defri, 2012) that measurement internal banking performance is reflected in achievement of

profitability of a bank. Sri Suwarsi (2017) said the company size and profitability have significant positive effects on ISR and the industry types do not have significant effect on the ISR. The ratio of profitability was measured by ROA measure. The effectiveness of overall management is shown by the size of profit level of s in connection with the sale or investment. The better the profitability ratio, the better the ability of company profitability. The return on assets focus on the company's ability is to obtain earnings from the company's operations. Thus, in this study, the return on assets was used as the measure of profitability and performance of Islamic banking.

Beside that Tan, Aaron Yong, et.al (2012) said when estimating bank profitability, either measured by the ROA or NIM, we face a number of challenges. First, it is endogeneity: more profitable banks may be able to increase their equity more easily by retaining profits. The relaxation of the perfect capital markets assumption allows an increase in capital to raise expected earnings.

In Table 1 shows that the acquisition of ROA both conventional and syariah banking year 2017 demonstrate that for conventional commercial bank ROA has increased for conventional commercial bank book I where in year 2016 have value 1.76% whereas in year 2017 equal to 1.86% mean between year 2016 and 2017 for conventional commercial bank book I experience increase of 1,06%. Then for conventional commercial bank type II book in 2017 has decreased where in 2016 value of ROA owned by 1.87% and then in 2017 has a value of ROA of 1.69%. This means that between 2016 and 2017 decreased by 0.90%. Furthermore for conventional bank type III book type in 2017 has increased where in 2016 value of ROA owned by 1.63% and then in 2017 has a value of 2.01% ROA. This means that between 2016 and 2017 increased by 1.23%. Furthermore for conventional bank type IV book type in 2017 has decreased where in 2016 the value of ROA owned by 3.15% and then in 2017 has a ROA of 2.98%. This

means that between 2016 and 2017 decreased by 0.9%. While for Islamic banks type book I for the year 2017 has increased although the value of ROA for syariah bank type I book is still negative that in the beginning in 2016 amounted to -0.75% to 2017 at -0.48% or an increase of 0.65%, negative ROA result derived from the performance of Islamic banks in 2017 to earn still very little profit. Then for Islamic banks type book II for the year 2017 experienced an increase that initially in 2016 amounted to 0.91% to 2017 at 1.30% or an increase of 1.44%. Furthermore, for syariah banks book type III for the year 2017 decreased the level of ROA which initially in the year 2016 amounted to 0.58% to the year 2017 that is 0.57% or an increase of 0.99%.

Theodore Panagiotidis and Panagiotis Printzis (2016) said the key macroeconomic determinants by employing a two stage Vector Error Correction Model (VECM) that takes into account exogenous variables to gauge the short and the long run dynamics. The direction of causality and the long-term relation between housing prices and the other macroeconomic factors will be investigated. In Indonesian country indicator macro economics can be observed from the indicator movement of the variable the macro economics in Figure 2.

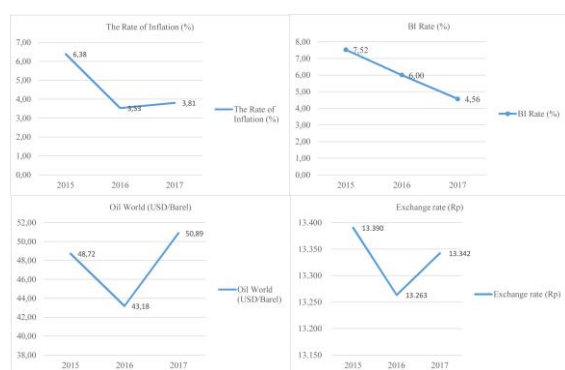


Figure 2. The development of macro economic conditions for the period of 2015-2017

Source Data : <https://www.bi.go.id> &
<https://alfred.stlouisfed.org>
 (Data is processed)

This study was conducted to examine and andexamine the factors of macroeconomics and performance internal

impact on profitability the banking industry in Indonesia is using conventional system and syariah system. Appropriate analysis in researching an eventusing time series data is Econometrics.

According Karel Mertens Jose and Luis Montiel Olea (2018) said econometrics time-series models that have been influential for evaluating the effects of monetary and fiscal policy interventions. Time series data is data recorded collected based on a certain period of time. Economic analysis of time series in general used to find the time series data pattern, both trend and volatility, and tofind the structure of relationships among the variables economic (moving) economic valuables time to time. The results of such observations can be provides an overview in front of the effects of macro economic will happen, so it can determine the attitudes and actions that can be donein the face of macro economic turn oil conditions at a later time. The role of banking as an intermedary institution within a country, and a profitable institution in the industry finance should be able to read and understand the situation the market is happening. Market conditions that become influences described through macro economic indicators. There this role, raises the question "is there the relationship between macro economic to Profitability the banking industry and the opposite condition?". As for the main purpose of this research is 1) analyze and measure the effect of internal performance variables conventional banking and syariah against profitability; 2) analyze and measure influence macro economic variables affect profitability in conventional and syariah banking

The research model that I use not a new model but taken from some empirical studies, but because year, operational definition and sample different research then results from this study has a difference with other empirical research.

METHODS

The data used in this study is data secondary. These secondary data are

statistical data from Otoritas Jasa Keuangan Indonesia (OJK), inflation data and exchange rate from Bank Indonesia (BI), and World Oil Prices DCOILWTICO. Also refers to literature, books, internet, journals, literature studies, and other articles related to the research this. Research is done by examining the factors of macro economic and influential internal performance to the profitability of the banking industry in Indonesia (conventional and syariah) with a span of time of year 2015 until 2017. The data used is data the value of internal performance and macro economic variables monthly. Variable used in this research the study is described in Table 2.

Table 2. Type of data and variable that using in this research

Type of Data	Variable	Source
Internal Performance	Non Performing Loan (NPL), Loan to Deposit Ratio (LDR), Capital Adequacy Ratio (CAR), Operating Expenses/Operating Income (OEOI), Return On Asset (ROA)	Bursa Efek Indonesia, Bank Indonesia, Otoritas Jasa Keuangan Indonesia
	INF	Bank Indonesia
	BI Rate	Bank Indonesia
	Oil	DCOIL, WTICO
	Exchange rate	Bank Indonesia

According Teresa Serra (2013) time-series econometric analyses for become analysis for the influence of macro economic on commodity prices and to provide substantial economic insight into price behavior patterns.

Cathy W. S. Chen and Sangyeol Lee (2016) the time series models in the aforementioned studies are univariate and follow auto-regressive schemes, but some exogenous variables can be incorporated in the models that describe data sets more properly than the original variables. To cope with this problem, we propose a modified

Granger causality test for bivariate time series.

According Robin Bruyndonckx, et.al (2017) F-tests are used to evaluate the significance of the included explanatory variables. Using F-test to test whether the information lag in variable Y provides information significant statistics about the variable X in explain the change X. If not, Y does not exist the cause and effect relationship of Granger with X. With form of equation:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + \dots + \alpha_1 y_{t-1} + \beta_1 x_{1,t-1} + \dots + \beta_1 x_{-1} + \varepsilon_t$$

$$x_t = \alpha_0 + \alpha_1 x_{t-1} + \dots + \alpha_1 x_{t-1} + \beta_1 y_{1,t-1} + \dots + \beta_1 y_{-1} + \varepsilon_t$$

In this research used VECM model as exogenous variables are ROA (Yt) and variable endogenous (Xt) is a macro economy (Exchange Rate, Inflation, BI Rate, World Oil Price), performance internal (Non Performing Loan (NPL), Loan to Deposit Ratio (LDR), Capital Adequacy Ratio (CAR), Operating Expenses/Operating Income (OEOI)) from Conventional Commercial Banks and Syariah Commercial Banks. Vector Error Correction Model (VECM) is capable see the long-term relationship of endogenous variables to converge into cointegration relationships with still allow the existence of short-term dynamics. According Firdaus (2011) as for the model specification VECM is generally as follows with the model which was formed in this study:

$$\Delta X_t = \pi_0 + \pi X_{t-1} + \pi_1 \Delta X_{t-1} + \pi_2 \Delta X_{t-2} + \dots + \pi_p \Delta X_{t-p} + \varepsilon_t$$

Where :

x_t : The vector contains the variables that are analyzed in the study (Rate, Inflation, Exchange Rate, Oil, CAR, LDR / FDR, NPL / NPF, OEOI and ROA)

π_0 : Intercepted vectors (n.1)

π : Matrix with elements π_{jk} , where $\pi_{jk} \neq 0$; (Rate, Inflation, Exchange Rate, Oil, CAR, LDR / FDR, NPL / NPF, OEOI and ROA)

- π_1 : The coefficient matrix is sized (n.n) with element π_{jk} (i); study (Rate, Inflation, Exchange Rate, Oil, CAR, LDR / FDR, NPL / NPF, OEOI and ROA)
- ε_t : Sized error vector (n.1) with element ε_{it}

With data that is time series multivariate then the appropriate analysis tool is VAR / VECM. Besides know the relationship between variables, also done research the effects of the effects of shock and pressure of the variables specified using Impulses Response Function (IRF) and Forecast Error Variance Decomposition (FEVD).

RESULT AND DISCUSSION

Influence of internal performance variables based on testing Granger causality in conventional banks of Indonesia from 2015-2017

Analysis on Influence of internal performance variables based on testing Granger causality in conventional banks of Indonesia from 2015-2017 can be shown in Figure 3 below:

Table 3. Pairwise Granger Causality Test conventional banks of Indonesia from 2015-2017

Null Hypothesis:	Obs	F-Statistic	Prob.
ER_CONVENTIONAL does not Granger Cause BIRATE_CONVENTIONAL	175	3.69194	0.0018
BIRATE_CONVENTIONAL does not Granger Cause ER_CONVENTIONAL		5.31255	5.E-05
INF_CONVENTIONAL does not Granger Cause BIRATE_CONVENTIONAL	175	2.60204	0.0196
BIRATE_CONVENTIONAL does not Granger Cause INF_CONVENTIONAL		1.35853	0.2345
LDR_CONVENTIONAL does not Granger Cause BIRATE_CONVENTIONAL	175	3.53079	0.0026
BIRATE_CONVENTIONAL does not Granger Cause LDR_CONVENTIONAL		2.91301	0.0100
OIL_CONVENTIONAL does not Granger Cause BIRATE_CONVENTIONAL	175	8.39007	6.E-08
BIRATE_CONVENTIONAL does not Granger Cause OIL_CONVENTIONAL		4.45786	0.0003
NPL_CONVENTIONAL does not Granger Cause CAR_CONVENTIONAL	175	3.59814	0.0022
CAR_CONVENTIONAL does not Granger Cause NPL_CONVENTIONAL		0.70121	0.6490
OEOI_CONVENTIONAL does not Granger Cause CAR_CONVENTIONAL	175	2.31800	0.0359
CAR_CONVENTIONAL does not Granger Cause OEOI_CONVENTIONAL		0.66500	0.6780
INF_CONVENTIONAL does not Granger Cause ER_CONVENTIONAL	175	4.63491	0.0002
ER_CONVENTIONAL does not Granger Cause INF_CONVENTIONAL		20.6713	7.E-18
OIL_CONVENTIONAL does not Granger Cause ER_CONVENTIONAL	175	5.54364	3.E-05
ER_CONVENTIONAL does not Granger Cause OIL_CONVENTIONAL		1.07340	0.3806
OIL_CONVENTIONAL does not Granger Cause INF_CONVENTIONAL	175	4.29400	0.0005
INF_CONVENTIONAL does not Granger Cause OIL_CONVENTIONAL		5.68819	2.E-05

Source : Otoritas Jasa Keuangan Indonesia (Data is processed)

From the results of the analysis of three tables of analysis of Pairwise Granger Causality Tests for conventional banks in Indonesia from 2015-2017, the internal performance of conventional banking from

2015-2017 can be seen which affects include:

1. Non Performing Loan (NPL) only affects Capital Adequacy Ratio (CAR) with probability value 0,0022 so it is smaller than value $\alpha = 0,05$; so that NPLs affect the CAR in Indonesia Conventional Bank from 2015-2017 because if the value of NPLs in conventional banks increased will be followed by a decrease in the value of CAR in a banking. This is consistent with the research conducted by Claudya Aprilinda Aluy, et. al (2017), which states that Non Perfortming Loans (NPL) affect the Capital Adequacy Ratio (CAR).
2. Loan to Deposit Ratio (LDR) only affects the BI Rate with probability value of 0.0026 so that smaller than $\alpha = 0,05$; so that LDR has influence on BI Rate; this is due to conventional banks from 2015-2017 in disbursing credit to customers using BI Rate as a reference in charge of lending rates to customers. This is consistent with the research conducted by Itzhak Ben-David, et. al (2017) which states that the Loan to Deposit Ratio (LDR) chooses a significant influence on the BI Rate.
3. Operating Expenses / Operating Income (OEOI) only affects Capital Adequacy Ratio (CAR) with probability value 0,0359 so it is smaller than value $\alpha = 0,05$; so OEOI has an influence on the CAR Indonesia Conventional Bank from 2015-2017; in the income statement owned by a bank in maintaining the bank's own capital so that the funds can be used to distribute microcredit to its customers. This is consistent with research conducted by Harry DeAngelo and Rene M. Stulz (2015) which states that the Operating Expenses / Operating Income (OEOI) only affects the Capital Adequacy Ratio (CAR).
4. For inflation has influence on three things: first, BI Rate with probability value 0,0196 smaller than value $\alpha = 0,05$; so inflation has an effect on BI rate Indonesia Conventional Bank from 2015-

2017. Between inflation and BI rate have a very close relationship in the field of economics such as in the banking world. The relationship between inflation and the BI Rate will be seen when the amount of cash in circulation in the community decreases, inflation growth will indeed be depressed. But on the other hand also at risk of suppressing economic growth. If banks are reluctant to lend capital to entrepreneurs because they prefer to keep their money in BI, then entrepreneurs will certainly have difficulties developing their business, and will ultimately suppress overall economic growth. Therefore, if the inflation rate has been restrained then BI can lower its BI rate, so that the previously deposited funds can be re-disbursed to the community, to grow the economy and create jobs. This is also revealed by Paul Ehling et al. (2018) who states that in contrast to expected inflation, which mainly affects the wedge between real and nominal yields, inflation disagreement affects nominal yield, which has an impact on the real side of the economy.

Then second, Inflation has an effect on the Exchange Rate with a probability value of 0,0002 smaller than the value $\alpha = 0,05$ so that inflation has an effect on the exchange rate Indonesia Conventional Bank from 2015-2017. This is caused by more imports of goods from abroad than the inflation rate of Indonesia's economic growth becomes high and the foreign exchange rate is getting stronger. It is good to offset domestic goods and imported goods or to further reduce the level of imported goods and increase export goods, so that inflation and foreign exchange rates will stabilize. This is consistent with the research conducted by Christopher Allsopp et al. (2016) which states that transmission mechanism of monetary policy while also offering a sustainable explanation of the weakness of the exchange rate/inflation relationship and making consumer price inflation an appropriate monetary policy target.

Third, the effect of inflation on oil with a probability value of 0,00002 is smaller than the value of $\alpha = 0,05$ so that said inflation has a positive influence on the oil Indonesia Conventional Bank from 2015-2017; so that Bank Indonesia is expected to maintain economic stability in Indonesia through the level of inflation at a certain level or fair and maintain exchange rate to stay in the economic position. According to Muhammad Afdi Nizar (2012) states that rising oil prices also lead to rising inflation. Higher crude oil prices will soon be followed by rising prices of petroleum products, such as gasoline and fuel oil used by consumers.

5. For the BI Rate itself has an influence on three things: first, the Exchange Rate with a probability value of 0.001 is smaller than the value $\alpha = 0.05$; so the BI Rate has an effect on the Exchange Rate Indonesia Conventional Bank from 2015-2017. According to the chief economist of Bank Mandiri, Destry Damayanti (2013) said that assessing the BI move to raise the BI Rate is very appropriate. This will be the driver of inflation numbers that have soared and US dollar pressure (US) against the movement of the rupiah exchange rate.

Second, Loan to Deposit Ratio (LDR) with probability value 0.01 is smaller than $\alpha = 0,05$; so that the BI Rate has an influence on the Loan to Deposit Ratio (LDR) in Indonesia Conventional Bank from 2015-2017 so that according to Destry Damayanti (2013) stated that the impact of BI Rate increase will lead to banking, such as the increase of bank interest. But this can not be avoided, because banks will get a limited liquidity and Loan Deposit Ratio (LDR) is high and burdensome.

Third, Oil with probability value 0.0003 smaller than value $\alpha = 0,05$; so the BI Rate has an influence on Oil in Indonesia Conventional Bank from 2015-2017. This is in line with the research Muhammad Afdi Nizar (2012) states that the shock of international oil prices gives effect to

economic growth, inflation rate, money supply, real exchange rate of rupiah against US dollar and change of BI Rate in domestic.

6. For Oil itself has influence on three things: first, BI Rate with probability value 0,00000006 smaller than value $\alpha = 0.05$; so Oil has a positive influence on BI Rate. Second, the Exchange Rate with a probability value of 0.001 is smaller than the value of $\alpha = 0.05$; so Oil has a positive effect on the Exchange Rate. And the last is Inflation with probability value 0.0005 smaller than value $\alpha = 0.05$; so Oil has a positive influence on Inflation has an effect on inflation in conventional banks from 2015-2017. This is in accordance with the research Christiane Baumeister and Lutz Kilian (2014) Oil has a positive influence on Inflation.
7. Furthermore, Exchange Rate has an influence on two variables namely first, BI Rate with probability value 0,0018 smaller than value $\alpha = 0,05$; so the Exchange Rate has an effect on the BI Rate. Second, Inflation with probability value 0.000000000000000007 smaller than value $\alpha = 0,05$; so the Exchange Rate has an effect on inflation in conventional banks from 2015-2017. This is in accordance with the research conducted by Jonathan M. Chipili (2015) which states that the Exchange Rate has an influence on the Bank Rate and Inflation.

Influence of internal performance variables based on testing Granger causality in syariah banks of Indonesia from 2015-2017

Analysis on influence of internal performance variables based on testing Granger causality in syariah banks of Indonesia from 2015-2017 can be shown in table 4 below :

Table 4. Pairwise Granger Causality Test syariah banks of Indonesia from 2015-2017

Null Hypothesis:	Obs	F-Statistic	Prob.
ER_SYARIAH does not Granger Cause BIRATE_SYARIAH	90	1.85412	0.0996
BIRATE_SYARIAH does not Granger Cause ER_SYARIAH		2.37575	0.0370
OIL_SYARIAH does not Granger Cause BIRATE_SYARIAH	90	3.45563	0.0045
BIRATE_SYARIAH does not Granger Cause OIL_SYARIAH		1.46294	0.2021
INF_SYARIAH does not Granger Cause CAR_SYARIAH	90	0.52616	0.7868
CAR_SYARIAH does not Granger Cause INF_SYARIAH		2.15006	0.0570
LDR_SYARIAH does not Granger Cause CAR_SYARIAH	90	1.28572	0.2738
CAR_SYARIAH does not Granger Cause LDR_SYARIAH		2.30763	0.0422
INF_SYARIAH does not Granger Cause ER_SYARIAH	90	2.89864	0.0133
ER_SYARIAH does not Granger Cause INF_SYARIAH		5.55053	8.E-05
OIL_SYARIAH does not Granger Cause ER_SYARIAH	90	3.38907	0.0051
ER_SYARIAH does not Granger Cause OIL_SYARIAH		0.89925	0.5000
OIL_SYARIAH does not Granger Cause INF_SYARIAH	90	1.94252	0.0845
INF_SYARIAH does not Granger Cause OIL_SYARIAH		2.79497	0.0163
ROA_SYARIAH does not Granger Cause NPF_SYARIAH	90	1.58590	0.1626
NPF_SYARIAH does not Granger Cause ROA_SYARIAH		2.20669	0.0512

Source : Otoritas Jasa Keuangan Indonesia (Data is processed)

From the results of the analysis of three tables of analysis of Pairwise Granger Causality Tests for syariah banks in Indonesia from 2015-2017, the internal performance of syariah banking from 2015-2017 can be seen which affects include:

1. Non Performing Financing (NPF) in syariah banks in Indonesia only affects Return On Assets (ROA) with probability value 0.05 so that the same value $\alpha = 0.05$; so that the NPF affects the ROA in syariah banks in Indonesia from 2015-2017. This is not in accordance with research conducted by Ningsukma Hakiim and Haqiqi Rafsanjani (2016) which states Variables BOPO and NPF negatively affect the ROA of Syariah Bank.
2. Capital Adequacy Ratio (CAR) has influence to Loan to Deposit Ratio (LDR) with probability value 0,04 so equal value $\alpha = 0,05$; so that the CAR affects the LDR in the syariah banks in Indonesia from 2015-2017. This is not in accordance with research conducted by Usman Harun (2016), which states that CAR variables have a significant positive effect on LDR, this is indicated by a significance smaller than 0,05 and have probability 0.000 and coefficient -3.921, so that CAR positively affect LDR.
3. Inflation has an influence on two variables including first, Exchange Rate which has a probability value of 0,01 so that it is smaller than $\alpha = 0.05$; so

Inflation affects the Exchange Rate of syariah bank in Indonesia from 2015-2017. Then secondly, Oil has a probability of 0,02 so that its value is smaller than $\alpha = 0,05$; so Inflation affects the Oil at Islamic banks in Indonesia from 2015-2017.

4. Oil has an influence on two variables including first, BI Rate which has a probability value of 0,0045 so that it is smaller than $\alpha = 0,05$; so Oil has an effect on BI Rate in syariah bank in Indonesia from 2015-2017. Then second, the Exchange Rate has a probability of 0,0051 so that the value is smaller than $\alpha = 0,05$; so Oil has an effect on to the Exchange Rate on syariah bank in Indonesia from 2015-2017.
5. Exchange Rate has an effect on Inflation with probability value 0,00008 so that its value is smaller than $\alpha = 0,05$; so that the Exchange Rate affects the Inflation of Islamic banks in Indonesia from 2015-2017.

Impulse Response Function (IRF) Macro Economy to ROA

1. IRF BI Rate to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF BI Rate to Return On Asset (ROA) can be seen in Figure 3 below:

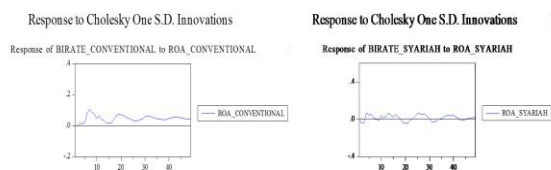


Figure 3. IRF BI Rate to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

BI-Rate to ROA, indicating that BI Rate shocks that occur make profitability conventional banking and syariah are in the area negative. The negative value of syariah banking is greater than conventional banking. Stable state faster

achieved by conventional banking rather than syariah. This is because the system used by conventional banks refer to BI Rate. BI Rate is used as a reference for internal rate savings and loans. Therefore, when there will be an increase in the BI Rate then conventional banks will increase internal deposit/saving deposit rate) and loans.

2. IRF Non Performing Loan (NPL) / Non Performing Financing (NPF) to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017
- Analysis IRF NPL/NPF to Return On Asset (ROA) can be seen in Figure 4 below:

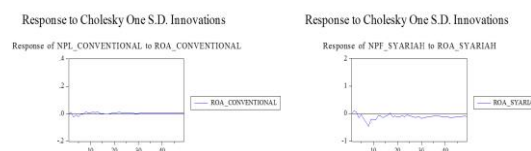


Figure 4. IRF NPL/NPF to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

NPL / NPF to ROA, shows NPL / NPF shocks that occur to make conventional banks are in positive areas while for syariah banks themselves are in negative areas. This is due to the increase in loan interest rate, resulting in the NPL and the decline in the value of loans disbursed, conventional banks still have other revenue channels to achieve profitability targets. At the time of the sharp increase in BI Rate, it is seen that syariah banks are substituted from conventional banking.

Pursuant to research of Poetry (2011) explains that when interest rate of SBI increase accompanied by increasing of lending interest rate in conventional banking causing conventional banking customer have difficulty to return its credit to conventional banking because of high interest expense coupled with inflation condition, in conventional

banking increased. Strengthened by the statement of Shita Tiara (2014) that Bank Indonesia regulations have a direct influence on the NPL of a bank, for example BI raises the BI rate which will cause credit interest rates to rise. By itself the ability of the debtor to repay the loan principal and interest will decrease.

3. IRF Exchange Rate to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Exchange Rate to Return On Asset (ROA) can be seen in Figure 5 below:

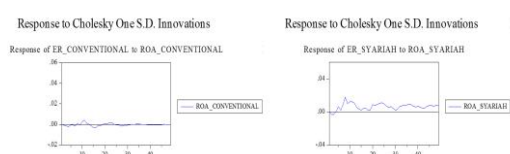


Figure 5. IRF Exchange Rate to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia (Data is processed)

The IRF Exchange Rate to ROA analysis shows that in the event of an exchange rate shock (weakening of the rupiah against the dollar) then profitability will be accepted by the banking industry. In the conventional bank the profitability value is in the stagnant area between positive and negative, as opposed to the syariah bank which is in the positive area. Stable value of profitability was achieved faster by syariah banks in the 10th period. The impact of exchange rate shocks for conventional banks seen in Figure 4 is stagnant. This pattern indicates that conventional bank games in the financial sector can generate profitability. The impact for syariah banking from exchange rate shocks is profitability increase (ROA line is in negative area). This incident is caused by more Islamic banks plunge into the financing of the real sector. Islamic banks do not play games in the financial sector, putting forward the banking

intermediation function to finance the real sector.

In accordance with research This is similar to the statement of Julentia M. V. Makatita, et.al (2016) that the price of exports has a very close relationship with the exchange rate or the exchange rate. If the rupiah exchange rate against US \$ depreciates or the US dollar appreciates it will affect the increase in exports and in this case the exporters will also benefit. Conversely, if the rupiah exchange rate against US\$ experiences appreciation or the US\$ depreciates then exports will decline and exporters will be harmed.

Therefore, the NPL and NPF levels in both types of banking declined. With the rupiah exchange rate strengthening against the dollar then the profit can be maximized for both banking industry. This is the opposite if the rupiah weakens against the dollar then profitability will decrease.

4. IRF Inflation to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Inflation to Return On Asset (ROA) can be seen in Figure 6 below:

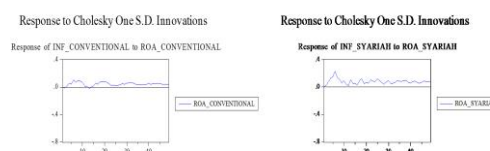


Figure 6. IRF Inflation to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017
Source : Otoritas Jasa Keuangan Indonesia (Data is processed)

Inflation occurring in both banks is at the same value. Inflation signifies the amount of money circulating in the community. The higher the value of inflation, the higher the money in circulation in the hands of the people, it is driven by rising prices in certain sectors. Changes in this condition followed by the pattern of the community in using banking services both loans and savings. If the inflation rate is

high then this condition can affect profitability in banking.

This shows that in the inflation condition Islamic banks can not take profits greatly because of inflation that threatens the real sector perceived directly by syariah banks. Different conditions in conventional banks engaged in the financial sector of the market can have a greater advantage. In accordance with the results of research Khan (2014) in Pakistan that inflation can increase profitability (ROA) of conventional banking significantly.

5. IRF Oil to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Oil to Return On Asset (ROA) can be seen in Figure 7 below:

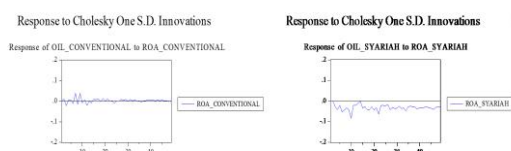


Figure 7. IRF Oil to Return On Asset (ROA) in Indonesia Conventional Bank & .Syariah Bank from 2015-2017
Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

The World Oil Price Shock (OIL) causes the profitability of syariah banks to be in negative areas. Conventional banks have a greater positive value than syariah banks. OIL contributes to the real sector that lowers the financing channel by syariah banks. Unlike the conditions in conventional banking. In accordance with the research conducted by Reshinta Candra Gumilang, et.al (2014), the world oil price has a negative and significant effect on the JCI. The increase in world oil prices will cause an increase in other needs because oil is a vital necessity. Rising prices for manufactured goods will cause companies to experience an increase in production costs. This certainly will greatly affect the company's performance and profits. When the company's performance and profits show

unfavorable results, investors will sell the shares they have. This certainly will affect stock prices and also the composite stock price index.

6. IRF Operating Expense and Operating Income (OEOI) to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Operating Expense and Operating Income (OEOI) to Return On Asset (ROA) can be seen in Figure 8 below:

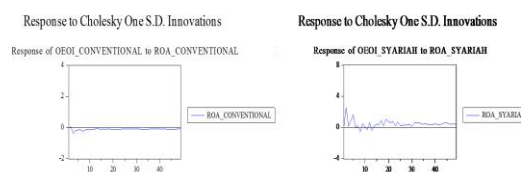


Figure 8. IRF OEOI to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

From Figure 8 above can be illustrated that if there are shocks to operating costs and operating income it will affect the Return On Asset rate in conventional banks and syariah banks. If the conventional bank if viewed from the image already displayed it will be seen that there will be a negative influence on ROA, this is caused by operational costs incurred by conventional banks will affect net income after tax, on the contrary for Islamic banks have an inverse effect that is every a shift in operational costs and operating income will have a positive effect.

7. IRF Capital Adequacy Ratio (CAR) to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Capital Adequacy Ratio (CAR) to Return On Asset (ROA) can be seen in Figure 9 below:

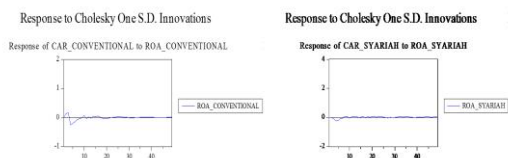


Figure 9. IRF CAR to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

From Figure 9, it can be analyzed that when the value of Capital Adequacy Ratio occurs, the Return On Asset rate on conventional and syariah banks is relatively stable. This means that the level of capital adequacy ratio that indicates the ability of banks in providing funds used to overcome the possibility of the risk of loss is still relatively stable. This is not in accordance with research conducted by Erna Sudarmawanti and Joko Pramono (2017) which states that the ratio of Capital Adequacy Ratio has no significant effect on the Return On Assets on Rural Banks in Salatiga from 2011-2015.

8. IRF Loan to Deposit Ratio (LDR) to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Analysis IRF Loan to Deposit Ratio (LDR) to Return On Asset (ROA) can be seen in Figure 10 below:

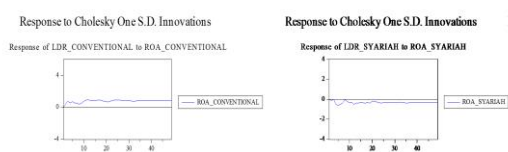


Figure 10. IRF LDR to Return On Asset (ROA) in Indonesia Conventional Bank & Syariah Bank from 2015-2017

Source : Otoritas Jasa Keuangan Indonesia
(Data is processed)

From Figure 10, it can be analyzed that the level of Loan to Deposit Ratio (LDR) on Return On Assets (ROA) in conventional banks and syariah banks have different effects. For conventional banks to be in a positive area, this

indicates conventional banks have good performance because conventional banks are able to manage the funds obtained from customers either in the form of savings, deposits and then distributed into credit to the community so that conventional banks from 2015 to 2017 get a profit of the loan disbursement. As for Islamic banks seen in negative areas, this means that the performance of credit distribution for Islamic banks should be fixed again.

This is different from the research conducted by Pupik Damayanti and Dhian Andanarini Minar Savitri (2012) which states that the Loan to Deposit Ratio (LDR) is not proven to have a positive and significant effect on Return On Asser (ROA) in the Indonesian banking.

Managerial Implications

The success of banking in achieving profitability can foster a sense of community trust. Macroeconomic conditions provide a signal and a signal for banks to immediately take a stand for the purpose of the formation of high profitability can be maintained. Managerial implications of both banking system (conventional and syariah) that can be taken is the Government through OJK participate in regulating the business plan of banks in a region, this is to be able to control the effects of bubble credit that led to uncontrolled inflation due to competition in the banking industry. The government increases the competitiveness of the real sector to protect the real sector itself against the exchange rate that can lead to inflation. The government also provides education to the community about the functions of both banks so that people really know the options to be gained. The government is also increasing the number of Islamic banks that exist, so it can balance the banking competition. For conventional banks need to reduce the placement of funds in the financial sector so as to avoid the value of the fall in the exchange rate resulting in a crisis. Syariah banking needs to educate the public about the banking business process

syariah and its owned products. Channeling financing by better recognizing business risk profiles in the real sector. Improve cooperation with the government in participating in managing state budget funds. For the community, the use of banking functions that have application in the real sector is higher, as an effort to grow the domestic real sector also reduces the risk of exchange rate changes that occur.

Conclutions

The conclutions of this research are:
1) For conventional banks: the factors that have a positive influence to profitability (ROA) are BI Rate, NPL, inflation, and loan to deposit ratio; 2) For Islamic banks: the factors that have a positive influence to profitabilty (ROA) are exchange rate and inflation

REFERENCES

- Abdalla Salih, Mahieddine Adnan Ghecham and Sameer Al-Barghouthi. 2018. The impact of global financial crisis on conventional and Islamic banks in the GCC countries. *International Journal of Finance & Economics* 23(4): 1-13
- Bank Indonesia. 2017. Inflation, Exchange Rate and BI Rate Report. <https://www.bi.go.id>. [12 April 2018]
- Cathy W. S. Chen and Sangyeol Lee. 2016. Bayesian causality test for integer-valued time series models with applications to climate and crime data. *Journal of the Royal Statistical Society* 66(4): 797-814
- Christiane Baumeister and Lutz Kilian. 2014. What Central Bankers Need To Know About Forecasting Oil Prices. *International Economic Review* 55(3): 869-889
- Christopher Allsopp, Amit Kara and Edward Nelson. 2016. United Kingdom Inflation Targeting And The Exchange Rate. *The Economic Journal* 116(512): 232-244
- Claudia Aprilinda Aluy, Joy Elly Tulung and Hizkia H.D. Tasik. 2017. The Influences Between The Existence Of Women On Board And Managerial Ownership To Financial Banking Performance (Case Study In State-Owned Enterprise Bank and Private Bank In Indonesia). *Jurnal Riset Ekonomi, Manajemen, Bisnis dan Akuntansi* 5(2): 821-828
- Defri. 2012. Pengaruh Capital Adequacy Ratio (CAR), Likuiditas dan Efisiensi Operasional Terhadap Profitabilitas Perusahaan Perbankan yang Terdaftar di BEI. *Jurnal Manajemen* 1(1):1-18.
- Destry Damayanti. 2013. Kenaikan BI Rate jadi penjaga inflasi dan nilai tukar rupiah. <https://www.liputan6.com>. [06 Juni 2018]
- Erna Sudarmawanti & Joko Pramono. 2017. Pengaruh CAR, NPL, BOPO, NIM dan LDR Terhadap ROA : Studi Kasus pada Bank Perkreditan Rakyat di Salatiga yang terdaftar di Otoritas Jasa Keuangan Tahun 2011-2015. *Among Makarti* 10(19):1-18
- Harry DeAngelo, Rene M. Stulz. 2015. Liquid-claim production, risk management, and bank capital structure: Why high leverage is optimal for banks. *Journal of Financial Economics* 116(2): 219-236
- Itzhak Ben-David, Ajay Palvia, and Chester Spatt. 2017. Banks' Internal Capital Markets and Deposit Rates. *Journal of Financial and Quantitative Analysis* 52(5): 1797-1826
- Jonathan M. Chipili. 2015. Copper Price And Exchange Rate Dynamics In Zambia. *Journal of International Development* 28(6): 876-886
- Julentia M. V. Makatita, Ribka M. Kumaat and Juliana R. Mandei. 2016. Analisis faktor-faktor yang mempengaruhi ekspor tepung kelapa Sulawesi Utara. *Jurnal Ilmiah Sosial Ekonomi Pertanian* 12(2): 273-282
- Karel Mertens and Jose Luis Montiel Olea. 2018. Marginal Tax Rates And Income: New Time Series Evidence. *The Quarterly Journal of Economics* 133(4): 1803-1884

- Khan WA. 2014. Impacts of inflationary trends on banks' performance (large banks segment) in Pakistan. *International Journal of Accounting and Financial Reporting* 4(1):296–306. <http://dx.doi.org/10.5296/ijafr.v4i1.608>.
- Muhammad Afdi Nizar. 2012. The Impact of World Oil Prices Fluctuation on Indonesia's Economy. *Buletin Ilmiah Litbang Perdagangan* 6(2):193-205
- Muhammad Ali and Chin-Hong Pua. 2018. Does Bank Size and Funding Risk Effect Bank Stability? A Lesson from Pakistan. *Global Bussiness Review - Sage Publications* 19(5):1166-1186
- Ningsukma Hakiim and Haqiqi Rafsanjani. 2016. Pengaruh Internal Capital Adequacy Ratio (CAR), Financing To Deposit Ratio (FDR), dan Biaya Operasional Per Pendapatan Operasional (BOPO) dalam peningkatan profitabilitas industri bank syariah di Indonesia. *Jurnal Perbankan Syariah* 1(1): 60-74
- Paul Ehlinga, Michael Gallmeyerb, Christian Heyerdahl-Larsenc and Philipp Illeditschd. 2018. Disagreement about inflation and the yield curve. *Journal of Financial Economics* 127(3): 459-484
- Poetry ZD. 2011. Pengaruh variabel makro dan mikro terhadap NPL perbankan konvensional dan NPF perbankan syariah. *Tazkia Islamic Finance and Business Review* 6(2):79–104
- Pupik Damayanti and Dhian Andanarini Minar Savitri. 2012. Analisis Pengaruh Ukuran (Size), Capital Adequacy Ratio (CAR), Pertumbuhan Deposit, Loan To Deposit Rasio (LDR), Terhadap Profitabilitas Perbankan Go Public Di Indonesia tahun 2005-2009 (Studi Empiris perusahaan Perbankan yang Terdaftar di BEI). *Jurnal Ilmu Manajemen dan Akuntansi Terapan* 3(2): 45-54
- Reshinta Candra Gumilang, R. Rustam Hidayat and Maria Goretti Wi Endang NP. 2014. Pengaruh variabel makro ekonomi, harga emas dan harga minyak dunia terhadap indeks harga saham gabungan (Studi pada Bursa Efek Indonesia Periode 2009-2013). *Jurnal Administrasi Bisnis* 14(2): 1-9
- Robin Bruyndonckx, Niel Hens and Marc Aerts. 2017. Simulation based evaluation of the linear mixed model in the presence of an increasing proportion of singletons. *Biometrical Journal* 58(5): 1054-1070
- Shita Tiara. 2014. Analisis pengaruh jumlah kredit yang disalurkan dan non performing loan (NPL) terhadap laba pada PT. Bank Tabungan Pensiunan Nasional (persero),tbk Kantor Cabang Medan Putri Hijau. *Jurnal Ilmu Ekonomi dan Studi Pembangunan* 14(1): 38-56
- Siraj KK, Pillai PS. 2012. Comparative study on performance of Islamic banks and conventional banks in GCC region. *Journal of Applied Finance and Banking* 2(3): 123–161.
- Sri Suwarsi. 2017. The Influence of Islamic Social Reporting to the Return on Asset (Case study of Islamic Banks in Indonesia). *International Journal of Management and International Business Studies* 7(1): 1-9
- St. Louis Fed's Economic Research Division. 2017. Download Data for Crude Oil Prices: West Texas Intermediate (WTI) - Cushing, Oklahoma (DCOILWTICO). <https://alfred.stlouisfed.org>. [12 April 2018]
- Tan, Aaron Yong and Floros, Christos. 2012. Bank profitability and inflation: the case of China. *Journal of Economic Studies* 39(6): 675-696
- Teresa Serra. 2013. Time-series econometric analyses of biofuel-related price volatility. *Journal Agricultural Economics* 44(1): 53-62
- Theodore Panagiotidis and Panagiotis Printzis. 2016. On the macroeconomic determinants of the housing market in Greece: a VECM approach. *Journal International Economics and Economic Policy* 13(3): 387-409

- Usman Harun. 2016. Pengaruh Ratio-Ratio Keuangan CAR, LDR, NIM, BOPO, NPL Terhadap ROA. *Jurnal Riset Bisnis dan Manajemen* 4(1): 67-82
- Yenni Annor Vivin and Budi Wahono. 2017. Analisis Perbandingan Kinerja Keuangan Bank Umum Syariah dengan Bank Umum Konvensional di Indonesia. *Jurnal Ilmiah Riset Manajemen* 6(8): 15-28