Causality of Macroeconomic Variables with Third-Party Funds of Shariah Banking in Indonesia on Period 2009-2016

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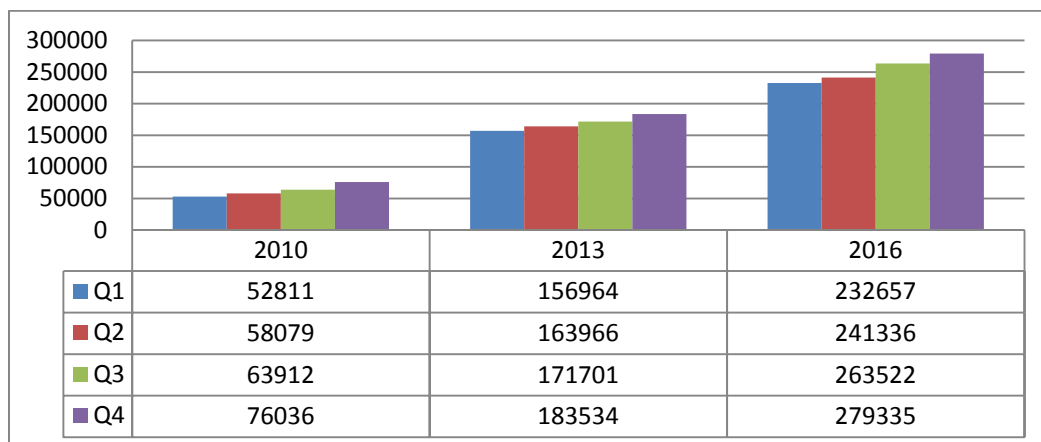*** Faculty of Economics, Sriwijaya University, Indonesia*

Abstract- The purpose this studies to determine the causality of macroeconomic variables, including gross domestic product, inflation and exchange rates with third-party funds of Shariah banking in Indonesia. The data used is secondary data obtained from Bank Indonesia (BI) and Central Agency Statistics (BPS) in the period of quarter I 2009 to quarter IV 2016. Model used in this study is Granger Causality. Research result using granger causality test shows that, the variable of third-party funds have a causal relationship with the variables of gross domestic product and exchange rates, while the variables of third-party funds with inflation have one-way relationship. That is variable of inflation impact to variable third-party funds of Shariah banking in Indonesia.

Index Terms- Third-party Funds, Macroeconomic Variables, Granger Causality

I.   INTRODUCTION

Islamic banks are bank that operate according to the principles and provisions of Islamic law (Mawaddah, 2015). Islamic banking provides a variety of products to develop and perform the functions as a banking institution. Karim (2011) classifies shariah banking products into three categories, namely fund distribution products (priciples of murabaha (trade) and ijara (rent) principles, fund raising (principles of wa'diah (deposit) and mudhrabah (profit sharing) priciples and banking services (trade and investment).

Santoso and Rahmawati (2016) said that one of the most important products in maintaining the continuity of shariah banking, namely the collection of funds called third-party funds. There are several forms of fund raising offered by sharia banking, including demand deposits, saving accounts and deposits based on wadiah and mudharabah.

	2010	2013	2016
Q1	52811	156964	232657
Q2	58079	163966	241336
Q3	63912	171701	263522
Q4	76036	183534	279335

Source: Report of Bank Indonesaia

Figure 1.1 Growth of Third-Party Funds in Sharia Banking on Period Q1 2009 to Q4 2016

Based on figure 1.1 can be seen in 2013 the growth of third-party funds has increased each quarter. In quarter IV of 2016 third-party funds increased to 279.335 Billion Rupiah. In 2010 also increased in the first quarter to reach the highest value in quartal 4 to 76.036 billion rupiah.

The growth of third-party funds sharia banking is influenced by internal and external factors, internal factors such as the level of profit sharing and the number of banks. While external factors include national income and inflation (Wulandari, 2015). The growth of third-party funds also has an impact on economic activities and macroeconomic variables through financing.

Third-party funds can be affected by macroeconomic factors, this is revealed through research conducted by Adim (2017) found that gross domestic product positively affects the growth of third-party funds. Other Macroeconomic variables, in addition to gross domestic product such as inflation and exchange rate. Research conducted by Sutono and Kefi (2014) found that inflation has a negative effect on third-party funds, while the exchange rate has a positive effect on third-party funds.

Based on description of the relationship between research variables and previous research, the researchers will examine the causality of variables of gross domestic product, inflation and exchange rate with third-party funds of sharia banking in Indonesia. The update conducted by the researchers is in terms of analysis that not only see the influence of one-way but also see the causality between research variables. The variables used in the research there are updates using the three macroeconomic variables, namely gross domestic product, inflation and exchange rate.

II.   RESEARCHS ELABORATIONS

2.1 The concept of Third-Party Funds in Sharia Banking

One of the goals of estabilishing a banking institution is to raise funds from the public or costumers. According to Febianda (2017) Third-party funds is a public savings fund consisting of savings, demand deposits and time deposits. Piliyanti dan Wahyuni (2014) Third-party funds raising is one of the functions of banks to raise funds from those who are over money and distribute to the parties who need funds. Veratama (2013) Third-party funds are funds collected from the public based on the wadi'ah and mudharabah agreement.

The following formulation of the structure and choice of fundraising products in sharia banking according to Suhartatik (2014).

Third-party funds = Savings + current account +deposit…………….(1)

2.2 Gross Domestic Product

Gross domestic product is good and services produced within a certain period. According to Rahardja and Manurung (2004) GDP value of a certain period resulted from the multiplication of the price of goods the quantity of goods produced. Increasing GDP will increase the profitability of banks because there will be the ability of the public to save or invest money in the bank.

McEachern (2000) measures gross domestic product through two pproaches, namely the expenditure approach and income approach, with the following formula:

GDP = C + I + G + (X-M) = Aggregate Expenditure + Aggregate income…………….(2)

2.2 Inflation

Inflation is defined as the continuing rise in prices in the economy caused by changes in aggregate demand and aggregate supply (McEachern, 2000). According to Sutono and Kefi (2014) inflation can also be interpreted the process of continuous decline in currency values.Which is also caused by the high level of speculation and the distribution of goods that are not smooth.

Sukirno (2011) classifies inflation based on causes of the price increases, namely demand pull inflation, inflation pressure and imported inflation. Inflation can be calculated using two components, namely consumer price index (based on production cost) (Rahman, 2015). Here's an example of inflation calculation based on consumer price index:

Inflation=$CPI-CPI_{n-1}/CPI_{n-1}$X 100%...........................(3)

2.3 Exchange Rates

The exchange rate is defined as the amount of a particular currency if it wants to be exchanged or get one unit of another currency (Roswita, 2003). Mankiw (2007) exchange rate is the value of currency exchange agreed upon by both residents of the state in exchange or trade. Determination the exchange rate can be done by transfer to market mechanism or also use fixed exchange rate or non-market mechanism (Rahardja & Manurung, 2004).

According to Putranti (2015) adeclining currency will reduced the purchasing power of the income or profit earned by the community, on the contrary the value of the increased currency will increase the purchasing power of income and profits. Foreign Exchange rates determine the level of domestic economic stability that also affects the banking in Indonesia (Veratama, 2013). According to Roswita (2003) there are several factors causing the exchange rate changes, including as follows:

a.   Change in taste

b.   Price change of export goods

c.   Increase inflation in the country

d.   Interest rate changes

e.   The rate of economic growth

f.   People'S speculation on exchange rate fluctuation.

2.4 Theory of economic growth in Islam

Zuhdii (2003) argued that the main difference between the concept and theory of Islamic economic growth with conventional lies in the principle based on Al-Quran and Hadith, as for the principle in question, is Tauhid, Rububiyyah, Khalifah and Tazkiyah.

According Naqvi (1991) economic growth in Islam includes a balance between the material and moral-spiritual aspects of humans with the following summary:

a. Economic growth in Islam ensures a fair distribution of income or prosperity and maintains a safe growth rate.

b. Economic growth must maintain intergenerational equity, where capital formation must coincide with the formation of human resources as a long-term investment.

2.5 Islamic Inflation Theory

According to some Islamic economists submitted in Karim (2011), inflation leads to bad things for the economy, including the following:

a. Inflation can interfere with the function of money, especially on the saving function or the reduced value of the store, then the decline in the function of cash payment and the function of the calculation

b. Inflation lowers people's enthusiasm and motivation to save or decrease Marginal Propensity to Save.

c. Inflation raises the tendency to shop for non-primary goods or luxury goods (rising Marginal Propensity to Consume)

d. Inflation pushes investment toward non-productive wealth-building by buying land, buildings, precious metals and foreign currencies.

2.6 Theory of Exchange Rates in Islam

Karim (2011) argues that the causes of exchange rate fluctuations as well as inflation, namely natural factors and human error. In addition there is a scenario of exchange rate discussion in Islam. Firstly, that the occurrence of domestic price changes affects the exchange rate and Secondly, the fluctuation of the exchange rate is due to the changes of the price abroad.

 According to the fatwa of the National Sharia Board (DSN) NO.28 / DSN-MUI / III / 2002 on sale and purchase transactions of currency. Sale and purchase transactions in principle may be subject to the following conditions:

1. Not for speculation (chance)

2. There is a need for transactions or to be on guard (savings)

3. If the transaction is made to a similar currency then the value must be the same and in cash (at-taqabudh).

4. If the type is different then it must be done with the exchange rate (exchange rate) applicable at the time the transaction is made and in cash.

III.   FINDINGS

3.1 Types and Data Sources

The type of data used in this study is secondary data. Third Party Funds Data are obtained from annual and monthly reports of sharia banking published by Bank Indonesia's official website (www.bi.go.id) and the Financial Services Authority (www.ojk.go.id). While macroeconomic variable data obtained from the official website of the Central Bureau of Statistics (www.bps.go.id).

3.2 Data Analysis Model

Granger causality is a concept that looks at the relationship of the two variables analyzed. Granger Causality uses the test method of two time series data sets that are linearly related to X and Y variables formulated in the form of two regression models (Gujarati, 2012). Form the regression model as follows:

$$X_t = \sum_{i=1}^{m} a_i X_{t-i} + \sum_{j=1}^{n} b_j Y_{t-j} + \mu_t \dots\dots\dots\dots (4)$$

$$Y_t = \sum_{i=1}^{r} c_i X_{t-i} + \sum_{j=1}^{s} d_j Y_{t-j} + v_t \dots\dots\dots\dots (5)$$

The hypothesis contained in this test is as follows:

Ho: There is no causal relationship between variables

Probabilty <0.05: Ho is rejected

Probability> 0.05: Ho is accepted

3.3 Determination of Lag Length

The result of lag length determination can be seen from the value marked with symbol (*). Lag with the sign (*) is the optimum lag that will be used in the next stage of research is the test of causality. The use of lag 0 to 5 is adjusted with the number of variables studied, because this study has four variables, then the lag tested is 0 to 5, then selected lag 5 in accordance with the star attached to the number of each indicator.

Table 1.1 Determination of Lag Length of Research Variables

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-933.0826	NA	1.64e+25	69.41352	69.60550	69.47061
1	-836.8248	156.8644	4.38e+22	63.46851	64.42839	63.75393
2	-820.2994	22.03399	4.60e+22	63.42958	65.15736	63.94334
3	-797.0948	24.06394	3.44e+22	62.89591	65.39160	63.63801
4	-757.6263	29.23593	1.04e+22	61.15751	64.42110	62.12794
5	-682.2918	33.48203*	4.28e+20*	56 .76235*	60.79385*	57.96113*

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

Based on Table 4.5 it can be concluded that the lag to be used for the test of causality of the research variable data is lag 5, it can be seen from the star signs contained in five criteria that is, LR, FPE, AIC, SC and HQ.

3.4 Granger Causality Test

The probability value is the most important thing to look at, so it can be determined whether Ho is rejected or accepted. If the probability value is lower than the value of α in this test is set at 5% (0.05), then Ho is rejected which means that there is a causal relationship between variables. Conversely, if the probability value is greater than 0.05 then Ho is accepted.

Table 1.2 Granger Causality Test Results

Null Hypothesis:	Obs	F-Statistic	Prob.
ER does not Granger Cause DPK	27	8.42351	0.0005
DPK does not Granger Cause ER		5.23558	0.0049
INF does not Granger Cause DPK	27	2.97809	0.0436
DPK does not Granger Cause INF		0.44315	0.8120
PDB does not Granger Cause DPK	27	3.65608	0.0214
DPK does not Granger Cause PDB		2.93140	0.0458

Based on the Granger causality test shown in Table 4.6, there is causality between Third Party Funds of Syariah Banking and Gross Domestic Product of Indonesia. The Probability of Gross Domestic Product against Third Party Funds and vice versa, is below 0.05 of 0.0214 and 0.0458, respectively. That is, it can be stated that Ho is rejected, so both variables have a two-way relationship or causality

Similar results were also obtained on the causality test between the Rupiah Exchange Rate and Third Party Funds. The probability values generated respectively 0.0005 and 0.0049 or below 0.05 which can be deduced that Ho is rejected. Means that both variables have interrelated relationships or causality.

Two-way relationship is not found between the variables of Third Party Funds and Inflation seen from the probability value of Third Party Funds of 0.8120 greater than 0.05 so Ho is accepted, meaning Third Party Fund has no effect on Inflation. In contrast, the probability value of Inflation to Third Party Funds is 0, 0436 (<0.05), meaning H0 is rejected thus Inflation has influence on Third Party Funds.

IV.   CONCLUSION

Based on the study that has been done can be drawn some conclusions, including as follows:

a.   This study found the causality of Third Syariah Banking Funds with Gross Domestic Product and Third Party Funds of Syariah Banking with Rupiah Exchange Rate to US Dollar. This means that the development of Third Party Funds of Sharia Banking is interacting with the development of Gross Domestic Product and Rupiah Exchange Rate.

b.   Third Party Funds Sharia Banking with Inflation there is one-way relationship, namely inflation affecting Third Party Funds of Sharia Banking. In contrast, the development of Third Party Funds of Sharia Banking does not affect the fluctuation of Inflation in Indonesia.

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