

DETERMINANT PROFITABILITY OF SHARIA BANK BASED ON MACROECONOMIC VARIABLES

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ABSTRAK

Dalam sistem perbankan ganda, bank syariah harus kompetitif. Salah satu kunci untuk bertahan dalam ekonomi global ini adalah profitabilitas. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh variabel makroekonomi terhadap profitabilitas bank syariah di Indonesia dan untuk mengetahui jumlah banyaknya kontribusi yang diberikan variabel makroekonomi terhadap profitabilitas bank syariah di Indonesia. Data yang digunakan merupakan data sekunder bulanan bank umum syariah di Indonesia yang diambil dari periode Januari 2012 sampai dengan Desember 2017 serta data variabel makroekonomi seperti inflasi, nilai tukar, jumlah uang beredar, dan suku bunga yang dikutip dari beberapa sumber. Jenis penelitian ini merupakan penelitian kuantitatif yaitu pendekatan non-struktural yang menggambarkan hubungan saling ketergantungan antar variabel time series sehingga metode yang digunakan yaitu metode Vector Autoregression (VAR) dan Vector Error Correction Model (VECM). Hasil dari penelitian menunjukkan bahwa nilai tukar, jumlah uang beredar, dan inflasi mempengaruhi ROA. Sedangkan suku bunga tidak mempengaruhi ROA. Penelitian ini juga menunjukkan suku bunga, jumlah uang beredar dan inflasi mempengaruhi ROE. Masing-masing variabel makroekonomi memberikan kontribusi untuk mempengaruhi ROA sebesar jumlah uang beredar 9.15%, inflasi 1.94%, suku bunga 0.84%, 0.81%. Sedangkan variabel makroekonomi memberikan kontribusi untuk mempengaruhi ROE sebesar suku bunga 1.49%, jumlah uang beredar 1.12%, nilai tukar 0.78%, inflasi 0.04%. Secara keseluruhan, variabel makroekonomi tersebut hanya memiliki kontribusi yang sangat kecil terhadap profitabilitas ROE bank syariah di Indonesia.

Kata kunci: ROA, ROE, Inflasi, Jumlah Uang Beredar, Nilai tukar, Suku Bunga

1. INTRODUCTION

One benchmark of a company's success measured from profitability. Profitability is the bank's ability to generate profits for continuation. Profit is an important thing for the bank because in the profit reflected the level of public confidence to the bank, as a benchmark bank soundness, benchmarks of good bank management bad, can improve

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competitiveness and bank status.² There are two indicators in measuring the level of profitability of a company, namely ROA and ROE.³

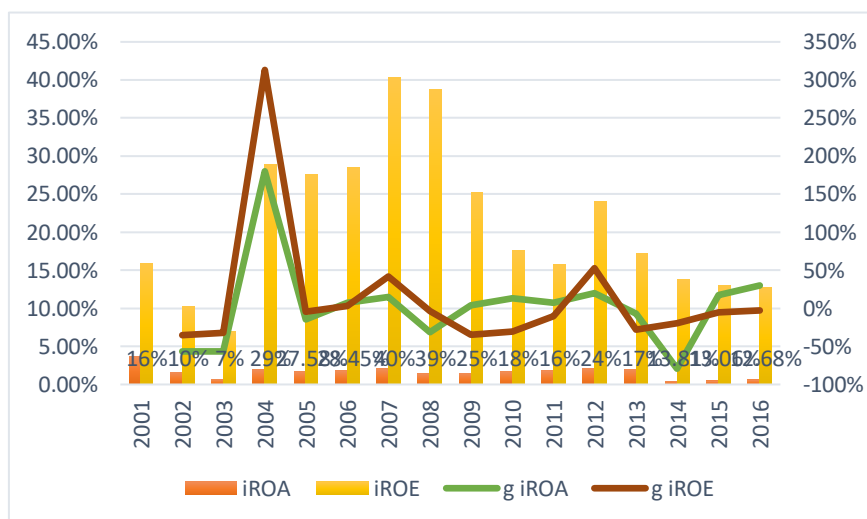


Figure 1.2 ROA and ROE sharia bank

Profitability of sharia banks in the last few years has decreasing fluctuation. Research on the ROA of sharia banks in Indonesia has been widely discussed in several literature. The influence of the rise of sharia bank profitability is caused by internal and external factors.⁴ The internal factor determinant consists of several variables such as fund raising, capital management, liquidity management and cost management. All internal variables are considered to be controlled by bank management. While external factors are factors that are considered beyond the control of bank management. Among the many discussed external factors are competition, regulation, concentration, market

² Rivai,dkk, 2007, *Bank and Financial Institution Management*, Jakarta: PT Raja Grafindo Persada, p. 700.

³ Malayu Hasibuan S.P., 2005. *Manajemen Sumber Daya Manusia*, Edisi Revisi. Bumi Aksara, Jakarta, p. 30

⁴ Rivai,dkk, 2007, *Bank and Financial Institution Management*, Jakarta: PT Raja Grafindo Persada, p. 408

share, ownership, capital scarcity, money supply, inflation, interest rates, exchange rates, economies of scale and bank size.

Among the external factors put forward, there are 4 macroeconomic variables that affect the profitability of sharia bank. According to Desi and Rohmawati, they use inflation, money supply, interest rate, and exchange rate affect the profitability variables of sharia banking ROA.⁵ Although basically in sharia banking should not be directly affected by these macroeconomic variables.

However, it is different from the ROE of sharia bank, which sharia bank focuses on the return on equity level to the shareholders of the company concerned, so that ROE plays a role to attract investors in investing. The greater the value of ROE, the better the level of investment the company offers. Seen in the picture above, the investment level by investors in sharia banks is high when the crisis in 2008 investors invested their money in sharia banks. But after the crisis the growth rate of ROE decreased. This is due to the fact that most of the majority of sharia bank investors are still inducted into conventional banks. Even today, Bank Muamalat is still looking for more investors for the smooth operation.⁶ Attitudes undertaken by these investors are influenced by the inflation rate and the money supply so as to affect the ROE of sharia banks.⁷

The objectives of this study are to determine the effect of macroeconomic variables on the profitability of sharia banks in Indonesia and to know the amount of contribution given macroeconomic variables on the profitability of sharia banks in Indonesia.

2. THEORY

2.1. Sharia Bank

Sharia bank is a banking system run on the basis of sharia. The main purpose of the establishment of this financial institution are as an effort to the Muslims to underpin all

⁵ Op.,Cit., Desi dan Rohmawati,

⁶<http://www.republika.co.id/berita/ekonomi/syariah-ekonomi/18/02/09/p3vu6v415-bank-muamalat-masih-cari-investor-potensial>. Accessed 20th of February 2018, at 20.30

⁷ Andri Soemitra, *Bank & Lembaga Keuangan Syariah*, Edisi Pertama cetakan ke-3, Jakarta; Kencana Prenada Media Group, 2009, p. 105

aspects of economic life based on Al-Qur'an and As-Sunnah. The fundamental goal of the banking business is to obtain optimal benefits by providing financial services to the public. For the shareholders to invest in the bank aims to earn income in the form of dividends or gain profit through increasing stock market prices owned.

2.2 Bank Profitability

In this study uses profitability in assessing the financial performance of banks. Profitability is the ability of a bank in obtaining gain or profit.⁸ Quantitative valuation of bank profitability stated in Bank Indonesia Circular Letter No.6 / 23 / DPNP dated May 31, 2004, there are eight indicators used to measure the level of profitability, namely: Return on assets, Return on equity, Net interest margin, operating income, development of operating profit, portfolio composition of earning assets and income diversification, Implementation of accounting principles in revenue recognition, and prospect of operating profit.

2.2.1. Return on Asset

It is describe as the profit before tax ratio of 12 months ends against the average of business volume (ROA) in the same period. ROA describes the asset turnover as measured by sales volume. The size or formula used is:

$$\text{Return on Assets} = \frac{\text{PROFIT BEFORE TAX}}{\text{TOTAL ASSETS}} \times 100\% =$$

2.2.2. Return on Equity (ROE)

ROE is an important indicator for shareholders and potential investors to measure the bank's ability to earn net income associated with dividend payments. Increase in this ratio means an increase in net profit from related profits which are then associated with the possibility of dividend financing (especially for banks that go public). This ratio is the ratio of net income after the equity. This ratio is formulated as follows:

$$\text{Return on Equity} = \frac{\text{PROFIT AFTER TAX}}{\text{SELF EQUITY}} \times 100\% =$$

⁸ Simorangkir, 2004. Pengantar Lembaga Keuangan Bank Dan Non Bank. Jakarta. Ghalia Indonesia. P. 15

Referring to the economic and financial literature, there are two main indicators used to determine profitability, there are ROA and ROE. There are study uses ROA to measure bank profitability. According to Desi (2013), ROA is important for banks because Bank Indonesia prioritizes the profitability of a bank as measured by assets whose funds are mostly derived from public savings funds. Another opinion suggests that the ratio used generally in measuring the level of profitability is ROA.⁹ In addition, ROA is the most objective method of measurement based on available accounting data and the magnitude of ROA can reflect the results of a series of corporate policies, especially banking. ROA is a measure of the bank's financial performance in obtaining profit before tax, resulting from the total assets (total assets) of the bank concerned (Circular Letter of Bank No.3/30/DPNP dated December 16th, 2011).

In this study, there is also Return on Equity (ROE) as a fixed variable that will be compared with ROA. Return on equity is a very important indicator for shareholders and potential investors to measure the bank's ability to earn net income associated with dividend pay outs.¹⁰ ROE is also called return on equity. In some references also referred to the ratio of total asset turnover or total asset turnover. This ratio examines the extent to which a company uses its resources to be able to deliver the return on equity. Increase in this ratio means an increase in net profit from related profits which is then associated with the possibility of possible dividend pay outs (especially for banks that have go public).

2.2.3. The Relationship Between ROA and ROE

ROA takes into account the companies' ability to generate a profit regardless of the funding used. While ROE explicitly takes into account the ability of the company to generate a profit for the common shareholders, after taking into account interest (debt costs) and preferred stock dividends (preferred stock cost).

⁹ Van Horne, James. 2002. *Financial Management And Policy*, 12th Ed. New York: Prentice-Hall International Inc. P. 361

¹⁰ Rivai,Dkk, 2007, *Bank And Financial Institution Management*, Jakarta: Pt Raja Grafindo Persada, p. 721

Profits earned by the company by using the assets owned can be allocated to several funders. For the company, the cost of debt is reduced by the tax savings of interest because interest can be used as a tax deductible.¹¹ Some debts such as trade payables, salary debt, do not receive dividends for preferred stock. Preferred stocks cannot be used as tax deductions, therefore preferred stocks are not adjusted for (deducted by) tax savings.¹² The remainder of the net profit (which becomes the numerator) not allocated to the debt or preferred stock becomes the shareholder of the common stock as the holder of the remaining net income after deducting the right of the holder of the debt and the right of the preferred stock. Similarly, asset financing, the part of an asset that is not financed by debt or by preferred stock, shall be financed by ordinary shares.

If the ROA exceeds the cost of debt capital and capital cost of preferred stock, then ROE will exceed the ROA (Mamduh, 2010: 182). The remaining excess ROA on the cost of debt capital and the cost of preferred stock capital become part of ordinary shareholders. When ROA improves, the company can earn a larger ROE. On the other hand, when a company's ROA decreases will have a worse ROE. The determination of the optimal capital structure must take into account the risk factor and return. The higher the debt, the higher the return (unless it reaches the maximum limit), but the risk is also higher.

2.3. Macroeconomic Variables

Macroeconomic variables are indicators that describes the macroeconomic conditions. Sukirno said, there are some indicators in macroeconomic variables like inflation, foreign exchange rate, interest rate, growth domestic product (GDP), scarcity, and money supply. But in this research only limit to four variables. Researcher only take four variables there are, inflation, interest rate, foreign exchange rate, and money supply.

2.3.1. Inflation

¹¹ Mamduh Hanafi, et. al, *Analisis Laporan Keuangan*, UPP STIM-YKPN: Yogyakarta, edisi keempat, P. 178

¹² Subramanyam, et al *Analisis Laporan Keuangan*, edisi 10 buku 2 Penerbit Salemba empat: Jakarta, 2010, P 147.

Inflation is an increasing process the prices of goods continuously.¹³ An increase in the price of one or two kinds of goods only cannot be said as inflation unless the increase has an impact on the price increase of most other goods. Inflation is also an increase in the overall price level. The opposite of inflation is deflation, namely a decrease in the overall price level. While inflation is a process of rising prices prevailing in something economy.¹⁴ Thus, from the above conclusions, inflation is the tendency of prices to rise in general and continuously.

Inflation is under control at a level lower than previously thought. Consumer Price Index Inflation (CPI) in August 2016 was recorded at 2.53% or annualized at 3.82%. This development is the impact of improved supply, the influence of seasonal factors after back to home and school holidays and the positive contribution of various policies pursued by the government along with strong coordination with Bank Indonesia. Inflation level during this period was quite low and even lower than the inflation level in August over the past three years. Looking ahead, inflation is expected to remain low and within the inflation target range supported by subdued inflation expectations, relative stability in the rupiah, and the downward trend in global inflation. Going forward, Bank Indonesia will continue to strengthen policy coordination with the Central and Regional Governments in order to control inflation to stay within the set range of $4.0 \pm 1\%$ in 2017 and $3.5 \pm 1\%$ in 2018 and 2019.

2.3.2. Inflation Influence to several sectors

Inflation that occurs will affect several sectors, including:

1. Inflation leads to increase in raw material prices and increase in the wages of laborers, the calculation of the cost of goods will increase the selling price of local products. On the other hand, the declining purchasing power of the people, especially those with fixed income will result in not all goods and services sold out.

¹³ Nopirin, 2007, *Ekonomi Moneter*. Yogyakarta : BPFY-Yogyakarta. P 25

¹⁴ Op. Cit., Sukirno, Sadono, 2006. P. 14

2. Inflation leads to the rise in the price of exported goods, so foreign demand declining. The decline in exports affects the balance of payments.

In general, financial economists calculate inflation from changes in natural logarithm of consumer price. The calculation of inflation used in this research is by using Consumer Price Index (CPI). The use of CPI to measure the inflation rate is based on previous research by Desi (2013), Ayu (2013), and Edhi (2013). The consumer price index is a measure of the overall cost of goods and services purchased by consumers.¹⁵ This index calculates the average price change in a period, from a collection of goods and services consumed by the population or household for a certain period of time. This index is one economic indicator that can generally describe the inflation rate or price deflation of goods and services. In addition, the most commonly used indicator for measuring inflation is the CPI. The CPI is also used by the Statistics Indonesia and Bank Indonesia as an indicator to measure the inflation rate in Indonesia.

2.3.3. Inflation Influence on ROA and ROE

Inflation reflects economic stability, if the rate of inflation increases will cause the real interest rate to decline and the fact will reduce the public's desire to save, then the growth of banking funds from public funds will decline.¹⁶ If inflation is high then the deposit interest income will decrease, if the bank does not change the interest rate. So, it lowers the bank's income from third party funds, the community and will affect the bank's own profit. In research Adama (2017) resulted in a negative influence between inflation on bank performance in Togo measured using ROA and ROE.

2.3.4. Interest Rate

¹⁵ Henry Simarora, *Manajemen Pemasaran Internasional*, Jilid 1, Jakarta: Salemba Empat, 2002, P. 111

¹⁶ Eka Ajeng, *Pengaruh Struktur Pasar, Bank Size, Inflasi dan Gross Domestic Product Terhadap Kinerja Bank di ASEAN 5 (Studi Kasus Bank Komersial di ASEAN 5 Periode Tahun 2007-2014)*, *Diponegoro Journal of Management*, Volume 5, Nomor 4, Tahun 2016, Halaman 1-12, taken from <http://ejournal-s1.undip.ac.id/index.php/dbr>, diakses tanggal 5 May 2018

The interest rate represents a payment in the future as there has been a transfer of money in the past. For example, someone who deposits his money into the bank (transferring money from someone to the bank) will earn interest (future payments). Another example is someone borrowing money from a bank (transferring money from a bank to someone) and the person must pay interest to the bank (future payments).

Interest rates are divided into two, namely the nominal interest rate and the real interest rate. The nominal interest rate is the interest rate that has not calculated the inflation rate (indicating the amount of money that increases in savings). The real interest rate is the interest rate that already calculates the inflation rate (shows an increase or decrease in purchasing power of savings). According to Mankiw, the real interest rate is the nominal interest rate minus the inflation rate.¹⁷

A policy that is implemented at this time will be able to influence the economic policy development in the future, even on the contrary to the creation of a decline economic policy. Therefore, the policies and economic concepts built must be based on the noble ideals of the Indonesian nation or in accordance with the mandate of the struggle outlined in the Constitution 1945 (UUD 1945) and Pancasila.

2.3.5. Sharia Bank Indonesia Certificates

In line with this, Bank Indonesia shall issue Bank Indonesia Sharia Certificate as one of the instruments of open market operation based on sharia principles. Bank Indonesia Sharia Certificates, hereinafter referred to as SBIS, are securities based on short-term sharia principles in rupiah currency issued by Bank Indonesia. The SBIS applied by Bank Indonesia uses the *ju'alah* contract, *akad ju'alah* is a promise or commitment (*iltizam*) to provide certain rewards (*iwadh / ju'l*) for the achievement of the result (*natijah*) determined from a job. SBIS has the following characteristics:

- a. Unit of Rp. 1,000,000.00 (one million rupiah)
- b. The maturity of at least 1 (one) month up to a maximum of 12 (twelve months); the term of SBIS is expressed in the number of calendar days

¹⁷ Mankiw N. Gregory, *Principle Of Economic*, An Asian Edition, Volume 2, Jakarta: Salemba Empat, 2004, p.502.

and counted one day after the date of transaction settlement until maturity date

- c. Published without scrip less
- d. Can be pledged as collateral to Bank Indonesia; SBIS may be pledged as collateral to Bank Indonesia for Repo SBIS, Intraday Liquidity Facility, Short Term Financing Facility, or other facilities for BUS or UUS.
- e. Cannot be traded in the secondary market.

From the placement of funds in SBIS, the Sharia Bank will be rewarded by Bank Indonesia upon maturity of SBIS. The relationship between profitability (ROA) and SBIS is expected to be significantly negative due to the opportunity cost incurred when the placement of funds is made on non SBIS financing.

Another advantage of BIC interest rates is used: (a) BIC is used as a means of monetary contraction, meaning that it affects the decrease of money supply and also as a means of monetary expansion when the money supply is large, (b) SBI has become an important vehicle in the sector (c) BIC serves as a branch mark for interest rate stability in the banking world including the level of profit sharing for sharia banking; (d) For Bank Indonesia, BIC is an instrument of monetary control, as an alternative for banks in the maintenance of secondary reserves and inculcate temporary funds, (e) lowering and suppressing inflation rate (Ayu, 2013).

2.3.6. Foreign Exchange Rate

The foreign exchange rate is a value indicating the amount of domestic currency required to obtain a unit of foreign currency.¹⁸ However, another opinion suggests, the exchange rate is the ratio of the exchange rate of a country's currency with foreign currency or the ratio of exchange rates between countries.¹⁹ Another definition states that foreign exchange is the currency originating from other countries and used as a

¹⁸ Op. Cit., Sukirno, Sadono, 2006. p. 37

¹⁹ Hasibuan, Malayu 2005. *Manajemen Sumber Daya Manusia*, Edisi Revisi. Bumi Aksara, Jakarta. P. 14

calculation to see the value of the domestic currency when converted to the currency. As the United States dollar currency is converted to rupiah, Japanese Yen with rupiah and so forth.²⁰

The exchange rate return is calculated from changes in the natural logarithm of the rupiah exchange rate against the US dollar. The nominal exchange rate is the rate at which a person can trade the currency of the country in the currency of another country. According to Mankiw (2004), the real exchange rate is the level one can trade goods and services of a country with goods and services of another country.²¹

The exchange rate used in this study is the middle rate of US \$. The US \$ exchange rate is based on previous research by Dewi and Rohmawati (2012), Silvia (2013), and Anas (2015). The advantages of the middle exchange rate is that the rate is set by Bank Indonesia to maintain the integrity and stability of the financial system and national economy, as well as the stability of the exchange rate.

To achieve exchange rate stability, it is necessary to make arrangements in foreign exchange transaction risk management by banks. One important factor in the management of foreign exchange transaction risk is the amount of net open position allowed by banks. So, this rate is used by the bank to prepare a report of net foreign exchange position. This is described in Bank Indonesia Regulation No.6 / 20 / PBI / 2004 concerning Net Open Position for Commercial Banks.

The foreign exchange rate is also known as the foreign exchange rate in various transactions or the sale and purchase of foreign currency. There are four types of Selling Rate, the Middle Rate, Buying Rate. The exchange rate can be divided into 4 systems, namely: Fixed System, Free floating system, managed floating system, pegged system.²²

²⁰ Op. Cit. Irham Fahmi, p. 265

²¹ Mankiw N. Gregory, *Principle Of Economic, An Asian Edition, Volume 2*, Jakarta: Salemba Empat, 2004, p.685-686

²² Madura, Jeff. 2006. *Keuangan Perusahaan Internasional, Edisi Kedelapan*. Jakarta: Salemba Empat, p. 219

2.3.7. Factors Influencing the Strengthening of a Foreign Exchange Rate of a Country

For a country with a strong economic system is to have a stable foreign exchange rate stability and not susceptible to fluctuations in the world market. To realize the strengthening of the exchange rate of foreign exchange, there are several factors that must be met by a country. The exchange rate of a country will grow stronger if:

1. Export is bigger than import
2. The balance of surplus payments
3. Surplus growth balance
4. Economic growth is on the rise
5. Low inflation rate and others.

Besides these five factors there are actually other factors that must be shared by a country,²³ namely:

1. Sufficient forex reserves. Sufficient forex reserves in various foreign currencies, including the dominant foreign currency such as the United States dollar. In addition to foreign exchange reserves also have the availability of gold (gold) in a number of representatives.
2. Quality construction of international financial management that has long-term endurance.
3. The quality of human resources (HR) is ready to rise again if one day there is an international monetary crisis. Especially human resources of business people who have been considered as economic actors.
4. The national monetary council established by a government of a country is filled by those with an international reputation and away from the intervention of politicians and businessmen. So, they can work independently.

²³ Op. Cit., Irham, 2016, p. 266

5. The amount of debt in the form of foreign currency by both government and private is small. In terms of entry in a controlled amount on a long-term basis.

2.3.8. Influence between Exchange Rate with ROA and ROE

According to Adama, the exchange rate is generally not supported by good ROA profitability. In other words, it cannot improve the company's performance for the better. If the exchange rate gives the company profitability speed, it will be very dangerous when the exchange rate depreciates, because it will burden the companies with such low profit levels. In contrast to the relationship with the ROE, the relationship between the negative. This means that the exchange rate would lower the level of the stock or capital.

2.3.9. Money Supply

Changes in the money supply are determined by the interaction results between communities, financial institutions, and central banks. The process by which these interaction proceeds starts from the simple to realistic process batching.

In order to know the simple process of creating credit money (as well as the process of changing the money supply), it is necessary to simplify the real situation through the use of several assumptions. This assumption is of course unrealistic. However, if this simple process is understood by changing these assumptions it can be understood to be a more complex process without losing track.

Besides these five factors there are actually other factors that must be shared by a country,²⁴ namely:

1. Base money or reserve money shall be the obligation of the monetary authority (Bank Indonesia), consisting of currency outside Bank Indonesia and State Treasury, and Demand Deposit Currency Bank (BPUG) and private sector (corporate or individual) accounts at Bank Indonesia. Thus, the currency held by the government, in the form of government cash or

²⁴ Op. Cit., Irham, 2016, p. 266

state treasury, and government demand deposits at Bank Indonesia, are not included as a component of base money.

2. In a narrow sense money is the currency in circulation coupled with demand deposits owned by individuals, corporations, and government agencies. M1 (narrow money/transaction money) consists of currency and demand deposits. Currency is banknotes and coins that circulate in society or money in physical form. While demand deposit is defined as the balance of current or giro account held by the public at the bank.
3. In the broadest sense money supply includes currency in circulation, demand deposit, and quasi-money. Quasi-money consists of time deposits, savings deposits, and accounts (savings) of domestic private-owned foreign exchange. Money circulating in this broad sense is also called as M2 economic liquidity. The money supply used in this study is the change in the money supply in a broad sense (M2).
4. While M3 is M2 plus some components. The most important component is a certificate of deposit certificate of deposit of savings deposits, which is evidenced by a letter or certificate rather than a note in the book savings.

The use of money supply in this broad sense is based on previous research by Marie (2013), and Silvia (2013). In the sense of M1 that is reflected only the amount of money that can be used to smooth the course of trade transactions. And not yet fully describe the amount of money that can be used to buy goods and services available in the community. The ability of people to buy goods and services is more reflected by M2.²⁵

A country with an open economy, like Indonesia, the influence of the foreign sector on the money supply is considered. As many developing countries use a stable exchange rate system, changes in the foreign sector reflected in changes in foreign exchange reserves will affect the money supply. Because the central bank as a reserve steward will affect the money supply. The greater the foreign exchange reserves (the higher the net assets outside the net) the greater the money supply.

²⁵ Op. Cit., Sukirno, Sadono, 2006, p. 283

The influence of the government sector on the money supply through the implementation of the budget. As the money/capital markets in developing countries are not yet developed, government borrowing will affect the money supply, as it is unlikely the government sells bonds to the public. If the government borrows money from the central bank on account of government loans it appears as a government deposit on the side of the central bank's balance sheet and at the same time appears on the side of the asset as a bill to the government. Disbursement/use of these funds by the government will raise the core money (reserves of commercial banks at the central bank) which can further increase the money supply.

Liquidity credits, such as BULOG as well as the use of co-funding obtained from abroad, tend to increase core money as it reduces government deposits with Bank Indonesia. Central bank credit to the public e.g. for priority programs normally channelled through commercial banks can raise more money. The last source of core money is the other net assets that are the difference between the other assets and the other liabilities.

2.3.10. Relationship Between Money Supply on ROA and ROE

In the banking system, the effect of the increase in the money supply indicates that the level of investment has increased. With rising investment, demand for financing in Islamic banks will also increase. So that the income and profit of sharia banks will also increase.²⁶ This theory is supported by research conducted by Desi and Rohmawati (2012) who said that in the year of research the level of investment grows. This is reflected in the increase in financing channeled by sharia banks. From the rising level of financing will be followed by the rise of sharia banking profitability.

3. METHODS

3.1. PLACE AND TIME OF RESEARCH

This research is a research about the determinant profitability of sharia banks in Indonesia based on the macroeconomic variables, which takes case study at Sharia

²⁶ Op. Cit., Sukirno, Sadono, 2006, p. 283

Commercial Bank in Indonesia. The data used are monthly secondary data taken from January 2012 to December 2016.

3.2. TYPES OF RESEARCH

Type of research is quantitative method with non-structural approach that describes the interdependence relationship between time series variable so that method used is Vector Autoregression (VAR) and Vector Error Correction Model (VECM) method. The VAR method will be used to analyse the determinants of profitability of sharia banks in Indonesia based on macroeconomic variables. Then if the data is not stationary at the stage level, then the data must be transformed (first difference) to produce the data stationary. However, when transformed, part of the data information in the long-term relationship is lost. In order to remain informed of the long-term relationship, the VAR model must be modified with the Vector Error Correction Model (VECM) error model when there is cointegration.

3.3. TYPES AND SOURCES OF DATA

The data used are monthly secondary data that the author obtains from each institution concerned that is where the data is taken from official sources of each agency. The profitability data of sharia banks in Indonesia is taken from Sharia Banking Statistics (SPS-BI) that exist on the site (www.ojk.go.id). Then to know the ROE is calculated by itself to see the result of equity divided profit after tax.

For macroeconomic variables, the data are obtained from different sources. For the inflation variable, the data are obtained from the Central Bureau of Statistics website (www.bps.go.id), for the interest rate variable, the data are obtained from the SBI rate within 30 days or 1 month, for the foreign exchange rate variable, the data are taken from the ratio of the rupiah to the dollar from 2012 to 2017, as well as for the money supply, the data are Amount of money in circulation in a broad sense or M2. Money supply data taken from economic and financial sectors of Indonesia (www.bi.go.id/seki-bi). ROA and ROE data taken from (ojk.go.id)

3.4. DATA COLLECTION TECHNIQUE

Because the data used are secondary data that can be accessed through their respective sites, so the data collection technique is done by taking data from the website of Bank Indonesia (BI), Central Bureau of Statistics (BPS), and Financial Services Authority (OJK) which has summarized the adequacy of the data. Data used in this research are taken from 2012 to 2017.

3.5. DEFINITION OF OPERATIONAL VARIABLES

The variables and operational definitions of variables to be used in this study are as follows:

1. Return on Assets (ROA) of Sharia Commercial Banks in Indonesia

Sharia Bank ROA data in Indonesia used monthly data from January 2012 to December 2017 in the form of the percentage taken from Sharia Banking Statistics published by the official website of the financial services authority (ojk.go.id).

2. Return on Equity (ROE) of Sharia Commercial Banks in Indonesia

Sharia Bank ROE data in Indonesia used is monthly data from January 2012 to December 2016 in the form of the percentage taken from Sharia Banking Statistics published by the official site of the financial services authority (ojk.go.id). But since June 2014, there has been a change of report form, so the ROE data is derived from the formula:

$$\text{ROE} = \frac{\text{profit after tax}}{\text{self equity}}$$

The equity in the report is derived from the total loan capital, paid-in capital, additional paid-in capital, revaluation increment on fixed assets, reserves, and profits.

3. Inflation in Indonesia

Inflation data used is the monthly data obtained from the Central Statistics Agency collected from the Consumer Price Index in Indonesia. The consumer price index is based on consumption patterns in the cost of living survey in 82 cities. The consumer price index in 2012 to 2013 is based on the 2007 equation. So, it takes the equation with 2012 so it needs a formula:

$$\text{CPI December 2013} = \frac{\text{Equation 2007}}{\text{Equation 2012}}$$

4. Bank interest rates; Bank Indonesia Certificate

Interest rate data used is monthly data obtained from the official website of Bank Indonesia (bi.go.id). Interest rate data is collected from Bank Indonesia Certificate.

5. Foreign Exchange Currency

The data of Indonesian rupiah exchange rate to US Dollar used is monthly data from the official website of Bank Indonesia. The data are collected from the exchange rate of Indonesian rupiah to the US dollar.

6. Money Supply

The Money Amount data circulating in Indonesia used is the monthly data obtained from the official website of Bank Indonesia. The data collected from M2 or the money supply in a broad sense. The data get from the (www.bi.go.id)

4. RESULT AND DISCUSSION

4.1. Test Result Estimation of VECM ROA and ROE

4.1.1. Test Result Estimation of VECM ROA

After performing cointegration test it can be seen that for ROA and ROE model has cointegration rank so it can be continued to VECM test. At this stage, the VECM test results will be used to determine the short-run and long-term relationships between the research variables. Where a variable is said to be significant in influencing other variables if the value of t-statistics on the variable is greater than t-count in real level 1.96 (t-statistics > 1,96). Where the estimation results in the VECM model ROA test can be seen in Table 4.7.

Table 4.7 VECM Estimation Result Model ROA

Short Term				
Variable	Coefficient	T-Statistics	Coefficient	T-Statistics
CointEq1	-0.25	-2.52	0.00	-0.72
D (ROA (-1))	-0.18	-1.51		
D (ROA (-2))	-0.22	-1.83		
D (ROE (-1))			0.05	0.40
D (ROE (-2))			-0.06	-0.51
D (LNKURS (-1))	-0.02	-1.03	0.15	1.13
D (LNKURS (-2))	-0.03	-2.01	-0.00	-0.03
D (LNM2 (-1))	0.04	0.99	-0.27	-0.90
D (LNM2 (-2))	-0.00	-0.05	-0.05	-0.18
D (LNIHK (-1))	-0.04	-0.52	-0.49	-1.03
D (LNIHK (-2))	-0.06	-0.72	0.11	0.21
D (SB (-1))	0.00	1.20	-0.01	-0.89
D (SB (-2))	-0.00	-0.10	0.00	-0.02
Long Term				
Variable	Coefficient	T-Statistics	Coefficient	T-Statistics
LNKURS (-1)	0.11	4.58	0.23	0.90

LN2(-1)	0.15	2.31*	2.21	7.75
LN2HK (-1)	-0.77	-6.59*	-9.47	-7.86*
SB (-1)	0.00	1.85	0.06	2.6

Source : Data is processed in EViews 9

Information : Bold means significant result

Symbol (*) has a

The result of VECM estimation on the above model shows that the Return on Assets of Syariah Banking in Indonesia can be influenced by some macroeconomic variables in the long term. Among them are foreign exchange rates, money supply and inflation. ROA is influenced by ROA itself through the short term.

The results of ROA estimates that are influenced by foreign exchange rates have a significant positive effect. The above results show that each increase of 1 LNKURS will affect 3.05 ROA. This is in line with the reality that a strong exchange rate will affect the return on assets of sharia banks. Similarly, if the exchange rate weakens then the profitability of sharia bank will go down as well.

The results are similar to the results revealed by Rosanna (2007), Desi (2012), Anas (2015), and Amalia (2014). Desi (2012) revealed that the exchange rate will determine the real investment returns. Depreciating exchange rate will reduce the purchasing power of income and capital gains derived from any type of investment. Amalia (2014) identifies if the currency depreciated, it will have an impact on the profitability of sharia banks. It means, that if the exchange rate of domestic currency is higher than the value of foreign currency, it will lower the price of imported goods. Falling prices will potentially boost the real sector economy. Increased economy in the real sector will encourage people to invest in the sector and result in increased levels of bank profitability.

Likewise, on the contrary, the fluctuation of exchange rate and expectation of large depreciation of rupiah fluctuation will also result in the bank debtor having difficulty of business, with consequences subsequently unable to pay the debt on the bank. As a

result, the bank has liquidity difficulties and in the end the level of profit (profitability) of sharia banks decreases.

The different case is with the result of ROE estimation based on variable to KURS or exchange rate of currency. The result of ROE estimation on the exchange rate has negative but not significant effect. It can be seen in the table above that if ROE rises 1 level then it will only be negative influenced by -0.61 by KURS.

This result resembles the results observed by Topak (2017) which says that the exchange rate may adversely affect the ROE of sharia banking. The negative rate generated by sharia banking ROE is due to the return of investment is very important in influencing the flow of capital. If the investment return rate is low then the domestic capital will flow out of the country, but if the investment return is high then the foreign capital will enter the country. When investment flows out of the country, the exchange rate of a currency will reduce the exchange rate of the country.

The second estimate of ROA determination based on the money supply has a significant positive effect. We can see in the table above that if ROA rises 1 level it will be influenced by the money supply of 2.98. This is in accordance with the opinion of Sukirno which states that if the money supply rises, then the interest rate will fall. Profit and loss sharing in sharia bank still refer to interest rate in Bank Indonesia. Interest rate in Bank Indonesia as a benchmark equivalent rate profit and loss sharing determined by sharia bank. Lower interest rates will increase investment in the economy. This additional investment will affect the operational activities of sharia banks. With rising investment, demand for financing in Islamic banks will also increase. And for the next will affect the financial ratios of banks, one of which profitability ratios are represented by ROA.

According to Desi, (2012), the increase in the money supply is due to the improvement in public purchasing power and the high world demand for Indonesia's export products, a key factor driving economic growth in 2007. This is reflected in the growing private consumption growth with increasing trend since the beginning of the year to 5.0% in 2007, compared with the previous year of 3.2%.

However, this result is different with the results of research Fariska 2017 because the journal explained that the money supply has a negative effect on the profitability of Islamic banks independently. Negative results may be generated from the subjectivity of researchers at a particular bank. In contrast to Anas Tinton (2015) because in his research states that the money supply does not affect the ROA of sharia banks. This is because the significance value of the research does not reach the right number.

Similarly, the results on the determination of sharia bank ROE based on the variable amount of money supply. In the above table show that the money supplies a positive effect on sharia banking ROE. In table 4.7 found results if the money supply rises one will affect the sharia banking ROE of 7.39. These results indicate that the return on capital is affected by the money supply.

This is in accordance with Keynesian theory, that is, money supply has a positive effect on output and economic growth. In the event of an excess of the money supply, Bank Indonesia will take a policy (lowering) the interest rate. This condition encourages investors to make investments, which in turn will create an increase in output and trigger economic growth. Conversely, the demand for money will have an impact on the raising of interest rates and ultimately result in a decrease in output.

The next result shows that inflation has a significant negative effect on sharia banking ROA. In table 4.7 there is a negative result of -6.85, which means an increase in inflation will have a significant negative effect on the return on assets of sharia banking. This is inversely proportional to other research such as Desi's research (2012) which says that inflation does not affect the profitability of sharia banks. Ayu Yanita (2013) also differed, the results of the study stated that inflation has a positive effect on return on assets (ROA).

The rationale of the difference between the two studies is probably due to different research tools between this study and previous research. But several other studies have also been in line with this study. As research Khizer Ali (2011) said that inflation has a negative effect on the growth of sharia banking ROA. According to Sukirno in his book also said that if there is an increase in inflation then the profitability of sharia banks will

go down and vice versa. Adama Combey (2013) also believes that inflation affects significant negative ROA of sharia banking.

The results in the table above show that inflation has a negative effect on the ROE of sharia banking. Table 4.7 found results if inflation rises by 1 then it will affect the ROE of sharia banking at -6.65. These results suggest that ROE is negatively influenced by inflation.

This result is in accordance with Adama Combey's (2013) research results. He said that inflation has a negative effect on the return on equity of sharia banks. Inflation affects the bank's profit on assets that pass the ratio of bank capital to assets. Indeed, this ratio loses the coefficient significance when introducing the inflation rate into the equation. This can be explained by the fact that the bad anticipation of inflation affects basically the bank's operational costs and the first amortization of these costs is the bank's capital. So that inflation can affect the ROE of sharia banks negatively.

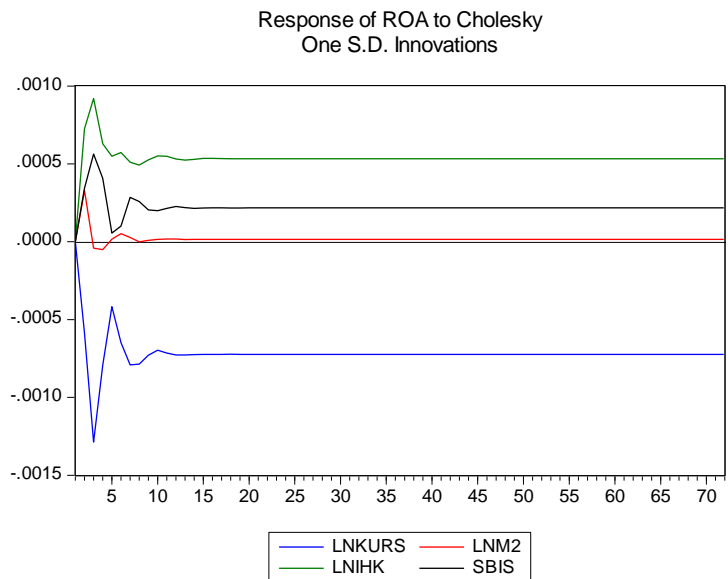
In general, inflation can lead to decreasing investment in a country, encouraging interest rate increases, encouraging speculative investment, the failure of development implementation, economic instability, the balance of payments deficit and the decline in the level of life and welfare of the people.

In table 4.7, there are differences in the effect of interest rate on ROA and sharia bank ROE. The interest rate (SB) does not contribute significantly to sharia bank ROA because the value of t-statistics is less than t-table. However, interest rates contribute positively to the sharia bank's ROE, which means that when interest rates rise by one percent, it increases the ROE of sharia banks 4.51. The results of this ROE are widely observed by shareholders of banks as well as capital market investors who want to buy the shares in question

From the result can be analysed that the interest rate of the bank does not contribute significantly to the assets owned by sharia banking. The increase in interest rates will contribute to the return of capital held by banks. As the interest rates rise, people will increase the public's desire to save. That is what makes the interest rate can contribute to sharia banking ROE. SBI interest rate influences on the profitability of sharia banks. In

determining the level of profit sharing in both funding and financing, sharia banks still refer to the general interest rate as an equivalent rate or benchmark in the determination of profit sharing margin.

4.2. Simulation Analysis Impulse Response Model Roa And Roe



1. Simulation Impulse Response Analysis ROA Model

Figure 4.8 IRF ROA

Seen from the Figure above shows that LNKURS in the first period until the third period if there is a shock at the exchange rate of one standard deviation there will be a negative shock increase of -0.00125 standard deviation, but it is not permanent because in the fourth period until the sixteenth start toward stability and permanent around -0.000655.

When there is a shock of 1 standard deviation on the money supply there will be a shock to the Bank ROA of 7.25E-05 standard deviation in the second period then decrease to -0.000406 standard deviation, but it is not permanent because in the nineteenth period began to lead to stability and permanent at around -0.000190.

When there is a shock of 1 standard deviation on inflation, there will be a shock to Sharia Bank ROA of 0.000782 standard deviations in the third period then decrease to

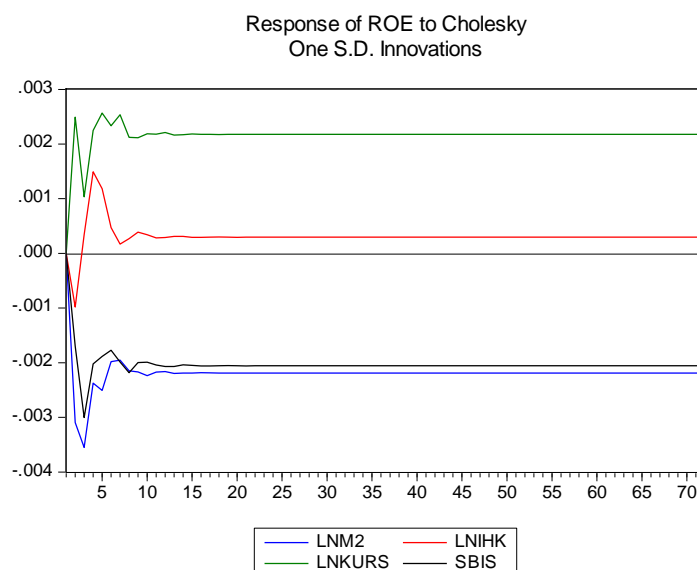
0.000252 standard deviations, but it is not permanent because in the nineteenth period started toward stability and permanent at around 0.000301.

When there is a shock of 1 standard deviation on the interest rate there will be a shock to Sharia Bank ROA of 0.000442 standard deviations in the third period then decrease to 0.00000 standard deviations, but it is not permanent because in the nineteenth period started toward stability and permanent around 0.000182.

Table 4.25 Response ROA to All Macroeconomics Variable

Variable	Response ROE
Shock LNKURS	Negative dan Permanent -0.07 stabile start at 6 periods
Shock LNM2	Negative dan Permanent -0.02 stabile start at 7 periods
Shock LNIHK	Positive dan permanent 0,03 stabile start at 6 periods
Shock SB	Positive dan permanent 0.02 stabile start at 12 periods

Source: Calculating from the data



2. Simulation Impulse Response Analysis Model ROE

Figure 4.9 IRF ROE

The Figure above shows the interest rate in the first period up to the third period if there is a decrease in shock at the interest rate of one standard deviation there will be a negative shock increase to the ROE of -0.003473 deviation standard, but it is not permanent because in the eighth to the next period until the sixty period continues to show a decline and stabilize at negative point -0.003925.

When the shocks of one standard deviation in LNKURS there will be a shock to ROE Bank amounted to 0.001696 standard deviation in the second period and then increased into 0.002867 standard deviation, but it is not permanent because in the later period decreasing standard deviation and towards stability in the second period twenty-three and permanently in approximately 0.001675.

When the shocks of one standard deviation in LNM2 there will be a shock decline against Islamic Bank ROE amounted -4.81E-05 standard deviation in the sixth period and then an increase of 7.33E-05 back to the standard deviation in the ninth period continued to rise 8.86E- 05, but it is not permanent because the twenty-four second period began towards stability and permanence in approximately 0.000119.

When the shocks of one standard deviation in LNIHK there will be a reduction of shocks to the Islamic Bank of -0.002758 ROE standard deviation in the second period and then shocks become -0.001176 standard deviation in the period to four, but it is not permanent as it continues to decline and stabilized the period of twenty-three and hold steady at -0.003928 standard deviation.

Table 4.25 Response ROE to All Macroeconomics Variable

Variable	Response ROE
Shock SB	Negative dan Permanent 0.39 stabile start at 8 periods
Shock LNKURS	Positive dan Permanent 0.16 stabile start at 12 periods
Shock LNM2	Positive dan permanent 0.01 stabile start at 13 periods
Shock SB	Negative dan permanent -0.40 stabile start at 13 periods

Source: Calculating from the data

4.3. FORECASTING ERROR VARIANCE DECOMPOSITION RESULT

a. Forecasting Error Variance Decomposition Model ROA

Table 4.28 FEVD for Model ROA

Variable	Shock Variable Contribution ROA
LNKURS	9,15 %
LNIHK	1,94 %
SB	0,84 %
LN2	0,81 %

Source: Calculation from the data

Analysis of Forecasting Error Variance Decomposition (FEVD) according to Agus is useful to predict the percentage contribution of each variant variables within a VAR system. Shows in Figure 4.10 ROA model in the first period affected by ROA itself by 100 percent. Nevertheless, the effect of ROA on ROA itself decreased by 95 percent in the second period and continued to decrease by 87.26 percent in the sixty periods. Furthermore, from FEVD we can know that ROA can be explained by variable LNKURS, LNM2, LNIHK, SB of 0.00 percent in the first period. That means that the contribution of other variables in short-term relationships has no effect on ROA.

Furthermore, ROA explained by the LNKURS variable of 9.15 percent in the 60th period, indicating that LNKURS has the greatest influence on ROA compared to other variables. FEVD results also provide information that LNM2 has the least effect of other variables, only 0.81 percent of the effect of LNM2 on ROA. LNIHK subsequently had an effect of 4.72 percent in the third period then shrank to 1.94 percent in the sixty period and SB had an insignificant effect because the value was below one percent of 0.84. So, in long-term relationships it can be said that LNKURS has the greatest relationship with ROA. followed by LNIHK with less amount of contribution than LNKURS.

b. Forecasting Error Variance Decomposition Model ROE

Table 4.28 FEVD for Model ROE

Variable	Contribution Impulse Variable to ROE
SB	1,49 %
LN2	1,12 %
LNKURS	0,78 %
LNIHK	0,04 %

Source: Calculation from the data

In contrast to the results obtained by FEVD ROE model. Shows in Figure 4.11 ROE model in the first period affected by the ROE itself by 100 percent. Nevertheless, ROE's influence on ROE itself decreasing to 97.59 percent in the second period and continuing to decrease to 96.57 percent in the sixty periods. Furthermore, from FEVD we can know that ROE can be explained by variable LNKURS, LN2, LNIHK, SB of 0.00 percent in the first period. This result can be defined that the contribution of long-term relationships is influenced by the ROE itself and other variables have no significant effect on ROE

Furthermore, the ROE can be explained by the SB variable of 1.49 percent in the 60th period, it shows that SB has the greatest influence on ROE compared to other variables. FEVD results also provide information that LN2 affects 1.12 percent in the sixty periods. However, LNKURS and LNIHK have no significant effect on FEVD on ROE model. Because LNKURS only influences 0.78 percent and LNIHK only affects 0.04 percent. The meaning of this number is the amount of contribution given by SB is the greatest influence on ROE.

4.4. GRANGER CAUSALITY TEST RESULT

This test aims to determine the cause and effect relationship between the two variables tested. If Prob value. <5%, then H0 is rejected and H1 accepted.

Null Hypothesis:	Obs	F-Statistic	Prob.
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LNKURS does not Granger Cause ROA	58	6.71454	0.0025
ROA does not Granger Cause LNKURS		0.89763	0.4136
LN2M does not Granger Cause ROA	58	3.79641	0.0288
ROA does not Granger Cause LN2M		0.77343	0.4666
LN1HK does not Granger Cause ROA	58	3.96882	0.0248
ROA does not Granger Cause LN1HK		1.11790	0.3346
SB does not Granger Cause ROA	58	6.19995	0.0038
ROA does not Granger Cause SB		1.21130	0.3059

From the table above, shows that the value Prob. between LNKURS and ROA is 0.0025 which means below alpha 5%, so H0 is rejected and H1 accepted. This means that the LNKURS variable causes or affects ROA. On the other hand, ROA does not cause or affect LNKURS because of Prob value. 0.4136. LN2M then causes or affects ROA because of prob. 0.0288. But otherwise ROA does not cause or affect LN2M due to prob. 0.4666. The next variable LN1HK causes or affects ROA because of prob. 0.0248. But otherwise ROA does not cause or affect LN1HK due to prob. 0.3346. SB causes or affects ROA because of prob. 0.0038. On the other hand, ROA does not cause or affect SB because of prob. 0.3059.

Table 4.11 Causality Model ROE

Null Hypothesis:	Obs	F-Statistic	Prob.
LN2M does not Granger Cause ROE	70	3.23923	0.0456
ROE does not Granger Cause LN2M		0.71523	0.4929
LN1HK does not Granger Cause ROE	70	2.30174	0.1082
ROE does not Granger Cause LN1HK		0.20801	0.8127

LNKURS does not Granger Cause ROE	70	2.20475	0.1185
ROE does not Granger Cause LNKURS		0.80702	0.4506
SBIS does not Granger Cause ROE	70	1.54178	0.2217
ROE does not Granger Cause SBIS		1.12636	0.3305

From the table above, it can be seen that the value Prob. between LNM2 and ROE of 0.04 which means below alpha 5%, so H0 is rejected and H1 accepted. This means that the ROE variable causes or affects ROE. On the other hand, ROE does not cause or affect LNM2 because of Prob value. 0.4929. LNIHK does not cause or affect the ROE because of the prob. 0.1082. Similarly, the ROE does not cause or affect LNIHK due to prob. 0.8127. The next variable LNKURS does not cause or affect the ROE because the value of prob. 0.1185. Similarly, ROE does not cause or affect LNKURS due to prob. 0.4506. The last variable is SBIS causing or affecting ROE because of prob. 0.2896. But otherwise ROE does not cause or affect SBIS due to prob. 0.7168.

5. CONCLUSION

Based on the discussion of the results of research conducted on the determinants of profitability Islamic banks based on macroeconomic variables in Islamic banks in Indonesia in 2012 until 2016. So, some conclusions can be explains:

The results of the research show that ROA has an effect on foreign exchange rate, money supply, and inflation. While interest rate does not affect ROA. This study also shows ROE effect on interest rate, money supply and inflation. While foreign exchange rate does not affect ROE. Generally profitability of sharia banking still determined by macroeconomic variables. It means, sharia bank still cannot independent in the system cause determined by macroeconomic variables.

Each macroeconomic variable contributes to ROA by 9.15% money supply, 1.94% inflation, interest rate 0.84%, foreign exchange rate 0.81%. While macroeconomic variables contribute to ROE by 1.49% interest rate, money supply 1.12%, foreign

exchange rate 0.78%, inflation 0.04%. Overall, these macroeconomic variables only have a very small contribution to the profitability of ROE of sharia banks in Indonesia.

6. SUGGESTION

From these results the authors suggest to the Sharia Bank in Indonesia to be independent in the system. Sharia banks do not make the interest rate of Indonesian banks as benchmark in determining profit. Therefore, needed further research on interest rate as benchmarks that can be used as reference by Sharia Bank.

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