DETERMINANTS OF PROFITABILITY
ISLAMIC COMMERCIAL BANKS
IN INDONESIA

By

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A Skripsi presented to the
Faculty of Business President University
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PANEL OF EXAMINERS

APPROVAL SHEET

The Panel of Examiners declare that the skripsi entitled "DETERMINANTS OF PROFITABILITY ISLAMIC COMMERCIAL BANKS IN INDONESIA" that was submitted by Sintya Sam Novantika majoring in Management from the Faculty of Business was assessed and approved to have passed the Oral Examinations on March 8th, 2019.

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I declare that this skripsi, entitled "DETERMINANTS OF PROFITABILITY ISLAMIC COMMERCIAL BANKS IN INDONESIA" is, to the best of my knowledge and belief, an original piece of work that has not been submitted, either in whole or in part, to another university to obtain a degree.

Cikarang, Indonesia, 8th March 2019

Sintya Sam Novantika
# PLAGIARISM REPORT

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Citarang, Indonesia, March 8th 2019

[Signature]

Sintya Sam Noviantika
ABSTRACT

This research aims to find out the influence of internal factors (NPF, NYM, CAR) and external factors (Exchange Rate) toward Return on Asset of Islamic commercial banks in Indonesia during, 2010-2017. This study uses secondary data collected from various eligible sources with annual period and constructed as panel data. Total data panel observation 64 and 8 samples of Islamic Commercial Banks listed in the OJK used in this study. The result reveals that Non Performing Financing, and Exchange Rate have a significant negative influence towards Return on Assets as the dependent variable. While, Net Yield Margin has a significant positive influence towards Return on Assets. Lastly, Capital Adequacy Ratio has a negative insignificant influence towards Return on Assets.

Keywords: Islamic banks, ROA, NPF, NYM, CAR, and Exchange Rate.
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LIST OF ACRONYMS

OJK : Otoritas Jasa Keuangan
IBs : International Banking System
DPK : Dana Pihak Ketiga
ROA : Return on Asset
NPF : Non Performing Financing
NIM : Net Interest Margin
CAR : Capital Adequacy Ratio
ER : Exchange Rate
BIS : Banking International Settlements
EGR : Economic Growth Rate
AIR : Annual Inflation Rate
CG : Country Governance
GDP : Gross Domestic Product
IR : Interest Rate
OER : Operating Efficiency Ratio
FDR : Financing Deposit Ratio
NYM : Net Yield Margin
FEM : Fixed Effect Model
CHAPTER I

INTRODUCTION

1.1. Background

The world of banking plays an important role in economic stability (Wibowo, 2013). This can be seen when the economic sector declines, thus one way to restore economic stability is to regulate the banking sector. The development policy of the banking industry in Indonesia directed to achieve a healthy, strong and efficient banking system with the aim of creating financial system stability, which can help to encourage a sustainable national economy (Muliawati, 2015).

Indonesian banking is not only a conventional bank, however, also has Islamic banking since 1992. The first Islamic bank in Indonesia is Bank Muamalat. Islamic banks are banks whose procedures and operations adhere to the provisions of Islamic sharia with principles that are productively oriented, based on justice, and develop halal investments in improving the welfare of the community (Yumanita, 2005).

At present, the growth of Islamic banking in Indonesia is progressing quite rapidly. One factor caused by the demand for Islamic products from the Indonesian population is that most of them are Muslim. The development of Islamic banking in Indonesia can be said to be quite rapid, this can be seen from the data published by Bank Indonesia and the Financial Services Authority (OJK) from 2010 to 2017.

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<td></td>
</tr>
<tr>
<td>Number of banks</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>12</td>
<td>12</td>
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<tr>
<td>Number of offices</td>
<td>1,215</td>
<td>1,401</td>
<td>1,745</td>
<td>1,998</td>
<td>2,151</td>
<td>1,990</td>
<td>1,869</td>
<td>1,824</td>
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<td>Islamic Business Unit</td>
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<td>Number of offices</td>
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<td>Islamic Rural Banks</td>
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<td>Number of banks</td>
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<td>155</td>
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<td>163</td>
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<tr>
<td>Number of offices</td>
<td>286</td>
<td>364</td>
<td>401</td>
<td>402</td>
<td>439</td>
<td>446</td>
<td>453</td>
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<tr>
<td>Total Banks</td>
<td>184</td>
<td>190</td>
<td>193</td>
<td>197</td>
<td>197</td>
<td>197</td>
<td>200</td>
<td>201</td>
</tr>
<tr>
<td>Total Offices</td>
<td>1,763</td>
<td>2,101</td>
<td>2,663</td>
<td>2,990</td>
<td>2,910</td>
<td>2,747</td>
<td>2,654</td>
<td>2,616</td>
</tr>
</tbody>
</table>
Based on the table above, the growth of Islamic Commercial Banks in Indonesia has increased every year and followed by developments in the Islamic Business Unit, and Islamic rural banks. With this, Islamic banks as financial institutions can prove that Islamic banks can survive. The development of Islamic banks in Indonesia has become a benchmark for the success of Islamic economics (Muliawati, 2015). This was proven when the crisis in 1998 resulted in several conventional banks going bankrupt and liquidated due to a failure of the interest system. And at that time Bank Muamalat could prove during the 1997-1998 crisis, this bank could survive. Bank Muamalat which basically uses the principle of profit sharing, is not affected by the crisis because it creates a variety of products, for instance, Murabahah financing products that are not affected by fluctuations in the BI rate, thus the real sector that uses this financing is not affected by the increase in the BI rate (Yumanita, 2005). Islamic banking indicators can be seen from total assets, third party funds, and financing.

Table 1.2.

<table>
<thead>
<tr>
<th>Financial Indicators of Indonesia Islamic Banks</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>97,519</td>
<td>145,467</td>
<td>195,018</td>
<td>242,276</td>
<td>272,343</td>
<td>296,262</td>
<td>356,504</td>
<td>424,181</td>
</tr>
<tr>
<td>Depositor Fund</td>
<td>76,036</td>
<td>115,415</td>
<td>147,512</td>
<td>183,534</td>
<td>217,859</td>
<td>231,175</td>
<td>279,335</td>
<td>334,888</td>
</tr>
<tr>
<td>Financing</td>
<td>68,181</td>
<td>102,655</td>
<td>147,505</td>
<td>184,122</td>
<td>200,177</td>
<td>213,989</td>
<td>249,087</td>
<td>286,912</td>
</tr>
</tbody>
</table>

Source: Indonesia Islamic Banking Statistic, 2018

Based on the table above shows the development of assets in Islamic banks in Indonesia has experienced a significant increase as well as third party funds, and also the total financing each year also shows an increase. Table 1.2. explain Islamic banking, financial indicators: assets, third party funds, and financing.

Based on the development of Islamic banking in Indonesia showing good performance, then in this study, the researcher wants to know several factors that need to be considered both for the company and also for investors before investors invest their money in the company. It is known that profitability is the bank's ability to generate profits. Then it can be said to be important for banks because the main
purpose of banks is to create profits. According to Mokoagow (2015), states that bank profitability can be influenced by several internal and external factors. According to Rafsanjani (2016), profitability can be said as a source of information to find out the condition of a company. Therefore, it is necessary to do the research about what factors can affect profitability, especially Islamic Commercial Banks.

1.2. Problem Identification

Profitability is considered to have important meaning not only for investors or prospective investors and also for management to set targets and evaluate the effectiveness of company management and as a community assessment of the company (Mokoagow, 2015). Profitability is also used by OJK to assess the soundness of the bank. According to Sudarsono (2008), in Islamic banks the relationship between the bank and its customers is not like the relationship of the debtor to the creditor, however as a partnership. For investors called shohibul maal and fund managers are called mudharib. Therefore, the profitability of Islamic banks not only influences the level of profit sharing for shareholders, however, also affects the profit sharing provided to depositors (Hanania, 2015).

![Return On Asset in Islamic Commercial Banks in Indonesia](image)

**Figure 1.1. Growth of ROA in Islamic Commercial Banks**

Source: Indonesia Islamic Banking Statistic, 2018
Figure 1.2. Growth of ROA, NPF, FDR in Islamic Commercial Banks

Source: Indonesia Islamic Banking Statistic, 2018

Profitability in the banking industry can be measured using Return on Assets (ROA) or Return on Equity (ROE). In this study, the researcher used ROA, because ROA focuses on the company's ability to obtain profitability in its operations (Muliawati, 2015). If seen from figure 1.1, shows that ROA growth has decreased. This makes the main foundation of the researcher to find out what factors can affect profitability especially in Islamic Commercial Banks. There are two factors that can affect profitability, namely internal and external factors. For internal factors the researcher use NPF, NYM, and CAR, while for external factors the researcher used the Exchange rate. To find out whether the ratios and external factors involved in this study have an influence on profitability especially in Islamic Commercial Banks.

1.3. Research Questions

Based on the background of this research and identification of problems, researcher arranges the research questions, as follows:

1. Is there any significant influence partially between NPF towards ROA in Islamic commercial banks in Indonesia during, 2010-2017?
2. Is there any significant influence partially between NYM towards ROA in Islamic commercial banks in Indonesia during, 2010-2017?
3. Is there any significant influence partially between CAR towards ROA in Islamic commercial banks in Indonesia during, 2010-2017?
4. Is there any significant influence partially between Exchange Rate towards ROA in Islamic commercial banks in Indonesia during, 2010-2017?
5. Is there any significant influence simultaneously between NPF, NYM, CAR, and ER towards ROA in Islamic commercial banks in Indonesia during, 2010-2017?

1.4. Research Objectives

The purpose of this study are constructed, as follows:
1. To figure out whether or not Non Performing Financing partially influences the Return on Asset in Islamic commercial banks in Indonesia during, 2010-2017.
2. To figure out whether or not Net Yield Margin partially influences the Return on Asset in Islamic commercial banks in Indonesia during, 2010-2017.
3. To figure out whether or not Capital Adequacy Ratio partially influences the Return on Asset in Islamic commercial banks in Indonesia during, 2010-2017.
4. To figure out whether or not Exchange Rate partially influences the Return on Asset in Islamic commercial banks in Indonesia during, 2010-2017.
5. To figure out whether or not NPF, NYM, CAR, and Exchange Rate simultaneously influence the Return on Asset in Islamic commercial banks in Indonesia during, 2010-2017.

1.5. Significance of the Study

The significance of this research can be constructed, as follow:
1. Authorized Parties (Bank and /or investors)

This research is expected to be a consideration in making decisions that will be taken on the factors that affect the profitability of Islamic banks, thus Islamic banking business activities can be more developed and also provide information about the condition of the banking system to help investors make choices.
2. **Academic Community**

This research study can be further utilized by academic community (lecture, students, and other relevant professionals) as the additional knowledge source regarding the factors that can affect profitability in Indonesia especially for Islamic Commercial Bank.

3. **Future Researcher**

This research will contribute to improving and developing existing knowledge and additional knowledge about internal and external factors that can affect profitability in Indonesia, especially for Islamic Commercial Banks.

4. **The Researcher**

This research is arranged to expand and obtain comprehensive knowledge about factors that can affect profitability in Islamic commercial banks in Indonesia and become one of the main requirements to accomplish Bachelor of Management degree at President University.

1.6. **Scope and Limitations of the Study**

1. **Scope**

This research is conducted to analyze the influence of NPF, NYM, CAR, and Exchange Rate towards ROA in Islamic commercial banks in Indonesia, during the observations consisted of 8 bank companies registered in the OJK period, 2010-2017 and use the company's annual financial statements.

2. **Limitation**

a. This research only focuses on Islamic commercial banks registered in the OJK that establish during 2010 until 2017, based on limits, there are 8 samples available in accordance with the completeness of the data.

b. Independent variables of internal factors are limited by the researcher using NPF, NYM, and CAR, while for external variable is limited to using Exchange Rate. In this study, the data is constructed into annual data period, 2010-2017.
1.7. Definition of Terms

Some interpretations of the terms used in this study are:

1. **Return On Asset**

According to Munawir (2010), ROA is a form of profitability ratio used to measure the ability of a company with the overall funds used for its operations to generate profits.

2. **Non Performing Financing**

According to Siregar *et al.*, (2018), NPF is one of the instruments for evaluating the performance of a sharia bank, which is an interpretation of valuations of productive assets, especially in the assessment of problem financing.

3. **Net Yield Margin**

According to Taswan (2010), NYM is to measurement of the cost of financial intermediation. Or commonly known as the Net Interest Margin in conventional banks, namely is a comparison between net interest income to average earning assets. This ratio used to measure the ability of bank management to manage their productive assets to generate net interest income.

4. **Capital Adequacy Ratio**

According to Ferry (2007), CAR is an indicator of a bank's ability to cover a decrease in assets as a result of losses suffered by a bank.

5. **Exchange Rate**

According to Amalia (2014), exchange rate is the value of a particular country's currency in a conversion to the value of another currency.

1.8. Thesis Organization

In this research the thesis organization is arranged into five chapters namely to facilitate understanding and give an overview to the reader about the research described.
CHAPTER 1 INTRODUCTION
This chapter presents an introduction that contains background of the problems, research questions, objectives, scope and limitations of the study, several definitions of each variable used, and thesis organization.

CHAPTER II LITERATURE REVIEW
This chapter explains the literature review which consists of an explanation of Islamic banks, principles, functions, operational concepts, and explanations of variables used by the researcher, previous research, theoretical frameworks and hypotheses which are temporary answers to things learned.

CHAPTER III RESEARCH METHOD
This chapter discusses the research framework, sampling design, research instruments, data collection methods, operational definitions, and analytical methods that will be used.

CHAPTER IV ANALYSIS AND INTERPRETATION OF RESULTS
This chapter presents data analysis, hypothesis testing, and interpretation of results.

CHAPTER V CONCLUSIONS AND RECOMMENDATIONS
This chapter will present the conclusions of research results and suggestions based on the research result.
CHAPTER II

LITERATURE REVIEW

2.1. Literature Review

Literature review, generally describes the theoretical understanding of all variables used in research studies. In this chapter, the researcher will discuss previous researches, gaps of the researches, theoretical frameworks, and research hypotheses.

2.1.1. Islamic Banking

Islamic banks are banks that conduct business activities based on sharia principles, namely the rules of agreement based on Islamic law between banks and other parties for depositing funds and financing business activities, or other activities that are in accordance with Sharia. Islamic banks are different from conventional banks, the main difference in the operating base used are conventional banks operate on interest, while Islamic banks operate based on profit sharing, selling, buying and leasing (Yumanita, 2005). This is based on the belief that interest contains an element of *riba*, which is prohibited by Islam. In the Islamic view, the interest system is considered unfair, because the owner of the fund requires the borrower to pay more than the borrowed without thinking about whether the borrower makes a profit or loss. While, the profit sharing system used by Islamic banks is a system when the borrower and the lender share in risk and profit with the terms and mutual agreement.

In 1963 the Islamic bank was first established in the city of Egypt in the form of a savings bank. In Indonesia, Islamic banks were first established since the early 1990s, namely in Bank Muamalat Indonesia (Yumanita, 2005). Islamic banks are considered capable to meet the needs of the community by providing banking services in accordance with Shariah principles, especially those relating with *riba*, non-productive speculative activities that are similar to gambling, obscurity, and violations of the principle of fairness in transactions. Islamic banks consist of three
types, namely Islamic Commercial Banks (BUS), Islamic Business Units (UUS), and Islamic Community Financing Banks (BPRS) (Yumanita, 2005).

1. **Islamic Commercial Banks (BUS)/ Bank Umum Syahria**
   Islamic banks which in their business activities provide services through payment in accordance with the basic principles of sharia, namely buying and selling and profit sharing.

2. **Islamic Business Units (UUS)/ Unit Usaha Syahria**
   Is a work unit in the head office of a conventional general bank that functions as the parent office of the sharia branch office or shariah units.

3. **Islamic Community Financing Banks (BPRS)/ Bank Pembiayaan Rakyat Syariah**
   Is a sharia bank which in its activities does not provide services in payment traffic.

2.1.2. **Principles of Islamic Banking**

   In operational activities, Islamic banks follow Islamic rules and norms, as follows:

1. Free from interest (Riba)
2. Free from non-productive speculative activities (Maysir)
3. Free from the things that are unclear and doubtful (Gharar)
4. Free from illicit or invalid things (Bathil)

**Prohibition of Riba**

Islamic banks operate not based on interest, because interest is considered as *riba*, which is clearly prohibited in the Qur'an. Islamic banks operate using other principles permitted by Sharia.
### Table 2.1.
Difference between Interest and Profit Sharing

<table>
<thead>
<tr>
<th>No</th>
<th>Interest</th>
<th>Profit Sharing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Determination of interest is done at a certain time, assuming the business will always make a profit.</td>
<td>Determining the amount of the ratio or profit sharing agreed at a certain time based on the possibility of profit or loss.</td>
</tr>
<tr>
<td>2</td>
<td>The percentage is based on the amount of funds or capital lent.</td>
<td>The amount of the profit sharing ratio is based on the amount of profit earned.</td>
</tr>
<tr>
<td>3</td>
<td>Interest can expand, and the amount can increase or decrease according to current benchmark interest or economic conditions.</td>
<td>The profit sharing ratio does not change as long as the contract is still valid at mutual agreement.</td>
</tr>
<tr>
<td>4</td>
<td>Payment of interest in accordance with the initial agreement without consideration, whether the business carried out by the borrower is profit or loss.</td>
<td>Profit sharing depends on the profits of the business being run, If the business loses, the loss will share together.</td>
</tr>
<tr>
<td>5</td>
<td>The existence of interest is doubted by all religions.</td>
<td>No one doubts the validity of the results</td>
</tr>
</tbody>
</table>

Source: (Yumanita, 2005)
Prohibition of *Maysir*

*Maysir* means getting things very easily without working hard or making a profit without work. In Islam, *Maysir* is any activity that involves gambling, betting, or risk.

Prohibition of *Gharar*

In Islam, *Gharar* is all economic transactions involving doubtful, fraudulent or criminal activities. In the business scope, *Gharar* means running a business without sufficient knowledge, or conduct transactions that have risks without knowing exactly what the consequences are.

2.1.3. Function of Islamic Banks

Islamic banks have two main roles, namely as business entities (*tamwil*) and social activity (*maal*). As a business entity, Islamic banks have several functions, namely as investment managers, investors, and services. As an investment manager, Islamic banks collect funds from investors with the principle of deposit (*wadi‘ah yad dhamanah*), profit sharing (*mudharabah*), and rent (*ijarah*). As an investor, Islamic banks distribution of funds through investment activities. As a provider of banking services, Islamic banks provide financial services and non-financial services. While, as social activity, Islamic banks have a function as managers of social funds for the collection and distribution of zakat, infaq and sadaqah.

2.1.4. Sharia Bank Operational Concept

Islamic banks implement the principle of profit sharing as the main foundation in all operations, both in the collection and in the distribution of funds. Funds that have been collected through the principle of the *wadi‘ah yad dhamanah*, *mudharabah mutlaqah*, *ijarah*, and capital deposits are included in the pooling fund. The most dominant source of funds usually reaches more than 60 percent and in the form of savings, deposits, or bonds. Pooling funds are used in the distribution of funds in the form of financing. From financing with the principle of profit sharing, the profit sharing section is obtained in accordance with the agreement of
each customer; from financing with the principle of buying and selling obtained profit margins; while financing with the principle of rent obtained rent income.

The entire income from the pooling fund will be shared between the bank and all customers who deposit, save or invest their money in accordance with the agreement. The customer will get their rights, while the bank will be included in the income statement as the main operating income. Meanwhile, other income, such as financial services are included in the income statement as other operating income (Yumanita, 2005).

2.1.5. Islamic Bank Products

Islamic banking products can be grouped into 3 parts, as follows (Yumanita, 2005):

1. Fund Distribution Products
   a. Production Sharing Agreement / Akad Bagi Hasil
      1. **Musyarakah** is cooperation between the two parties or more for a particular business where each party will contribute funds, by having an agreement that profits and risks will be shared.
      2. **Mudharabah** is a collaboration between two or more where the capital owner (Shahibul Maal) entrusts a certain amount of capital to the manager (mudarib) with a profit sharing agreement. In *mudharabah*, capital only comes from one party and the contract is called *mudharabah al muqayyadah*.
   b. Sale and Purchase Agreement / Akad Jual Beli
      1. **Murabahah** is contract to buy and sell where the bank is the seller, while the customer is the buyer. Whereas payments can be made in installments or at once.
      2. **Ba’as Salam** is contract to buy and sell where the customer is the seller, while the bank is the buyer. Whereas payment in cash by the bank. In this transaction the quantity, price, and time of delivery of goods must be determined precisely.
3. *Bai’ Al Ithnisna* is a sales contract between the buyer and maker of goods. Both parties agree on the price and payment system.

4. *Ijarah* is the agreement on items at certain times with rental payments (*Ujrah*) without changing the ownership name of the item.

c. *Qard Al-Hasan* is a loan of bank funds to those who are in dire need, and banks are totally prohibited from receiving any benefits.

2. **Fund Collection Products**
   
a. *Wadiah* is the customer’s deposit that must be maintained and returned when the customer wants. The bank is responsible for returning the deposit.

   b. Saving account, the bank receives deposits from customers with fund deposit services. Banks get permission from customers to use funds as long as the funds settle with the bank. Profits from the use of funds will be shared with customers in accordance with the mutual agreement. The bank also guarantees repayment of all customer deposits.

3. **Product Services**
   
a. *Rahn* is pawning goods from one party to another, with the money instead.

   b. *Wakalah* is a representation contract between two parties, and it can also be used to transfer customer funds to other parties.

   c. *Kafalah* is a guarantee given by the insurer (*kafil*) to a third party to fulfill the obligations of a second party.

2.2. **Variables Research**

2.2.1. Profitability

According to Kasmir (2014: 115) the definition of profitability ratios is a ratio to assess a company’s ability to seek profits and also to determine the level of management effectiveness of a company. While, according to Weygandt (1996), profitability ratios are the ratios used to measure the effectiveness of overall company management, and also to find out how much profit the company gets.
It can be concluded that profitability in banks is considered very important because bank income is the main target to be achieved (Mokoagow, 2015). The ability of banks to obtain profits is reflected in the bank's financial statements. Company profitability is an element that can influence investor policy on its investment. The company's ability to generate profits can attract investors to invest their funds in order to increase capital. And if the profitability of a company is low, investors will withdraw their funds.

Profitability in the banking industry can be measured using Return on Asset (ROA) or Return on Equity (ROE). ROA focuses on the company's ability to obtain profitability in its operations, while ROE only measures returns obtained from investment company owner in the business (Riyadi, 2006). In this study the profitability ratio used is ROA. Return On Assets (ROA) is one of the profitability ratios used to measure a company's effectiveness in generating profits. Based on Bank Indonesia regulations, a good standard of ROA is more than 1.5%. The greater (ROA) of a bank, then it is considered the greater the level of profit achieved by the bank and the better the bank's position in terms of asset use. A positive ROA indicates that the total assets used to operate, the company is considered capable of providing profits for the company. Otherwise, if negative ROA is caused by the company's profit in a negative or loss condition. This shows that the ability of the entire invested capital has not been able to generate profits (Munawir, 2002).

a. **Purpose of Profitability Ratio**

The purpose of using profitability ratios for internal parties and outside companies includes (Munawir, 2002):

1. To compare the position of company profits in the previous year with the current year.
2. To assess the productivity of all company funds used with loan capital and own capital.
3. To evaluate the development or decline of company performance, with this company has a way to overcome if the problem is identified.
4. To describe the level of management effectiveness in carrying out operational activities. Basically profitability can be influenced by several factors, both internal and external factors. For instance, in a study conducted by Ubaidillah (2016), the factors used in the study were as follows: CAR, FDR, NPF, OER, PPAP (*Penyusunan Penghapusan Aktiva Produktif*), and SBIS (*Sertifikat Bank Indonesia Syariah*). Likewise with several other researchers who also use external factors to determine factors that can affect profitability, especially in Islamic banks such as inflation, interest rates, gross domestic product, BI rate, exchange rate, and as explained in (2.3. Previous Researchers) to find out the results of each variable used in each researcher.

In this study, the researcher used the ratio of NPF, NYM, CAR, and external factors are Exchange Rate. To find out what factors can affect profitability of Islamic commercial banks in Indonesia.

2.2.2. The relationship between NPF and Profitability

Credit risk as measured by NPF has a negative effect on bank financial performance as measured by ROA. The higher of NPF value can cause a decrease in the value of ROA, which means the bank's financial performance is declining. Otherwise, if the NPV value is small, then ROA will increase, then the bank's financial performance can be said in good condition. NPF is a financing problem. Financing is the biggest source of income for Islamic banks. If the level of (financing problem) in the bank is too high, this will result in a loss of opportunity to get income from the financing provided and also can affect profitability (Wibowo, 2018).

a. Quality of Financing

Based on SE BI 5/7/ PBI/ 2003 article 3 concerning the quality of Financing, it is determined to be 4 categories, namely smooth, substandard, doubtful and lost. Category I for smooth, Category II for substandard, Category III for doubtful, and Category IV for lost.
1. **Category I**
   Smooth financing is a financing that can be said smoothly if the principal installments are paid on time, have active account transfers, and financing guaranteed by cash collateral.

2. **Category II**
   Substandard financing is a financing if there are arrears in payment of principal installments or profit sharing, the frequency of account transfers is relatively low, indicating financial problems faced by debtors and weak loan documentation, and there is a violation of the agreement that has exceeded 90 days.

3. **Category III**
   Doubtful financing is a financing if there are arrears in payment of principal installments exceeding 180 days.

4. **Category IV**
   Lost financing is a financing if the operating loss is closed with a new loan and there are arrears in payment of principal installments exceeding 270 days.

### 2.2.3. The relationship between NYM and Profitability

According to SE BI No.6/23/DPNP May 31, (2004). NYM or commonly called NIM is net interest income earned from interest income received from loans given minus interest expense from sources of funds provided. The greater of NIM value in a bank, it will result in an increase in profit before tax, thus it can also increase ROA (Wibowo, 2018). NIM can be said to measure the ability of bank management to manage their productive assets to generate net interest income. The greater of net interest income generated by the bank, then the bank profitability shown by the amount of ROA is also getting bigger.

### 2.2.4. The relationship between CAR and Profitability

According to Edhi Atrio Wibowo, *et al.*, (2016) states, banking can be said to be healthy and capable competing in international banking, the bank's capital must
follow the internationally accepted measure, based on the provisions of *Banking for International Settlements* (BIS), which is 8%. CAR is an indicator of a bank's ability to cover a decrease in assets as a result of bank losses caused by risky assets. The higher of CAR value, hence the stronger of a bank's ability to bear the risk of each credit or risky productive assets. With large capital, the opportunity to get profits is getting bigger, because it will increase the chance of banks to invest profitable and can increase public confidence in the bank, this can affect profitability (Rahma, 2011). According to Rafsanjani (2016), if bank capital is sufficient, the bank is considered capable of carrying out its operations properly, then the bank can expand the business and make a profit. If profits increase, it will be followed by increasing ROA, because profit is one of the factors forming ROA.

2.2.5. Macroeconomic Factors

The relationship between Exchange Rate and Profitability

According to Dwijayanthy, *et al.*, (2009), the influence of the currency exchange rate on the profitability of the bank identifies if the exchange rate experiences depreciation and appreciation, it will have an impact on the bank's foreign exchange obligations at maturity. Thus, the bank's profitability will change if in that case. And if the bank's profitability will change the bank does not do hedging.

The strengthening of the rupiah exchange rate against the US dollar will increase the profitability of Islamic banks, which means, if the value of the domestic currency is higher than the value of foreign currency, it will reduce the prices of imported goods. Declining prices will potentially increase the economy in the real sector. The increase in the economy in the real sector will encourage people to invest in the sector, thus it has an impact on increasing bank profitability. And also vice versa a large depreciation of the rupiah can result in bank debtors experiencing business difficulties and as a consequence unable to pay the debt to the bank. As a result, banks experience liquidity difficulties and the level of profitability of Islamic banks will decline (Rahman, 2015).
## 2.3. Previous Research

### Table 2.2.

**Previous Research**

<table>
<thead>
<tr>
<th>No</th>
<th>Author, Year, Title</th>
<th>Research Design</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Variable</td>
</tr>
<tr>
<td>1.</td>
<td>Assim Abdel Razzaq  (2018): “The Determinants of Islamic Banking Profitability”</td>
<td><strong>Population:</strong> Islamic banks from 23 countries in 6 regions included in IBs.</td>
<td>NIM</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Sample:</strong> 162 Islamic banks from various countries recorded IBs period, 1996-2015.</td>
<td>EGR</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Method:</strong> Descriptive statistics, classical assumption test, multiple regression consist of: T test, F test, coefficient of determination.</td>
<td>AIR</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CG</td>
</tr>
<tr>
<td>2.</td>
<td>Qaisar &amp; Selamah (2018): “Impact of</td>
<td><strong>Population:</strong></td>
<td>GDP</td>
</tr>
<tr>
<td>Macroeconomics Variables on Islamic Banks Profitability in Brunei”</td>
<td>Islamic Bank Brunei Darussalam period, 2012-2016.</td>
<td></td>
<td></td>
</tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>b. <strong>Sample:</strong></td>
<td>1 Islamic bank (BIBD) is selected, as it is the only fully fledged Islamic bank in Brunei Darussalam period, 2012-2016.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. <strong>Method:</strong></td>
<td>Descriptive statistics, panel regression analysis consist of: T test, F test, coefficient of determination.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a. <strong>Sample:</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NPF</td>
<td>Partial negative influence, not significant.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAR</td>
<td>Partial negative</td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td></td>
</tr>
<tr>
<td></td>
<td>c. <strong>Method:</strong> Descriptive statistics, normality tests and classic assumptions, multiple regression consist of: T test, F test, coefficient of determination.</td>
<td>influence, not significant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>OER Partial negative significant influence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FDR Partial negative influence, not significant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>NPF Partial negative significant influence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>FDR Partial negative influence, not significant.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>CAR Partial negative significant influence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rahmi (2016): “Pengaruh FDR,NIM,NPF, OER Terhadap Profitabilitas (ROA) Pada BUS”</td>
<td></td>
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<tr>
<td>---</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>a. <strong>Population:</strong></td>
<td>Sharia commercial bank during 2011-2015.</td>
<td>b. <strong>Sample:</strong></td>
<td>5 sharia commercial bank in Indonesia, period 2011-2015.</td>
</tr>
<tr>
<td>c. <strong>Method:</strong></td>
<td>Descriptive Statistics, classic assumption test, multiple regression, hypothesis.</td>
<td></td>
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<tr>
<td></td>
<td>OER</td>
<td>Partial negative significant influence.</td>
<td></td>
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<tr>
<td>5.</td>
<td></td>
<td>FDR</td>
<td>Partial positive influence, not significant.</td>
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<td></td>
<td></td>
<td>NIM</td>
<td>Partial positive significant influence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NPF</td>
<td>Partial positive significant influence.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OER</td>
<td>Partial negative significant influence.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Rahman (2015): “Pengaruh DPK, BI Rate, Exchange Rate Terhadap Profitabilitas (ROA)</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. <strong>Population:</strong></td>
<td>Sharia commercial bank in Indonesia during, 2008-2013</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>DPK</td>
<td>Partial positive significant influence.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>BI Rate</td>
<td>Partial positive</td>
</tr>
</tbody>
</table>
 | | | b. **Sample:**  
 | | | 4 sharia commercial bank in Indonesia period, 2009-2013.  
 | | | c. **Method:**  
 | | | Descriptive Statistics, classic assumption, multiple regression.  
 | | | NPF | Partial positive significant influence.  
 | | | NIM | Partial negative significant influence.  
 | | | OER | Partial negative significant influence.  
 | | | **Sample:**  
 | | | 4 sharia commercial bank in Indonesia, period 2008-2013.  
 | | | a. **Sample:**  
 | | | 4 sharia commercial bank in Indonesia, period 2008-2013.  
 | | | b. **Sample:**  
 | | | 4 sharia commercial bank in Indonesia, period 2008-2013.  
 | | | c. **Method:**  
 | | | Descriptive Statistics, classic assumption test, multiple regression, hypothesis.  
 | | | ER | Partial negative significant influence.  
 | | | NPF | Partial positive significant influence.  
 | | | OER | Partial negative significant influence.  
 | | | NIM | Partial negative significant influence.  
 | | | **Population:** Sharia commercial bank in Indonesia, period 2008-2013.  
 | | | a. **Sample:**  
 | | | 4 sharia commercial bank in Indonesia, period 2008-2013.  
 | | | b. **Sample:**  
 | | | 4 sharia commercial bank in Indonesia, period 2008-2013.  
 | | | c. **Method:**  
 | | | Descriptive Statistics, classic assumption test, multiple regression, hypothesis.  
 | | | ER | Partial negative significant influence.  
 | | | NPF | Partial positive significant influence.  
 | | | OER | Partial negative significant influence.  
 | | | NIM | Partial negative significant influence.  
 | | | **Method:** Descriptive Statistics, classic assumption test, multiple regression, hypothesis.
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>a. Population:</strong> Islamic banks in Pakistan period, 2006-2010.</td>
</tr>
<tr>
<td></td>
<td><strong>b. Sample:</strong> 6 Islamic banks in Pakistan during, 2006-2010.</td>
</tr>
<tr>
<td></td>
<td><strong>c. Method:</strong> Descriptive Statistics, and panel regression analysis consist of: T test, F test, coefficient of determination.</td>
</tr>
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<td></td>
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</tbody>
</table>

<table>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>a. Population:</strong> Islamic bank listed on BI during, 2005-2008.</td>
</tr>
<tr>
<td></td>
<td><strong>b. Sample:</strong> 3 sharia commercial bank period, 2005-2008 <strong>Method:</strong> Classical assumptions,</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
multiple regression, hypothesis testing. | OER | Partial negative significant influence.

Source: International and local journals compiled by researcher, 2018

2.4. Research Gaps

There are various studies related to this study, however, there are differences in the results of the study. Refers to the table above, research conducted by Wahyu (2017) and Khizer, et al., (2011) generate the fact that Non Performing Financing has a negative significant relation towards ROA. In contrast, Agus and Kubertein (2017) reveal a negative influence, not significant towards ROA.

Asim (2018), and Rahmi (2016) figure out that NIM has a positive significant influence towards ROA. Meanwhile, research done by Okky Paulin, et al., (2012) reveals a negative relation.

Agus & Kubertein (2017), and Dhika (2009), found that CAR has a negative insignificant influence towards ROA. Meanwhile, the research conducted by Wahyu (2016), has a significant negative towards ROA, and Khizer & Shama (2011), have a significant positive, these findings are expressed contradictory. Qaisar & Selamah (2018), find a partial negative significant relationship between exchange rate towards ROA.

2.5. Hypotheses

Based on the previous study and theoretical framework, the hypotheses are formulated as below:

**H1**: There is a significant influence of NPF towards ROA in Indonesia during 2010 to 2017.

**H2**: There is a significant influence of NYM towards ROA in Indonesia during 2010 to 2017.
**H3:** There is a significant influence of CAR towards ROA in Indonesia during 2010 to 2017.

**H4:** There is a significant influence on Exchange Rate towards ROA in Indonesia during 2010 to 2017.

**H5:** There is a simultaneous significant influence of NPF, NYM, CAR, and ER towards ROA in Indonesia during 2010 to 2017.

### 2.6. Theoretical Framework

The theoretical framework of this research is constructed as follows:

![Theoretical Framework Diagram](source_adjusted_by_researcher.png)

**Figure 2.1 Theoretical Framework**

*Source: Adjusted by Researcher, 2018*
CHAPTER III

RESEARCH METHOD

3.1. Research Method

In conducting research there are two methods that are often used are qualitative and quantitative (Ahamad, 2018). Qualitative research methods emphasize the meaning, reasoning, definition in certain situations, while the quantitative method is research that uses numbers in their explanations, starting from data collection, data interpretation, and the appearance of results (Syae, 2018). In this study, researchers will use quantitative theory, since the researcher will explain in detail about what factors can affect profitability in Islamic commercial banks in Indonesia and to obtain accurate results. The data used by the researcher are secondary data, by determining the ratio used to determine the factors that can affect profitability by using annual financial reports on Islamic commercial banks in Indonesia which are listed in OJK (Financial Services Authority).

3.2. Research Framework

The research was conducted to determine the factors that can affect profitability in Islamic commercial banks in Indonesia, after which it is followed by identification of problems. Is there influence both partially and simultaneously on the variables used for testing. Followed by finding a literature review that can support research, develop a theoretical framework, determine the research methodology, collect the data needed from various trusted sources. After that, determine the panel regression model (fixed or random), continue to test the classical assumption, after that, multiple regression analysis, hypothesis testing, and interpretation of results and conclusion.
Figure 3.1. Research Framework

Source: Adjusted by Researcher, 2018
3.3. Sampling Design

Sampling is the process of selecting the right amount of data, and clearly from the right subject of the population as a research representative (Sitielarohilah, 2015). If sampling is done correctly, then, the results of statistical tests can be used to conclude a whole population.

3.3.1 Size of Population

According to Sugiyono (2010), population is a generalized area consisting of objects or subjects that have certain qualities and characteristics set by researchers to be studied and then concluded. In this study, researchers use annual financial reports on Islamic commercial banks in Indonesia listed on OJK. 11 Islamic banks in Indonesia were established and registered on OJK during 2010-2017, and below is the current list the names of Islamic commercial banks in Indonesia 2017.

Table 3.1. Research Population

<table>
<thead>
<tr>
<th>No</th>
<th>Name of Islamic Commercial Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PT Bank Syariah Mandiri</td>
</tr>
<tr>
<td>2.</td>
<td>PT Bank BNI Syariah</td>
</tr>
<tr>
<td>3.</td>
<td>PT Bank Mega Syariah</td>
</tr>
<tr>
<td>4.</td>
<td>PT Bank Muamalat Indonesia</td>
</tr>
<tr>
<td>5.</td>
<td>PT Bank BCA Syariah</td>
</tr>
<tr>
<td>6.</td>
<td>PT Bank BRI Syariah</td>
</tr>
<tr>
<td>7.</td>
<td>PT Bank Jabar Banten Syariah</td>
</tr>
<tr>
<td>8.</td>
<td>PT Bank Panin Syariah</td>
</tr>
<tr>
<td>9.</td>
<td>PT Bank Syariah Bukopin</td>
</tr>
<tr>
<td>10.</td>
<td>PT Victoria Syariah</td>
</tr>
<tr>
<td>11.</td>
<td>PT Bank Maybank Syariah</td>
</tr>
<tr>
<td>12.</td>
<td>PT Bank Tabungan Pensiunan Nasional Syariah</td>
</tr>
<tr>
<td>13.</td>
<td>PT Bank Aceh Syariah</td>
</tr>
</tbody>
</table>

Source: Bank Indonesia and OJK publication data, 2018
3.3.2 Size of Sample

According to Sekaran & Bougie (2011), sample is part of the population. The sample is a small part of the population taken according to certain procedures that can represent the population. Samples are used if the population is large, and researchers cannot study the entire population. This can occur because of the limited costs, energy and time that researchers have. Sampling techniques are grouped into two parts; Probability and Nonprobability sampling. Probability sampling is a technique for sampling that will provide equal opportunities for each member of the population who can be chosen as a member of the sample. Non Probability sampling is a technique used for sampling that does not provide the same opportunity or opportunity for each member of the population who can be chosen as a member of the sample (Suharsimi, 2010).

In this study, the researcher used non probability sampling design by using purposive sampling technique. Purposive sampling is the determination of samples that use certain considerations and provide necessary information.

### Table 3.2. Sample Selection

<table>
<thead>
<tr>
<th>Characteristic Samples</th>
<th>Total of Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Publication of Islamic commercial banks listed on OJK and BI, period 2010 - 2017.</td>
<td>13</td>
</tr>
<tr>
<td>Complete company financial statements, period 2010 - 2017 that have been published and audited.</td>
<td>8</td>
</tr>
<tr>
<td>Availability of related data variables.</td>
<td>8</td>
</tr>
<tr>
<td>Sample data panel 2010 - 2017</td>
<td>64</td>
</tr>
</tbody>
</table>

Source: Adjusted by Researcher, 2018
This study used 8 Islamic commercial banks in Indonesia, during 2010 - 2017. Based on the completeness of company financial reports, which have been published by BI and OJK and audited. The period used in this study from 2010 - 2017, which means 8 years. Using a Islamic Commercial Bank registered at OJK. By using financial annual reports from trusted sources: company official website. Based on SE 7/56 / DPbS 2005 concerning Islamic Commercial Banks and Islamic Business Units (BUS & UUS).

1. Law No.10 of 1998, Banks are required to submit information and explanations relating to the Bank's business activities in order to monitor the Bank's business condition of the public and Bank Indonesia.

2. The form of submission of information and announcements or publication of the Bank's business activities in the framework of monitoring by the public and Bank Indonesia is in the form of annual reports, published financial reports, and reports on certain information determined by Bank Indonesia.

3. If the Annual Report, Published Financial Report and Specific Information Report are also made in addition to the in Indonesian Language, both in the same and separate documents, then the Report must contain the same information as that which has been determined by Bank Indonesia.

Based on the rules and laws that have been determined by BI, the researcher conclude that reports published through the company's official website with those published through the BI website have the same standard in the delivery of information, explanations and reports on certain information. And the total overall sample used by researchers in their research is 64 data. Here are 8 Islamic commercial banks that will be used by the researcher in this research:
Table 3.3.

List of Sample

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>PT Bank Muamalat Indonesia</td>
<td>Islamic Commercial Bank</td>
<td>Foreign Exchange Bank</td>
</tr>
<tr>
<td>2</td>
<td>PT Bank BNI Syariah</td>
<td>Islamic Commercial Bank</td>
<td>Foreign Exchange Bank</td>
</tr>
<tr>
<td>3</td>
<td>PT Bank Mega Syariah</td>
<td>Islamic Commercial Bank</td>
<td>Foreign Exchange Bank</td>
</tr>
<tr>
<td>4</td>
<td>PT Bank Syariah Mandiri</td>
<td>Islamic Commercial Bank</td>
<td>Foreign Exchange Bank</td>
</tr>
<tr>
<td>5</td>
<td>PT Bank BCA Syariah</td>
<td>Islamic Commercial Bank</td>
<td>Non Foreign Exchange Bank</td>
</tr>
<tr>
<td>6</td>
<td>PT Bank BRI Syariah</td>
<td>Islamic Commercial Bank</td>
<td>Non Foreign Exchange Bank</td>
</tr>
<tr>
<td>7</td>
<td>PT Bank Maybank Syariah</td>
<td>Islamic Commercial Bank</td>
<td>Non Foreign Exchange Bank</td>
</tr>
<tr>
<td>8</td>
<td>PT Bank Syariah Bukopin</td>
<td>Islamic Commercial Bank</td>
<td>Non Foreign Exchange Bank</td>
</tr>
</tbody>
</table>

Source: Bank Indonesia, 2018

3.4. Research Instrument

This research is using secondary data generated from several trusted sources that have met requirements such as books, websites, and journals. The raw data that has been obtained from the company official website will be used as an independent variable and dependent variable. Then, collected, calculated and stored using Microsoft Excel 2010.
After all the required data is fulfilled, the main tool that will be used during statistical and other tests is Eviews (Econometric Views) version 9. Eviews is software that is used for the purposes of analyzing economic, evaluation, forecasting and financial data analysis (Eviews, 2019).

In this study researcher used Eviews to process raw data that has been stored in Microsoft Excel 2010, to be processed statistically to get the results interpreted. Such as descriptive, classical assumption, and multiple regression test.

The type of data the researcher used in this study is panel data (pooled data). Panel data are a combination of cross section and time series data. Cross section data consists of several objects, and several companies used in the study. While time series data usually include several periods (daily, monthly, quarterly, or yearly) which are usually used in research (Syafii, 2016). In this study, the researcher used audited data from 8 Islamic commercial banks, period 2010 - 2017. And also researcher used Microsoft Word 2010 for a detailed explanation of the results of the analysis.

3.5. Data Collection Method

In this study using secondary data. According to Sugiyono (2010), secondary data is data obtained by researchers from existing sources. The data collection method is based on reliable sources as follows:

1. The Independent variable NPF, NYM, and CAR are generated based on annual financial data reports that have been presented in excel by researcher that have been obtained from the company's official website.

2. Exchange Rate from worldbank.

3. To find out the factors that can affect profitability. The profitability ratio used by researchers in this study is a Return on Assets (ROA) as the dependent variable (Y). Data is generated from the company's official website.
3.6. Operational Definition

Operational definitions to show how the dependent and independent variables are measured. In this study, bank performance is measured using financial ratios adjusted for available data. Thus, to find out the factors that can affect profitability, the researcher needs to test and analyze from the several ratios that will be used in this research.

1. Profitability

The profitability ratio used by the researcher in this research is a Return on Assets (ROA) as the dependent variable. ROA is used to measure the level of efficiency of the bank and the ability of bank management in carrying out activities operational. And also known as the ratio used to measure the ability of bank management to obtain overall profits (Sulistiyo, 2018).

ROA is calculated using the formula:

\[
\text{ROA} = \frac{\text{Profit before tax}}{\text{Total Asset}}
\]

Source: OJK and Bank Report \hspace{1cm} (Eq.3.1)

2. Non Performing Financing Ratio (NPF)

NPF is one of the instruments for evaluating the performance of a sharia bank, which is an interpretation of valuations of productive assets, especially in the assessment of problem financing (Siregar et al., 2018).

NPF is calculated using the formula:

\[
\text{NPF} = \frac{\text{Financing (KL + D + M)}}{\text{Total Financing}} \times 100 \%
\]

Source: OJK and Bank Report \hspace{1cm} (Eq.3.2)
3. Net Yield Margin (NYM)

NYM or commonly called NIM in conventional banks, NYM is the ratio of net income to profit sharing with the average productive asset. According to SE BI No 6/23/DPNP May 31, 2004, NIM is a comparison between net interest income and the average of earning assets. NIM is a ratio used to measure the ability of bank management to manage their productive assets to generate net interest income (Ariyanto, 2011).

NIM is calculated using the formula:

\[
\text{NIM} = \frac{\text{Net interest income}}{\text{Average Earning Assets}}
\]

Source: OJK and Bank Report (Eq. 3.3)

4. Capital Adequacy Ratio (CAR)

The CAR is a ratio used to measure the ability of banks to maintain sufficient capital and the ability of banks to identify, measure, and control the risks that arise that can affect the size of bank capital (Rafsanjani, 2016).

CAR is calculated using the formula:

\[
\text{CAR} = \frac{\text{Total Modal}}{\text{Total Risk Weighted Assets}}
\]

Source: OJK and Bank Report (Eq. 3.4)

5. Exchange Rate

According to Amalia (2014), the exchange rate is the price of a country's currency relative to another country's currency. There are two types of exchange rates, as follows (Dwijayanthy, 2009):
1. Nominal exchange rate: The value that someone uses when exchanging a country's currency with another country's currency.

2. Real exchange rate: the exchange rate that someone uses when exchanging goods and services of a country with other country's goods and services.

Several factors affecting the exchange rate, which are:

1. Inflation

In the foreign exchange market, the main basis is international trade, both in the form of services and goods. Therefore, changes in domestic prices relative to foreign prices are factors that influence the movement of foreign currency values.

2. Interest Rate

The interest rate will affect the operation of the foreign exchange market and money market. When transaction activities occur, the bank will consider interest rate differences in national and global capital markets.

The percentage value in the exchange rate can be formulated as follows:

\[
\text{Percentage change in ER} = \frac{\text{ER}(t) - \text{ER}(t - 1)}{\text{Exchange rate } (t - 1)}
\]

Source: CFA Institute, (2012)  
(Eq.3.5)

3.7. Data Analysis Method

3.7.1 Descriptive Statistics Analysis

According to Nazir (2013) in his book research methods, Descriptive research is a method of examining objects, the status of certain groups, conditions, events, and a system of thought. The purpose of descriptive research is to obtain factual, and accurate results regarding the facts, characteristics and relationships between the phenomena investigated (Hidayat, 2012).
In this study, the researcher used descriptive statistical analysis to find out and summarize the information of each variable through calculations from various descriptive measures such as average, maximum, minimum, and standard deviation.

1. **Mean**

   Can be calculated using the following formula:

   \[
   \bar{x} = \frac{\sum X_i}{n}
   \]

   Source: (Schwert, 2010)  
   (Eq.3.6)

   Where:

   \(\bar{x}\) = average (mean)  
   \(n\) = number of observations

2. **Maximum** is the highest value for each variable in the research data.

3. **Minimum** is the lowest value for each variable in the research data.

4. **Standard Deviation** are measures of diversity of the most frequently used statistical data. The standard deviation is the square root of the variance.

   Can be calculated using the following formula:

   \[
   S = \sqrt{\frac{\sum (X_i - \bar{x})^2}{n-1}}
   \]

   Source: (Lastriana, 2018)  
   (Eq.3.7)

   Where:

   \(S\) = standard deviation  
   \(\bar{x}\) = average (mean)  
   \(n\) = number of observations
3.7.2 Panel Data Regression

Panel data regression is a regression technique that combines time series data with cross section. According to Widarjono (2007), the panel data regression method has several advantages compared to time series data or cross section, as follows (Winarno, 2011):

1. The panel data are being combination of two data (time series and cross section) that are able to provide more data, thus it can produce a greater degree of freedom.
2. Combining information from time series and cross section data can overcome problems that arise when there are omitted-variable.

In this study, the researcher used an unbalanced method for the total panel observations, where data is collected, there is data identified by outliers or data that deviates too far from other data in the data set, this statement is supported by research Rya Sofi, et al., (2017).

In the regression model estimation method using panel data can be done in this way, including (Iqbal, 2015):

1. **Fixed Effect Model**
   This model assumes that differences between individuals can be accommodated from the difference in intercepts. To estimate the Fixed Effects model by intercepting differ between individuals, then the dummy variable technique is used. This estimation model is called the Least Squares Dummy Variable (LSDV) technique (Iqbal, 2015).

2. **Random Effect Model**
   The approach used in the Random Effect assumes that each company has an intercept difference, where the intercept is a random or stochastic variable. The advantage of using the Random Effect model is to eliminate heteroscedasticity. This model is also called Error Component Model (ECM) or Generalized Least Square (GLS) technique (Iqbal, 2015).
To choose the most appropriate model used in processing panel data, there are several tests that can be done as follows: Figure 3.2. To show systematic steps to determine the most appropriate model.

![Figure 3.2. Panel Data Regression Flow](image)

Source: (Paulina, 2018)

1. **Chow Test (Likelihood Ratio)**

This test is used to select one of the models in panel data regression, which is between the fixed effect model and the common effect model. To test this model, Likelihood Ratio was conducted to find out the common effect ($H_0$) or fixed effect ($H_1$) models that were suitable for this research. Chow test is also known as F-statistics test. The testing procedure is as follows (Munandar, 2017):

\[
F = \frac{(RRSS - URSS)/(N - 1)}{URSS/(NT - N - K)}
\]

(Eq.3.8)

Where:

RRSS: Restricted residual sum square (is the sum of square residual obtained from estimated panel data by common method).
URSS: Unrestricted residual sum square (is the sum of square residual obtained from the estimated panel data with fixed effect method).

\[ N \] = the amount of cross section data

\[ T \] = the amount of time series data

\[ K \] = independent variables

In this study, the researcher used a significance level of 5% (\( \alpha = 0.05 \)). The basis of decision making using the chow test or the likelihood ratio test is as follows (Munandar, 2017):

a. Probability (p-value) Cross-section \( F > 0.05 \) = reject \( H_0 \)
b. Probability (p-value) Cross-section \( F < 0.05 \) = accept \( H_0 \)

If the chow test result is less than 0.05, then the panel data regression technique used a fixed effect model and continued by a hausman test. And if the chow test result is more than 0.05, then the panel data regression technique used the common effect model and the analysis stops here.

2. Hausman Test

This test aims to find out which model should be used, the fixed effect model (FEM) or the random effect model (REM). In Fixed effect model each object has a different intercept, however, the interception of each object does not change over time. The panel data model with fixed effects is estimated by GLS (Generalized Least Square). The decision making technique using the Hausman test is as follows (Fahmi, 2015):

\[ H_0 \] = Random effect model
\[ H_a \] = Fixed effect model

The conclusion is as follows:

\[ H_0 \] = if the Chi-Square probability value is > \( \alpha \) (0.05), RE is accepted
\[ H_a \] = if the Chi-Square probability value is < \( \alpha \) (0.05), FE is accepted.
3.7.3 Classical Assumption Test

Panel data will provide precise and efficient result if can meet the BLUE (Best Linear Unbiased Estimator) parameter. There are several requirements of BLUE parameter, which are (Gujarati, 2004):

a. Has a normal distribution.
b. No heteroscedasticity
c. No Multicollinearity
d. The model is correctly specified.

Therefore, to verify whether the model has fulfilled BLUE parameter, the model has to be tested with a classical assumption test which consist several tests below (Gujarati, 2004).

1. Normality Test

The normality test aims to determine whether the dependent and independent variable regression models both have a normal distribution or not (Sugiyono, 2010). A good regression model is a regression that results in a normal distribution or close to normal. This test is usually used to measure ordinal, interval, or ratio data. If the analysis used parametric method, then the requirements for normality must be fulfilled, using data that are successfully distributed normally. Whereas, if the data is not normally distributed, or the number of samples is small and the type of data is nominal or ordinal, the method used is non parametric statistics (Duwi, 2015).

Testing of residuals with normal distribution or not, can use Jarque-Bera Test. The Jarque Bera test is one of the goodness of fit test normality tests which measures whether the skewness and kurtosis of the sample are in accordance with the normal distribution (Hidayat, 2012). According to Schwert (2010), To find out whether the data is normally distributed or not, it can be done by comparing the JB values, as follows:

\[
\text{Jarque – Bera} = \frac{N}{6} + \left( S^2 + \frac{(K-3)^2}{4} \right)
\]
Source: (Schwert, 2010)  \hspace{1cm} \text{(Eq.3.9)}

Where:

\[ S = \text{value of skewness.} \]
\[ N = \text{number of observations.} \]
\[ K = \text{the value of kurtosis.} \]

\text{a. If Jarque-Bera } < 2, \text{ the results show normally distributed.}
\text{b. If Jarque-Bera } > 2, \text{ the results show not normally distributed.}

\text{o see the results of the normality test can also use profitability of the Jarque-Bera,}
\text{where the results must exceed } \alpha = 5\% \text{ or 0.05 to get normally distributed data, as}
\text{follows (Gujarati, 2004):}

\text{a. If Jarque-Bera profitability } < 0.05, \text{ the results show not normally distributed.}
\text{b. If Jarque-Bera profitability } > 0.05, \text{ the results show normally distributed.}

\text{2. Heteroscedasticity Test}

\text{Heteroscedasticity test is used to find out whether or not there is a deviation, which}
\text{means there is an inequality of variants of the residuals for all observations in the}
\text{regression model (Duwi, 2015). In this study, the researcher used the white test}
\text{method to determine whether the results indicated heteroscedasticity or not, using}
\text{Eviews, version 9. In addition, there are several ways to determine whether the}
\text{results of this study are free from Heteroscedasticity by selecting menu views on}
\text{eviews - open Residual Diagnostics - find the Heteroscedasticity test option - open}
\text{it and see the results, if the results show } < 0.05 \text{ means free from heteroscedasticity.}
Table 3.4.

Heteroscedasticity Test

Source: (Hidayat, 2012)

If the results of the study do not show the choice of heteroscedasticity test, it is considered that the results of this study are free from heteroscedasticity, as was done in this study.

Table 3.5.

Heteroscedasticity Test

Source: Eviews 9, 2019
3. Autocorrelation Test

Autocorrelation only occurs in time series data. Autocorrelation test is used to
determine whether or not there is a classic deviation of autocorrelation, where the
correlation that occurs between residuals in one observation with other observations
in the regression model (Duwi, 2015). The autocorrelation test can be seen from the
value of Durbin Watson, as follows (Santoso, 2010):

a. If the Durbin Watson value is less than $< -2$, positive autocorrelation has
occurred.
b. If the Durbin Watson value is more than $> 2$, negative autocorrelation has
occurred
c. If the Durbin Watson value is $-2 \geq DW < 2$, indicates there is no
autocorrelation.

4. Multicollinearity Test

Multicollinearity is a condition where there is a strong correlation between the
independent variables (X) included in the formation of a linear regression model. If
the correlation coefficient between each independent variable is greater than 0.7,
multicollinearity occurs in the regression model. The solution to overcome
multicollinearity is to add observational data or eliminate one of the independent
variables that have a linear relationship with other independent variables (Gujarati,
2004). To detect multicollinearity problems can be assessed by analyzing the
correlation matrix. To show the correlation coefficient, which is shown by the R
value, as follows:

Table 3.6.
Multicollinearity Test

<table>
<thead>
<tr>
<th>R Value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r \leq 0.3$</td>
<td>Very weak correlation</td>
</tr>
<tr>
<td>$0.3 \leq r \leq 0.5$</td>
<td>Weak correlation</td>
</tr>
<tr>
<td>$0.5 \leq r \leq 0.7$</td>
<td>Moderate correlation</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>$0.7 \leq r \leq 1$</td>
<td>Strong correlation</td>
</tr>
</tbody>
</table>

Source: (Flinger, 2013)

If the value of $r$ is greater than 0.7, the relationship between the two variables is considered strong. Therefore, to avoid the existence of a strong relationship between two variables, the value of the correlation coefficient must be below 0.7 (Flinger, 2013).

### 3.7.4 Multiple Regression Analysis

Regression is a method in statistics that can be used to see whether or not there is a relationship (cause and effect) and displayed in the form of a systematic and equation model (Simfoni, 2017). Multiple linear regression analysis is a linear relationship between two or more independent variables ($X_1, X_2, \ldots, X_n$) with the dependent variable ($Y$). This analysis is to find out the relationship between the independent variable ($X$) and the dependent variable ($Y$) whether each independent variable is positively or negatively related. And to predict the value of the dependent variable, if the value of the independent variable increases or decreases. The data used is usually interval or ratio scale. The multiple linear regression equation, as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Source: (Duwi, 2015)  \hspace{1cm} (Eq.3.10)

Where:

- $Y$ = Return on Asset (ROA)
- $\beta_0$ = Intercept/constant (value of $Y$ when $X_1$-$X_4 = 0$)
- $\beta_1$-$\beta_4$ = Partial regression coefficients
- $X_1$ = Non Performing Financial (NPF)
- $X_2$ = Net Yield Margin (NYM)
\[ X_3 = \text{Capital Adequacy Ratio (CAR)} \]
\[ X_4 = \text{Exchange Rate} \]
\[ \varepsilon = \text{Error} \]

If produces a positive coefficient (+), that means there is a positive relationship between the independent (X) and dependent (Y) variable and also the increase in the coefficient value will result in the increase of Y value. Whereas, if produces a negative coefficient (-), it means there is a negative relationship between the independent and dependent variable. The increase that occurs in the regression coefficient value which can also result in a decrease in the value of Y.

### 3.8. Testing the Hypotheses

A Hypothesis is a statement that is received temporarily as a truth as it is, when the phenomenon is known and as the basis of work and guidance in verification. The hypothesis can be said as a temporary statement of the relationship of complex phenomena. A good hypothesis must consider the facts that are relevant, reasonable and must relate to science, and in accordance with the growth of science. Testing hypotheses usually used statistical measures. There are two types of hypotheses based on the existence of relationships between variables, as follows (Hidayat, 2012):

a. The null hypothesis (\( H_0 \)) is a hypothesis that are interpreted as there is no difference or equal between population size and sample size.

b. Alternative hypothesis (\( H_1 \)) are the opposite of the null hypothesis, there is a difference in the relationship or there is influence between variables.

Statistical calculations are called statistically significant, if the statistical test value is in a critical area (where \( H_0 \) is rejected). Whereas, if it is not significant, it can be said that the statistical test value is stated (\( H_0 \) is accepted).
3.8.1 T-Test

T-test is used to determine whether the independent variables partially have a significant effect on the dependent variable. This test aims to determine the level of significance, the effect of each independent variable (X) on the dependent variable (Y), assuming the other independent variables do not change. The steps are as follows (Ghozali, 2012):

1. Determine the formulation $H_0$ and $H_a$.
   - $H_0$: there is no influence between variable $X_1$ on variable $Y$.
   - $H_a$: there is an influence between variable $X_1$ on variable $Y$.
2. The basic decisions for the T-test can be summarized as follows:
   a. If the profitability of the t test statistic is $< 0.05$, the results show that $H_0$ is rejected and $H_a$ is accepted. Because there is an influence between the independent variables on the dependent variable.
   b. If the profitability of the t test statistic is $> 0.05$, the results show that $H_0$ is accepted and $H_a$ is rejected. Because there is no influence between the independent variables on the dependent variable.

The hypothesis of T test to be used in this study, as follows:

1. $H_{01}$: $\beta_1=0$; There is no partial significant influence of Non Performing Financing towards Return on Asset in Indonesia during 2010 to 2017.

   $H_{11}$: $\beta_1 \neq 0$; There is the partial significant influence of Non Performing Financing towards Return on Asset in Indonesia during 2010 to 2017.

2. $H_{02}$: $\beta_2=0$; There is no partial significant influence of Net Yield Margin towards Return on Asset in Indonesia during 2010 to 2017.

   $H_{12}$: $\beta_2 \neq 0$; There is the partial significant influence of Net Yield Margin towards Return on Asset in Indonesia during 2010 to 2017.
3. $H_0: \beta_3 = 0$; There is no partial significant influence of Capital Adequacy Ratio towards Return on Asset in Indonesia during 2010 to 2017.

$H_A: \beta_3 \neq 0$; There is the partial significant influence of Capital Adequacy Ratio towards Return on Asset in Indonesia during 2010 to 2017.

4. $H_0: \beta_4 = 0$; There is no partial significant influence on Exchange Rate towards Return on Asset in Indonesia during 2010 to 2017.

$H_A: \beta_4 \neq 0$; There is the partial significant influence of Exchange Rate towards Return on Asset in Indonesia during 2010 to 2017.

### 3.8.2 F-Test

According to Ghozali (2012) the F statistical test basically shows whether all the independent variables included in the model have a simultaneous influence on the dependent variable. The F test is used to test the significant effect of all independent variables $X_1, X_2, X_3, X_4$ simultaneously on the dependent variable. The steps are as follows (Ghozali, 2012):

1. The basic decisions for the F-test can be summarized as follows:
   a. If the profitability of the F-test statistic is $< 0.05$, (Ho is rejected and Ha is accepted). Which means there is a significant simultaneous relationship between the independent variables towards the dependent variable.
   b. If the profitability of the F-test statistic is $> 0.05$, (Ho is accepted and Ha is rejected). Which means there is no significant simultaneous relationship between the independent variables towards the dependent variable.

   The hypothesis of F test to be used in this study, as follows:

1. $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = 0$; There is no simultaneous significant influence of Non performing financing, Net yield margin, Capital adequacy ratio, Exchange Rate towards Return on asset in Indonesia during 2010 to 2017.
H.5: at least one $\beta_i \neq 0$; There is a simultaneous significant influence of Non performing financing, Net yield margin, Capital adequacy ratio, Exchange Rate towards Return on asset in Indonesia during 2010 to 2017.

3.8.3 Coefficient of Determination

The coefficient of determination (R Square) can be used to predict how much the contribution of the influence of the independent variable (X) towards the dependent variable (Y) with the results F-test in the regression analysis is a significant value. Likewise, if the results in the T-test do not get significant results, the coefficient of determination (R Square) cannot be used to predict the contribution of independent variable towards dependent variable (Raharjo, 2018).
CHAPTER IV

ANALYSIS AND INTERPRETATION OF RESULTS

4.1. Company Profile

In this study, the researcher used 8 Islamic commercial banks in Indonesia which are listed on OJK. The company profile table can be found in the Appendix for the explanation.

4.2. Data Analysis

4.2.1 Descriptive Analysis

According to Hidayat (2012), the purpose of descriptive research is to obtain factual, and accurate results regarding the facts, characteristics and relationships between the phenomena investigated. In this study, the researcher used Eviews version 9. The results of processing data from Eviews in the form of descriptive statistics to obtain results that can support this research are as follows; mean, minimum, maximum and standard deviation of each variable.

<table>
<thead>
<tr>
<th></th>
<th>ROA (Y)</th>
<th>NPF (X₁)</th>
<th>NYM (X₂)</th>
<th>CAR (X₃)</th>
<th>Exchange Rate (X₅)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.3196</td>
<td>2.1943</td>
<td>6.0254</td>
<td>24.4630</td>
<td>11405.49</td>
</tr>
<tr>
<td>Median</td>
<td>1.1200</td>
<td>2.0500</td>
<td>5.9800</td>
<td>15.8700</td>
<td>11865.21</td>
</tr>
<tr>
<td>Maximum</td>
<td>5.5000</td>
<td>7.8500</td>
<td>11.3000</td>
<td>124.4300</td>
<td>13389.41</td>
</tr>
<tr>
<td>Minimum</td>
<td>0.0200</td>
<td>0.0000</td>
<td>2.4400</td>
<td>10.6000</td>
<td>8770.430</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>1.0925</td>
<td>1.6089</td>
<td>2.0059</td>
<td>20.7931</td>
<td>1862.710</td>
</tr>
<tr>
<td>Observations</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
<td>62</td>
</tr>
</tbody>
</table>

*Rounded to 4 decimals point for ROA,NPF,NIM., CAR

Source: Eviews 9, 2019
According to the Table 4.1, the description of maximum and minimum value of data, the average value (mean), and standard deviation of each variable which are ROA (Y), NPF (X₁), NYM (X₂), CAR (X₃), and Exchange Rate (X₅) can be explained as follows:

1. In the descriptive statistical results, it has a mean value of the dependent variable (ROA) is 1.3196 with standard deviation 1.0925, means the data mostly spread within the range of 1.3196 ± 1.0925. The maximum value of Return on Asset is 5.50, occurs on PT. Maybank Syariah Indonesia in 2017. The minimum value of Return on Asset is 0.02, occurs in PT Bukopin Syariah in 2017.

2. NPF is categorized as independent variable (X₂). The mean value of Non Performing Financial is 2.1943 with standard deviation 1.6089, means the data mostly spread within the range of 2.1943 ± 1.6089. The maximum value of Non Performing Financial is 7.85, occurs on PT. Bank Bukopin Syariah in 2017. The minimum value of Non Performing Financing is 0.00, occurs on PT. Maybank Syariah Indonesia in 2017.

3. NYM is categorized as independent variable (X₃). The mean value of Net Yield Margin is 6.0254 with standard deviation 2.0059, means the data mostly spread within the range of 6.0254 ± 2.0059. The maximum value of Net Yield Margin is 11.30, occurs on PT. BCA Syariah in 2011. The minimum value of Net Yield Margin is 2.44, occurs on PT. Bukopin Syariah in 2017.

4. CAR is categorized as independent variable (X₄). The mean value of Capital Adequacy Ratio is 24.4630 with standard deviation 20.7931, means the data mostly spread within the range of 24.4630 ± 20.7931. The maximum value of Capital Adequacy Ratio is 124.43, occurs on PT. Maybank Syariah Indonesia in 2010. The minimum value of Capital Adequacy Ratio is 10.60, occurs on PT. Mandiri Syariah in 2010.
5. Exchange Rate is categorized as independent variable (X). The mean value of Exchange Rate is 11405.49 with standard deviation 1862.71, the data is greatly spread around of 1862.71 ± 11405.49. SD results from Exchange Rate are greater than the mean value, which means that they have a large level of deviation and the data varies or is relatively heterogeneous. The maximum value in the ER is 13,389.41, in 2014 and also the minimum value occurs in 2010 amounting to 8,770.43.

4.2.2 Panel Data Regression

In the regression model estimation method using panel data can be done through three approaches which are common effect, Fixed effect, and Random effect. To choose the most appropriate model used in processing panel data, the researcher passes the Chow and Hausman test.

1. Chow Test

According to Munandar (2017), the basis of decision making uses the chow test has a significance level of 5% (α = 0.05). The results of this study, the researcher obtained 0,000 results from the Chow test, which means that the results of chi-squire profitability were less than 0.05. Therefore the researcher used a fixed effect model for this study. The results can be seen in Appendix 2.

2. Hausman Test

In this study, the researcher obtained results from the Hausman test is 0.0470, which means less than 0.05. It can be concluded: H0 is rejected, and Ha accepted. In this study, the researcher used a fixed effect model, because it could be said to pass the Chow and Hausman tests. And also this model was suitable in this study. The results can be seen in Appendix 3.
4.2.3 Classical Assumption Test

1. Normality Tests

To get the results, whether this data is normally distributed or not. The researcher uses the provisions if the JB results < 2, then the data is stated to be normally distributed. The researcher also uses other considerations if Jarque-Bera profitability is > 0.05, then the data can be said to be normally distributed. The results of this study, the researcher obtained JB results less than 2 and get more than 0.05 results on Jarque-Bera profitability. The results can be seen in Appendix 5.

2. Multicollinearity Test

Multicollinearity is a condition that shows a strong correlation between two independent variables or more. During this test the whole data must be free from multicollinearity. According to Gujarati (2004), to be free from multicollinearity, the correlation coefficient between each independent variable must be less than 0.7. The whole data in this study show the correlation in each independent variable, stated free from multicollinearity. The results can be seen in Appendix 6.

3. Heteroscedasticity Test

Heteroscedasticity is one of the classic assumption tests that must be done in linear regression. If heteroscedasticity assumptions are not fulfilled, then the regression model can be said to be invalid as a forecasting tool. In this study, researchers used the White Test "cross section covariances and standard errors" which is usually found in the regression results using eviews. Based on the results in appendix 7, the regression model in this study shows the same results as described, namely the White cross-section standard errors and covariances (d.f. corrected), which means that this data is free from heteroscedasticity or can be said to have minimal errors.
4. Autocorrelation Test

The problem of assuming autocorrelation can be detected using various types of analysis. In this study, the researcher used the provisions of the Durbin Watson test as follows (Santoso, 2010):

a. If the Durbin Watson value is less than \(-2\), positive autocorrelation has occurred.

b. If the Durbin Watson value is more than \(2\), negative autocorrelation has occurred.

c. If the Durbin Watson value is \(-2 \geq \text{DW} < 2\), indicates there is no autocorrelation.

In this study the results of the Durbin Watson test are 1.37, which is less than 2. This means that there is no identification of autocorrelation in this study. The results can be seen in Appendix 8.

4.2.4 Multiple Regression Analysis

According to Symphony (2017), multiple regression analysis to see whether or not there is a relationship (cause and effect) and displayed in the form of a systematic and equation model.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.145962</td>
<td>0.399038</td>
<td>5.377837</td>
<td>0.0000</td>
</tr>
<tr>
<td>NPF</td>
<td>-0.172332</td>
<td>0.052307</td>
<td>-3.302907</td>
<td>0.0018</td>
</tr>
<tr>
<td>NYM</td>
<td>0.141575</td>
<td>0.039337</td>
<td>4.021075</td>
<td>0.0000</td>
</tr>
<tr>
<td>CAR</td>
<td>-0.002499</td>
<td>0.002961</td>
<td>-0.843394</td>
<td>0.4030</td>
</tr>
<tr>
<td>ER</td>
<td>-0.000109</td>
<td>2.70E-05</td>
<td>-0.021228</td>
<td>0.9802</td>
</tr>
</tbody>
</table>

Table 4.2. Multiple Regression Analysis Result

Source: Eviews 9, 2019
Based on Table 4.2, in multiple regression analysis. The results of the total panel show (unbalanced). In this study, the researcher used data outliers, which means outliers are data that deviates too far from other data in a data set. The existence of data outliers will make an analysis of a series of data biased or not reflecting the actual phenomenon. The existence of numbers that is too far away from other data is often called data outliers, some experts recommend to delete the data or by replacing new data Rya Sofi, et al., (2017). In this study the data identified by outliers occurred on the dependent variable (ROA), making the researcher decide to eliminate data that produce values that are too far from the other data. To prove that data includes data outliers or not. There are several ways to identify it, namely by using the SPSS application and Excel, the research proves it by using Excel 2010. Based on table 4.2, this analysis is to find out the relationship between the independent variable (X) and the dependent variable (Y) whether each independent variable is positively or negatively related. The multiple linear regression equation, as follows:

![Figure 4.1. Multiple Regression Equation Result](image)

The equations can explain as follows:

1. The constant value is 2.14596, It can be explained that if the independent variables Non Performing Financing (X₁), Net Interest Margin (X₂), Capital Adequacy Ratio (X₃), and Exchange Rate (X₄) are having the value of 0 (zero), then the dependent variable (ROA) value will have the value of 2.14596.

2. Non Performing Financing (X₁) coefficient is -0.172832. It has a negative influence towards Return on Asset. It can be interpreted if Non Performing Financing value increases 1 point, the Return on Asset will decrease by 0.172832 points with an assumption that other variables are constant.
3. Coefficient of Net Yield Margin ($X_2$) is 0.141575, it has a positive influence towards Return on Asset. It can be interpreted if Net Yield Margin value increases 1 point, the Return on Asset will increase by 0.141575 points with an assumption that other variables are constant.

4. Capital Adequacy Ratio ($X_3$) coefficient is -0.002489. It has a negative influence towards Return on Asset. It can be interpreted if Capital Adequacy Ratio value increases 1 point, the Return on Asset will decrease by 0.002489 points with an assumption that other variables are constant.

5. Coefficient of Exchange Rate ($X_4$) is -0.000109, it has a negative influence towards Return on Asset. It can be interpreted if Exchange Rate value increases 1 point, the Return on Asset will decrease by 0.000109 points with an assumption that other variables are constant.

4.3. Hypotheses Testing

Hypothesis testing is a procedure carried out in research with the aim of making a decision to accept or reject the proposed hypothesis. In this study, the researcher will test whether each independent variable used, contributes a significant influence partially to the dependent variable. Simultaneous test (F-test) to determine whether all the independent variables used, simultaneously influence to the dependent variable (Y). And also adjusted R-square to find out how significant the model combination of the model in explaining the influence of the independent variables used to the dependent variable in the form of a percentage.
Table 4.3. Multiple Regression Analysis Result

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>T-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>2.1459</td>
<td>5.3778</td>
<td>0.0000</td>
</tr>
<tr>
<td>NPF</td>
<td>-0.1728</td>
<td>-3.3029</td>
<td>0.0018</td>
</tr>
<tr>
<td>NYM</td>
<td>0.1415</td>
<td>4.6210</td>
<td>0.0000</td>
</tr>
<tr>
<td>CAR</td>
<td>-0.0024</td>
<td>-0.8433</td>
<td>0.4030</td>
</tr>
<tr>
<td>ER</td>
<td>-0.0001</td>
<td>-4.0212</td>
<td>0.0002</td>
</tr>
<tr>
<td>Adjusted R-squared</td>
<td>0.8070</td>
<td></td>
<td></td>
</tr>
<tr>
<td>F-stat</td>
<td>24.1906</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability (F-stat)</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Rounded to 4 decimals point

Source: Eviews, 2018

4.3.1 T-Test

According to Ghozali (2012), this test aims to determine the level of significance, the effect of each independent variable (X) on the dependent variable (Y). In the T-test the researcher used provisions If the profitability of the t test statistic is < 0.05, the results show that Ho is rejected and Ha is accepted. Because it states there is an influence between the independent variables towards Return on Assets. Based on the results, the conclusion of the T-test can be described as follows:

1. The probability value of Non Performing Financing is 0.0018. Since the probability value is < 0.05, means Ho₁ is rejected and Ha₁ is accepted. It can be concluded that Non Performing Financing has a partial significant Influence towards Return on Asset.

2. The probability value of Net Yield Margin is 0.0000. Since the probability value is < 0.05, means Ho₂ is rejected and Ha₂ is accepted. It can be concluded that Net Interest Margin has a partial significant Influence towards Return on Asset.
3. The probability value of Capital Adequacy Ratio is 0.4030. Since the probability value is > 0.05, means Ho3 is accepted. It can be concluded that Capital Adequacy Ratio does not have a partial significant Influence towards Return on Asset.

4. The probability value of Exchange Rate is 0.0002. Since the probability value is < 0.05, means Ho4 is rejected and Ha4 is accepted. It can be concluded that Exchange Rate has a partial significant Influence towards Return on Asset.

4.3.2 F-Test

Based on table 4.3. explained that the researcher obtained the F-test significance value is 0.0000, which means less than 0.05. The results show that Ho5 is rejected and Ha5 is accepted, in which all the Independent variables used (Non Performing Financing, Net Yield Margin, Capital Adequacy Ratio, and Exchange Rate) have a simultaneous significant influence towards Return on Assets (profitability) as the dependent variable.

4.3.3 Coefficient of Determination

Refers to the table 4.3. and an Appendix, shows the adjusted R Square value equals to 0.8070. It can be interpreted all of the independent variables that consist of Non Performing Financing, Net Yield Margin, Capital Adequacy Ratio, and Exchange Rate can explain 80.70% variation in Return on Asset of Islamic commercial banks in Indonesia. The rest 19.30% is described by other variables that are not examined in this research.

4.4. Interpretations of The Result

Based on the Hypothesis testing, the interpretation of the result can be explained below:

1. Influence of Non Performing Financing towards ROA

Variable of Non Performing Financing contributes negative and significant influence to Return on Asset. This is reflected by regression coefficient of NPF at
-0.1728 value with a level of significance at (0.0018 < 0.05). It reflects the acceptance towards the first hypotese that “There is a significant influence of Non Performing Financing towards ROA of Islamic commercial banks in Indonesia”.

The negative coefficient reflects on how the increasing value of NPF will lead to the decreases value of ROA. The results of this study are in line with previous research that has been done by Afria Bagus, et al.,(2017), Wahyu (2017) and Khizer, et al., (2011). In contrast, this result against the research done by Ubaidillah (2016).

The results of these studies show that NPF has a negative significant influence to ROA. Based on the descriptive statistical test results, the maximum value at NPF is 7.85, which means exceeding the standard criteria for NPF in accordance with BI regulation No.18 / 14 / PBI / 2016 if the total NPF exceeds 5% shows that financing for the Islamic bank is getting worse, thus it can affect Islamic banks to make a profit and can adversely affect ROA. The health level of NPF can affect the achievement of bank profits. If a bank has an NPF is too high it will result in the loss of the opportunity to obtain income from the financing provided, and increase the reserves of productive assets.

2. Influence of Net Yield Margin Financing towards ROA

Based on table 4.3. the NYM variable has a coefficient of 0.141575 and a probability value of 0.0000 < 0.05. It reflects the acceptance towards the second hypotese that “There is a significant influence of Net Yield Margin towards ROA of Islamic commercial banks in Indonesia”. The positive coefficient reflects on how the increasing value of NYM will lead to the increase value of ROA. The results of this study are in line with previous research that has been done by Asim (2018), and Rahmi (2016). In contrast, this result against the research done by Nisih (2013).

Each increase in net interest income results in an increase in profit before tax, which can result in an increase in ROA. Based on the results of the research, the average value obtained from the descriptive statistical test is 6.02, and also the maximum
value of 11.30, which means this is in accordance with the provisions of the OJK that have been set for the NYM ratio > 6%. This is one of the results of marketing success that affects customers to borrow money from banks, and banks can get revenue from profit sharing. Then, NYM also explained that net interest income takes a large share of earning assets that provide income for banks.

3. Influence of Capital Adequacy Ratio Financing towards ROA

Based on table 4.3, the CAR variable has a coefficient of -0.0024 and a probability value of (0.4030 > 0.05). It reflects the rejection towards the third hypothesis that “There is a significant influence of Capital Adequacy Ratio towards ROA of Islamic commercial banks in Indonesia”. The negative coefficient reflects on how the increasing value of CAR will lead to the decreases value of ROA. The results of this study are in line with previous research that has been done Agus & Kubertsein (2017), and Dhika (2009). In contrast, this result against the research done by Wahyu (2016).

The level of capital adequacy of a bank (CAR), not necessarily have an impact on the size of the bank's profitability. Islamic banks can also rely on financing as a source of income and do not use all of their potential capital to increase bank profitability.

4. Influence of Exchange Rate Financing towards ROA

Variable of Exchange Rate contributes negative and significant influence to Return on Asset. This is reflected by regression coefficient of ER at -0.00010 value with a level of significance at (0.0002 < 0.05). It reflects the acceptance towards the forth hypothesis that “There is a significant influence of Exchange Rate towards ROA of Islamic commercial banks in Indonesia”. The negative coefficient reflects on how the increasing value of ER will lead to the decreases value of ROA. The results of this study are in line with previous research that has been done by Qaisar & Selamah
(2018). In contrast, this result against the research done by Agung Widya, et al., (2017).

The influence of currency exchange rates on bank profitability identifies if the exchange rate depreciates, it will have an impact on bank profitability. The strengthening of the rupiah exchange rate against the US dollar will increase the profitability of Islamic banks. Which means, if the value of the domestic currency is higher than the value of a foreign currency, it will reduce the prices of imported goods. Declining prices will potentially increase the economy in the real sector. The increase in the economy in the real sector will encourage people to invest in the sector, and result in increased levels of bank profitability.

5. Influence of Non Performing Financing, Net Yield Margin, Capital Adequacy Ratio, Exchange Rate towards ROA

The fifth hypothesis in which ‘There is a significant simultaneous influence of NPF, NYM, CAR, and ER towards ROA of Islamic commercial banks in Indonesia” is accepted. Based on the results of the study, the researcher obtained the F-test significance value is 0.0000, which means less than 0.05. The regression model of this research shows the value of an adjusted R Square is 0.8070. It can be interpreted that the variation of the independent variables can explain 80.70% variation in Return on Asset. The rest 19.30% is explained by other variables which are not examined in this research. We can estimate that the variables included in this regression model are good to predict profitability performance by using Return on Assets as dependent variable on Islamic commercial banks.
CHAPTER V

CONCLUSION AND RECOMMENDATIONS

5.1. Conclusions

For the conclusion of this research constructed as follows:

1. The influence of Non Performing Financing towards Return on Asset of Islamic commercial banks in Indonesia is negatively significant. This is based on the understanding that the higher of NPF ratio, then the threat of banks from problem loans is getting bigger. The negative influence on NPF shows that the higher on the bad credit in managing bank loans, it will cause a decrease in the level of bank income reflected through ROA.

2. The influence of Net Yield Margin towards Return on Asset of Islamic commercial banks in Indonesia is positively significant, this is based on an understanding the greater of NYM in a bank, the performance of the bank will be considered good, because the NYM has a positive effect on profit growth.

3. The influence of Capital Adequacy Ratio towards Return on Asset of Islamic commercial banks in Indonesia is negatively insignificant, because the Bank has large capital, however, cannot use its capital effectively to generate profits, then capital will not affect the profitability generated by banks, because Islamic commercial banks rely more on financing as a source of income and do not use all of their potential capital to increase bank profitability.

4. The influence of Exchange Rate towards Return on Asset of Islamic commercial banks in Indonesia is negatively significant, because currency exchange rates are considered capable of fluctuating according to the capabilities of foreign market conditions, and able to generate profits and losses both in the long and short term.
5. Based on the results of the F-test, all the independent variables used, namely Non Performing Financing, Net Yield Margin, Capital Adequacy Ratio, and Exchange rate are simultaneously having a significant influence towards Return on Asset of Islamic commercial banks in Indonesia during 2010 - 2017. It can be interpreted that the variation of the independent variables can explain 80.70% variation in Return on Asset. The rest 19.30% is explained by other variables which are not examined in this research.

5.2 Recommendations

Based on the results of the tests conducted and conclusions that have been taken, the researcher presents some recommendations that can be used, as follows:

1. For investors, investing in a company needs to look at financial ratio aspects, especially if investors want to know what internal factors can affect profitability. Based on the results of this study there are two financial ratios, which affect the profitability of Islamic commercial banks, namely (NPF and NYM), and also must consider from several external aspects or problems that could have an influence on the company, especially in maintaining the level of profitability.

2. For bank owners, the results of research can be a reflection of being able to make the right decisions in managing a bank. Islamic commercial banks also need to improve performance, such as NPF and NYM to indicate that BUS are considered healthy and give rise to customer confidence in using Islamic commercial banks products and services.

3. For future research, it would be better if you add other variables as independent variables, because there are still 19.30%, which can be influenced by other variables not included in this research which can affect profitability (ROA) of Islamic commercial banks in Indonesia during 2010 - 2017. By using external factors such as inflation, GDP, and the BI Rate.
REFERENCES

BOOKS


**JOURNALS / REPORTS / WORKING PAPERS / THESES**


Rafsanjani, H. (2016). *Pengaruh Internal Capital Adequency Ratio (CAR), Financing To Deposit Ratio (FDR), Dan Biaya Operasional Per Pendapatan Operasional (BOPO) Dalam Peningkatan Profitabilitas*


WEBSITES


APPENDICES

<table>
<thead>
<tr>
<th>No</th>
<th>Company name</th>
<th>Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>PT. Bank Muamalat Indonesia</td>
<td>PT Bank Muamalat Indonesia Tbk commenced its journey as the first Sharia bank in Indonesia on November 1, 1991. The establishment of Bank Muamalat Indonesia was instigated by Indonesian Council of Ulema (MUI). Since it officially began operating on May 1, 1992. Bank Muamalat Indonesia keeps on innovating and releasing sharia financial products such as Sharia Insurance (Asuransi Takaful), Muamalat financial institution pension fund (DPLK Muamalat) and sharia multifinance company (Al-Ijarah Indonesia Finance), all of which are breakthroughs in the country. Source: (The official website of the company).</td>
</tr>
<tr>
<td>2.</td>
<td>PT. Bank BNI Syariah</td>
<td>Engaged in business field of sharia banking in accordance with the Articles of Association of BNI Syariah No. 160 dated March 22, 2010. Operasional Date of Operating Effectively, June 19, 2010. Ownership (PT Bank Negara Indonesia (Persero) 99.4%) and (PT BNI Life Insurance 0.6%). Financing Business Segments (Commercial Business,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
|3. | **PT. Bank Mega Syariah** | BSMI officially operated in Indonesia on August 25, 2004. The best products (savings) provided by Bank Mega Syariah to accommodate customer needs include: Pension savings, partner savings, plan savings, savings plus, investment savings, hajj savings, dollar savings. As for financing, Bank Mega Syariah provides several financing services such as micro business, SM Invest, SM Capital, SM partners, Multi Services, Mega Pension, and Bank Implant programs.  
Source: (The official website of the company). |
<p>|4. | <strong>PT. Bank Syariah Mandiri</strong> | PT Bank Syariah Mandiri officially started operations on November 1, 1999. PT Bank Syariah Mandiri came and performed with the harmonization of business idealism with spiritual values. December 2017 Bank Syariah Mandiri has 737 service offices throughout Indonesia, with access more than 196,000 ATM networks. |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5.</td>
<td>PT. Bank BCA Syariah</td>
<td>PT. Bank BCA Syariah was established and began to carry out business activities with sharia principles after obtaining a sharia operating license from Bank Indonesia based on the Decree of the BI Governor No. 12/13 / KEP.GBI / DpG / 2010 on March 2, 2009 and officially operated as an Islamic bank on April 5, 2010. Source: (The official website of the company).</td>
</tr>
<tr>
<td>6.</td>
<td>PT. Bank BRI Syariah</td>
<td>On November 17, 2008, PT Bank BRI.syariah officially operates. Since May 9, 2018, BRIsyariah has officially listed its shares on the Indonesia Stock Exchange under the BRIS code. Seeing the enormous potential in the segment of sharia banking, BRIS present financial business that is based on the noble principles of sharia banking. With a widely established customer base across the archipelago, BRIS continue to grow by delivering the best products and services with our capabilities as a leading modern retail bank with financial services that meet the customers needs. The products are as</td>
</tr>
</tbody>
</table>
Funding products, and Financing products.

Source: (The official website of the company).

7. **PT. Bank Maybank Syariah**  
   Since starting operations as an Islamic bank in October 2010, PT Bank Maybank Syariah Indonesia has developed a range of services and innovative solutions to meet the needs of the customers as well as the opportunities in the regional financial markets are constantly evolving. Maybank Islamic is a subsidiary of Maybank Group, Malaysia's largest financial services institutions with total assets of more than USD 100 billion, as well as one of the companies with the largest market capitalization on Bursa Malaysia Shares (Stock Exchange) ".

Source: (The official website of the company).

8. **PT. Bank Syariah Bukopin**  
   PT Bank Syariah Bukopin officially began operating effectively on December 9, 2008. With total equity totaling (Rp.501,282,000,000) and covering 76 Islamic sharia services.

Source: (The official website of the company).
Appendix. Eviews results

Appendix 2. Chow Test

<table>
<thead>
<tr>
<th>Effects Test</th>
<th>Statistic</th>
<th>d.f</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section F</td>
<td>15.731002</td>
<td>(7, 50)</td>
<td>0.0000</td>
</tr>
<tr>
<td>Cross-section Chi-square</td>
<td>72.160675</td>
<td>7</td>
<td>0.0000</td>
</tr>
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</table>

Appendix 3. Hausman Test

<table>
<thead>
<tr>
<th>Test Summary</th>
<th>Chi-Sq. Stat</th>
<th>Chi-Sq. d.f</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>9.637464</td>
<td>4</td>
<td>0.0470</td>
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</table>

Appendix 4. Descriptive Statistics

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<th>NPF_</th>
<th>NVM_</th>
<th>CAR_</th>
<th>ER_</th>
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</thead>
<tbody>
<tr>
<td>Mean</td>
<td>1.319077</td>
<td>2.194355</td>
<td>6.023484</td>
<td>24.49306</td>
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<td>0.000000</td>
<td>2.440000</td>
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<td>1.608963</td>
<td>2.005928</td>
<td>20.79317</td>
<td>1862.710</td>
</tr>
</tbody>
</table>

Appendix 5. Normality test

![Histogram with Jarque-Bera test results]

Jarque-Bera 0.902928  
Probability 0.636895
Multicollinearity Test

### Appendix 7

#### Heteroscedasticity Test

<table>
<thead>
<tr>
<th>Correlation</th>
<th>ROA</th>
<th>NPF</th>
<th>NYM</th>
<th>CAR</th>
<th>ER</th>
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</thead>
<tbody>
<tr>
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<td>1.00000</td>
<td>-0.457977</td>
<td>0.293870</td>
<td>0.645414</td>
<td>-0.310923</td>
</tr>
<tr>
<td>NPF</td>
<td>-0.457977</td>
<td>1.000000</td>
<td>-0.400629</td>
<td>-0.452905</td>
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<td>0.229985</td>
<td>1.000000</td>
<td>-0.215848</td>
</tr>
<tr>
<td>ER</td>
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<td>0.134121</td>
<td>0.072193</td>
<td>-0.215848</td>
<td>1.000000</td>
</tr>
</tbody>
</table>

Dependent Variable: ROA_
Method: Panel Least Squares
Date: 01/20/19  Time: 00:37
Sample: 2010 2017
Periods included: 8
Cross-sections included: 8
Total panel (unbalanced) observations: 62
White cross-section standard errors & covariance (d.f. corrected)

Hannan-Quinn criter. 1.703404
Durbin-Watson stat 1.378418

### Appendix 8

#### Durbin-Watson Test

### Appendix 9

#### Multiple Regression Test

Dependent Variable: ROA_
Method: Panel Least Squares
Date: 03/13/19  Time: 05:43
Sample: 2010 2017
Periods included: 8
Cross-sections included: 8
Total panel (unbalanced) observations: 62
White cross-section standard errors & covariance (d.f. corrected)

<table>
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<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
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</tbody>
</table>

Effects Specification

Cross-section fixed (dummy variables)

R-squared 0.841821  Mean dependent var 1.319877
Adjusted R-squared 0.807022  S.D. dependent var 1.092574
S.E. of regression 0.479906  Akaike info criterion 1.541759
Sum squared resid 11.51809  Schwarz criterion 1.953462
Log likelihood -35.796452  Hannan-Quinn criter. 1.703404
F-statistic 24.16057  Durbin-Watson stat 1.378418
Prob(F-statistic) 0.000000
## Appendix 10. Ratio information and criteria

<table>
<thead>
<tr>
<th>No</th>
<th>Variable</th>
<th>Information</th>
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</thead>
</table>
| 1. | Return on Asset (ROA) | ROA is calculated using the formula:  
\[
ROA = \frac{\text{Profit before tax}}{\text{Total Asset}}
\]
Source: OJK and Bank Report

<table>
<thead>
<tr>
<th>Rasio</th>
<th>Predicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA &gt; 1.5 %</td>
<td>Very healthy</td>
</tr>
<tr>
<td>1.25% &lt; ROA ≤ 1.5%</td>
<td>Healthy</td>
</tr>
<tr>
<td>0.5% &lt; ROA ≤ 1.25%</td>
<td>Quite healthy</td>
</tr>
<tr>
<td>0 &lt; ROA ≤ 0.5%</td>
<td>Unhealthy</td>
</tr>
<tr>
<td>ROA ≤ 0%</td>
<td>Not healthy</td>
</tr>
</tbody>
</table>

Source: SE BI No.6/23/DPNP 2004

| 2. | Non Performing Financing (NPF) | NPF is calculated using the formula:  
\[
NPF = \frac{\text{Financing (KL + D + M)}}{\text{Total Financing}} \times 100 \%
\]
Source: OJK and Bank Report

Where:
Find it (Earning asset based on collectability)
KL : Kurang lancar (Substandar)
D : Diragukan (Doubtful)
M : Macet (Lost)

<table>
<thead>
<tr>
<th>Rasio</th>
<th>Predicate</th>
</tr>
</thead>
<tbody>
<tr>
<td>NPF &lt; 2 %</td>
<td>Very healthy</td>
</tr>
<tr>
<td>2% ≤ NPF &lt; 5%</td>
<td>Healthy</td>
</tr>
<tr>
<td>5% ≤ NPF &lt; 8%</td>
<td>Quite healthy</td>
</tr>
<tr>
<td>8% ≤ NPF &lt; 12%</td>
<td>Unhealthy</td>
</tr>
<tr>
<td>NPF ≥ 12%</td>
<td>Not healthy</td>
</tr>
</tbody>
</table>

Source: SE BI No.9/24/DPBS 2007

| 3. | Net Interest Margin (NIM) | NIM is calculated using the formula:
\[
NIM = \frac{\text{Net Interest Income}}{\text{Average Earning Assets}}
\]
### Value and predicate criteria for NIM

<table>
<thead>
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<th>Rasio</th>
<th>Predicate</th>
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</thead>
<tbody>
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<td>NIM &gt; 3%</td>
<td>Very healthy</td>
</tr>
<tr>
<td>2% &lt; NIM ≤ 3%</td>
<td>Healthy</td>
</tr>
<tr>
<td>1.5% &lt; NIM ≤ 2%</td>
<td>Quite healthy</td>
</tr>
<tr>
<td>1 &lt; NIM ≤ 1.5%</td>
<td>Unhealthy</td>
</tr>
<tr>
<td>NIM ≤ 1%</td>
<td>Not healthy</td>
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</tbody>
</table>

Source: SE BI No.6/23/DPNP 2004

### Capital Adequacy Ratio (CAR)

CAR is calculated using the formula:

\[
\text{CAR} = \frac{\text{Total Modal}}{\text{Total Risk Weighted Assets}}
\]

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<th>Rasio</th>
<th>Predicate</th>
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</thead>
<tbody>
<tr>
<td>CAR ≥ 12%</td>
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</tr>
<tr>
<td>9% ≤ CAR &lt; 12%</td>
<td>Healthy</td>
</tr>
<tr>
<td>8% ≤ CAR &lt; 9%</td>
<td>Quite healthy</td>
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<tr>
<td>6% &lt; CAR &lt; 8%</td>
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<td>CAR ≤ 6%</td>
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</table>

Source: SE BI No.6/23/DPNP 2004
## Appendix 11. Operational Definition

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<th>Variable</th>
<th>Explanation</th>
<th>Calculation</th>
<th>Measurement</th>
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<tr>
<td>Y (ROA)</td>
<td>To calculate ROA: profit before tax divided by total assets.</td>
<td>$\frac{\text{Profit before tax}}{\text{Total Asset}}$</td>
<td>Ratio</td>
</tr>
<tr>
<td>X₁ (NPF)</td>
<td>To calculate NPF: collectibility financing $(\text{KL} + \text{D} + \text{M})$ divided by total financing or it can also NPF gross divided by total financing to get net NPF.</td>
<td>$\text{NPF} = \frac{\text{Financing} \ (\text{KL} + \text{D} + \text{M})}{\text{Total Financing}} \times 100%$</td>
<td>Ratio</td>
</tr>
<tr>
<td>X₂ (NIM)</td>
<td>To calculate NIM: by dividing the NII (net interest income) to the earning assets owned by bank.</td>
<td>$\frac{\text{Net interest income}}{\text{Average Earning Assets}}$</td>
<td>Ratio</td>
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<tr>
<td>X₃ (CAR)</td>
<td>To calculate CAR: by dividing capital adequacy held by bank to the total risk weighted assets.</td>
<td>$\frac{\text{Total Modal}}{\text{Total Risk Weighted Assets}}$</td>
<td>Ratio</td>
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<tr>
<td>X₄ (ER)</td>
<td>Percentage change in exchange</td>
<td></td>
<td>Ratio</td>
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</tbody>
</table>
The rate shows the appreciation or depreciation of IDR towards USD. The proxy used for calculation is the closing mid exchange rate at the end of each year.

| Percentage change in ER | \[
| ER(t) - ER(t - 1) | \]
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Exchange rate (t - 1)</td>
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</table>

Source: CFA Institute, 2012
Appendix 12. Raw data for research

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<tr>
<th>Name Banks</th>
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<th>NPF%</th>
<th>NYM%</th>
<th>CAR%</th>
<th>ER</th>
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<td>13.26</td>
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<td>2011</td>
<td>1.52</td>
<td>1.78</td>
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Source: Bank report and Worldbank

Note:

In the empty table it shows
the data identified by outliers.