

**RISK AND RETURN OF INDONESIAN INDUSTRY BASED ON
FINANCIAL PERFORMANCE AND ASSET PRICING BENCHMARK
FOR PLS BASED FINANCING IN ISLAMIC BANKING
(Case Study of Agro-Industry and Manufacturing Industry)**

THESIS

**The paper as one of requirements to obtain Master degree from
Institut Teknologi Bandung**

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(Master of Science in Management)



**SCHOOL OF BUSINESS AND MANAGEMENT
INSTITUT TEKNOLOGI BANDUNG**

2016

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Bandung, June 2016

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ABSTRACT

RISK AND RETURN OF INDONESIAN INDUSTRY BASED ON FINANCIAL PERFORMANCE AND ASSET PRICING BENCHMARK FOR PLS BASED FINANCING IN ISLAMIC BANKING (Case Study of Agro-Industry and Manufacturing Industry)

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The research has two objectives. The first one is to investigate the differences of risks and returns between companies engaged in two industry sectors, namely agro-industry and manufacturing industry. The second one is to compare pricing benchmark for Profit and Loss Sharing (PLS) based financing in Islamic banking using Capital Assets Pricing Model (CAPM), Arbitrage Pricing Theory (APT) based on stock index returns and using the nominal GDP growth rate (GDPR). Data used are obtained in the form of financial statement, stock index return, and economic indicators during period 2009 – 2013. To test the hypotheses, *t-test* and Mann-Whitney *U-test* are utilized to compare risks and returns. It is also used multiple regression in modelling the expected return. It is found that both industry sectors have significant difference in terms of operating profit margin (OPM), but they have no significant difference in terms of return on assets (ROA), return on equity (ROE), business risk operating leverage, and financial leverage. In pricing benchmark, it is found that the nominal GDP growth rate is very close to the actual return of the real sectors and more suitable to be used as reference rate in Indonesia.

Keywords: Islamic banking, profit and loss sharing, risk, return, capital assets pricing model, arbitrage pricing theory, the nominal GDP growth rate.

ABSTRAK

RISIKO DAN IMBAL HASIL INDUSTRI DI INDONESIA BERDASARKAN KINERJA KEUANGAN DAN PATOKAN PENETAPAN HARGA ASSET UNTUK PEMBIAYAAN BERDASARKAN BAGI HASIL DI PERBANKAN SYARIAH (Studi Kasus Agro-Industri dan Industri Manufaktur)

Oleh

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Penelitian ini memiliki dua tujuan. Tujuan yang pertama adalah untuk menyelidiki perbedaan risiko-risiko dan imbal hasil antara perusahaan-perusahaan yang bergerak di dua sektor industri, yaitu agro-industri dan industri manufaktur. Tujuan yang kedua adalah untuk membandingkan imbal hasil acuan bagi pembiayaan yang berdasarkan konsep bagi hasil di perbankan Syariah dengan menggunakan Capital Assets Pricing Model (CAPM), Arbitrage Pricing Theory (APT) berdasarkan imbal hasil pada indeks saham dan menggunakan tingkat pertumbuhan nominal PDB. Data yang digunakan diperoleh dalam bentuk laporan keuangan, imbal hasil indeks saham dan data indikator ekonomi selama periode 2009 - 2013. Untuk menguji hipotesis, *t-test* and Mann-Whitney *U-test* digunakan untuk membandingkan risiko-risiko dan imbal hasil. Digunakan juga regresi berganda untuk memodelkan imbal hasil yang diharapkan. Ditemukan bahwa kedua sektor industri memiliki perbedaan yang signifikan dalam hal operating profit margin (OPM), tetapi kedua sektor industri ini tidak memiliki perbedaan yang signifikan dalam hal return on assets (ROA), return on equity (ROE), risiko bisnis, operating leverage dan financial leverage. Dalam penetapan acuan imbal hasil, ditemukan bahwa laju pertumbuhan nominal PDB sangat dekat dengan imbal hasil sektor riil dan lebih cocok digunakan sebagai rate referensi di Indonesia.

Keywords: Perbankan Syariah, bagi hasil, risiko, imbal hasil, capital assets pricing model, arbitrage pricing theory, tingkat pertumbuhan nominal PDB

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FOREWORD

Alhamdulillah, all praise and gratitude to Allah SWT Who gives ease and smoothness for writers in completing this thesis. Prayers and greetings may always be upon the Prophet Muhammad, a transmitter the path of Rabbaniyah, a community mentor, the seal of the Prophets and Messengers.

The thesis which entitled "Risk and Return of Indonesian Industry Based on Financial Performance and Asset Pricing Benchmark for PLS Based Financing in Islamic Banking (Case Study of Agro-Industry and Manufacturing Industry)" is written in order to meet one of the requirements to get a degree of Master of Science in Management (MSM) in the Graduate Program, Bandung Institute of Technology. Hopefully this thesis can provide benefits for the knowledge and give advantages for the Ummah.

On this occasion, the author would like to thank the parties that have provided assistance and support in the form of moral and material. In particular the author conveys her gratitude to:

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4. My beloved children, HiFaEl (Hibban, Faqih and Elmira), for all your love and understanding for giving the author special time to complete this thesis.

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CHAPTER I INTRODUCTION

1.1 Research Background

In the 21st century, Islamic finance is rapidly growing as a part of the financial sector in the world. It is not only limited to Islamic countries but also spreads in countries where the population is non-Muslim majority. Islamic finance also has attracted the attention of conventional financial market. According to some estimates, more than 600 financial institutions in more than 75 countries practice some forms of Islamic finance. This industry is rapidly growing and positioning itself as an alternative to conventional financing. Although the industry is still small compared with the conventional financial industry, Islamic finance that has assets of about 1.6% of total global financial assets had an average growth rate of 15-20% over the past decade. The growth rate is promising a quite strong potential for the future.

Islamic banking assets in Indonesia which includes Islamic Commercial Bank and Islamic Business Unit within the last 5 years had an average growth of approximately 30%. This value is considerably higher than conventional banking growth which is only about 17% (Source: Bank Indonesia). But seen from a comparison of its assets, the assets of Islamic banking has only about 5% of the total assets of conventional banks. Although the market share of Islamic banking is only 5% of the total assets of banks nationwide, but the market share of Islamic banking in Indonesia has a very high potential because of the country's Muslim-majority. However, the market share which is relatively small causes Islamic banks have not been able to contribute significantly to the growth and development of the Indonesian economy. Figure 1.1 presents the comparison of assets between Islamic banks and conventional banks in Indonesia.

Indicators of Islamic banking assets include cash, deposits in Bank Indonesia, placement in other banks, investment in securities, financing, other assets and other productive assets. Among these indicators, financing is a component that most

contributed to the growth of assets. Financing contribute for 75% of the value of Islamic banking assets (Figure 1.2).

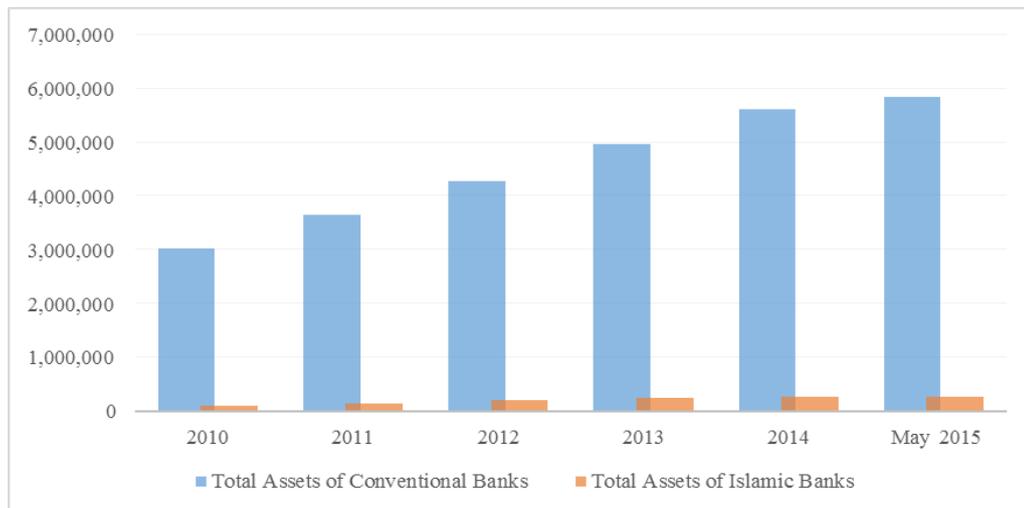


Figure 1.1. The Comparison of Assets between Islamic Banks and Conventional Banks in Indonesia (in Billion of IDR).

Note : Data from Financial Services Authority (OJK), 2010 - 2015

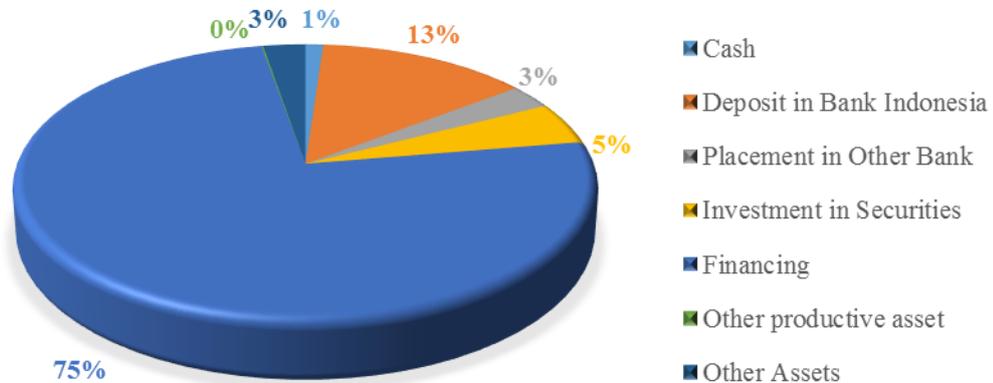


Figure 1.2. Composition of Assets of Islamic Banks in Indonesia.

Note : Data from Financial Services Authority (OJK), 2015

Islamic banking as one of the Islamic financial institutions have an important role, such as the conventional banking, namely as a financial intermediary that provides pathways for deficit units and surplus units. In contrast to conventional banks, Islamic banks do not use the interest feature in its operations. Islamic banks use

other feature in the form of Profit and Loss Sharing (PLS) principle to replace the role of interest that is regarded as usury and forbidden in Islam.

The principle of PLS is a unique and interesting feature in Islamic banking. However, in practice, financing using this feature is not widely implemented. The principle of PLS which is applied in the equity based financing using the contract of *mudharaba* (passive partnership) or *musharaka* (joint venture) seems unable to compete in terms of quantity with debt based financing such as *murabaha* contract. According to Ayub (2007), the excessive use of *murabaha* contract is a form of deviation between theory and practice conducted by Islamic banking. Based on statistics compiled by Bank Indonesia (BI), financing in Indonesian Islamic banks by using both of these PLS based contracts on May 2015 is only about 34% of all existing financing contracts, while financing using *murabaha* contract with the trading principle is at around 58% and dominates the financing products. Figure 1.3 displays a composition of financing modes of Islamic commercial bank and Islamic business unit in Indonesia.

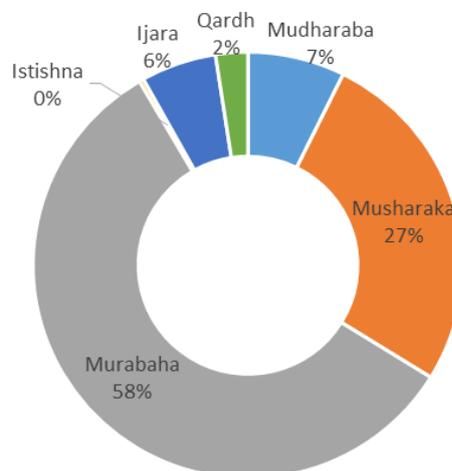
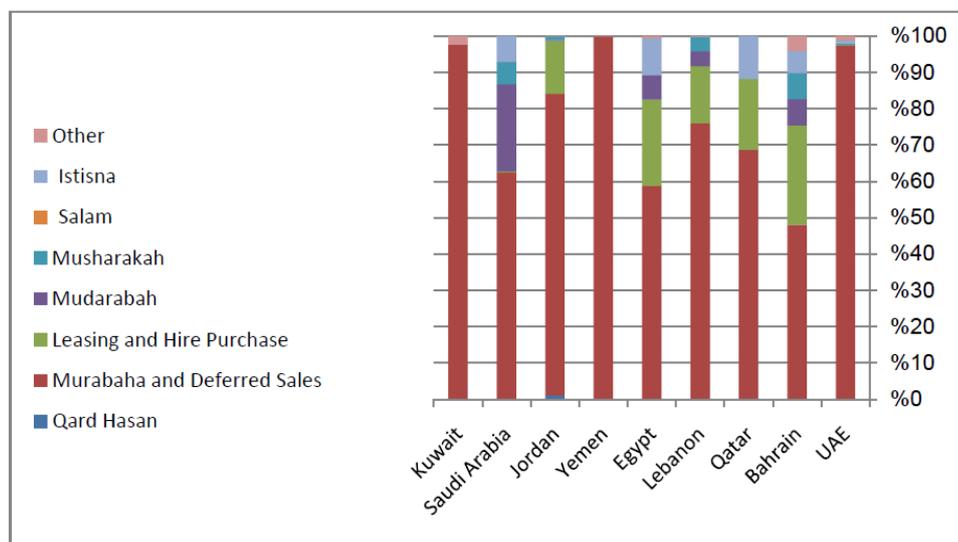


Figure 1.3. Composition of Financing Modes of Islamic Commercial Bank and Islamic Business Unit (on May 2015) in Indonesia.

Note : Data from Financial Services Authority (OJK), 2015

The low portion of financing with the principle of PLS or dominating of non-PLS financing, especially the sale and purchase contract (*murabaha*) turned out to be a global phenomenon. Based on Islamic Banks Information System (IBIS), financing using *murabaha* contract is more widely used by Islamic banks in some countries. In Yemen, Kuwait and the United Arab Emirates, the use of this contract even dominates to reach more than 90% of the existing financing contracts. Figure 1.4 shows a composition of financing modes in Islamic banking across different countries.



The above chart shows the percentage composition of various modes of financing across different countries for the year 2008 Based on Islamic Banks Information System (IBIS)

Figure 1.4. Composition of Financing Modes in Islamic Banking across Different Countries.

Note :Data from Islamic Banks Information System (IBIS), 2008

There is inequality in income distribution in terms of funding and financing. On the funding side, Islamic banking distributes income from the bank to its customers by using the PLS concept. But in the financing, Islamic banking has gained more fixed income with debt based financing. Thus, it has no good and strong linkages between funding and financing. Khan (1995) has discussed both demand (user of funds) and supply (bank) side considerations in using PLS based financing. On the demand side, as the PLS scheme spreads the risks of investment projects, it should have been very popular in the developing countries as the nascent

entrepreneurial class can benefit from this risk spreading characteristic. But in practice, this kind of financing is considered more complicated than debt based financing. On the supply side he more give the explanation in moral hazard hypothesis. Islamic banking should also focus on creating a culture of transparency. Transparency refers to the principle of creating an environment where information on existing conditions, decisions, and actions is made accessible, visible, and understandable to all market participants (Greuning and Iqbal, 2008). Related to PLS based financing, both Islamic banking and its customer should be transparent in giving the information needed before they make a cooperation.

In Indonesia, the use of *mudharaba* and *musharaka* contracts that only about half of the financing using *murabaha* contract shows that the PLS concept of financing in Islamic banks has not been widely implemented. Whereas these contracts with the PLS concept is the primary differentiator between Islamic banks and conventional banks. Besides the excellence in compliance to Islamic principles, financing products for working capital and investment, especially with the *mudaraba* contract, contribute higher returns compared to the financing products for consumption when viewed from the equivalent rates of return. Equivalent rates of return for *mudharaba*, *murabaha* and *musharaka* were recorded respectively by 17.94%, 12.14% and 14.94% on June 2015 (Islamic Banking Statistics). Average interest rates on loans for working capital, investments and consumption in conventional commercial bank in the same month were recorded respectively by 12.71%, 12.30% and 13.82% (Indonesian Banking Statistics). Equivalent rates of return in Islamic banks is higher than the average of interest rate on loans in conventional commercial banks. Therefore, Islamic banks have the potential to grow exponentially if they continue to optimize its financing product primarily on PLS based financing.

Application of the PLS concept in financing has some obstacles in the field and also risks in its implementation. Some of the obstacles encountered in PLS based financing are adverse selection, moral hazard and setting a PLS ratio that still refer to a conventional interest rate benchmark. Adverse selection occurs in conditions

where the fund manager (*mudharib*), otherwise known as a debtor within terms of conventional banking, which have business with the prospect of high profits and low risks tend to be reluctant to use the PLS based financing contracts. Moral hazard in the form of fraud committed by the *mudharib* in reporting his profits to the bank is the risks that avoided by Islamic banks to provide financing using these contracts. Figure 1.5 shows that Islamic banks become mediator between *shahibul maal* and *mudharib*.

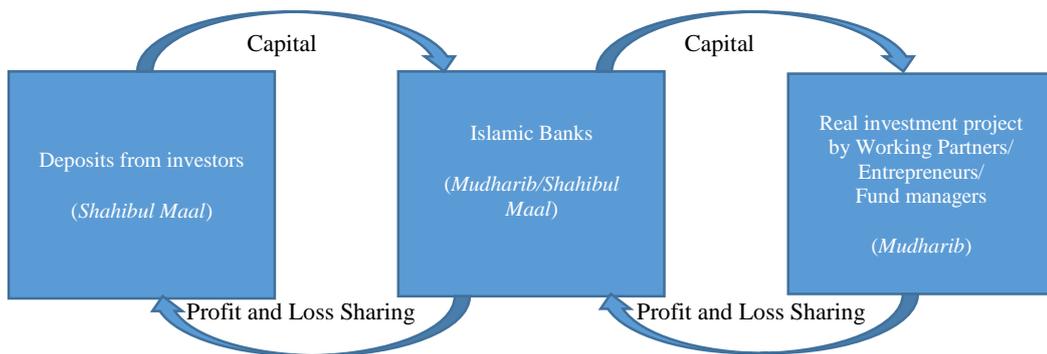


Figure 1.5. Islamic Banks as a Mediator between *Shahibul Maal* and *Mudharib*.

Although not using the interest rate system, Islamic banks are still using interest rate benchmark of conventional bank like Jakarta Interbank Offered Rate (JIBOR) as a reference to determine the rate of return of both funding and financing. The benchmark of interest rate in conventional banking has considerable influence in determining the PLS rates of return because the market share of the Islamic finance industry is still relatively small. In addition, Islamic banks are also not currently have a reference in determining rates of return for financing to each industry sector. In Islamic banking, income distribution which is distributed to the depositors depends on the profit of financing channeled. The profit is the return for the Islamic banks and its value is very dependent on the performance of the real sector.

Despite having a number of obstacles in the application, according to the functions and objectives of Islamic banking, the application of the PLS principle within the Islamic financial system has an important role to drive the real sector that directly and positively impact on the national economy. This is because the equity based

financing is only channeled to the productive businesses and rule out the possibility channeled to consumer purposes. For industry, the productive financing is expected to support employment opportunity and to improve its company productivity. In the PLS principle, not just profits that will be borne by the owner of the funds (*Shahibul Maal*) and fund managers (*Mudharib*) but also the risks of the company's losses.

1.2 Problem Identification

Based on data from the Islamic Banks Information System (IBIS) and Islamic Banking Statistics released by Financial Services Authority (OJK), the proportion of PLS based financing shows a relatively small number compared to the sale and purchase contracts (especially using *murabaha* contract). Whereas the PLS principle is an identity and characteristic of Islamic banking. Position, vision and strategy of the development of Islamic banking in Indonesia outlined in the blueprint of Islamic Banking Development issued by Bank Indonesia is to develop a competitive and efficient Islamic banking in accordance with the principles of prudence and significantly support the real sector through the PLS based financing. This financing adheres to the principles of justice, solidarity, brotherhood and helping each other to achieve common prosperity.

The dominance of *murabaha* contract compared to *mudharaba* and *musharaka* contracts is not in accordance with the position, vision and strategy of the development of Islamic banking in Indonesia. One of the obstacles encountered in implementing the PLS based financing is the determination of the rates of return that still referring to the interest rate benchmark in conventional banking. In this case, Islamic banking needs to make its own pricing benchmark that is not based on the interest rate as in conventional banks so that justice can be realized.

To determine the pricing of financing, particularly productive financing based on PLS principle, Islamic banks need to pay attention to the type of industries as partners in managing their funds. Each industry sector has differences in terms of risks such as operating risk, financial risk, and business risk as well as return of projects undertaken. In this research, it will be limited only for examining

differences for two types of industry sectors, namely agro-industry and manufacturing industry. Careful analysis whether there are significant differences in risk and return between the two sectors of the industries are needed. Beside examining the risk and return, this research also tries to compare asset pricing benchmark using Capital Assets Pricing Model (CAPM), Arbitrage Pricing Theory (APT) based on the return of sectoral stock indices and using the nominal GDP growth rate (GDPR).

Based on these problems, the research questions presented are as follows:

1. Are there any differences in return between companies engaged in the agro-industry and companies engaged in the manufacturing industry that are shown on the profitability ratios such as Return on Assets (ROA), Return on Equity (ROE) and Operating Profit Margin (OPM)?
2. Are there any differences in operating risk, financial risk, and business risk between companies engaged in the agro-industry and companies engaged in the manufacturing industry that is shown at ratios of operating leverage, financial leverage and business risk?
3. Which is better to be used as Islamic pricing benchmark among the expected returns that are calculated using CAPM, APT and the nominal GDP growth rate approach?

1.3 Research Objective and Benefit

The purpose of this research are:

1. To investigate the differences in return between companies engaged in the agro-industry and companies engaged in the manufacturing industry that are shown on the profitability ratios such as Return on Assets (ROA), Return on Equity (ROE) and Operating Profit Margin (OPM).
2. To investigate the differences in operating risk, financial risk, and business risk between companies engaged in the agro-industry and companies engaged in the manufacturing industry that is shown at a ratio of operating leverage, financial leverage and business risk.

3. To investigate the difference among the expected returns that are calculated using CAPM and using APT and the nominal GDP growth rate as pricing benchmark approach.

The benefits of this research are expected to be useful for:

1. Providing empirical investigation about the returns of two types of industry sectors, namely agro-industry and the manufacturing industry.
2. Providing empirical investigation about the risks of the two types of industry sectors.
3. Being a reference in making policy for business players in Islamic banking mainly dealing with pricing of PLS based financing on the industry sector.
4. Information that can be used as literature for academics or for the parties who will conduct research mainly dealing with related studies.

1.4 Research Limitation

This research uses secondary data during period 2009 – 2013 derived from Bloomberg, Yahoo Finance and Bank Indonesia (BI) official web site. The data used from Bloomberg are in the form of financial statement data of companies engaged in the agro-industry sector and manufacturing industry sector. From Yahoo Finance, the data used are in the form of stock index return. Data from BI official web site are data of economic indicators. All the data are present in Appendix section. Based on the states mentioned above, the limitations of this research are:

1. This research only uses some of profitability ratios such as ROA, ROE and OPM as a representation of returns, it doesn't use other profitability ratios.
2. This research only uses some of the ratios in business risk, operating leverage and financial leverage as a representation of risks, it doesn't use all the ratios in business risk and in financial leverage.
3. This research only uses two samples industrial sectors, it doesn't investigate the other industrial sectors.
4. This research only uses 5 years period of data, it doesn't examine the longer period.

5. This research only use returns of JKSE, lending rate, exchange rate and money supply as risk factors used in APT, it doesn't use another risk factors.

1.5 Originality

Many research have been conducted to explore the application of PLS based financing in Islamic banking. Research concerning the use of PLS based financing that is still in small numbers are performed by Aggarwal and Yousef (2000) and Chong and Liu (2009). Rahman and Nor (2016) and Febianto (2012) examine the obstacles on the PLS based financing application in the field as well as its risk management. PLS based financing linkages with welfare implications is examined by Sugema et al. (2010) whereas the linkages of this type of financing with Islamic banking profitability is investigated by a number of researchers including the Satriawan and Arifin (2012), Permata et al. (2014), Yuliana (2014) and Reinissa (2015). Relating to the determination of rate of return on this type of financing, according to Anggraini (n.d.), Islamic banks face the risk of reputation because they still do not have its own pricing. Omar et al. (2010) and Wiryono et al. (2011) try to make models of the rate of return by using the approach of Arbitrage Pricing Theory (APT). They make the model by using return of stock for each industry sectors that are affected by risks in the form of macroeconomic variables. Beside using APT approach, Omar et al. also use CAPM approach in making pricing benchmark. Hanif and Shaikh (2010) and Halid and Latiff (2012) propose nominal GDP growth rate as an alternative reference rate. Complementing the previous research related to PLS based financing, this research tries to analyze the differences in risk and return on the two types of industry sectors, namely agro industry and manufacturing industry. In connection with the pricing determination of the rate of return with the models created by Omar et al. (2010) and Wiryono et al. (2011) and pricing benchmark proposed by Hanif and Shaikh (2010) and Halid and Latiff (2012), this research attempts to compare the expected rate of return using CAPM and using APT and the nominal GDP growth rate as pricing benchmark approach.

1.6 Systematic of Discussion

Systematic discussion and problem solving in this research consists of five chapters consisting of introduction, literature review, research methodology, result and discussion, and conclusions.

1. Chapter I Introduction

The chapter of introduction explains general overview of the discussion of the topics studied. In this chapter, it describes some sub-chapters that includes research background, problem identification, objective research and benefit, research limitation, originality and systematic of discussion.

2. Chapter II Literature Review

The chapter of literature review discusses literature review of some studies related to the topic of the research that have been previously done by other researchers.

3. Chapter III Research Methodology

The chapter of research methodology discusses some stages that are carried out in the research that includes the stage of data collection, the stage of data processing and the stage of analysis for the data processing.

4. Chapter IV Results and Discussion

The chapter of results and discussion presents the results of the research along with the discussion that will answer the research questions.

5. Chapter V Conclusions

The chapter of conclusions gives the final conclusions of the research that has been done and provides some recommendations relating to the object of research as well as recommendations for further research.

CHAPTER II LITERATURE REVIEW

2.1 The Development of Islamic Banking

2.1.1 Islamic Banking in the World

The development of Islamic banking in the world is inseparable from the idea of Islamic scholars in the 1940s about the basic concept of Profit and Loss Sharing (PLS) in accordance with Islamic law. Through their writings, the basic concepts of Islamic banking are clearly and completely presented. But until the 1960s, the discussion of Islamic banking only become a theoretical discourse and concepts without really implemented into an institution.

As an institution, bank with Islamic concept was firstly established in 1963 in Egypt, named Myt-Ghamr Bank. This bank successfully combines the German banking management with muamalah principles based on Islamic law. In 1974, the countries joined in the Organization of Islamic Conference (OIC) agreed to establish a financial institution, namely the Islamic Development Bank (IDB). This bank provides fee-based financial services and profit sharing for the member countries of the OIC. At the beginning, the IDB is an inter-governmental bank that provides funding for development projects in its member countries, but in practice this bank applies Islamic principles in managing its finances and eliminate the element of interest in its operations. It confirmed the IDB as an international financial institution based on Islamic principles.

The IDB establishment has motivated many Islamic countries to establish Islamic financial institutions. At the end of the 1970s, Islamic banks began to appear such as in the country of Sudan, the Gulf States, Pakistan, Iran, Malaysia, Bangladesh, and Turkey. In Indonesia, the establishment of Islamic banks could only be realized in 1992 with the establishment of Bank Muamalat Indonesia (BMI).

In recent years, economics and Islamic finance begin to be studied and applied even by countries that are predominantly non-Muslim. In 2004, the UK became the first non-Muslim countries that applies the Islamic financial system by establishing the first bank based on Islamic principles in continental Europe, namely the Islamic Bank of Britain (IBB). Currently, Islamic banks have been spread in some non-Muslim countries, such as in the Americas and Australia.

2.1.2 Islamic Banking in Indonesia

Indonesian banking system use the dual-banking system where Islamic banking together with conventional banking synergistically raise funds from the public to improve financing for sectors of the national economy. The development of Islamic banking in Indonesia is the fulfillment of the public demand for alternative banking services that can provide financial services at once can remain obedient to the rules of Islamic law. The first Islamic bank in Indonesia is Bank Muamalat Indonesia (BMI), which was established in 1992. But before that, informally financial institutions of non-bank have been established such as *Baitul Maal wa Tamwil* (BMT) and Koperasi Pondok Pesantren. The institutions apply the concept of PLS in the operational activities to accommodate the needs of the Indonesian people towards financial transactions that are in accordance with the shari'a.

Through Act 7 of 1992 on Banking, government implicitly provides opportunity for banks to conduct business activities that have operational basic of PLS concept. The concept is described in more detail in the government regulation No. 72 of 1992 on Banking Based on PLS Principles. This provision becomes the legal basis of establishment of Islamic Banking in Indonesia. Over the 6 years, since 1992 to 1998, Bank Muamalat Indonesia becomes the only Islamic Commercial Bank and the number of Islamic Rural Banks (BPRS) that have operated is as much as 78 banks.

The global financial crisis that occurred in 1997 to 1998 had a tremendous impact on the Indonesian economy. During the period of the crisis, many financial institutions including banks were experiencing financial difficulties, mainly the banks that had loans of money in the form of foreign currency. At the time of crisis, the Rupiah towards the US Dollar slumped sharply. Conventional banks that using the system of interest at that time raised the lending rates. The action is taken as the impact of government policy that raise the interest rate of Bank Indonesia Certificates (SBI) in order to reduce the rate of inflation. The increase in lending rates have been burdensome to entrepreneurs in the real sector and led to a decrease in their productivity. Increase in interest rates make banks more selective and carefully in giving credit for anticipating the surge of Non-Performing Loan (NPL) which at that time reaches 30 percent. This causes the value of the Loan to Deposit Ratio (LDR) becoming low. As a result, conventional banks began to lose its primary role as an intermediary institution.

In contrast to conventional banking, at crisis time Islamic banking can still show positive performance shown by the low value of Non Performing Financing (NPF), the absence of a negative spread on its operational activities and high value of Financing to Deposit Ratio (FDR) around 113 – 117 percent. In Islamic banking, the rate of return paid to depositors is not determined by the market interest rate but it is determined by the PLS system. Therefore, Islamic bank can still provide financing to entrepreneurs with the cost of funds that are relatively low. The experience of this crisis brings new hope for the people to make Islamic banking as an alternative banking system in Indonesia that is able to survive in the crisis, contribute to economic growth while remain in accordance with Islamic principles.

In 1998, Act 10 of 1998 on the amendment of Act 7 of 1992 on banking is issued. The amendment explicitly provides opportunities for the development of Islamic banking in Indonesia. In this Act, the legal basis and the types of business that can be operated by Islamic banking is regulated in detail.

According to Act 21 of 2008, an Islamic bank is a bank that runs its business based on Sharia or Islamic principles. According to its kind, Islamic banking consists of Islamic Commercial Banks and Islamic Rural Banks (BPRS). In contrast to the Islamic Commercial Banks, BPRS do not provide services in payment traffic.

Conventional Commercial Banks conducting conventional business can also conduct their business based on Islamic principles by establishing Islamic Business Unit. The Islamic Business Unit is a business unit of the Conventional Commercial Bank head office that serves as the head office of the office conducting business based on Sharia principles. To increase the number of Islamic Commercial Bank in Indonesia, Islamic Business Unit that has assets worth at least 50% of the total value of assets of the parent bank should secede as an Islamic Commercial Bank. Until June 2015, the number of Islamic Commercial Banks, Islamic Business Units and Islamic Rural Banks respectively are 12, 22 and 161 banks.

In line with the development of Islamic financial institutions in Indonesia, it is required a special institution that handles issues related to the Islamic economic system so that does not deviate from the provisions of Islam i.e. the Qur'an and Sunnah. On February 10, 1999, the Board Chairman of the Indonesian Ulema Council (MUI) issued Decree No. Kep-754 / MUI / II / 1999 on the establishment of the National Islamic Council of MUI hereinafter called DSN-MUI. DSN-MUI formation is the embodiment of the aspirations of Indonesian people who want the implementation of Islamic provisions in the field of economy or finance. Duties and functions of the DSN-MUI are to issue a fatwa on Sharia economy serving as guidelines of recommendations for practitioners and regulators, to publish certification and sharia approval for financial institutions and Islamic businesses, to supervise Sharia aspects of the products/services in the financial institutions or Islamic businesses through the Sharia Supervisory Board (DPS).

DPS is an entity that is in the Islamic financial institutions and oversees the implementation of decisions of DSN-MUI in the financial institutions. DPS is an independent entity, appointed and dismissed by the Islamic financial institutions through the Annual General Meeting after getting a recommendation from the DSN-MUI. DPS consists of experts in the field of sharia muamalah who have knowledge of banking. The duties and functions of the DPS are doing periodic supervision of the Islamic financial institutions under its supervision, submitting proposals development of Islamic financial institutions to the leaders of the institution and to DSN, reporting the development of products and operations of Islamic financial institutions under its supervision to DSN at least twice in one fiscal year, and formulating issues that require discussions in DSN.

2.2 The Concept of Islamic Banking

The Islamic financial system comes from the concept of Islamic economics. At first the Islamic financial system was formed to avoid financial transactions with elements of usury. The usury is forbidden by all religions because it will create injustice. Islam forbids usury, but allows the sale and purchase and applies a PLS system of the two parties working together.

In language that is defined as usury is *ziyadah* or addition, grow and enlarged. The term definition of usury means taking extra of principal or capital assets by using the wrong way or falsehood (Antonio, 2000). In general it can be said that usury is additional load, either in transaction of buying or selling or borrowing that contrary to *muamalah* principles of Islam. In the *muamalah* principles of Islam, the addition may be taken, but must be accompanied with a replacement transaction or balance which is justified by Sharia such as sale and purchase transactions, gadai, lease or profit sharing of a project. In a sale and purchase transaction, the buyer pays for the goods bought at a price predetermined by the seller. In the lease transaction, the tenant must pay rent wages because he is already enjoying the facilities of the leased asset. Similarly, in profit sharing of a project, both parties who working together get profit sharing of the project and also bear the possible risk of losses.

Islamic banking is a part of the Islamic financial system besides do not take usury in its operation also do not do business transactions that contain *gharar* (manipulative or obscurity), *maisir* (gambling and speculation) and do not invest in businesses that categorized as *haram* (forbidden) in the principles of Islamic law. The prohibition of taking usury and limit of transaction that exist in Islamic banking do not apply to conventional banking. Therefore, in the principle of Islamic law, Islamic banking has a fundamental differences from the conventional banking. Table 2.1 displays the differences between Islamic banking and conventional banking.

Table 2.1. The Differences between Islamic Banking and Conventional Banking.

Islamic Banking	Conventional Banking
Using the system of Profit and Loss Sharing (PLS), sale and purchase or lease in its operational system	Using interest system
Profit dan <i>falah</i> oriented <i>Falah</i> is the world's prosperity and happiness of hereafter	Profit oriented
Limited to conduct transactions and halal investments (avoid <i>gharar</i> , <i>maisir</i> and <i>haram</i>)	Investment in <i>halal</i> and <i>haram</i>
Relationship with customers is a form of partnership	Relationships with customers in the form of debtor-creditor relationship
There is Sharia Supervisory Board who give fatwa in terms of funding and financing as well as its operation	There is no similar Supervisory Board

Source : Antonio, 2000

The concept of PLS in Islamic banking is a unique feature that distinguishes between Islamic banking and conventional banking. In contrast to conventional banks, Islamic banks do not offer a fixed interest rate on return in deposits and do not take interest in financing. Islamic banks offer PLS that considered more

equitable for all parties both to banks and to customers. Islamic banking system with the PLS concept provides an alternative banking system that is mutually beneficial for the community and the bank. The PLS concept is different from the concept of interest in conventional banking. Table 2.2 presents the differences between PLS and interest concept.

Tabel 2.2. The Differences between PLS and Interest Concept.

Profit and Loss Sharing	Interest
Determination of the PLS ratio is made at the time of contract by referring to the possibility of profit and loss	The determination of interest is made at the time the contract without referring to the profit and loss
The PLS ratio based on the number of profits earned	The percentage of interest based on the number of money (capital) borrowed
The PLS depend on the profit of the project undertaken. If the business suffers loss, the loss will be shared by both parties	interest payment is fixed as promised without any consideration of whether the project being undertaken by the customer gives profit or suffers loss
Total sharing of profit increases according to the increase in total revenue	Total interest payments do not increase although the number of profit increases or the economy is "booming"
There is no doubting the validity of the PLS advantage	The existence of interest as usury is doubted by all religions, including Islam

Source : Antonio, 2000

There are two methods of the PLS calculation conducted by Islamic banking including the calculation method based on the profit sharing and based on revenue sharing. The PLS calculation based on the profit sharing is counted from profit of the project earned by fund manager. The profit is obtained from operating revenues minus operating expenses or the costs incurred during the business process. The PLS calculation based on revenue sharing is counted from revenue before deducting operating expenses to obtain the revenue.

Applications using these two methods have advantages and disadvantages of each. On the profit sharing method, all parties will gain profit share in accordance with the profit earned by the fund manager or even not getting a profit when the fund manager suffers a normal loss. If the fund manager earns a big profit, the bank will also get a big part. Otherwise if the fund manager only earns a little profit, then the bank will also receive a small fraction. Using this method is more fair for both sides, both the bank and the fund manager.

Islamic banks in Indonesia prefer using the PLS calculation based on revenue sharing to using the PLS calculation based on profit sharing (IBI, 2008). In terms of liability, this calculation method is done to attract attention of the owners of the funds to invest their funds in Islamic banks due to the PLS calculation based on revenue sharing would be more favorable to them than by profit sharing. It may be possible that the level of the profit sharing received by the owner of the funds will be greater than the interest rate on a conventional banks. Muhammad (2005) argued that Islamic banks are expected to be capable managing their funds so that they can provide the profit sharing to the depositors which is at least equal or even greater than the interest rate prevailing in conventional banks. In the PLS calculation based on revenue sharing, the entire costs incurred in managing the funds are fully borne by the bank. In terms of assets, financing using revenue sharing methods is more favorable for the bank because the bank does not bear the costs of the fund management.

2.3 Financing

Financing is one of the intermediary tasks of the bank that provides facilities of fund provision to meet the needs of those who are deficit units (Arifin, 2009). Based on Act 21 of 2008 concerning Sharia banking, financing is the provision of funds or bill in the forms such as PLS transactions (contracts of *mudharaba* and *musharaka*), lease transactions (*ijara* contract), sale and purchase transactions (contracts of *murabaha*, *salam* and *istishna*), lending and borrowing transactions (*qardh* contract) and transactions of renting services. Financing contracts using sale and purchase scheme and lease scheme is called debt based financing, while the

PLS scheme implemented through contracts of *mudharaba*, *musharaka*, *muzara'ah* and *musaqah* (Antonio, 2000). The PLS scheme is known as the equity based financing due to meet the working capital for entrepreneurs. Islamic banking in Indonesia usually use the PLS scheme in the form of *mudharaba* and *musharaka* contracts. Table 2.3 gives the definition of the contracts according to the Financial Services Authority (OJK).

Tabel 2.3. The Financing Contracts in Islamic Banking.

Name of Contracts	Definition
<i>Mudharaba</i> Contract	A contract between a capital provider and an entrepreneur or a fund manager, whereby the entrepreneur or fund manager can mobilize the funds of the former for its business activity within the Sharia guidelines. Profits made are shared between the parties according to a mutually agreed ratio.
<i>Musharaka</i> Contract	A contract between two parties whereby both parties provide capital and both may be active in managing the venture. Losses are shared on the basis of how much capital has been contributed. Profits are shared in any way the partners decide.
<i>Murabaha</i> Contract	The sale of goods at a price, which includes a profit margin agreed to by both parties. The purchase and selling price, other costs, and the profit margin must be clearly stated by the seller at the time of the sale agreement.
<i>Salam</i> Contract	A contract in which the seller undertakes to supply some specific goods to the buyer on a future date at a mutually agreed price fully paid at the time of contract.
<i>Istishna</i> Contract	A contract in which the seller undertakes to supply some specific goods to the buyer on a future date at a mutually agreed price and method of payment.
<i>Ijara</i> Contract	The selling of benefit or use or service for a fixed price or wage.
<i>Qardh</i> Contract	A loan in which the debtor is only required to repay the number borrowed.

Source : Financial Services Authority (OJK), 2015

According to the nature of its use, Antonio (2001) splits the financing into two categories, namely productive financing and consumer financing. The productive financing is a financing intended to meet production needs to increase business such as production, trade, and investment, while the consumer financing is financing to meet consumption needs. The productive financing includes financing for working capital and investment financing. The working capital financing is a short and medium term financing used for working capital needs for the smooth running of business activities such as for the purchase of raw materials, production costs, distribution costs and so forth. The investment financing is a mid and long-term financing to make investments such as the purchase of capital goods and services needed for the rehabilitation and expansion of existing businesses with the purchase of machinery and equipment and construction of the plants (Laksmiana, 2009). The short-term financing referred here is the financing with a term of maximum of one year, while the medium-term financing is financing with a term of between 1 and 3 years and the long-term financing has term more than three years.

2.3.1 *Mudharaba*

One type of PLS based financing contracts is financing using the *mudharaba* contract. According to Karim (2008) *mudharaba* is a form of cooperation between the two parties, namely the owners of capital (*sahibul maal*) entrust the number of capital to the fund manager (*mudharib*) with a profit-sharing agreement. In this partnership, Islamic banks as *sahibul maal* contribute capital in the form of a 100% cash and entrepreneurs as *mudharib* contribute their expertise, skills, selling skills, or management skills. As *mudharib*, entrepreneurs must act cautiously and be responsible for any losses incurred as a result of negligence and are expected to manage the capital in order to obtain optimal profits.

Factors that should be exist (pillars) in the *mudharaba* contract is the cooperating parties (*sahibul maal* and *mudharib*), the object of *mudharaba* (capital and business), agreement of both parties (*ijab-qabul*), and the ratio of profits. In *mudharaba* financing, a number of capital handed over to the

entrepreneur in the form of cash or goods which its value is expressed in units of money. Results of this capital management can be calculated by using the method of revenue sharing or profit sharing. Revenue or profit sharing is distributed based on the agreement of the contract at the beginning of cooperation, both in terms of the ratio of revenue or profit sharing or time of distribution.

Bank as the capital owners bears the entire loss from the management of funds conducted by entrepreneur unless there are negligence and deviations intentionally in the form of misappropriation, fraud or misuse of funds by the fund manager. In this cooperation, the bank has the right to supervise the business done by the entrepreneur but does not have the right to interfere with the business. If the entrepreneur as a bank customer conducts breach intentionally such as unwilling or delaying to pay his obligation, then he can be subject to administrative sanctions.

Ratio of profit is a typical pillar of the PLS based financing. This pillar is not contained in the sale and purchase based financing or lease based financing. This ratio reflects a return that entitled to be accepted by both parties who make cooperation. The entrepreneur gets return for his work while bank obtains return on capital investments. Determination of PLS ratio at the beginning of the cooperation agreement prevents disputes over how to distribute profits. Profit ratio is expressed as a percentage rather than in nominal value. This percentage is determined by agreement and not based on the portion of capital injection.

Financing with *mudharaba* contract is classified the natural uncertainty contracts. These contracts do not provide certainty in terms of return both in quantity as well as its timing. The rate of return can be positive, negative or zero depending on the performance of its real sector. Profit sharing ratio in percentage will provide a great profit sharing when business earns big profit.

Instead it will receive little profit sharing when business make a profit only slightly.

When *mudharaba* cooperation suffers losses due to business risk, loss sharing is not using the profit ratio as mentioned previously, but based on the capital portion of each party. This is because there are differences in the ability to absorb or bear the losses between the two parties (Karim, 2008). Bank as *shahibul maal* bears the financial loss in proportion to the capital that is 100% and the entrepreneur as *mudharib* will bear losses such as the loss of work, time and effort that have been devoted to running the business. At loss condition, the entrepreneur does not get any results for the effort he has run.

Another case when losses in the cooperation of *mudharaba* occur due to character risk factors such as the breach, negligence, carelessness in managing the funds in accordance with the cooperation agreement, then *mudharib* also will bear the loss of part of his negligence as a sanction and responsibility. To avoid moral hazard on the part *mudharib*, the bank is allowed to ask for certain guarantee to the *mudharib*. This guarantee is required in case of deviations relating to the character risk and not to secure the value of the investment of bank if there is business risk.

In financing with *mudharaba* contract, trust becomes the main points that must be given by both parties who make cooperation, in this case between the bank and the customer. Therefore this financing have a higher risk when compared to other financings with natural certainty contracts such as contracts of *murabaha*, *salam*, *istishna* and *ijara*. Financing with *mudharaba* contract is always faced with the problem of assymmetric information and moral hazard. Assymmetric information occurs when information access of the bank toward the business of *mudharib* is very limited. *Mudharib* knows more about his business that is not known by the bank. Moral hazard occurs when *mudharib* do things that only benefit for his party and detrimental for the bank.

In order to reduce the risks of financing, Islamic banks can implement incentive-compatible constraints when channeling financing to *mudharib*. Such constraints are made with the goal of forcing *mudharib* to maximize the benefits for both parties. Incentive-compatible constraints can be done by setting the covenant so *mudharib* provide collateral or guarantees, do business with lower operating risk, transparency of cash flows (lower fraction of unobservable cash flow) and lower fraction of uncontrolled costs. Ahmed (2002) discusses the problem of asymmetric information arising on PLS based financing and how to resolve it by using incentive-compatible contracts. According to him, the problem arises because of the lack of information related to the business of *mudharib*. He proposes to use the assets of *mudharib* as collateral that can be used to punish errors in reporting profit, i.e. profit underreporting.

Determination of covenant in the form of constraints to *mudharib* in order to do business with low operating risk can be done by setting a maximum ratio of fixed assets to total assets. *Mudharib* is expected not using the funds to invest excessively in fixed assets which causes an increase in depreciation expense. As a consequence, Cost of Good Sold (COGS) will increase and make the products become less competitive. Another constraint to *mudharib* in order to run the business efficiently is the determination of a maximum ratio of operating expenses to operating income. Thus the cooperation of *mudharaba* still generates operational profit.

Determination of covenant in the form of constraints to *mudharib* in order to minimize unobservable cash flow may be done by random monitoring and periodic monitoring. The random monitoring is usually carried on business with the business scale that is not big enough, seasonal business or short-term business. The periodic monitoring is carried on business with a large enough scale business, continuous business or long-term business. The more complex monitoring can be done with the involvement of auditors so that *mudharib*

can provide valid financial statements. According to Khan (1987) deviations in the form of underreporting profits can be reduced by giving the penalty of increased monitoring.

Determination of covenant in the form of constraints to *mudharib* in order to minimize non-controllable costs can be done by using revenue sharing method in performing distribution of profits. In the method of revenue sharing, unexpected costs entirely are the responsibility of *mudharib*. Another way is by determining a minimum profit margin. This determination is done to *mudharib* in order to optimize *mudharaba* funds to generate the expected profit margins and minimize unexpected costs.

2.3.2 *Musharaka*

Another type of PLS based financing contract is financing using the *musharaka* contract. According to Ismail (2010), *musharaka* is a partnership contract between two or more parties where all parties have contributed in the form of capital, participate in management, share profits according to the proportion of capital or in accordance with the profit sharing ratio setting previously and also bear the losses (if exist) according to the respective proportion of capital. In contrast to the *mudharaba*, *musharaka* involves more investors who invest their funds in various quantities. Profits and losses are shared with the varying percentage according to the respective capital contributions.

In terms of financing risk, *musharaka* has the same risk as *mudharaba* financing. *Musharaka* is also classified as natural uncertainty contracts which do not provide certainty in terms of return both in quantity as well as its timing. Therefore, it is also necessary incentive-compatible constraints when channeling financing to *mudharib* to reduce the risks of financing as described previously. Figure 2.1 displays financing scheme using *mudharaba* and *musharaka* contracts.

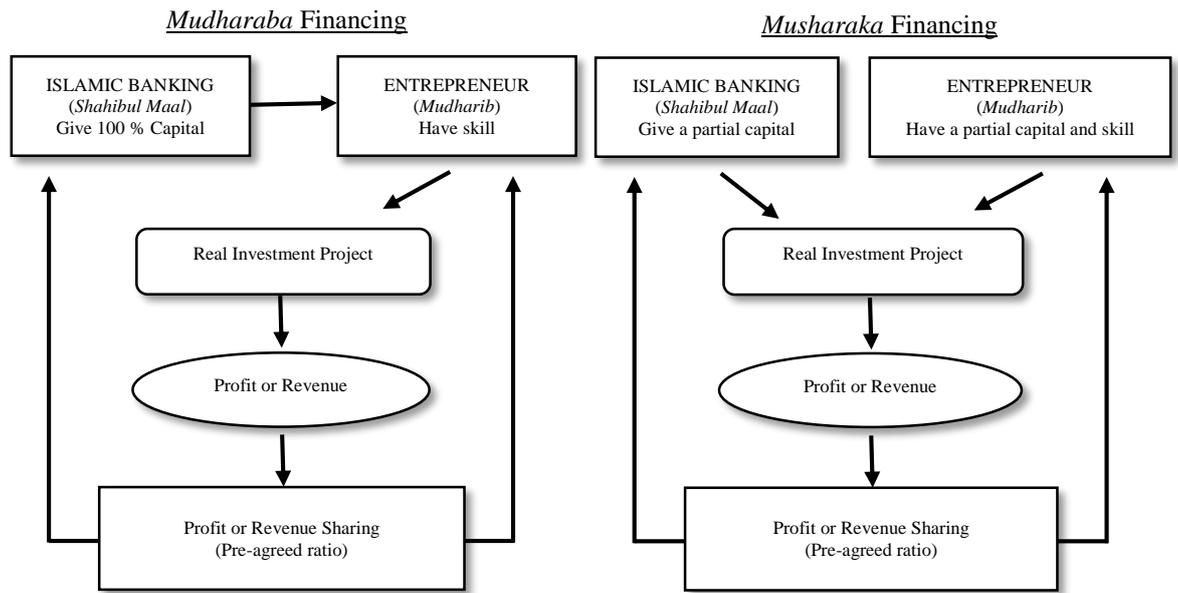


Figure 2.1. Mudaraba and Musharaka Financing Scheme.

2.4 Risk Management of Islamic Banking

As the intermediary institution, Islamic banking will always deal with different types of risks in its operations. Risks in the banking context are a potential events that can be anticipated and unpredictable (unanticipated) that will impact negatively the revenue and the bank capital (Karim, 2008). These risks cannot be avoided but can be managed well and can be controlled. Islamic banking should improve the functioning of the internal control and conduct a risk management accurately and comprehensively. Therefore, Islamic banking needs the risk management in the form of a series of procedures and methodologies that can be used to identify, measure, monitor, and control the risks arising from all its business activities.

The risk management is an early warning system for bank in conducting its operations. The purpose of risk management is to provide information about the risks to the regulator, to make sure the bank does not incur an unacceptable loss, to minimize losses from uncontrolled risks, to measure an exposure and risk-pooling and to allocate capital as well as to limit the risks. The risk management process is an absolute thing must do by the bank to avoid a loss in business. The governance structure of the robust risk management would be the basis of the evaluation of the

balance between risks and returns to generate sustainable revenue, reduce the potential non-performing financing, reduce income fluctuations and increase shareholder values.



Figure 2.2. The Risk Management Process.

The risks faced by Islamic banking are generally categorized into financing risk, market risk, and operational risk. The financing risk is defined as the potency of failure by an Islamic bank customer to meet his obligations with the agreed terms (Ismail, 2010). The market risk is the risk of loss that occurs in the portfolio owned by the bank due to movements in market variables (adverse movements) such as interest rates and exchange rates (Karim, 2008). Market risk consists of foreign exchange risk, interest risk, liquidity risk and price risk. The operational risk is the risk arising from the failure of Islamic banking in conducting internal controls covering the processes, human resources, and systems as well as from external events (Sundararajan, 2007). The operational risk consists of transactional risk, compliance risk, strategic risk, reputation risk and legal risk. According to the risk management guide of Islamic Financial Services Board (IFSB, 2005) which is recognized as international Islamic financial institution, the types of risks faced by Islamic banking is credit risk, market risk, liquidity risk, operational risk as the risks that occur in conventional banking, as well as equity investment risk and rate of return risk that typically occur at Islamic banking. However, according to Bank

Indonesia Regulation (PBI), there are several types of risks on the Islamic Banking in Indonesia. The Table 2.3 lists some of the terms of the risk types based on PBI relating to the implementation of risk management for Islamic banking.

Tabel 2.4. The Types of Risks in Islamic Banking.

Types of Risks	Definition
Credit Risk	The risk due to the failure of customers or other parties to meet obligations to banks in accordance with the treaty agreed.
Market Risk	The risk on the balance sheet and off-balance sheet positions as a result of changes in market prices, among others, the risks of changes in the value of assets that can be traded or leased.
Operational Risk	The risk of loss caused by inadequate internal processes, failure of internal processes, human error, system failure, and / or the presence of external events affecting the operations of the bank.
Liquidity Risk	The risk due to the inability of the bank to meet its maturing obligations of the funding sources of cash flow and / or high-quality liquid assets that can be pledged, without disrupting the activities and financial condition of the bank.
Legal Risk	The risk due to lawsuits and / or weakness of the judicial aspect.
Reputation Risk	The risk due to decreased levels of stakeholder confidence that comes from a negative perception towards the bank.
Strategic Risk	The risk due to incorrectness in taking and / or implementing of a strategic decision as well as the failure to anticipate changes in the business environment.
Compliance Risk	The risk due to the bank does not comply with and / or implement legislation and regulations, as well as the principles of Sharia.
Rate of Return Risk	The risk due to changes in the rate of returns paid by the banks to customers, due to changes in the rate of return received by banks from the distribution of funds, which can affect the behavior of bank customers as the owner of third-party funds.

Equity Investment Risk	The risk due to banks bear the loss of the customer's business that is financed using the PLS based financing.
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Source : Bank Indonesia Regulation (PBI), 2011

The financing risks could lead to the potential loss of income for the bank. In Islamic banking, financing risks involve two things, namely the risks associated with the financial products and the risks associated with corporate financing. Financing products use a various contracts so that each type of financing products faces different risks. On the PLS based financing, the risks faced include business risk, shrinking risk, and character risk.

Business risk is the risk associated with the business that is financed by Islamic banks. This risk is influenced by the industry risk. Each sector has different characteristics. In addition, the financial performance of the type of business in the form of financial industry standards should be viewed. According to the interview result with corporate finance manager, Islamic banks divide industries into three major categories associated with PLS based financing. This grouping associated with risk management to mitigate the business risk. The group is comprised of interesting industries, neutral industries and alerted industries. Industry of food and beverage is included into interesting industry, while the agro-industry and some of manufacturing industries are included into the neutral indutry. The hospitality industry is in the category alerted industry. Shrinking risk occurs when the value of the financing is reduced as a result of unusual business risk such a drastic reduction in the level of business sales financed by the bank or the number of uncontrolled costs borne by the bank when using the distribution method based on profit sharing. Character risk occurs if there is a breach, negligence, carelessness in maintaining funds by *mudharib* in accordance with an agreement with the bank.

In corporate financing, financing in large volume and complex make this financing require more attention in managing the risks that might arise. Analysis of corporate financing is done more comprehensive. Bank will conduct in-depth analysis of information related to COGS, profits, assets, liabilities and analysis of cash flow.

Banks will also make projections of sales of customer business and cash flow projections so that they can estimate the profit to be gained.

2.5 Characteristic of Agro Industry and Manufacturing Industry

Economic development is an important pillar for the implementation of the national development process in all sectors. If the economic development of a nation is successful, then the development in other sectors will also increase. The economic development is successful if it is characterized by high per capita income in the country. The higher the per capita income of a country the higher the prosperity of the country. The amount of per capita income cannot be separated from state efforts to control the economy through advances in the sector of industry.

The industrial sector is one of the sectors which has an important role in the development of national economy. The role of the industrial sector can be traced from the contribution of each subsector to the national economic growth or to the Gross Domestic Product (GDP). Because of its superiority compared to other sectors, the industrial sector plays a key role as an engine of development. Some of the advantages of industrial sector include the capitalization of a very large capital, the ability to absorb extensive labor, and also the ability of value added creation from any processed input (Gunawan, 2015). In Indonesia, the industrial sector is highly expected to be a driving force of the national economy. Indonesia has a variety of natural resource wealth that have comparative advantages in the form of primary products that still need to be processed into industrial products to get a higher added value.

Under Indonesian law 5 of 1984, industry is the economic activity that manage raw materials, semi-finished goods or finished goods into goods with a higher value to the user, including the activities of design and engineering industry. Under Indonesian law 28 of 2008, the Indonesian industry is divided into six sectors. The following Table 2.5 is a list of the six industry sectors.

Tabel 2.5. The Industry Sectors of Indonesia.

No.	Industry Sectors	Sub-Sector Industry
1.	Manufacturing industry	Steel industry, cement industry, petrochemical industry, ceramic industry, electrical machinery and equipment industry, general equipment machine industry, textile and clothing industry and footwear industry
2.	Agro-industry	Processing palm oil industry, rubber and rubber good industry, cocoa industry, coconut manufacturing industry, coffee processing industry, sugar industry, tobacco industry, fruit processing industry, furniture industry, fish processing industry, paper industry, and milk processing industry
3.	Transport equipment industry	Motor vehicle industry, shipping industry, aerospace industry and railway industry
4.	Electronics and telematics industry	Electronics industry, telecommunication industry, computer and equipment industry
5.	Supporting industry creative and creative specific industry	Tool software and multimedia industry, fashion industry, and craft and art good industry
6.	Small and medium-specific industry	Precious stones and jewellery industry, salt industry and pottery and decorative ceramic industry, essential oil industry and snack industry

Source : Indonesian law 28 of 2008

Indonesia Stock Exchange (IDX) classifies industry in Indonesia into 9 sectors. IDX sets the nine sectors, and makes a list on the Jakarta Stock Exchange Industrial Classification (JASICA). The nine sectors are composed into three major categories, namely primary sectors (natural resources), secondary sectors (manufacturing industry), and tertiary sectors (service). The classification is presented in the Table 2.6.

Tabel 2.6. The Industry Sectors of Indonesia based on IDX.

No.	Industry Sectors	Sub-Sector Industry
1.	Agriculture (<i>Primary Sectors</i>)	Crops, plantation, animal husbandary, fishery, forestry, others
2.	Mining (<i>Primary Sectors</i>)	Coal mining, crude petroleum & natural gas production, metal & mineral mining, land or stone quarrying, others
3.	Basic Industry and Chemicals (<i>Secondary Sectors : Industry & Manufacturing</i>)	Cement, ceramics, glass, porcelain, metal & allied products, chemicals, plastics & packaging, animal feed, wood industries, pulp & paper, others
4.	Miscellaneous Industry (<i>Secondary Sectors : Industry & Manufacturing</i>)	Machinery & heavy equipment, automotive & components, textile, garment, footwear, cable, electronics, others
5.	Consumer Goods Industry (<i>Secondary Sectors : Industry & Manufacturing</i>)	Food & beverages, tobacco manufactures, pharmaceuticals, cosmetics & household, houseware, others
6.	Property, Real Estate and Building Construction (<i>Tertiary Sectors : Service</i>)	Property & real estate, building construction, others
7.	Infrastructure, Utilities & Transportation (<i>Tertiary Sectors : Service</i>)	Energy, toll road, airport, harbor & allied products, telecommunication, transportation, non-building construction, others
8.	Finance (<i>Tertiary Sectors : Service</i>)	Bank, financial institution, securities company, insurance, investment fund or mutual fund, others
9.	Trade, Services & Investment (<i>Tertiary Sectors : Service</i>)	Wholesale (durable & non-durable goods), retail trade, restaurant, hotel and tourism, advertising, printing and media, health care, computer and services, investment company, others

Source : Indonesia Stock Exchange (IDX) Fact Book, 2010

Each sector has different characteristics, especially on raw materials to be processed. Primary sectors are industry sectors which the production of goods is not processed immediately or without being processed first as in the agricultural

and mining sectors. Secondary sectors include manufacturing industry sectors which process raw materials to produce goods to be reprocessed or produce finished goods ready for use. Tertiary industry sectors are industry sectors whose products or goods in the form of services. Because each sector has different characteristics then it has different business risk.

The structural transformation of agriculture (primary industry) to the manufacturing industry (secondary industry) is because there are linkages between the agricultural sector and the manufacturing sector into agro-industry (Kuncoro, 2007). Agro industrial development is a continuation of agricultural development. According to Kuncoro, agro-based industry includes two types of manufacturing industry, i.e. the industry provider of agricultural inputs (such as fertilizer, pesticides and producers of agricultural machinery) and industrial processing of agricultural products (such as palm oil industry, wood industry, flour industry). According to White (1990) agro based industries on the upstream (input) and downstream (output processing) side of agricultural production generally limited to the first stage of agro linked input production of processing, or at least to the relatively immediate stages.

According to Soekartawi (2000) agro-industry is an industry which the main raw materials are agricultural products. In relation to these raw materials, the characteristics of agro-industrial products have specific characteristics that cannot be equated with manufacturing products. Agricultural products are generally seasonally and such products are difficult in its availability throughout the year. As a consequence the companies engaged in agro-industrial sector should have a stock management that well planned for the continuity of their business. Agricultural products also have a fresh nature (perishable nature) so that the products are difficult to be kept in a relatively long time. As the implication, the agricultural products require rapid marketing process. Due to the perishable nature, the agricultural products are relatively easily attacked by pests and diseases and more easily damaged. Therefore, in the process of harvesting, transporting, shipping, and storage process must be done carefully and require special skills. Agricultural products also are bulky high volume but the value is relatively small. This nature

makes the cost of transportation and storage in the warehouse to be relatively expensive. In order to fulfill the raw materials by companies engaged in the sectors of agro-industry in the right quantity, right time, right quality and its availability is continuous, then the companies must think long-term basis with the principles of sustainability and have the risk management of uncertainty in supplying raw material stock.

2.6 Previous Research

Profit and Loss Sharing (PLS) as a unique characteristic in Islamic banking is not widely used in practice in terms of assets through financing. Aggarwal and Yousef (2000) study of financial instruments used by Islamic banking and find that most of the financial instruments is not based on PLS but as debt-like instruments such as *murabaha* financing. The widespread use of *murabaha* financing is one of the problems faced by Islamic banking that deviates from Islamic finance theory.

Some researchers focus a lot of their research related to the PLS both in terms of the liabilities and assets. In terms of the liabilities, Chong and Liu (2009) report that deposits in Islamic banking in Malaysia are still based on the interest mechanism as in a conventional banking. According to them, the one reason that deposits are no interest-free is because Islamic banking must compete with their counterpart i.e. conventional banking. Islamic banking faces withdrawal risk because of the pressure of competition with conventional banking. In terms of assets, the implementation of the PLS in Malaysia is fairly small because it faces four main obstacles such as high investment risks, difficulties in selecting appropriate *mudharib*, the financing needs coming from customers with low credit worthiness, and the lack of capital security (Rahman and Nor, 2016). Febianto (2012) analyzes why Islamic banks are reluctant to use the PLS based financing and provides solutions in the form of exploration of risk management based on IFSB for the types of financing. This study provides guidance of how to manage the risks that were attributed to the PLS arrangements. Guidance could motivate and encourage Islamic banks to further increase PLS based financing.

Sugema et al. (2010) make a rigorous theoretical modeling of the PLS in relation to the welfare implications. In mathematics model, they prove that the use of PLS mechanism in the financial system provides fairness in income distribution and fairness in sharing the risks between lender and borrower under an uncertain circumstances. In the event of uncertain circumstances such as a productivity shock both adverse and favorable, PLS mechanism provides justice to both parties working together.

On the relationship between the profitability of Islamic banking and PLS based financing, *mudharaba* and *musharaka* financing in Indonesian Islamic banking significantly affect the return on equity (Satriawan and Arifin, 2012; Permata et al., 2014; Reinissa, 2015). Satriawan and Arifin (2012) also find that the *musharaka* financing significantly affects the gross profit margin. Profitability is the most important indicator for measuring the performance of a bank. Yuliana (2014) conducts a study to investigate the relationship between PLS based financing and profitability in Islamic banks and Islamic rural banks with a time series approach. She finds that the PLS based financing contributes to profitability and suggest Islamic banks to increase this type of financing in order to increase profit.

Islamic banking faces the reputation risk as stated by Anggraini (n.d.). According to her, the lack of standards or rate of return reference on the financing makes Islamic banking has no difference from conventional banking. Reputation risks in Islamic banking is associated with dominance of *murabaha* financing, equalization with a conventional interest rate, and the equalization pattern of revenue sharing on productive financing. Muflih and Syarief (2012) follow up on the idea of Bank Indonesia to make the indexation of the return of the real sector as an alternative pricing in Islamic banking in Indonesia. Both of them add a *maqasid al syari'ah* principles that make reference index rate of return of the real sector is still oriented to profit without ignoring the larger social benefits. They link the return data of Gross Domestic Product (GDP) and return data of employment in determining the real sector index. According to them, a good *mudharaba* capital is capable in producing a good profit for the investors and is able to absorb the large amount of labor. Through this research, they discover the real sectors that meet *maqasid al*

syari'ah are processing industry, trade, retail, restaurants, hotels, agriculture, forestry, hunting and fishing.

Islamic banking is still using conventional banking benchmark. Benchmark used is a market interest rates such as the London Interbank Offered Rate (LIBOR), Cost of Fund (COF), and others, to determine the cost of funds of depositors and return on financing. There is a consensus among Islamic finance and economic scholars that such reference rates are not suitable from the Islamic perspective. Many scholars agree that the reference rate should be derived from the real sector. Omar et al. (2010) offer a model for the Islamic pricing benchmark as an alternative pricing model based on the interest rate. According to them, Islamic banking pricing benchmark should be based on risk profile of real economic business. Capital Asset Pricing Model (CAPM) is used to model the rate of return which is then followed by using the Arbitrage Pricing Theory (APT) to capture some risk factors such as economic variables. In modeling using the CAPM, they use return of sectoral indices and Kuala Lumpur Composite Index (KLCI) as a proxy for the market. They try to compare the rate of return generated by the CAPM model with the actual ROA and ROE. Wiryono et al. (2011) make a model of the rate of return for the three industry sectors (plantation, manufacturing and consumer products sectors) in Indonesia using APT approach. Return of each sector is obtained from actively traded stock on the Jakarta Stock Exchange. Each sector has a different risk profile which affects the expected return of financing. The model is created using several macroeconomic variables as market risk of projects or business. This model is proposed as a pricing benchmark for *murabaha* financing for Islamic banking. Hanif and Shaikh (2010) and Halid and Latiff (2012) propose nominal GDP growth rate as an alternative reference rate which is considered as representative of real sectors. Hanif and Shaikh (2010) examined 14 countries and found that in 12 out of 14 countries, the nominal GDP growth rate is not significantly different from nominal interest rate. Halid and Latiff (2012) still proposed the nominal GDP growth rate as reference rate in Malaysia eventhough this rate is not statistically equal to the interest rate in their country. They believed that the nominal GDP

growth rate could be used as monetary tool, serve as a benchmark for non-interest economy, and reflect the real sector.

Tabel 2.7. Summary of Previous Research.

Author	Year	Title	Objectives	Methodology	Result
Aggarwal, R. K and Yousef, T.	2000	Islamic Banks and Investment Financing	To study financial instruments used by Islamic banks	Modeling of investment and capital structure based on incomplete contracts	Find that most of those financial instruments are not based on PLS
Chong, B. S. and Liu, M. H.	2009	Islamic Banking : Interest-Free or Interest-Based?	To find out whether Islamic banks operate according to the PLS paradigm?	Bivariate Granger causality test	Find that Islamic banking is not very different from conventional banking. Only a negligible portion of Islamic bank financing is strictly PLS based
Rahman, A. A. And Nor, S. M.	2016	Challenges of Profit and Loss Sharing Financing in Malaysian Islamic Banking	To evaluate the application and modus operandi of mudharaba and musharaka contracts	Based on several interviews	Find that there are four major obstacles to PLS financing such as high risk of investment, difficulties in selecting appropriate <i>mudharib</i> , the financing needs coming from customers with low credit worthiness, and the lack of capital security
Febianto, I.	2012	Adapting Risk Management for Profit and Loss Sharing Financing of Islamic Banks	To analyze why Islamic banks are reluctant to use mudharaba and musharaka financing	Library research	Exploring the risk management concept to solve the problems
Sugema et al.	2010	Interest Versus Profit Loss Sharing Credit Contract : Efficiency and Welfare Implications	To find out whether a PLS based banking system can be welfare improving than interest based banking system	Developing a theoretical modelling	Finding that under uncertain situation, PLS based system is just and fair in distributing risk

Satriawan, A. And Arifin, Z.	2012	Analisis Profitabilitas dari Pembiayaan Mudharabah, Musyarakah, dan Murabahah pada Bank Umum Syariah di Indonesia Periode 2005 – 2010	To find out the relationship between PLS based financing and profitability	Multiple Linear Regression	Finding that PLS based financing significantly affect the profitability ratio
Permata et al.	2014	Analisis Pengaruh Pembiayaan Mudharabah dan Musyarakah terhadap Tingkat Profitabilitas (Return on Equity)			
Reinissa, R. D. P.	2015	Pengaruh Pembiayaan Mudharabah, Musyarakah, dan Murabahah terhadap Profitabilitas Bank Syariah Mandiri Tbk			
Yuliana, R.	2014	Pengaruh Pembiayaan Berbasis Bagi Hasil terhadap Profitabilitas pada Perbankan Syariah di Indonesia			
Anggraini, E.	2014	Implementasi Referensi Rate of Return terhadap Reputasi Pembiayaan Perbankan Syariah	To analyze the implementation of rate of return in Islamic banking	Library research	Finding that Islamic banks need rate of return references based on real sector
Muflih, M. And Syarief, M. E.	2012	Indeksasi Return dan Maqasid Al Syari'ah Sektor Riil Sebagai Acuan Pembiayaan Bagi Hasil Perbankan Syariah di Indonesia	To make the indexation of the return of the real sector using GDP and return data of employment based on maqasid al syari'ah principles	Library research, interview and indexation using laspeyres, Paasche, Fisher indices	Discovering the real sectors that meet maqasid al syari'ah principles such as processing industry, trade, retail, restaurants, hotels, agriculture, forestry, hunting and fishing
Omar et al.	2010	Islamic Pricing Benchmark	To develop an Islamic pricing benchmark model	Modeling by using CAPM and APT. Comparing between rate of return produce by the CAPM	Proposing pricing benchmark model

				model and the actual ROA and ROE	
Wiryo et al.	2011	Rate of Return of Economics Sector as Benchmark Pricing for Islamic Banking in Indonesia	To model the return of three real sectors (plantation, consumer product, and manufacture sectors) using APT	Modelling by using APT.	Finding that among three sectors, the manufacture sector yields highest return followed by the plantation sector and the consumer product
Hanif and Shaikh	2010	Central Banking and Monetary Management in Islamic Finance Environment	To investigate the equivalency between the nominal GDP growth rate and official interest rate	Statistical analysis	Proposing the nominal GDP growth rate as benchmark pricing in Islamic banking
Halid, N. and Latiff, R. A.	2012	Developing Reference Rate of Return Based on Real Sector Economy : A Case of Malaysia	To develop a benchmark return for Islamic finance based on real sector for Malaysian economy	Reviewing existing literature, using the nominal GDP growth rate and comparing it with the Malaysian overnight money market rate	Proposing the nominal GDP growth rate as an alternative measure of reference rate

CHAPTER III METHODOLOGY

The methodology used will be explained in this chapter. Figure 3.1 presents a research methodology that conducted in this research.

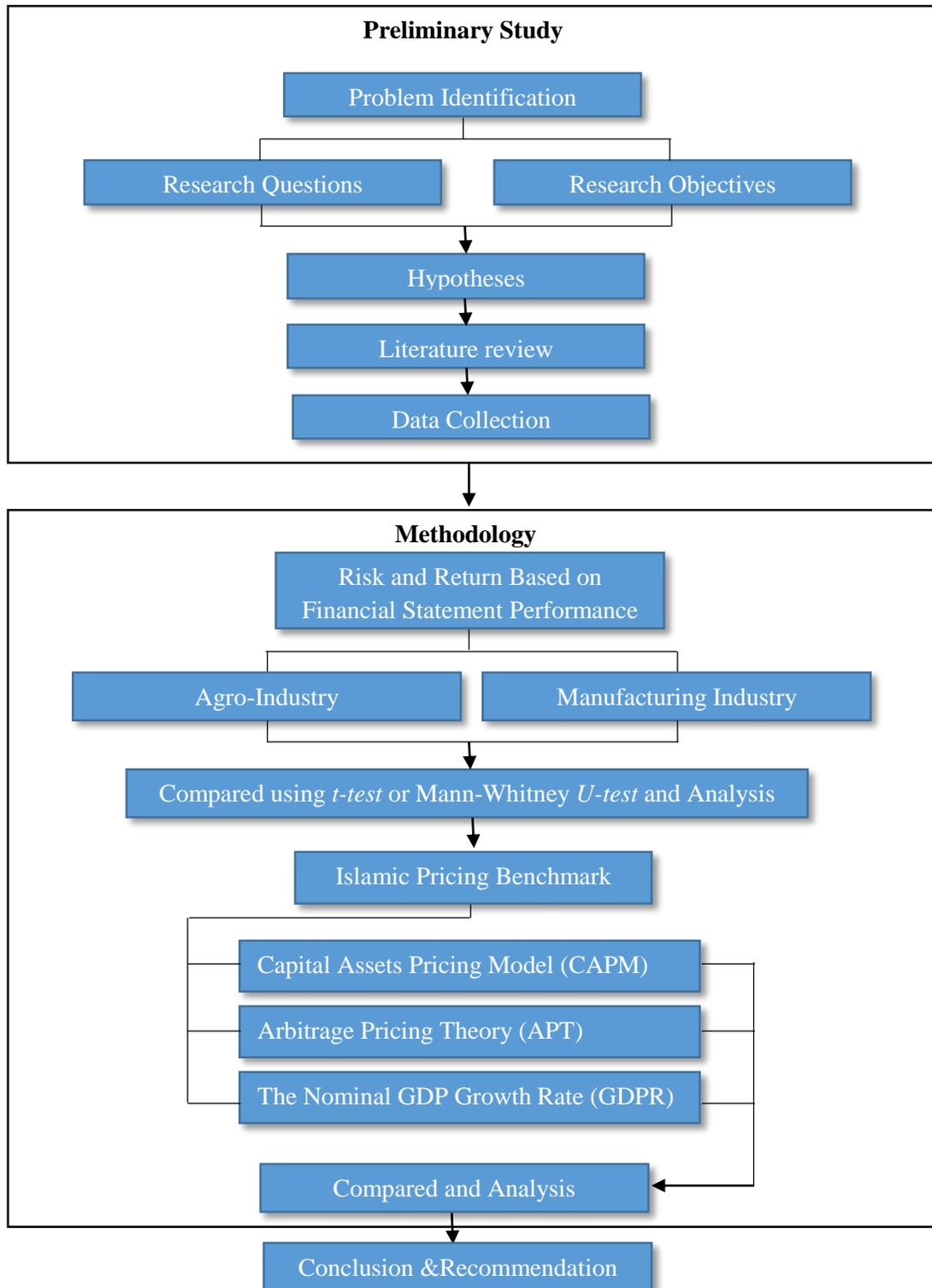


Figure 3.1. Flowchart of Research Methodology.

3.1 The Types and Sources of Data

This research uses secondary data in the form of financial statements of public companies engaged in the sectors of agro-industry and manufacturing industry in the period 2009 - 2013. The data is obtained from Bloomberg application. Other secondary data are in the form of stock return index obtained from Yahoo Finance and data of economic indicators from Bank Indonesia (BI) official web site. The companies that become the sample in this research were selected based on purposive sampling method. Sample is taken based on certain criteria, namely companies that have a complete set of financial statements in the period required and have a positive net income during the period. The sample of the research consists of 9 companies in the agro-industry sector and 29 companies in the manufacturing industry sector.

Variables that are used in this research and their definition are as follows:

- a. **Return on Assets (ROA)** is one of profitability ratios that measures a company's ability to generate profits from assets that are used. ROA measures the return earned by a company on its assets. The higher the ratio, the more income is generated by a given level of assets. This ratio is calculated using the following formula :

$$ROA = \frac{Net\ Income}{Total\ Assets}$$

- b. **Return on Equity (ROE)** is the other profitability ratio that is used to see the level of efficiency of the company in managing its equity to generate net profit of the company. ROE measures the return earned by a company on its equity capital. This ratio is calculated using the following formula :

$$ROE = \frac{Net\ Income}{Total\ Equity}$$

- c. **Operating Profit Margin (OPM)** is return on sales profitability ratio to measure the company's ability to generate profits. OPM measures operating efficiency and the percentage of profit earned from each sale of the company

before deducting interest expenses and taxes. Generally, the higher this ratio, the better the ability of the company in generating profit. This ratio is calculated using the following formula :

$$OPM = \frac{\text{Operating Income}}{\text{Revenue}}$$

- d. **Operating Leverage** is a function of the cost structure of a company. Usually it is defined in term of the relationship between fixed costs and total costs. A company that has high operating leverage will have higher variability in operating income (earnings before interest and taxes/EBIT). It is difficult to measure the operating leverage of a company because fixed and variable costs are aggregated in income statements. It is possible to get an approximate measure by looking at the changes in operating income as a function of the changes in revenue.

$$\text{Operating Leverage} = \frac{\text{The Change in Operating Income}}{\text{The Change in Revenue}}$$

- e. **Financial Leverage** is a function of the capital structure of a company. This variable consists of several ratios. In this research, financial leverage is in the form of ratio between debt and equity. The Debt is the total of short-term borrowings and long-term borrowings. The equity is the total equity. This financial leverage is associated with the financial risk of a company.

$$\text{Financial Leverage} = \frac{\text{Debt}}{\text{Equity}}$$

- f. **Business Risk** is the risk related to the company's operation. The volatility of revenue, operating income and net income become a risk that should be managed by company. In this research, business risk is in the form of coefficient of variation of net income. The business risk is calculated using the following formula:

$$\text{Business Risk} = \frac{\text{Standard deviation of net income}}{\text{Average net income}}$$

3.2 Instrument of Data Collection

In this research, the data collection related to the required data is conducted during the research. The method of data collection includes several things.

1. Documentation Study

The study of documentation is conducted by collecting data in the form of financial statements of the companies, sectoral stock indices, and economic indicators that will be the object of the research.

2. Interview

The interview is conducted to look at the practice of financing in one of the Islamic banking by asking questions directly to the corporate finance manager.

3. Literature Study

The study of literature is conducted by collecting all the literature such as books, texts, articles, journals or other written data related to the information needed.

3.3 Data Analysis

Data analysis technique that will be used in this research is the analysis of descriptive statistics and quantitative analysis with the help of software *Statistical Package for the Social Sciences* (SPSS) to perform data tabulation. Descriptive statistics is used to describe or illustrate the object observed through the data sample. This statistics is used to find out the value of mean, standard deviation, minimum and maximum values.

Quantitative analysis using *t-test* as a parametric statistical technique and using Mann-Whitney test *U-test* as a nonparametric statistical technique are used to test the comparison of the data. This test is intended to compare the two groups that are independent. The groups are company groups that engage in the agro-industry sector and the manufacturing industry sector. The variables that will be compared are variables of ROA, ROE, OPM, business risk, operating leverage, and financial leverage of the respective industry. *T-test* is used after knowing that the distribution

of the data analyzed is normal distribution. The normality test used is the normality test of Shapiro-Wilk. To use the *t-test*, the data should be normally distributed and must have the homogeneity of variance. Mann-Whitney *U-test* will be performed if the assumption of normality has not been met.

3.3.1 Normality Test

The use of parametric statistical technique works on the assumption that the data of each research variable that will be analyzed forms a normal distribution. If the data distribution is not normal, then this technique cannot be used for the analysis tool. If the data normality assumption is not met then it will affect the risk of error in making conclusion that will produce less trustworthy results or deviate from the actual situation.

Normality test used in this research employs the Shapiro-Wilk normality test. This normality test is a nonparametric statistical test to compare the cumulative probability of empirical data with theoretical normal distribution. Shapiro-Wilk test is more suitable when the sample size is relatively small ($n < 50$). The null hypothesis of this test is that the data is normally distributed, while the alternative hypothesis is that the data is not normally distributed. Decision-making is done by looking at the value of the significance level or p-value. If the p-value less than 0.05 (at the 95% confidence level) then the null hypothesis is rejected. This means that the data analyzed has a form of distribution that is not normal.

3.3.2 Homogeneity of Variance Test

Homogeneity test is used to determine whether variance of the data is homogeneous or not. In this test, Levene test is used to test the similarity of variance of some samples. The hypothesis of this test is:

$$H_0 : \sigma_1^2 = \sigma_2^2 = \dots = \sigma_k^2$$

$$H_a : \sigma_i^2 \neq \sigma_j^2 \text{ for at least one pair } (i, j)$$

Decision-making is done by looking at the value of the significance level or p-value. If the p-value less than 0.05 (at the 95% confidence level) then the null hypothesis is rejected. This means that the data analyzed has unequal variance or heterogeneous.

3.3.3 Independent Two Samples Test

Testing the hypothesis of two independent samples is to test the ability of generalization average of two samples that are not correlated. This research utilizes statistical techniques *t-test*. *T-test* is a parametric statistical hypothesis proposed and the formula in this test with pooled variance are:

$$H_0 : \mu_1 = \mu_2$$

$$H_a : \mu_1 \neq \mu_2$$

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{(n_1 - n_2)\sigma_1^2 + (n_1 - 1)\sigma_2^2}{n_1 + n_2 - 2} \left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \dots\dots\dots (1)$$

Where :

- \bar{x}_1 = mean of sample 1
- \bar{x}_2 = mean of sample 2
- n_1 = the number of sample 1
- n_2 = the number of sample 2
- σ_1^2 = variance of sample 1
- σ_2^2 = variance of sample 2

Decision-making is done by looking at the value of the significance level or p-value. If the p-value less than 0.05 (at the 95% confidence level) then the null hypothesis is rejected. This means that the variable of the two groups has significant difference.

If the assumption of normality cannot be met, then it will use Mann-Whitney *U-test* to compare differences between two independent groups. It is a nonparametric test that is used to compare two groups means. It is also used to test the null hypothesis that two samples have the same mean or median. The alternative hypothesis is one sample tend to have higher mean than the

other one. This test is used when independent two samples test using *t-test* cannot be done. Decision-making with this test is the same as the *t-test*. Mann-Whitney *U-test* doesn't assume any assumptions related to the distribution. The formula in this test is :

$$U = n_1 n_2 + \frac{n_2 (n_2 + 1)}{2} - \sum_{i=n_1+1}^{n_2} R_i \dots\dots\dots (2)$$

Where :

- U = Mann-Whitney *U-test*
- n_1 = Sample size one
- n_2 = Sample size two
- R_i = Rank of the sample size

3.3.4 Capital Assets Pricing Model (CAPM)

Capital Assets Pricing Model was firstly introduced by Sharpe (1964) and gained widespread acceptance by both academics and practitioners. CAPM is a model that describes the relationship between risk and return. The relationship between risk and return in CAPM is linear. Formula of CAPM is as follows:

$$E(R) = R_f + \beta_i (R_m - R_f) \dots\dots\dots (3)$$

Where :

- $E(R)$ = Expected return on any assets
- R_f = Risk-free rate
- R_m = Market return
- β = Beta

Beta is a representation of risk. Risk is defined as the volatility of returns leading to unexpected losses (Crouhy et al., 2006). Higher volatility indicates higher risk. In the capital market, there are two types of risk. The two types of risk are the specific risk of the stock and the market risk. Market risk is borne by all elements in the economy so that this type of risk cannot

be diversified. The specific risk is uniquely attributed to the business of company and it can be diversified away through portfolio management.

In Islamic finance, risk-free rate should not exist. But due to Indonesian banking system use the dual-banking system, interest rate is bound to be an opportunity cost through arbitrage (Omar et al., 2010). Islamic banking can use the risk-free rate in the form of Islamic Treasury Bill rates or the rate of safe sukuk offered by the government. But in this research, it will calculate the expected return without using risk-free rate.

Return used in this model is the return of sectoral stock indices (agro-industry and manufacturing industry) and return of the index of JKSE as a market return approach. Beta is calculated by regressing monthly returns of sectoral indices with monthly returns of JKSE as a proxy market return. After obtaining beta, this beta then plugged in the CAPM model. To make it easy to read and more comparable, the monthly return will be converted into annual average returns.

3.3.5 Arbitrage Pricing Theory (APT)

Arbitrage Pricing Theory (APT) was firstly developed by Stephen Ross (1976). This theory tries to predict a relationship between the return of a single assets and several macroeconomic variables. APT is an alternative for CAPM model. The model is based on the law of one price at which the same assets cannot be sold at different prices for gaining profit. In case of difference in price, then market will immediately restore the assets to equilibrium point.

APT model assumes that the return of a single assets is a linear function of various macroeconomic factors and the sensitivity of each factor is expressed by the beta coefficient of each of these factors. In APT, return of JKSE is not the market portfolio, but rather as one of the macroeconomic variables that affect the expected return on an assets.

In APT model, the expected return of an assets follows the formula :

$$E(R) = R_f + \beta_1 * (R_{factor\ 1} - R_f) + \dots + \beta_n * (R_{factor\ n} - R_f) \dots\dots (4)$$

Where :

- $E(R)$ = expected return on any assets
- R_f = Risk-free rate
- β = Beta or the assets' sensitivities to the factors
- $R_{factor\ i}$ = Return of factor i

Wiryono et al. (2011) employ principal component analysis (PCA) for obtaining the most important macroeconomic variables that affect the return of three sectors, namely plantation sector, manufacturing sector and consumer product sector. The plantation sector are dominated by agro-industry companies. This research will use the factors that previously used by them. The most important factors for agro-industry sector are the return of JKSE, the return of lending rate and the return of exchange rate, while the most important factors for manufacturing industry include all the factors in agro-industry plus the return of money supply. All of these factors are in the form of monthly data.

3.3.6 The Nominal GDP Growth Rate (GDPR)

This research will review the usage the nominal GDP growth rate as an alternative reference rate of real sector as proposed by Hanif and Shaikh (2010) and Halid and Latiff (2012). They suggest that GDPR as one of key economic indicators can reflect the real sector and the data are readily available. In this research will use annually GDPR data. It will be compared with the expected return calculated using CAPM and APT model.

CHAPTER IV RESULT AND DISCUSSION

4.1 Descriptive Statistics

In this research, the company sample consists of 9 companies engaged in agro-industry sector and 29 companies in the manufacturing sector as representation of real business that expected to become *mudharib* as partner of Islamic banking. The usage of these kind of industry sectors is based on a different nature of their raw materials but has similarity in other side of processing. Agro-industry has structural transformation from primary industry to secondary industry. The transformation in question is because there are linkages between the agricultural sector and the manufacturing sector into agro-industry (Kuncoro, 2007). List of the companies is included in the Appendix A. Agro-industry in this sample is dominated by the companies of palm oil processing into derivative products such as cooking oil, margarine and others. In addition to the processing of palm oil, other products consist of quality seeds, fertilizers and pesticide, coffee, tea, and rubber. The sample of manufacturing industry is companies belonging to the category of basic industry and chemicals. This industry includes companies that produce cement, ceramics, glass, porcelain, and other chemicals as presented in the Table 2.6 in section of literature review.

Appendix B and C show financial reports for the two industry sectors. The financial reports include income statements and balance sheets. On income statement, an average of revenue, operating income and net income of the companies engaged in agro-industry during period of the research is higher than those in manufacturing industry (except net income in year of 2013). However the number of samples of agro-industry companies is less than the number of samples of manufacturing companies. This means the samples of agro-industry companies are from big companies and the samples of manufacturing companies are from small companies.

Figure 4.1 displays the revenue of respective industry. Revenue of agro-industry is more volatile compared to manufacturing industry. From year of 2009 to 2011, the revenue of agro-industry companies is increasing in average, but start to decrease

in year of 2012 to 2013. Revenue of manufacturing industry has an increasing trend. From calculation based on Appendix C, the growth rate of revenue for this industry is 13.31% in average.

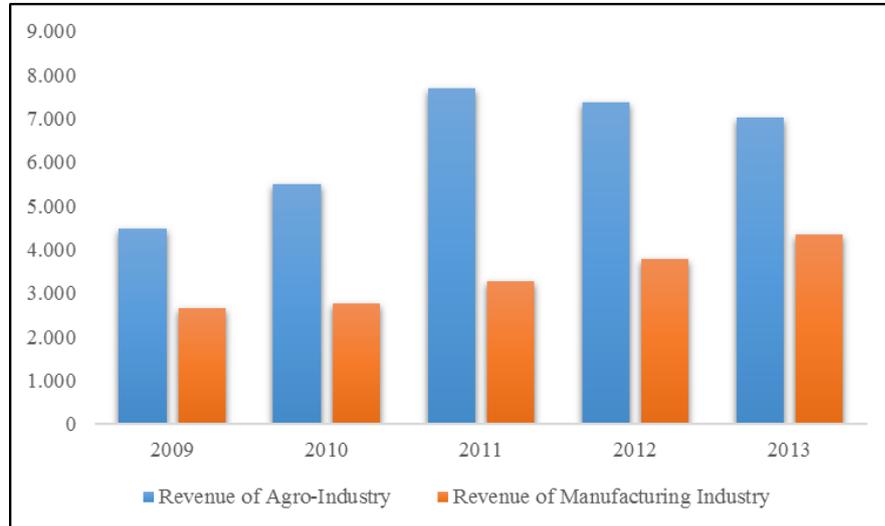


Figure 4.1. Revenue during Period 2009 – 2013 (In Billions of IDR).

Islamic banks in indonesia use revenue sharing method to calculate PLS ratio in terms of funding and lending. The profit for Islamic banks depend on the revenue generated by *mudharib* who manage the business. In channeling financing, Islamic banks should consider the fluctuation of revenue of its *mudharib*. Based on the information of revenue for both industry sectors, manufacturing industry seems more favorable than agro-industry because of its stability in revenue.

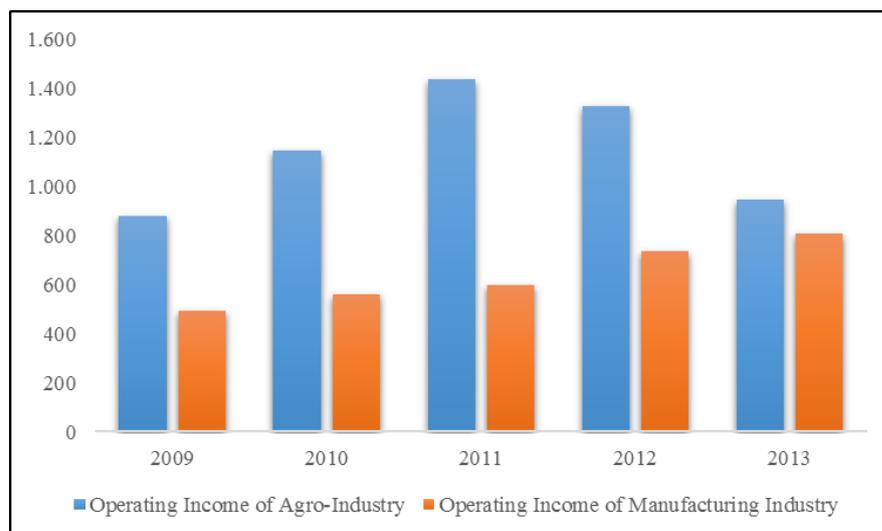


Figure 4.2. Operating Income during Period 2009 – 2013 (In Billions of IDR).

Figure 4.2 presents a comparison of operating income for both industry. The volatility and the trend of operating income is in line such as in revenue. The agro-industry is more volatile than manufacturing industry. From operating income data, it can be calculated how much cost of goods sold (COGS) and how much operating expenses issued by respective industry. On Appendix B and C, it has been calculated using term of COST for this costs and expenses. COST is calculated as percentage of revenue minus COGS and operating expenses divided by revenue. In average, agro industry uses 75.98% of its revenue for this COST and manufacturing industry uses 87.61% of its revenue. It can be concluded that manufacturing industry companies need more COGS and operating expenses for each revenue generated than in agro-industry. This difference can be caused of the nature of raw materials needed by each industry or because of expenditures in operations. Operating income can be utilized to calculate operating profit margin (OPM).

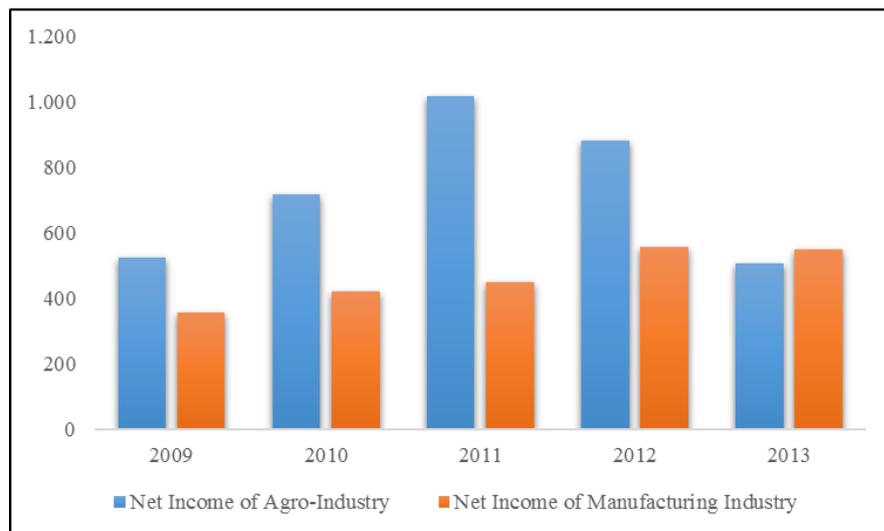


Figure 4.3. Net Income during period 2009 – 2013 (In Billions of IDR).

Figure 4.3 presents a comparison of net income. Similar to the volatility of revenue and operating income, agro-industry sector is more volatile than manufacturing industry. The net income trend of manufacturing industry during the period is still increasing but it decreases a little in year of 2013. In this year, manufacturing industry in average can compete the net income of agro-industry. Through net income, Islamic banking can calculate ROA dan ROE as a return on investment in real business.

Balance sheet information can be a tool analysis providing insight of companies' liquidity and solvency. Liquidity refers to companies' ability to meet their short-term obligation. Assessments of liquidity focus on companies' ability to convert assets to cash and to pay for operating needs. Solvency refers to companies' ability to meet their financial obligations over the longer term. Assessment of solvency focus on the companies' financial structure and their ability to pay long-term financing obligations. Solvency ratios consist of long-term debt to equity, debt to equity, debt to assets and assets to equity. All of solvency ratios indicates financial risk and financial leverage. This ratios depend on the capital structure policy of the company.

Islamic bank as *shahibul mal* who has capital need a profit after channeling financing to a company. An equity based financing can be used *mudharaba* contract or *musharaka* contract. Profit of Islamic banks is determined by using PLS ratio. This ratio is specified at the beginning of cooperation agreement. This ratio reflects a return. In *mudharaba* contract, the company gets return for its business while Islamic bank gets return on capital investment. In *musharaka* contract, the return will be distributed based on the proportion of the capital of both parties. Most business that Islamic bank choose to invest have some exposure of risk. Financial theory and common sense reveal that investment which is riskier need to make a higher return to compensate the risk.

In terms of return, the reseach will use profitability ratios such as return on investment and return on sales. Return on investment consists of ROA and ROE while return on sales used is OPM. The profitability ratios refers to companies' ability to generate profit on capital invested. This ability is a key determinant of a companies' overall value and the value of the securities it issues. Return on investment profitability ratios measure net income relative to assets and equity. Omar et al. (2010) use these variables of ROA, ROE and OPM as a reference return of real sector and then compare these returns to the expected return calculated on their model.

In terms of risk, Damodaran (2002) is divided the risk of a company into three variables. The first one is the type of business, the second one is the degree of operating leverage in the company and the third one is the company's financial leverage. This research uses the ratios of business risk, operating leverage and financial leverage suggested by Damodaran. Business risk can be measured using coefficient of variation of operating income, net income, or revenues. In this research, it will be used coefficient of net income. The degree of operating leverage will be calculated using the change in operating income relative to the change in revenue. Financial leverage ratio that will be used is debt to equity ratio. Debt here includes short-term debts and long-term debts.

This research will analyze in advance several variables related to the risk and the return mentioned above. Variables used come from a calculation of the ratio of the income statement and balance sheet of all companies engaged in both industry sectors. All variables are calculated by averaging each sample of company during 5 years of research period (Appendix D). Based on the tabulation of descriptive statistics, all variables that will be analyzed can be explained in Table 4.1 as below.

Table 4.1. Descriptive Statistics of Variables.

Descriptives									
Variables		N	Mean	Std. Deviation	Std. Error	95% Confidence		Minimum	Maximum
						Lower Bound	Upper Bound		
ROA	Agro Industry	9	9,88%	0,0498	0,0166	0,0605	0,1371	4,57%	19,98%
	Manufacturing Industry	29	10,40%	0,0679	0,0126	0,0782	0,1298	1,41%	25,70%
ROE	Agro Industry	9	16,28%	0,0511	0,0170	0,1235	0,2020	8,60%	24,94%
	Manufacturing Industry	29	17,70%	0,1172	0,0218	0,1324	0,2216	2,47%	51,08%
OPM	Agro Industry	9	24,02%	0,1100	0,0367	0,1557	0,3248	8,77%	44,81%
	Manufacturing Industry	29	12,39%	0,0802	0,0149	0,0934	0,1544	0,87%	33,60%
Business Risk	Agro Industry	9	0,40	0,1435	0,0478	0,2917	0,5122	0,17	0,56
	Manufacturing Industry	29	0,46	0,2737	0,0508	0,3565	0,5648	0,11	1,06
Operating Leverage	Agro Industry	9	0,33	0,8530	0,2843	-0,3246	0,9868	-0,56	2,40
	Manufacturing Industry	29	0,72	1,9042	0,3536	-0,0064	1,4422	-0,85	9,55
Financial Leverage	Agro Industry	9	0,56	0,5144	0,1715	0,1686	0,9595	0,01	1,33
	Manufacturing Industry	29	0,48	0,5726	0,1063	0,2597	0,6954	0,00	2,09

Based on Table 4.1, it can be concluded that in average, the ROA and ROE in the manufacturing industry are higher than in the agro industry during period 2009 - 2013. But the different values are not too much. The values of ROA of agro-industry

and manufacturing industry are respectively 9.88% and 10.40%, while the value of ROE for respective industry are 16.28% and 17.70%. Figure 4.4 displays the comparison of ROA between agro-industry and manufacturing industry during research period.

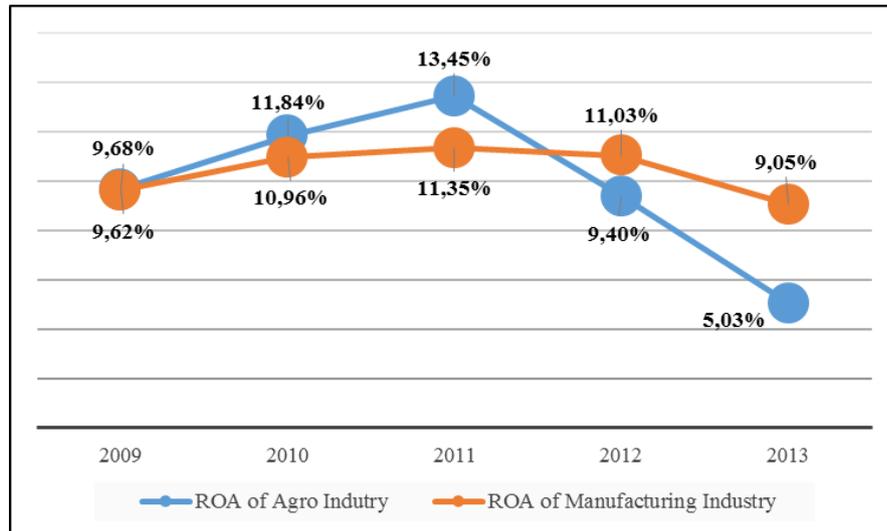


Figure 4.4. Return on Assets during period 2009 – 2013.

One of widely accepted measure of risk is volatility of the return. The return varies during the period of time and it can be seen in its standard deviation of return. However, in average, the agro-industry has a higher standard deviation than in the manufacturing industry (Appendix E). The higher the standard deviation, the higher will be its variance. Thus the ROA is more diverse in agro-industry. This diversity can be seen from the minimum and maximum values in both the industry sector. It is also clearly shown in the Figure 4.4 that the agro-industry is more volatile compared to manufacturing industry. ROA in manufacturing industry seems more stable but if it is viewed more details, this return shows a downward trend during period of 2011 – 2013.

Figure 4.5 presents ROE and tell us the same conclusion regarding the volatility of this return. Agro-industry is more volatile compared to manufacturing industry, but manufacturing industry shows a downward trend during period of 2011 – 2013. From Table 4.1 it is seen that standard deviation of ROA and ROE for companies engaged in manufacturing industry are higher than those in agro-industry. It means

that companies engaged in manufacturing industry are more diverse than those in agro-industry in terms of their ROA and ROE.

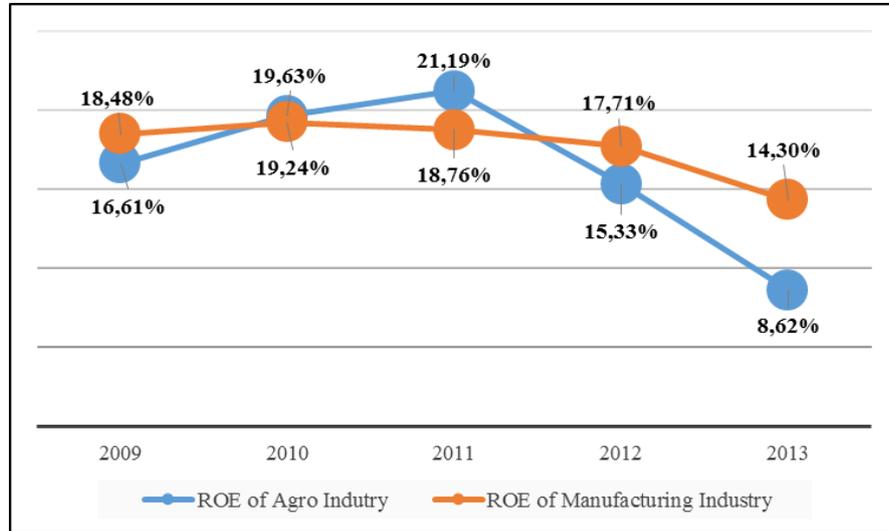


Figure 4.5. Return on Equity during period 2009 – 2013.

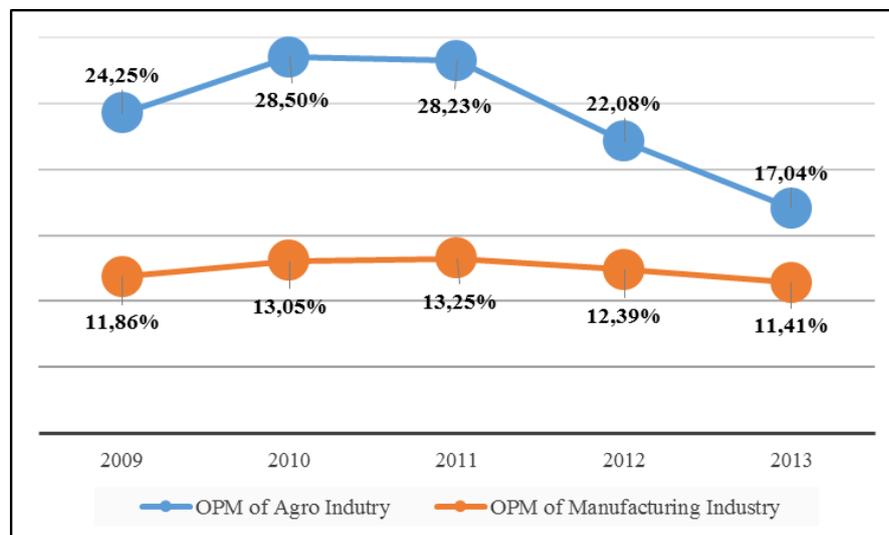


Figure 4.6. Operating Profit Margin during period 2009 – 2013.

Although the ROA and ROE in average are higher, the manufacturing industry appears to have lower OPM than in the agro industry. It can be seen from Figure 4.6 that shows OPM during research period. The manufacturing industry has OPM of 12.39% in average while the agro-industry has much higher at 24.02% in

average. It means that companies engaged in the manufacturing industry have higher COGS and Operating expenses compared to it in the agro industry. It is mentioned previously in the explanation of Figure 4.2 about the comparison of operating income. Even though OPM of agro-industry is higher, but its variance is much greater than OPM in manufacturing industry (Appendix E). Larger variance causes the agro-industry more volatile.

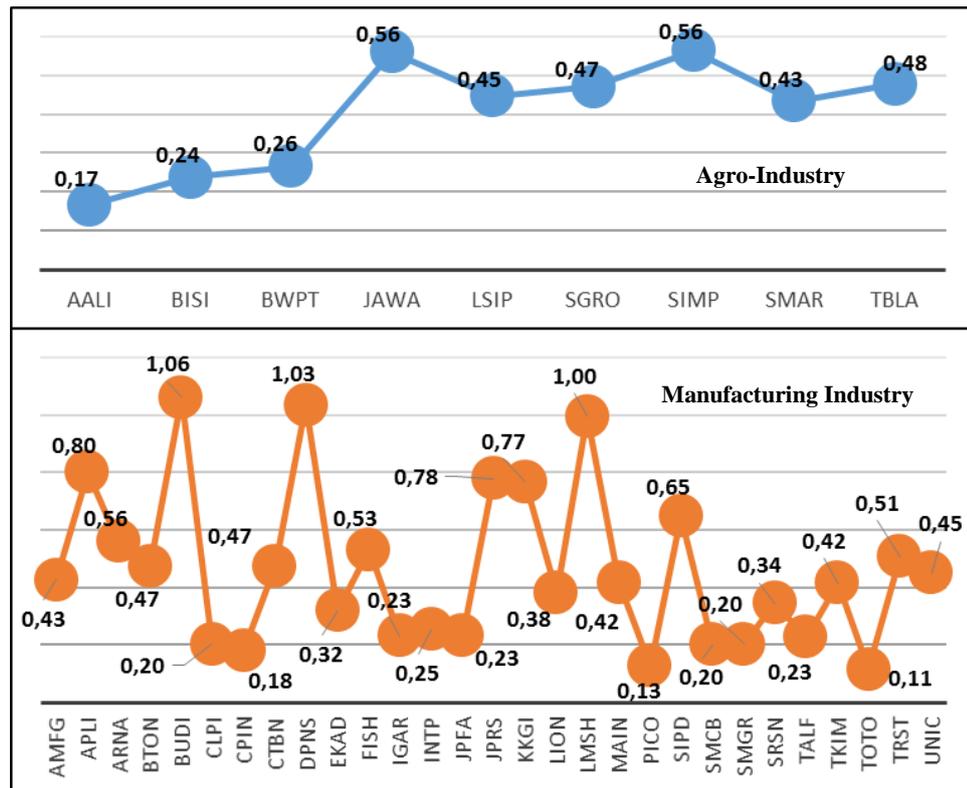


Figure 4.7. Business Risk during 5 years.

On business risk variable, it can be seen the variability of net income. Table 4.1 presents business risk during research period. Business risk is calculated by using variability of net income of each company in respective industry during 5 years. In average, the manufacturing industry has a higher ratio of business risk than in agro industry. The ratio of business risk for the manufacturing industry is 0.46 while the ratio for agro industry is 0.40. It doesn't look much different. Based on standard deviation presented on Table 4.1, across companies in manufacturing industry, it looks more diverse than in the agro industry. Islamic banks should consider to this concern. Investing in manufacturing industry seems riskier than in agro-industry in

terms of its business risk. Figure 4.7 displays business risk ratio of each company for respective industry.

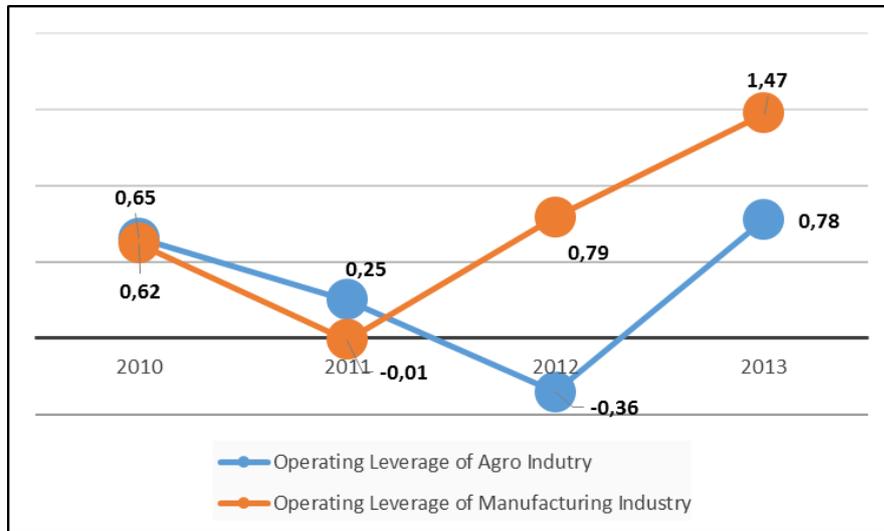


Figure 4.8. Operating Leverage during period 2009 – 2013.

Manufacturing industry has an operating leverage ratio of 0.72 in average. This ratio is much higher than the operating leverage ratio in agro industry which is only at 0.33. Operating leverage results from the use of fixed costs in conducting the company's business. It seems that manufacturing industry has higher fixed cost rather than variable cost. A higher operating leverage can create a higher variability in earnings before interest and taxes (EBIT). Figure 4.8 displays operating leverage ratio during research period.

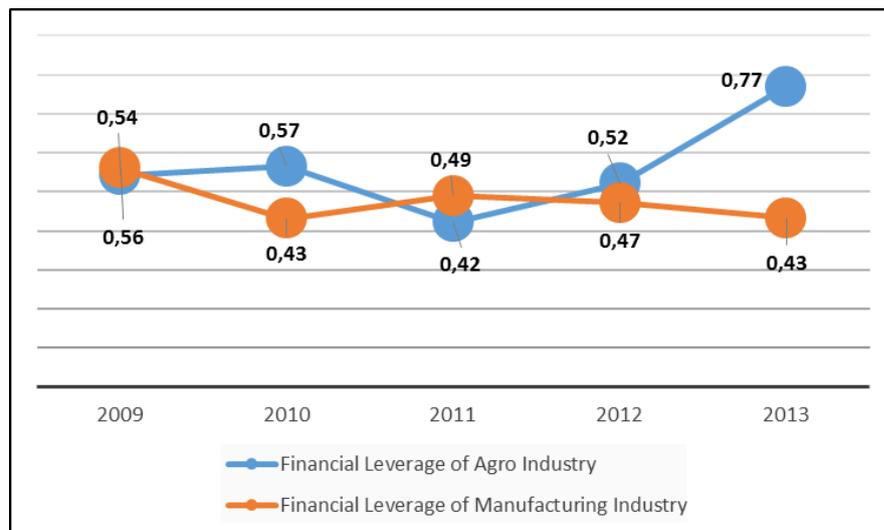


Figure 4.9. Financial Leverage during period 2009 – 2013.

On financial leverage variable, the respective industry appears not so differ. The ratios in average are 0.56 for the agro-industry and 0.48 for the manufacturing industry. Financial leverage shows the capital structure of the industry. A ratio of 1.00 would indicate equal amounts of debt and equity. This means that a company use 50% of debt and 50% of equity. Based on the Table 4.1, the agro-industry uses more debt compared to the manufacturing industry. A company that uses more debt in its capital structure tends to have higher risk.

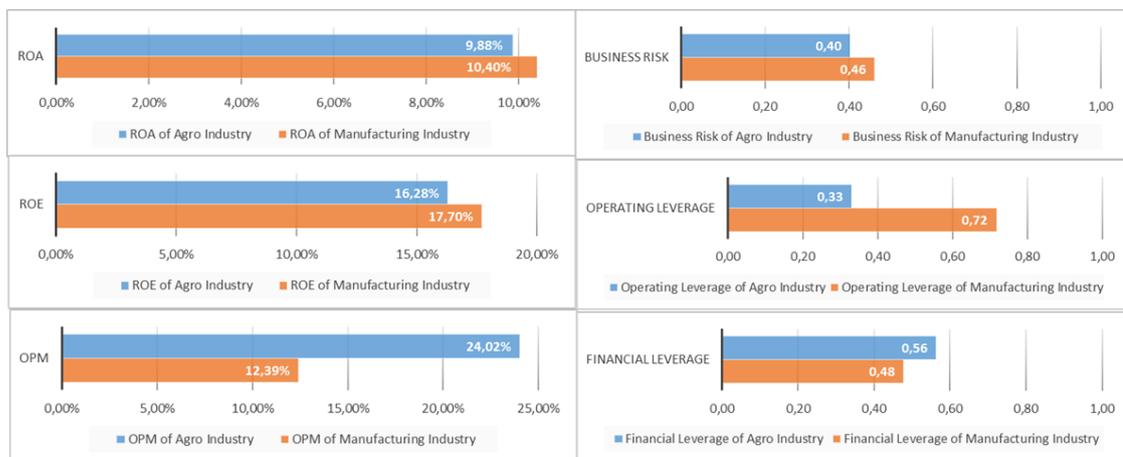


Figure 4.10. Risk and Return of Agro-Industry and Manufacturing Industry.

Figure 4.10 shows the summary of the differences both in terms of return and in terms of risk. All variables that are analyzed, when viewed descriptively, look like different. However, it must be tested statistically to take a more valid conclusions whether these variables are significantly different. For this reason, it will be utilized the analysis using independent sample *t-test* or using Mann-Whitney *U-test* if the assumption of normality cannot be met. Before performing the tests, the data distribution and homogeneity of variance will be firstly analyzed.

4.2 Data Analysis

4.2.1 Normality Test

This kind of normality test is used because the sample size is relatively small ($n < 50$). In this test it will be used the 95% confidence level so that 0.05 becomes alpha level selected. Significance level or p-value of variables

will be compared using this alpha level. Table 4.2 shows the result for normality test.

Table 4.2. Tests of Normality of Variables.

Tests of Normality				
Variables		Shapiro-Wilk		
		Statistic	df	Sig.
ROA	Agro Industry	0,879	9	0,153
	Manufacturing Industry	0,931	29	0,059
ROE	Agro Industry	0,967	9	0,865
	Manufacturing Industry	0,912	29	0,019
OPM	Agro Industry	0,953	9	0,718
	Manufacturing Industry	0,926	29	0,042
Business Risk	Agro Industry	0,889	9	0,196
	Manufacturing Industry	0,904	29	0,012
Operating Leverage	Agro Industry	0,777	9	0,011
	Manufacturing Industry	0,485	29	0,000
Financial Leverage	Agro Industry	0,892	9	0,208
	Manufacturing Industry	0,795	29	0,000

From the result of normality test, it can be seen that variable of ROA for both industry sectors has p-value greater than alpha level of 0.05. Then the null hypothesis cannot be rejected. It means there is evidence that the data tested from this variable are not different from a normally distributed population.

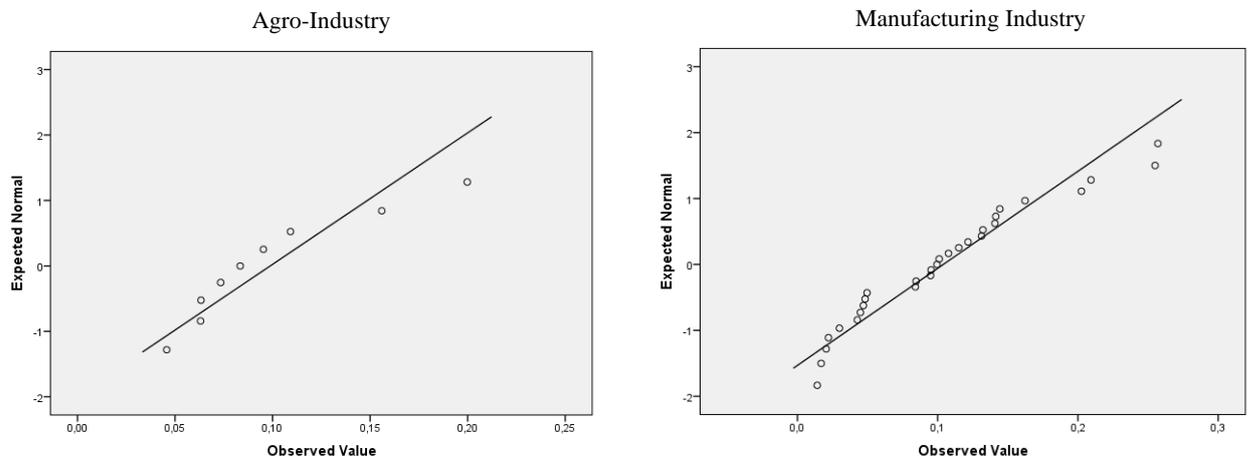


Figure 4.11. Q-Q Plot of ROA.

Figure 4.11 displays Q-Q plot to see the distribution of ROA. This figure gives more explanation of data distribution. From result of normality test using Shapiro-Wilk, it is shown that the data are not different from normal distribution. But if it is seen in graph on Figure 4.11, actually the distribution of data are different from normal distribution. It is because the data (represented as dots) do not stick in the straight line. The straight line on the graph illustrates the ideal position of the data that follow normal distribution. But this form of data distribution is still tolerated by statistical analysis thus p-value is still greater than alpha level.

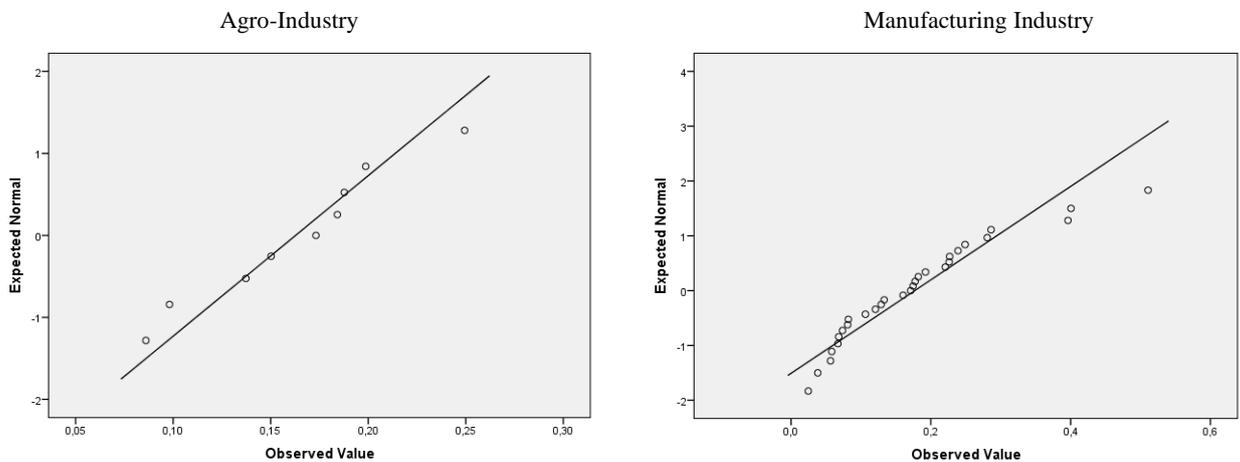


Figure 4.12. Q-Q Plot of ROE.

ROE of agro-industry has p-value greater than alpha level but in manufacturing industry, p-value of ROE is lesser than alpha level of 0.05. This means ROE of agro-industry is not different from a normal distribution while ROE of manufacturing industry is different from a normal distribution. Figure 4.12 presents Q-Q plot of ROE.

P-values of operating leverage of both industry sectors are lesser than alpha level of 0.05 then the null hypothesis can be rejected. It means there is evidence that the data tested from this variable are different from a normal distribution or it comes from not normal distribution. Figure 4.13 displays Q-Q plot of operating leverage. From the graph on that figure, it is clearly seen that data of operating leverage doesn't follow straight line (especially

in manufacturing industry). The Q-Q plot of other variables in this research is on Appendix F. Table 4.3 presents a summary of the normality test result.

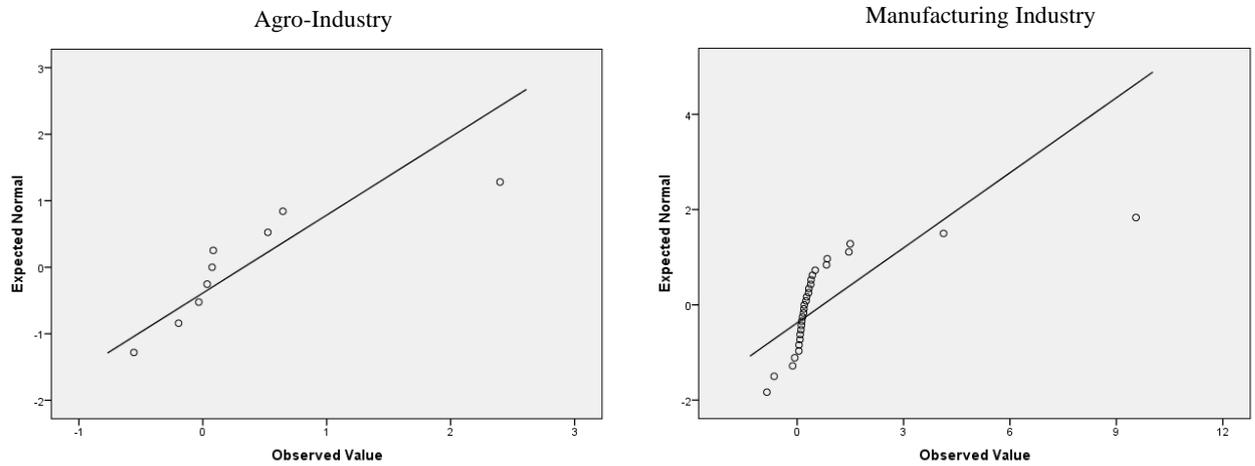


Figure 4.13. Q-Q Plot of Operating Leverage.

Table 4.3. Summary of the Normality Test Result.

Summary of the Normality Test Result			
Variables		Shapiro-Wilk	
		Sig.	Distribution
ROA	Agro Industry	0,153	Normal
	Manufacturing Industry	0,059	Normal
ROE	Agro Industry	0,865	Normal
	Manufacturing Industry	0,019	Not Normal
OPM	Agro Industry	0,718	Normal
	Manufacturing Industry	0,042	Not Normal
Business Risk	Agro Industry	0,196	Normal
	Manufacturing Industry	0,012	Not Normal
Operating Leverage	Agro Industry	0,011	Not Normal
	Manufacturing Industry	0,000	Not Normal
Financial Leverage	Agro Industry	0,208	Normal
	Manufacturing Industry	0,000	Not Normal

4.2.2 Homogeneity of Variance Test

Table 4.4 presents the result of Levene test for equality of variances. Equal variances across samples is called homogeneity of variances. Homogeneity

of variances assumption is met if the value of significance level of the Levene test is above the alpha level. This test is required before performing the *t-test* because the result of the *t-test* will differ between the two groups that have the equal variances and two groups that do not have equal variances.

Table 4.4. Tests of Homogeneity of Variances of Variables.

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
ROA	1,087	1	36	0,304
ROE	3,628	1	36	0,065
OPM	1,689	1	36	0,202
Business Risk	2,773	1	36	0,105
Operating Leverage	0,493	1	36	0,487
Financial Leverage	0,012	1	36	0,913

From the table above, the p-values of all variables show greater than alpha level of 0.05, thus the null hypothesis cannot be rejected. There is evidence that the data tested have similar variance.

4.2.3 Independent Two Samples Test

Table 4.5. Independent Samples Test of Variables.

Independent Samples Test										
Variables		Levene's Test		<i>t-test</i> for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
ROA	Equal variances assumed	1,087	0,304	-0,211	36	0,834	-0,52%	0,0245	-0,0550	0,0446
	Equal variances not assumed			-0,249	18,174	0,806	-0,52%	0,0208	-0,0489	0,0386

Independent two samples test using *t-test* is done after knowing the variable of ROA has no difference from a normal distribution and knowing the assumption of the variance equality across the groups. Table 4.5 presents the result of *t-test*. It will be viewed the result on the first row when equal variances assumed. According to *t-test* results in the table above, the p-

values for the variable ROA is 0.834 (equal variances assumed). This value is greater than alpha level. Thus the null hypothesis cannot be rejected. ROA between agro-industry and manufacturing industry has no significant differences based on statistical analysis.

To analyze other variables, it is employed Mann-Whitney *U*-test because one of the the group or both of them in each variable do not meet the requirement of normality assumption. This test works by ranking the data for each group, and then comparing the difference of the two mean ranks and the two rank totals. If there is a systematic difference between two groups then most of the the high ranks will belong to one group and most of the low ranks will belong to the other one.

Table 4.6. Ranks Table.

Ranks				
Variables		N	Mean Rank	Sum of Ranks
ROE	Agro Industry	9	20,33	183,00
	Manufacturing Industry	29	19,24	558,00
OPM	Agro Industry	9	28,33	255,00
	Manufacturing Industry	29	16,76	486,00
Business Risk	Agro Industry	9	19,67	177,00
	Manufacturing Industry	29	19,45	564,00
Operating Leverage	Agro Industry	9	15,89	143,00
	Manufacturing Industry	29	20,62	598,00
Financial Leverage	Agro Industry	9	22,11	199,00
	Manufacturing Industry	29	18,69	542,00

Table 4.6 presents ranks table that shows the output of the actual Mann-Whitney *U*-test. From the table, it shows mean rank and sum of ranks for two groups that will be tested. The group with the lowest mean rank is the group that have the greatest number of lower score in it and the group with the highest mean rank have greater number of high scores in it. Ranks table tell us agro-industry has a higher ROE, OPM, business risk and financial leverage compared to manufacturing industry but it has lower operating leverage. To see whether this differences have statistically significance different, it will be shown on test statistics on Table 4.7.

Table 4.7. Mann-Whitney *U*-test.

Test Statistics					
	ROE	OPM	Business Risk	Operating Leverage	Financial Leverage
Mann-Whitney U	123,000	51,000	129,000	98,000	107,000
Asymp. Sig. (2-tailed)	0,797	0,006	0,959	0,264	0,419
Exact Sig. [2*(1-tailed Sig.)]	0,813	0,005	0,973	0,277	0,436

Table 4.7 presents Mann-Whitney *U*-test result of test statistics. The test statistics provides *U* statistic, the asymptotic significance (2-tailed) p-value and the exact significance. Because the size of samples are less than 50 (not large sample), it will be viewed the result from exact significance to be more accurate. According to the results, p-value of ROE is greater than alpha level. Thus the null hypothesis cannot be rejected. ROE between agro-industry and manufacturing industry has no significant difference based on statistical analysis. In contrast to the results for ROE, variable of OPM has a p-value of 0.005 thus OPM for both types of industry sectors has significant difference based on statistical analysis.

P-values for the variable of business risk, operating leverage and financial leverage also show a greater value than the alpha level. P-value of business risk, operating leverage and financial leverage are equal to 0.973, 0,277 and 0,436 respectively. Because p-values of these variables also show a greater value than the alpha level, thus the null hypothesis cannot also be rejected. Business risk, operating leverage and financial leverage for both kind of industry sectors have no significant differences based on statistical analysis.

Overall, Based on the result of *t*-test and Mann-Whitney *U*-test, in terms of return, ROA and ROE for both industry sectors are not different, but OPM for both industry sectors is different. In terms of risk, both of industry sectors have no different in business risk, operating leverage and financial leverage.

Eventhough based on statistical analysis some variables are not significant different, but they are different based on descriptive analysis shown on Tabel 4.1 and Table 4.6 and from Figure 4.1 until Figure 4.10. A summary for the risk and return during the period can be used in making decision by Islamic banking. The summary is presented in Table 4.8. Islamic banking should consider this finding before channeling the capital to the *mudharib* enganging in these two industry sectors.

Table 4.8. Summary of Variables.

Variables	Agro-Industry	Manufacturing Industry
Revenue	Higher, more volatile	Lower, more stable, and upward trend during 2009 - 2013
Operating Income	Higher, more volatile	Lower, more stable, and upward trend
Net Income	Higher (except in year 2013), more Volatile	More stable, and upward trend (Except in year 2013)
ROA	Slightly lower, more volatile	Higher, more stable
ROE	Slightly lower, but dominated by higher scores, more volatile	Slightly higher, but dominated by lower scores, more stable but downward trend
OPM	Higher, more volatile	Lower, more stable
Business Risk	Slightly lower, but dominated by higher scores	Slightly higher but dominated by lower scores
Operating Leverage	Lower	Higher
Financial Leverage	Higher	Lower

Agro-industry sector is more volatile than manufacturing industry in terms of return. That is why in average, the ROA and ROE of this industry sector is lower than manufacturing industry. Based on the above information, agro-industry is more appropriate to use *musharaka* contract because of its volatility in return and manufacturing industry is suitable to use *mudharaba* contract because of its stability in return.

4.2.4 Islamic Pricing Benchmark

This research will compare the Islamic pricing benchmark proposed by Omar et al. (2010), Hanif and Shaikh (2010), Wiryono et al. (2011), and Halid and Latiff (2012). Omar et al. propose CAPM and APT approach to estimate the pricing benchmark, while Wiryono et al. propose APT and the others propose the nominal GDP growth rate as reference rate. Asset pricing benchmark and reference rate here is closely related to the expected return on the financing. In PLS based financing, the expected return is needed before determining the PLS ratio for the bank and *mudharib*. PLS ratio for Islamic banking is obtained by dividing the expected profit against the projected revenue of *mudharib* for period of financing. This expected profit is calculated by multiply the expected return with the Islamic banking's initial capital investment. Determination of the expected return is expected to be different for different industry sectors. This is due to the different characteristics of the business which is attached to each industry.

A. Capital Assets Pricing Model (CAPM)

This research will use stock index returns as representative return of two industry sectors. Figure 4.14 displays the movement of stock index prices for JKSE, agro-industry (AGRI) and manufacturing industry (MANU) based on the information of the prices on Appendix G. In CAPM model, the expected return should capture the market risk and the perceived unique risk by each type of industry sectors.

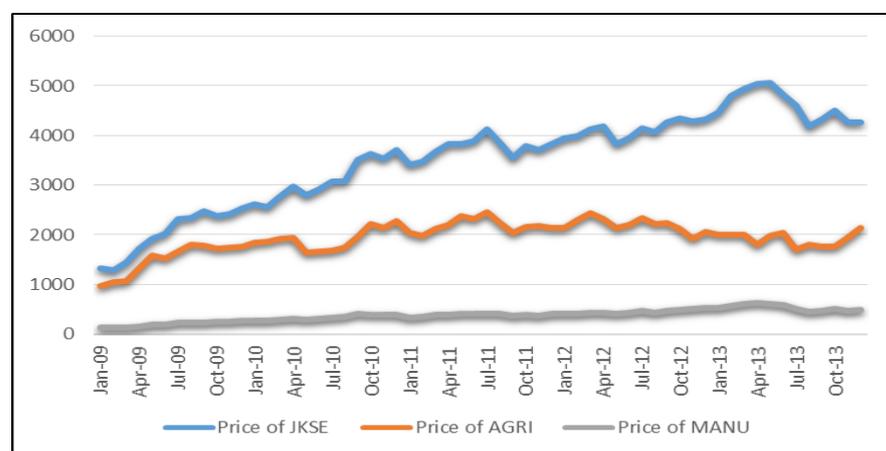


Figure 4.14. The Movements of Stock Index Prices.

In order to calculate the expected return using CAPM model, the stock index prices will be converted to stock index return (Appendix H). By regressing the sectoral index returns against the JKSE return as a proxy of market, it will get beta represented by the slope of the regression line. The summary of two models are presented in Tabel 4.9. On the table, it is shown constanta (C), coefficient of beta (β), the significance of the model (F Statistic and its significance) and goodness of fit of the model (R-square).

Table 4.9. Summary of Two Models Using CAPM.

CAPM		
Variables	Agro-Industry	Manufacturing Industry
C	0,002	0,003
β	0,730	1,011
F-Statistic	26,395	148,013
Sig. F	0,000	0,000
R square	0,313	0,718

The equation for the expected return of agro-industry and manufacturing industry are as follows :

$$R_{AGRI} = 0,002 + 0,730R_{JKSE}$$

$$R_{MANU} = 0,003 + 1,011R_{JKSE}$$

Manufacturing industry has higher beta than beta in agro-industry. A beta of one indicates that a stock price will move with the market. Manufacturing industry stock price seems more volatile than the market because of having beta greater than one.

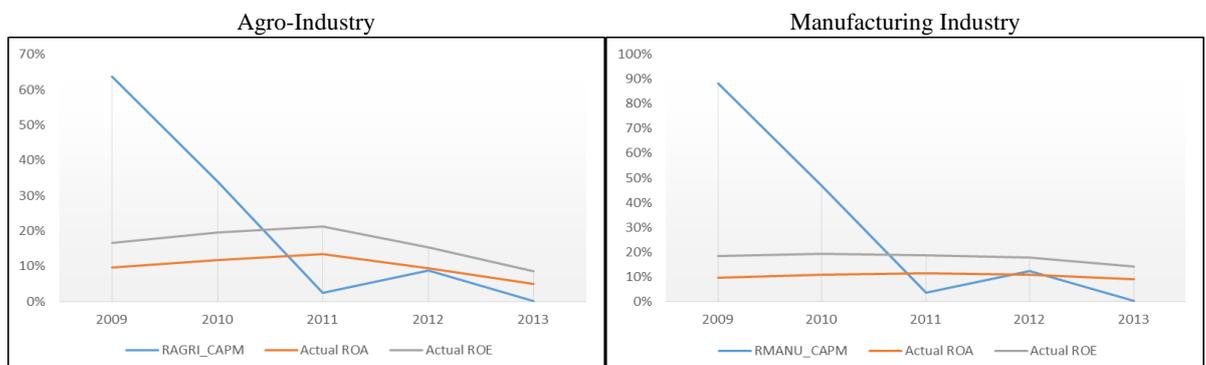


Figure 4.15. The Comparison between the Expected returns of Two Sectoral Indices Using

Overall, the market return as independent variable has significant effect to two sectoral index returns as dependent variables. It is shown by F-statistic and its significance that is less than alpha level of 0.05. R-square is coefficient of determination that indicates how well the regression line approximates to the real data. CAPM for manufacturing industry model gives more better model fit than in agro-industry model. For both models based on the information on Appendix I, there is no autocorrelation and multicollinearity in regression models.

Figure 4.15 displays the comparison between the expected return of two sectoral indices using CAPM approach and actual ROA and ROE. These actual return is return on investment. The financial performance of industry can be depicted by these kind of returns. The expected returns based on stock index returns calculated using CAPM are very different from the actual ROA and ROE for both industry sectors and they are shown more volatile.

B. Arbitrage Pricing Theory (APT)

In APT model, the return of JKSE will be used as one factor that effect the expected return. This research will use the important macroeconomic variables that employed by Wiryono et al. (2011). The data of economic indicators and their returns are presented on Appendix G and Appendix H. The most important factors for agro-industry sector are the return of JKSE, the return of lending rate (LR) and the return of exchange rate (ER), while the most important factors for manufacturing industry include all the factors in agro-industry plus the return of money supply (M2). All of these factors are in the form of monthly data.

By regressing the sectoral index returns against all factors, it will get respective beta of each factor. The summary of two models are presented on Tabel 4.10. On the table, it is shown constanta (C), coefficient of return JKSE (β_1), coefficient of return lending rate (β_2), coefficient of return

exchange rate (β_3), coefficient of return money supply (β_4), the significance of the model (F Statistic and its significance) and goodness of fit of the model (R-square).

Table 4.10. Summary of Two Models Using APT.

APT		
Variables	Agro-Industry	Manufacturing Industry
C	-0,008	0,005
β_1	1,055	0,839
β_2	-0,103	0,093
β_3	1,049	-0,576
β_4		0,271
F-Statistic	10,947	39,314
Sig. F	0,000	0,000
R square	0,370	0,741

The equation for the expected return of agro-industry and manufacturing industry are as follows :

$$R_{AGRI} = -0,008 + 1,055R_{JKSE} - 0,103R_{LR} + 1,049R_{ER}$$

$$R_{MANU} = 0,005 + 0,839R_{JKSE} + 0,093R_{LR} - 0,576R_{ER} + 0,271R_{M2}$$

Overall, all independent variables have significant effect for two sectoral index returns as dependent variables. It is shown by F-statistic and its significance that is less than alpha level of 0.05. R-square for manufacturing industry is higher than R-square for agro-industry. The same as in CAPM model, in APT model gives more better model fit for manufacturing industry than for agro-industry. For both models based on the information on Appendix I, there is no autocorrelation and multicollinearity in regression models. Comparing between R-square using CAPM and R-square using APT model, APT model gives slightly higher R-square than CAPM model.

Figure 4.16 displays the comparison between the expected returns of two sectoral indices using APT model approach and actual ROA and ROE. In contrast to the finding of Omar et al. (2010), the expected returns based on

stock index returns calculated using APT are also very different from the actual ROA and ROE for both industry sectors.

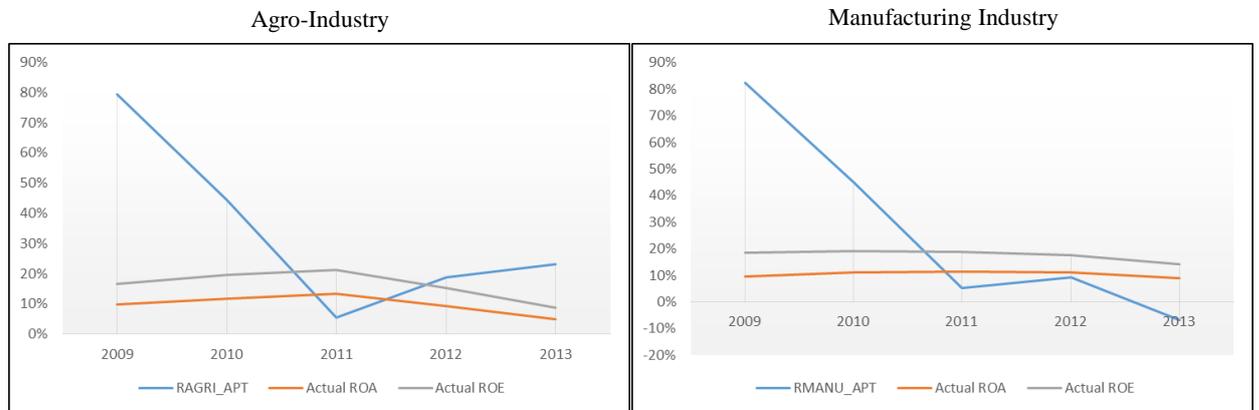


Figure 4.16. The Comparison between the Expected returns of Two Sectoral Indices Using APT and Actual ROA & ROE

The stock index returns in year 2009 is very far away from the actual returns. The stock index returns seem very volatile compared to actual returns of industry sectors. It can be concluded that Indonesian capital market performance is significantly different from the real economy. Therefore, Islamic banks in Indonesia should not use stock index returns for estimating the reference rate.

C. The Nominal GDP Growth Rate (GDPR)

As proposed by Hanif and Shaikh (2010) and Halid and Latiff (2012), the nominal GDP growth rate (GDPR) will be reviewed and will be compared with the actual ROA and ROE each sector the difference. In order to show the reference rate of each sector, GDPR used is based on industry sectors and it is one of the key indicators in economy that reflects real sectors. Appendix J presents GDPR for two industry sectors.

Figure 4.17 presents the comparison between GDPR and actual ROA and ROE. In manufacturing industry, GDPR closely aligned to actual ROA but it is slightly more volatile. GDPR in agro-industry lies between actual ROA and ROE except in year 2011 and 2012 (under actual returns). Comparing among the expected returns calculated using two model approaches (CAPM

and APT) and GDPR, it seems GDPR is more stable and more closely to the actual returns.

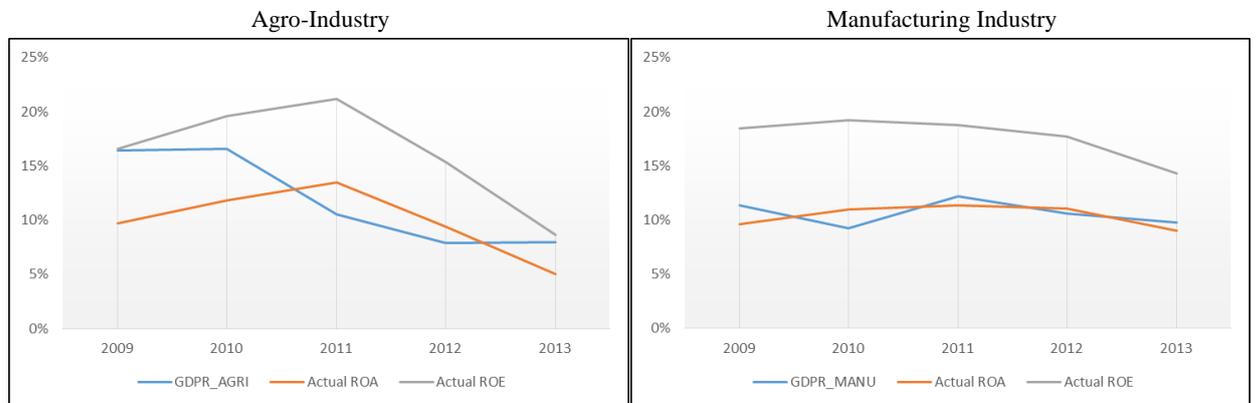


Figure 4.17. The Comparison between the Nominal GDP Growth Rate and Actual ROA & ROE.

CHAPTER V CONCLUSION

5.1 Summary

From the data analysis in the result and discussion, the summary of this research according to the research questions are as follow :

1. Are there any differences in return between companies engaged in the agro-industrial sector and companies engaged in the manufacturing industrial sector that are shown on the profitability ratios such as Return on Assets (ROA), Return on Equity (ROE) and Operating Profit Margin (OPM)?

Based descriptive analysis, both industry sectors have difference in terms of returns. Manufacturing industry has slightly higher returns in ROA and ROE but it has OPM much lower than that in agro-industry. Eventhough agro-industry has slightly lower returns in ROA and ROE, the returns tends more volatile than in manufacturing industry. Based on *t-test* and Mann-Whitney *U-test*, there is significant difference in terms of OPM, but it has no significant difERENCE in terms of ROA and ROE.

2. Are there any differences in operating risk, financial risk, and business risk between companies engaged in the agro-industrial sector and companies engaged in the manufacturing industrial sector that is shown at a ratio of operating leverage, financial leverage and business risk?

Based on descriptive analysis, both industry sectors have difference in terms of risk. Manufacturing industry has slightly higher in business risk and much higher risk in operating leverage, but it has lower risk in financial leverage than those in agro-industry. Based on *t-test* and Mann-Whitney *U-test*, in terms of risk including business risk, operating leverage and financial leverage, the two industry sectors have no significant difference.

3. Which is better to be used as Islamic pricing benchmark among the expected returns that are calculated using CAPM and APT and the nominal GDP growth rate approach?

For Islamic pricing benchmark, using CAPM and APT in calculating the expected return of real sectors using stock index return gives the result that are more volatile and different from actual returns. The nominal GDP growth seems more closely to the actual returns and it is better to be use as reference rate for Islamic banking to set the expected return in their PLS based financing.

5.2 Theoretical Contribution

Related to the theoretical aspect, this research gives a fruitful insight for theorist as their further research references in the area of risk and return of industry sectors. Agro-industry give more volatile in return compared to manufacturing industry. But manufacturing industry has higher operating risk looking at its operating leverage. In Islamic pricing benchmark, Omar et al. (2010) argue that APT approaches by using stock index return can be used as pricing benchmark in Malaysia because it is very close to the actual return. In contrast to their finding, based on the result of this reseach, either CAPM or APT approach based on stock index returns cannot be used in Indonesia. The return of the stock indices do not reflect the real sector performances. For further reseach, these two approaches can be approximated by using historical actual return such as ROA or ROE. It is a challenge for the further research to make CAPM model by using the actual returns of industry sectors. Hanif and Shaikh (2010) and Halid and Latiff (2012) proposed the aggregate of the nominal GDP growth rate as reference rate for Islamic banking. Strengthen to their finding, using the specific nominal GDP growth rate for each industry, the performances of indonesian industries are close to this rate.

5.3 Practical Implication

In terms of practical aspect, this research provides some recommendation of issues that need to be considered by Islamic banking in channeling PLS based financing.

1. Based on the result of this research, it shows that agro-industry and manufacturing industry have differences in terms of return. Agro-industry gives more volatile in return compared to manufacturing industry. Thus Islamic banking should be more cautious in giving PLS based financing to agro-

industry. One way is to use *musharaka* contract (joint venture) in providing this kind of financing because the proportion of capital is shared between Islamic banking and its *mudharib* and both of profit and loss of business will be shared depend on the proportion of their capital.

2. Manufacturing industry has high operating leverage. It indicates that it has high fixed costs compared to variable costs. Islamic banking should consider this finding. For PLS based financing in this industry, it is recommended to use revenue sharing in calculated the distribution of income. But for agro-industry, Islamic banking can use profit sharing or revenue sharing method to distribute income because this industry has low operating leverage that implicate to high operating profit margin.
3. Among three asset pricing benchmarks that have been proposed, Islamic banking can use the nominal GDP growth rate as reference rate. The calculated expected return using CAPM and APT approaches based on stock index return still cannot represent the performance of real sectors in Indonesia.

5.4 Further Research

The further research is expected to accomodate the research limitations. The first one is to use other profitability ratios, the second one is to use other ratios measuring business risk and financial leverage, the third one is to include other industrial sectors, the fourth one is to extend the research data using a longer period and the fifth one is to use historical actual return on investment and other risk factors for modeling the expected returns using APT approach.

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APPENDIX

Appendix A. Sample of Companies of Agro-Industry and Manufacturing Industry.

Agro Industry		
No.	CODE	Name of The Firm
1	AALI	PT Astra Agro Lestari Tbk
2	BISI	PT BISI International Tbk
3	BWPT	PT BW Plantation Tbk
4	JAWA	PT JA Wattie Tbk
5	LSIP	PT Perusahaan Perkebunan London Sumatra Indonesia Tbk
6	SGRO	PT Sampoerna Agro Tbk
7	SIMP	PT Salim Ivomas Pratama Tbk
8	SMAR	PT Sinar Mas Agro Resources & Technology Tbk
9	TBLA	PT Tunas Baru Lampung Tbk
Manufacturing Industry		
No.	CODE	Name of The Firm
1	AMFG	PT Asahimas Flat Glass Tbk
2	APLI	PT Asiaplast Industries Tbk
3	ARNA	PT Arwana Citramulia Tbk
4	BTON	PT Betonjaya Manunggal Tbk
5	BUDI	PT Budi Starch & Sweetener Tbk
6	CLPI	PT Colorpak Indonesia Tbk
7	CPIN	PT Charoen Pokphand Indonesia Tbk
8	CTBN	PT Citra Tubindo Tbk
9	DPNS	PT Duta Pertiwi Nusantara Tbk
10	EKAD	PT Ekadharma International Tbk
11	FISH	PT FKS Multi Agro Tbk
12	IGAR	PT Champion Pacific Indonesia Tbk
13	INTP	PT Indocement Tunggul Prakarsa Tbk
14	JPFA	PT Japfa Comfeed Indonesia Tbk
15	JPRS	PT Jaya Pari Steel Tbk
16	KKGJ	PT Resource Alam Indonesia Tbk
17	LION	PT Lion Metal Works Tbk
18	LMSH	PT Lionmesh Prima Tbk
19	MAIN	PT Malindo Feedmill Tbk
20	PICO	PT Pelangi Indah Canindo Tbk
21	SIPD	PT Sierad Produce Tbk
22	SMCB	PT Holcim Indonesia Tbk
23	SMGR	PT Semen Indonesia Persero Tbk
24	SRSN	PT Indo Acidatama Tbk
25	TALF	PT Tunas Alfin Tbk
26	TKIM	PT Pabrik Kertas Tjiwi Kimia Tbk
27	TOTO	PT Surya Toto Indonesia Tbk
28	TRST	PT Trias Sentosa Tbk
29	UNIC	PT Unggul Indah Cahaya Tbk

Appendix B. Financial Report of Agro-Industry.

Financial Report of Agro Industry						
In Billions of IDR	2009	2010	2011	2012	2013	Average
INCOME STATEMENT						
Revenue	4.466,73	5.496,60	7.683,19	7.381,30	7.015,42	6.408,65
- Cost of Revenue	3.228,31	3.878,36	5.261,31	5.215,64	5.342,03	4.585,13
Gross Profit	1.238,42	1.618,24	2.421,88	2.165,66	1.673,39	1.823,52
+ Other Operating Revenue	0,00		0,00	0,00	7,67	1,92
- Operating Expenses	360,72	473,43	984,80	839,71	734,24	678,58
Operating Income	877,70	1.144,81	1.437,07	1.325,95	946,82	1.146,47
- Interest Expense	116,89	100,26	102,05	120,72	174,26	122,84
- Foreign Exchange Losses (Gains)	-67,28	-21,68	-2,13	19,31	112,46	8,14
- Net Non-Operating Losses (Gains)	6,61	-1,77	-92,38	-67,41	-68,33	-44,66
Pretax Income	821,48	1.068,00	1.429,30	1.253,33	728,43	1.060,11
- Income Tax Expense	253,51	291,03	333,56	316,71	196,70	278,30
Income Before XO Items	567,97	776,97	1.095,74	936,62	531,73	781,81
- Extraordinary Loss Net of Tax	0,00	0,00	0,00	0,00	0,00	0,00
- Minority Interests	43,65	59,86	77,06	53,53	24,23	51,67
Net Income	524,32	717,11	1.018,69	883,08	507,49	730,14
BALANCE SHEET						
Assets						
+ Cash & Near Cash Items	494,56	694,16	1.125,57	870,42	636,50	764,24
+ Short-Term Investments	12,53	24,64	27,54	4,01	1,15	13,97
+ Accounts & Notes Receivable	282,63	390,67	534,27	487,38	462,13	431,42
+ Inventories	555,33	686,47	801,97	944,05	901,96	777,95
+ Other Current Assets	204,98	303,49	342,32	329,88	438,43	323,82
Total Current Assets	1.545,86	2.093,96	2.825,54	2.635,73	2.440,18	2.308,25
+ LT Investments & LT Receivables	69,82	84,12	77,60	17,69	88,67	67,58
+ Net Fixed Assets	2.590,82	3.056,81	3.613,26	5.328,42	6.382,72	4.194,41
+ <i>Gross Fixed Assets</i>	<i>3.444,17</i>	<i>4.003,06</i>	<i>4.790,12</i>	<i>6.948,88</i>	<i>8.127,68</i>	<i>5.462,78</i>
- <i>Accumulated Depreciation</i>	<i>853,35</i>	<i>946,25</i>	<i>1.176,86</i>	<i>1.620,46</i>	<i>1.963,08</i>	<i>1.312,00</i>
+ Other Long-Term Assets	1.339,63	1.374,49	1.476,30	1.003,71	1.164,16	1.271,66
Total Long-Term Assets	3.992,51	4.515,42	5.167,16	6.349,82	7.635,54	5.532,09
Total Assets	5.538,37	6.609,38	7.992,70	8.985,55	10.075,72	7.840,34
Liabilities & Shareholders' Equity						
+ Accounts Payable	244,59	283,17	351,27	430,22	480,96	358,04
+ Short-Term Borrowings	459,78	724,22	759,38	727,16	1.593,71	852,85
+ Other Short-Term Liabilities	325,44	401,40	423,74	482,37	436,58	413,91
Total Current Liabilities	1.029,81	1.408,79	1.534,40	1.639,74	2.511,25	1.624,80
+ Long-Term Borrowings	880,32	957,68	854,62	1.141,76	1.387,44	1.044,36
+ Other Long-Term Liabilities	467,62	496,57	634,91	715,04	742,98	611,43
Total Long-Term Liabilities	1.347,94	1.454,24	1.489,53	1.856,80	2.130,43	1.655,79
Total Liabilities	2.377,75	2.863,03	3.023,93	3.496,55	4.641,68	3.280,59
+ Total Preferred Equity	0,00	0,00	0,00	0,00	0,00	0,00
+ Minority Interest	242,04	259,36	309,27	325,99	322,11	291,75
+ Share Capital & APIC	1.185,48	1.200,08	1.647,69	1.604,93	1.638,59	1.455,35
+ Retained Earnings & Other Equity	1.761,49	2.286,90	3.011,81	3.558,09	3.473,34	2.818,32
Total Equity	3.189,01	3.746,34	4.968,77	5.489,01	5.434,04	4.565,43
Total Liabilities & Equity	5.566,75	6.609,38	7.992,70	8.985,55	10.075,72	7.846,02
COST	75,75%	71,50%	71,77%	77,92%	82,96%	75,98%
ROA	9,68%	11,84%	13,45%	9,40%	5,03%	9,88%
ROE	16,61%	19,63%	21,19%	15,33%	8,62%	16,28%
OPM	24,25%	28,50%	28,23%	22,08%	17,04%	24,02%
Operating Leverage		0,65	0,25	-0,36	0,78	0,33
Financial Leverage	0,54	0,57	0,42	0,52	0,77	0,56

Appendix C. Financial Report of Manufacturing Industry.

Financial Report of Manufacturing Industry						
In Billions of IDR	2009	2010	2011	2012	2013	Average
INCOME STATEMENT						
Revenue	2.653,88	2.767,95	3.260,37	3.795,16	4.355,57	3.366,59
- Cost of Revenue	1.882,10	1.908,08	2.319,30	2.658,27	3.101,58	2.373,87
Gross Profit	771,78	859,88	941,07	1.136,89	1.253,99	992,72
+ Other Operating Revenue	0,00	0,00	0,00	0,00	13,35	2,67
- Operating Expenses	279,13	302,01	344,45	402,76	458,51	357,37
Operating Income	492,65	557,87	596,62	734,13	808,83	638,02
- Interest Expense	43,64	29,94	33,70	44,75	70,27	44,46
- Foreign Exchange Losses (Gains)	-33,58	-6,67	1,72	1,21	39,14	0,36
- Net Non-Operating Losses (Gains)	-15,12	-21,01	-32,66	-43,81	-35,35	-29,59
Pretax Income	497,71	556,64	593,97	731,98	734,77	623,02
- Income Tax Expense	135,63	129,07	138,64	167,60	180,75	150,34
Income Before XO Items	362,09	427,57	455,33	564,38	554,02	472,68
- Extraordinary Loss Net of Tax	0,00	0,00	0,00	0,00	0,00	0,00
- Minority Interests	4,78	6,65	3,90	5,95	3,10	4,87
Net Income	357,31	420,93	451,56	558,42	550,92	467,83
BALANCE SHEET						
Assets						
+ Cash & Near Cash Items	290,41	464,44	518,59	615,40	764,62	530,69
+ Short-Term Investments	37,82	8,15	14,13	11,30	9,12	16,10
+ Accounts & Notes Receivable	257,50	279,13	327,88	418,75	482,66	353,18
+ Inventories	329,56	367,63	448,28	545,34	624,03	462,97
+ Other Current Assets	107,67	82,50	109,01	148,85	172,46	124,10
Total Current Assets	1.022,96	1.201,28	1.416,43	1.739,64	2.052,58	1.486,58
+ LT Investments & LT Receivables	10,18	7,56	6,46	5,23	4,70	6,83
+ Net Fixed Assets	979,95	1.211,58	1.454,72	1.808,06	2.174,68	1.525,80
+ <i>Gross Fixed Assets</i>	<i>1.882,01</i>	<i>2.182,45</i>	<i>2.518,96</i>	<i>2.994,23</i>	<i>3.507,42</i>	<i>2.617,01</i>
- <i>Accumulated Depreciation</i>	<i>902,07</i>	<i>970,87</i>	<i>1.064,23</i>	<i>1.186,17</i>	<i>1.332,74</i>	<i>1.091,22</i>
+ Other Long-Term Assets	76,43	77,25	81,17	140,59	172,52	109,59
Total Long-Term Assets	1.066,20	1.295,86	1.541,46	1.953,88	2.351,91	1.641,86
Total Assets	2.089,16	2.497,14	2.957,88	3.693,53	4.404,48	3.128,44
Liabilities & Shareholders' Equity						
+ Accounts Payable	144,74	156,32	180,94	251,61	303,56	207,44
+ Short-Term Borrowings	138,33	145,68	202,73	273,98	328,14	217,77
+ Other Short-Term Liabilities	163,37	156,30	171,45	210,66	244,75	189,31
Total Current Liabilities	446,45	458,29	548,13	736,25	876,46	613,12
+ Long-Term Borrowings	212,57	213,18	270,24	369,09	537,20	320,46
+ Other Long-Term Liabilities	118,56	117,70	123,17	149,48	162,31	134,24
Total Long-Term Liabilities	331,14	330,88	393,40	518,57	699,51	454,70
Total Liabilities	777,58	789,17	941,53	1.254,82	1.575,97	1.067,82
+ Total Preferred Equity	0,00	0,00	0,00	0,00	0,00	0,00
+ Minority Interest	19,12	24,91	30,08	50,42	58,43	36,59
+ Share Capital & APIC	745,71	632,48	633,34	632,48	643,49	657,50
+ Retained Earnings & Other Equity	546,75	1.050,58	1.353,97	1.755,81	2.126,59	1.366,74
Total Equity	1.311,58	1.707,97	2.016,35	2.438,71	2.828,52	2.060,62
Total Liabilities & Equity	2.089,16	2.497,14	2.957,88	3.693,53	4.404,48	3.128,44
COST	88,14%	86,95%	86,75%	87,61%	88,59%	87,61%
ROA	9,62%	10,96%	11,35%	11,03%	9,05%	10,40%
ROE	18,48%	19,24%	18,76%	17,71%	14,30%	17,70%
OPM	11,86%	13,05%	13,25%	12,39%	11,41%	12,39%
Operating Leverage		0,62	-0,01	0,79	1,47	0,72
Financial Leverage	0,56	0,43	0,49	0,47	0,43	0,48

Appendix D. Data in Average during 5 Years of Research Period.

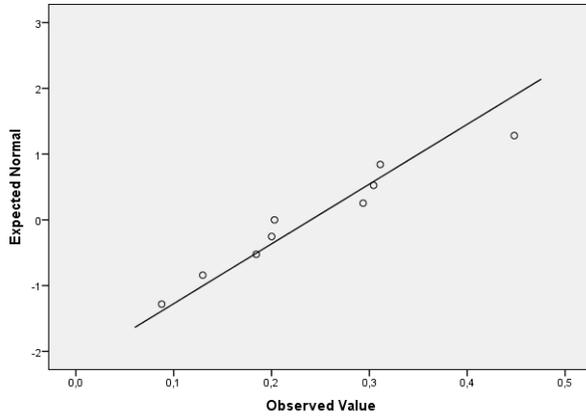
	Company	ROA	ROE	OPM	Operating Leverage	Financial Leverage	Business Risk
Agro-Industry	AALI	19,98%	24,94%	30,43%	0,0753	0,0738	0,1665
	BISI	8,34%	9,81%	18,44%	0,0352	0,0448	0,2383
	BWPT	7,34%	17,32%	44,81%	-0,0327	1,2526	0,2648
	JAWA	6,31%	13,73%	29,36%	-0,5563	0,9442	0,5587
	LSIP	15,60%	18,77%	31,11%	2,3983	0,0120	0,4455
	SGRO	10,92%	15,02%	20,01%	0,6460	0,2621	0,4703
	SIMP	4,57%	8,60%	20,30%	0,5249	0,6037	0,5628
	SMAR	9,53%	19,87%	8,77%	0,0845	0,5507	0,4340
	TBLA	6,33%	18,42%	12,97%	-0,1954	1,3326	0,4765
Manufacturing Industry	AMFG	10,11%	12,89%	13,11%	0,1321	0,0000	0,4270
	APLI	4,82%	8,10%	6,38%	4,1268	0,3717	0,8005
	ARNA	13,12%	22,69%	19,27%	0,2499	0,4405	0,5602
	BTON	14,14%	17,46%	11,88%	1,4567	0,0000	0,4729
	BUDI	2,99%	6,71%	6,41%	0,1888	1,0308	1,0611
	CLPI	8,41%	17,75%	8,83%	0,0848	0,7759	0,2032
	CPIN	25,70%	40,05%	16,05%	0,4293	0,2184	0,1812
	CTBN	12,16%	22,62%	18,06%	0,8269	0,2747	0,4744
	DPNS	9,95%	12,06%	7,86%	0,3908	0,0083	1,0346
	EKAD	11,50%	18,20%	13,54%	0,1797	0,3778	0,3190
	FISH	4,27%	24,90%	0,87%	0,1516	1,0407	0,5318
	IGAR	8,46%	10,64%	10,23%	-0,0681	0,0151	0,2311
	INTP	20,25%	23,89%	33,60%	0,3215	0,0173	0,2535
	JPFA	9,53%	22,07%	9,23%	-0,1274	1,0127	0,2331
	JPRS	4,49%	5,65%	2,71%	0,1070	0,0000	0,7783
	KKGI	25,50%	39,62%	18,87%	0,5070	0,0331	0,7677
	LION	14,43%	17,11%	20,97%	9,5516	0,0000	0,3803
	LMSH	13,22%	19,23%	6,30%	0,0785	0,1911	0,9963
	MAIN	14,08%	51,08%	11,41%	0,2668	1,8651	0,4167
	PICO	2,21%	6,82%	8,95%	0,0477	1,5568	0,1256
	SIPD	1,41%	2,47%	3,19%	0,0516	0,7092	0,6474
	SMCB	9,49%	16,03%	22,37%	-0,8543	0,3556	0,2011
	SMGR	20,93%	28,07%	30,15%	-0,6499	0,1219	0,2033
	SRSN	4,70%	7,36%	9,33%	1,4948	0,4249	0,3445
TALF	10,77%	13,33%	10,79%	0,1184	0,0000	0,2260	
TKIM	1,69%	5,83%	6,68%	0,3274	2,0888	0,4154	
TOTO	16,23%	28,62%	21,64%	0,1997	0,2287	0,1144	
TRST	4,96%	8,19%	8,10%	0,3820	0,2977	0,5079	
UNIC	2,05%	3,82%	2,61%	0,8475	0,3921	0,4506	

Appendix E. Variables and Standard Deviation during 2009 - 2013.

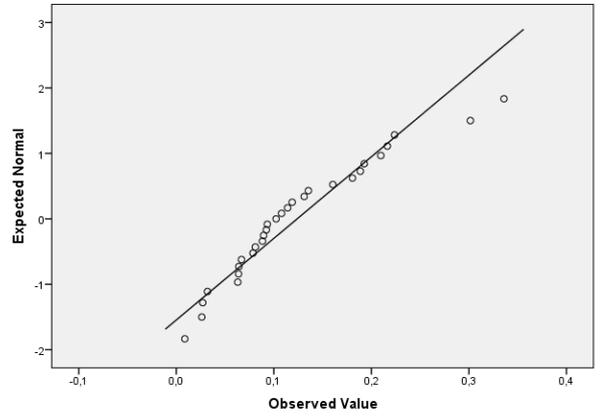
Agro-Industry									
Variables	2009	2010	2011	2012	2013	Average	Min.	Max.	Std. Deviation
Ratios									
ROA	9,68%	11,84%	13,45%	9,40%	5,03%	9,88%	5,03%	13,45%	3,17%
ROE	16,61%	19,63%	21,19%	15,33%	8,62%	16,28%	8,62%	21,19%	4,88%
OPM	24,25%	28,50%	28,23%	22,08%	17,04%	24,02%	17,04%	28,50%	4,75%
Operating Leverage		0,65	0,25	-0,36	0,78	0,33	-0,36	0,78	0,51
Financial Leverage	0,54	0,57	0,42	0,52	0,77	0,56	0,42	0,77	0,13
Manufacturing Industry									
Variables	2009	2010	2011	2012	2013	Average	Min.	Max.	Std. Deviation
Ratios									
ROA	9,62%	10,96%	11,35%	11,03%	9,05%	10,40%	9,05%	11,35%	1,01%
ROE	18,48%	19,24%	18,76%	17,71%	14,30%	17,70%	14,30%	19,24%	1,98%
OPM	11,86%	13,05%	13,25%	12,39%	11,41%	12,39%	11,41%	13,25%	0,78%
Operating Leverage		0,62	-0,01	0,79	1,47	0,72	-0,01	1,47	0,61
Financial Leverage	0,56	0,43	0,49	0,47	0,43	0,48	0,43	0,56	0,05

Appendix F. Q-Q Plot of OPM, Business Risk, and Financial Leverage.

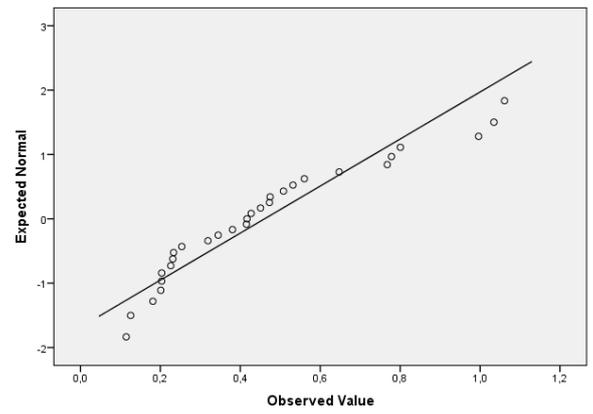
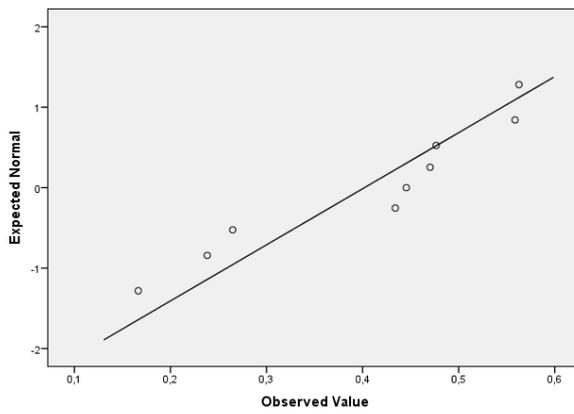
Agro-Industry



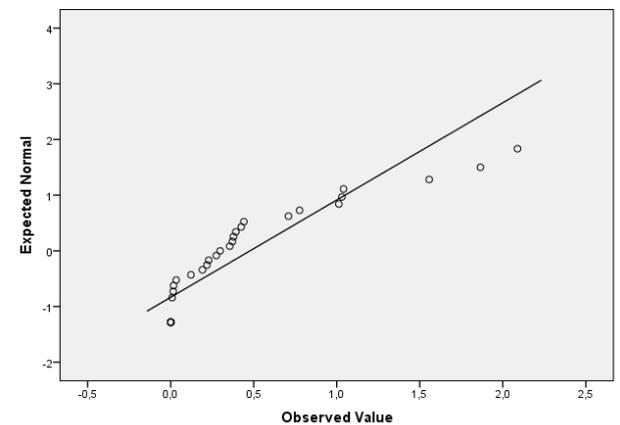
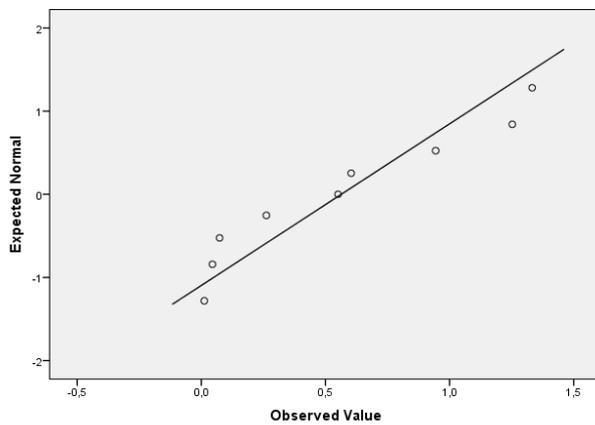
Manufacturing Industry



Q-Q Plot of OPM



Q-Q Plot of Business Risk



Q-Q Plot of Financial Leverage

Appendix G. Data of Economic Indicators and Stock Index Prices.

Date	Lending Rate	Exchange Rate	M2 (Bilion IDR)	Price of JKSE	Price of AGRI	Price of MANU
Des-08	9,46%	10.950	1.883.851	1355,408	918,766	134,987
Jan-09	8,99%	11.355	1.859.891	1332,667	969,432	126,391
Feb-09	8,52%	11.980	1.890.430	1285,476	1046,64	124,077
Mar-09	8,08%	11.575	1.909.681	1434,074	1073,191	134,656
Apr-09	7,82%	10.713	1.905.475	1722,766	1333,252	151,149
Mei-09	7,54%	10.340	1.917.092	1916,831	1576,518	182,045
Jun-09	7,11%	10.225	1.977.532	2026,78	1526,995	192,924
Jul-09	6,75%	9.920	1.960.950	2323,236	1659,552	222,796
Agu-09	6,47%	10.060	1.995.294	2341,537	1797,124	229,115
Sep-09	6,34%	9.681	2.018.510	2467,591	1784,205	238,463
Okt-09	6,37%	9.545	2.021.517	2367,701	1725,329	252,881
Nov-09	6,35%	9.480	2.062.206	2415,837	1745,185	254,395
Des-09	6,34%	9.400	2.141.384	2534,356	1753,09	273,932
Jan-10	6,32%	9.365	2.073.860	2610,796	1850,305	280,112
Feb-10	6,27%	9.335	2.066.481	2549,033	1856,357	277,644
Mar-10	6,25%	9.115	2.112.083	2777,301	1923,598	292,337
Apr-10	6,20%	9.012	2.116.024	2971,252	1932,17	315,456
Mei-10	6,20%	9.180	2.143.234	2796,957	1645,391	295,662
Jun-10	6,21%	9.083	2.231.144	2913,684	1660,501	312,02
Jul-10	6,20%	8.952	2.217.589	3069,28	1677,172	340,131
Agu-10	6,23%	9.041	2.236.459	3081,884	1742,853	352,013
Sep-10	6,22%	8.924	2.274.955	3501,296	1964,154	404,678
Okt-10	6,02%	8.928	2.308.846	3635,324	2218,973	398,745
Nov-10	5,74%	9.013	2.347.807	3531,211	2139,621	390,898
Des-10	5,66%	8.991	2.471.206	3703,512	2284,319	387,254
Jan-11	5,78%	9.057	2.436.679	3409,167	2040,515	338,484
Feb-11	6,08%	8.823	2.420.191	3470,348	1978,544	351,192
Mar-11	6,22%	8.709	2.451.357	3678,674	2127,728	389,198
Apr-11	6,26%	8.574	2.434.478	3819,618	2201,926	400,507
Mei-11	6,56%	8.537	2.475.286	3836,967	2384,387	405,24
Jun-11	6,13%	8.597	2.522.784	3888,569	2318,688	403,006
Jul-11	6,04%	8.508	2.564.556	4130,8	2456,066	415,865
Agu-11	5,90%	8.578	2.621.346	3841,731	2247,994	400,756
Sep-11	5,47%	8.823	2.643.331	3549,032	2044,694	362,489
Okt-11	5,19%	8.835	2.677.787	3790,847	2155,049	396,341
Nov-11	4,77%	9.170	2.729.538	3715,08	2174,274	373,368
Des-11	4,58%	9.068	2.877.220	3821,992	2146,036	408,273
Feb-12	3,88%	9.000	2.857.127	3941,693	2137,331	416,932
Mar-12	3,78%	9.085	2.852.005	3985,21	2297,49	417,413
Apr-12	3,78%	9.180	2.914.194	4121,551	2428,191	437,367
Mei-12	3,79%	9.190	2.929.610	4180,732	2326,77	434,509
Jun-12	3,93%	9.565	2.994.474	3832,824	2148,905	406,412
Jul-12	4,01%	9.480	3.052.786	3955,577	2189,452	428,926
Agu-12	4,16%	9.485	3.057.336	4142,337	2340,42	464,213
Sep-12	4,12%	9.560	3.091.568	4060,331	2221,842	437,706
Okt-12	4,14%	9.588	3.128.179	4262,561	2242,256	470,132
Nov-12	4,17%	9.615	3.164.443	4350,291	2122,969	491,342
Des-12	4,18%	9.605	3.207.908	4276,141	1915,327	513,321
Jan-13	4,19%	9.670	3.307.508	4316,687	2062,937	526,551
Jan-13	4,35%	9.698	3.268.789	4453,703	1994,746	528,889
Feb-13	4,18%	9.667	3.280.420	4795,789	2006,198	571,618
Mar-13	4,18%	9.719	3.322.529	4940,986	1991,103	604,63
Apr-13	4,18%	9.722	3.360.928	5034,071	1805,835	627,306
Mei-13	4,17%	9.802	3.426.305	5068,628	1975,599	606,902
Jun-13	4,35%	9.929	3.413.379	4818,895	2042,039	585,768
Jul-13	4,67%	10.278	3.506.574	4610,377	1702,922	519,282
Agu-13	4,93%	10.924	3.502.420	4195,089	1806,971	455,624
Sep-13	5,55%	11.613	3.584.081	4316,176	1760,193	469,564
Okt-13	5,73%	11.234	3.576.869	4510,631	1765,666	515,301
Nov-13	5,90%	11.977	3.615.973	4256,436	1947,176	466,629
Des-13	5,94%	12.189	3.730.197	4274,177	2139,96	480,744

Appendix H. Data of Economic Indicator Returns and Stock Index Returns.

Date	Return of LR	Return of ER	Return of M2	Return of JKSE	Return of AGRI	Return of MANU
Jan-09	-0,0499	0,0370	-0,0127	-0,0168	0,0551	-0,0637
Feb-09	-0,0523	0,0550	0,0164	-0,0354	0,0796	-0,0183
Mar-09	-0,0515	-0,0338	0,0102	0,1156	0,0254	0,0853
Apr-09	-0,0319	-0,0745	-0,0022	0,2013	0,2423	0,1225
Mei-09	-0,0357	-0,0348	0,0061	0,1126	0,1825	0,2044
Jun-09	-0,0579	-0,0111	0,0315	0,0574	-0,0314	0,0598
Jul-09	-0,0499	-0,0298	-0,0084	0,1463	0,0868	0,1548
Agu-09	-0,0411	0,0141	0,0175	0,0079	0,0829	0,0284
Sep-09	-0,0204	-0,0377	0,0116	0,0538	-0,0072	0,0408
Okt-09	0,0052	-0,0140	0,0015	-0,0405	-0,0330	0,0605
Nov-09	-0,0032	-0,0068	0,0201	0,0203	0,0115	0,0060
Des-09	-0,0022	-0,0084	0,0384	0,0491	0,0045	0,0768
Jan-10	-0,0030	-0,0037	-0,0315	0,0302	0,0555	0,0226
Feb-10	-0,0083	-0,0032	-0,0036	-0,0237	0,0033	-0,0088
Mar-10	-0,0022	-0,0236	0,0221	0,0896	0,0362	0,0529
Apr-10	-0,0091	-0,0113	0,0019	0,0698	0,0045	0,0791
Mei-10	0,0006	0,0186	0,0129	-0,0587	-0,1484	-0,0627
Jun-10	0,0013	-0,0106	0,0410	0,0417	0,0092	0,0553
Jul-10	-0,0020	-0,0144	-0,0061	0,0534	0,0100	0,0901
Agu-10	0,0049	0,0099	0,0085	0,0041	0,0392	0,0349
Sep-10	-0,0015	-0,0129	0,0172	0,1361	0,1270	0,1496
Okt-10	-0,0326	0,0004	0,0149	0,0383	0,1297	-0,0147
Nov-10	-0,0460	0,0095	0,0169	-0,0286	-0,0358	-0,0197
Des-10	-0,0135	-0,0024	0,0526	0,0488	0,0676	-0,0093
Jan-11	0,0209	0,0073	-0,0140	-0,0795	-0,1067	-0,1259
Feb-11	0,0518	-0,0258	-0,0068	0,0179	-0,0304	0,0375
Mar-11	0,0225	-0,0129	0,0129	0,0600	0,0754	0,1082
Apr-11	0,0075	-0,0155	-0,0069	0,0383	0,0349	0,0291
Mei-11	0,0476	-0,0043	0,0168	0,0045	0,0829	0,0118
Jun-11	-0,0658	0,0070	0,0192	0,0134	-0,0276	-0,0055
Jul-11	-0,0145	-0,0104	0,0166	0,0623	0,0592	0,0319
Agu-11	-0,0240	0,0082	0,0221	-0,0700	-0,0847	-0,0363
Sep-11	-0,0727	0,0286	0,0084	-0,0762	-0,0904	-0,0955
Okt-11	-0,0511	0,0014	0,0130	0,0681	0,0540	0,0934
Nov-11	-0,0798	0,0379	0,0193	-0,0200	0,0089	-0,0580
Des-11	-0,0413	-0,0111	0,0541	0,0288	-0,0130	0,0935
Feb-12	-0,1530	-0,0075	-0,0070	0,0313	-0,0041	0,0212
Mar-12	-0,0252	0,0094	-0,0018	0,0110	0,0749	0,0012
Apr-12	-0,0004	0,0105	0,0218	0,0342	0,0569	0,0478
Mei-12	0,0025	0,0011	0,0053	0,0144	-0,0418	-0,0065
Jun-12	0,0373	0,0408	0,0221	-0,0832	-0,0764	-0,0647
Jul-12	0,0219	-0,0089	0,0195	0,0320	0,0189	0,0554
Agu-12	0,0366	0,0005	0,0015	0,0472	0,0690	0,0823
Sep-12	-0,0097	0,0079	0,0112	-0,0198	-0,0507	-0,0571
Okt-12	0,0053	0,0029	0,0118	0,0498	0,0092	0,0741
Nov-12	0,0072	0,0028	0,0116	0,0206	-0,0532	0,0451
Des-12	0,0019	-0,0010	0,0137	-0,0170	-0,0978	0,0447
Jan-13	0,0019	0,0068	0,0310	0,0095	0,0771	0,0258
Jan-13	0,0391	0,0029	-0,0117	0,0317	-0,0331	0,0044
Feb-13	-0,0398	-0,0032	0,0036	0,0768	0,0057	0,0808
Mar-13	0,0001	0,0054	0,0128	0,0303	-0,0075	0,0578
Apr-13	-0,0002	0,0003	0,0116	0,0188	-0,0930	0,0375
Mei-13	-0,0020	0,0082	0,0195	0,0069	0,0940	-0,0325
Jun-13	0,0424	0,0130	-0,0038	-0,0493	0,0336	-0,0348
Jul-13	0,0742	0,0351	0,0273	-0,0433	-0,1661	-0,1135
Agu-13	0,0560	0,0629	-0,0012	-0,0901	0,0611	-0,1226
Sep-13	0,1257	0,0631	0,0233	0,0289	-0,0259	0,0306
Okt-13	0,0319	-0,0326	-0,0020	0,0451	0,0031	0,0974
Nov-13	0,0299	0,0661	0,0109	-0,0564	0,1028	-0,0945
Des-13	0,0065	0,0177	0,0316	0,0042	0,0990	0,0302

Appendix I. Additional Summary for CAPM and APT Models.

CAPM		
Variables	Agro-Industry	Manufacturing Industry
Durbin-Watson	2,118	2,370
VIF	1,000	1,000
Sig. Shapiro-Wilk	0,107	0,502

APT		
Variables	Agro-Industry	Manufacturing Industry
Durbin-Watson	2,173	2,367
VIF 1	2,199	2,233
VIF 2	1,061	1,062
VIF 3	2,227	2,298
VIF 4	-	1,032
Sig. Shapiro-Wilk	0,310	0,605

Appendix J. The Nominal GDP Growth Rate for Two Industry Sectors.

Date	GDP (Billion IDR) for Agro-Industry	GDP (Billion IDR) for Manufacturing Industry	The Nominal GDP Growth Rate for Agro-Industry	The Nominal GDP Growth Rate for Manufacturing Industry
Des-08	716656,20	1138670,10		
Des-09	857196,80	1267700,40	19,61%	11,33%
Des-10	985470,50	1384640,40	14,96%	9,22%
Des-11	1091447,10	1553061,90	10,75%	12,16%
Des-12	1193452,90	1717966,90	9,35%	10,62%
Des-13	1310427,30	1885799,30	9,80%	9,77%