

Credit Risks and Profitability of Islamic Banks: Evidence from Indonesia

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This study examines the effect of Islamic modes of financing and credit risks on future earnings among Indonesian Islamic banks. It uses a sample of eleven Islamic commercial banks that fully disclosed their financial data in bank of Indonesia from 2008 until 2013. This manuscript aims to investigate interrelationship between Islamic modes of financing, nonperforming financing, and profitability of Islamic banks. Furthermore, the study employs partial least square model for path analysis to analyze data variables and to test the research hypotheses. The finding of this study reveals that equity financing has a positive significant relationship with nonperforming financing. Accordingly, this indicates that Indonesian Islamic banks have conservative policy towards participation in equity financing, in order to ensure low degree of risk and make high level of liquidity. Moreover, debt financing (Murabahah) is found to have a significant positive relationship with future earnings. This implies that Indonesian Islamic banks are preferred funding their investment projects using debt financing instruments and refused taking risks. Finally, this manuscript suggests that Islamic banks can effectively managed their risks in sharing financing in order to make a positive and profitable implication for the banks and that might improve the efficiency of their assets.

Field of Research: Islamic Finance

1. Introduction

Islamic banks in Indonesia, as well as in other Islamic countries, operate their financial activities based on Islamic principles. These banks mobilize funds from certain sources of business community such as households, businesses, and stated government. Meanwhile, Indonesian Islamic banks utilize their funds based on the concept of sharing financing (profit-loss sharing financing) and non-profit loss sharing financing in accordance with Islamic law.

In fact, Islamic banks are prohibited to apply interest rate either because it is considered as *riba*. Therefore, it has to apply free interest banking activities as alternative against traditional interest bearing system (Siddiqi, 1983). The earliest tentative scholars such as Quershi (1946), Ahmad (1952), Siddiqi (1981), and Khan (1983) reorganized banking activities on the basis of profit loss sharing rather than interest. They argued that under profit loss sharing (PLS) system, the assets and liabilities of Islamic banks are integrated in the sense that borrowers share profits and losses with the banks, which turn share profits and losses with the depositors. They proposed two Islamic modes of financing that could be used by Islamic banks, namely, the primary mode of financing or Islamic partnership (Mudarabah and Musharakah) and the secondary modes of financing (Murabahah, Slam, Istitsna', Ijarah).

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As a result, the sharing in profit and loss is considered the main operational attributes of Islamic financial institutions (Charpa, 2001). Most of Islamic scholars argued that these Islamic investment instruments are more fair and just. Further, it gives Islamic banks transparency and integrity in their financial services. However, Islamic banks have not managed this system well in their Islamic banking practices. Therefore, the Islamic debt instruments such as Murabahah are very dominated on the most of Islamic banking investments in Indonesia as well as other countries. Meanwhile, Mudarabah and Musharakeh participation are relatively still very low.

This research aims to provide an empirical evidence to examine the effect of Islamic business contracts practices on profitability of Indonesian Islamic banks. Furthermore, it also attempts to predict the effect of uncollectable fund on future earnings of Islamic banks that may result from the different uses of Islamic modes of financing. In particular, it examines whether Islamic modes of financing (Mudarabah, Musharakah, and Murabahah) and nonperforming financing have impact on future earnings of Islamic banks in Indonesia. Thus, the conceptual framework of this research has not been investigated before in Islamic banking literature. Therefore, the research variables are analyzed based on monthly data observation from period of 2008 until 2013 involved by current global financial crises.

This paper is justified on the following reasons. (1) It provides an important point for research involving the risk of Islamic modes of financing and profitability of Indonesian Islamic banking industry. (2) It is one of the first empirical studies that use partial least square and path model to examine the direct and indirect relationship between Islamic financing, credit risks and profitability of Islamic banks in Indonesia. (3) The empirical results of this study could help Islamic banks in providing solutions for the lack of participation in equity financing (Mudarabah and Musharkah contracts).

Relatively few Islamic financial literatures evolved a conceptual model that constructs the relationship between Islamic modes of financing regarding to risk and profitability which may make a strong contribution to the area of Islamic finance. Significantly, this research has a new contribution in filling the gap of previous literatures by helping Islamic banks to manage their financing, reduce the low quality of financing and finally improve their profits.

The reminder of this article is organized as follows. The next section explores the prior studies of Islamic finance as a literature review and develops the research hypotheses. The third section describes the research variables and constructs the research model. The fourth section analyzes the data variables and discusses the results. Moreover, the final part concludes the research.

2. Literature Review and Hypotheses Development

Islamic banks apply the Islamic financing concepts in their operations as shariah compliance in which interest is prohibited in their financing activities. That's because interest rate is not allowed in Islam (riba). The contemporary theory of Islamic finance began with the paper of Siddiqi (1983). He proposed that banking activities based on sharing profits and avoiding interest. However, the basis of free interest banking system was created by the idea of Dr. Al-Najar in Mit Ghamr in Egypt as saving investment banks since 1963. Moreover, the Islamic development banks and Dubai Islamic Banks were also established in the middle of 1975 to serve Arab Islamic countries by arranging finance for trade and investments on free interest based system. All initiatives were compatible with

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Islamic finance theory, in which interest rate replaced with profit and loss sharing financing.

Generally, the primary goal for any business is to maximize the profit. Therefore, Islamic bank provides financing in the aim of earning income. However, the results of profit depend on the uses of Islamic financing and the degree of risks that might be exposed. Further, the profit and risk resulted from certain business activities which are often reflected as performance (Helfert, 2001). Therefore, the research hypotheses are formulated and synthesized as follows:

2.1 Sharing Financing and Credit Risks

Risks are closely related to uncertainty and probability of losses. Meanwhile, credit risks are losses for the bank, because entrepreneurs have not retained the amount invested to the bank in predetermined time period. Therefore, higher credit risk provide lower quality of financing, and higher nonperforming assets (Parastoo and Housang, 2011). In this context, the higher level of sharing financing are expected to generate high degree of nonperforming financing. Thus, the hypothesis in this study stated that:

H₁: The higher level of sharing financing, the higher non-performing financing

2.2 Sharing Financing and Profitability

Sharing financing in context of Islamic finance is classified into two equity financing; Firstly, Mudarabah which is a form of partnership where one party contributes money capital and the other party devotes human capital to undertake a business activity for mutual benefit. Each party takes an agreed percentage of the profit. If a Mudarabah venture incurs losses, then the financier (bank) bears all the money losses, while the managing party receives no reward for its efforts (Khan and Bahtti, 2008). Secondly, Musharakah contract is defined as a partnership transaction in which there is more than a single contributor of funds. All parties invest in varying proportions and the profits and losses are shared strictly in relation to their respective capital contributions (Khan and Mirakhor, 1989). Therefore, Kuppusamy et al (2010) argued that the uses of equity sharing financing are expected to generate high level of profitability in Islamic bank. Similarly, Ratnasari and Ryandono (2012) noted that profit sharing financing has a positive significant effect on profitability. Thus, the hypothesis in this research stated that:

H₂: The higher level of sharing financing, the higher Islamic bank profitability

2.3 Murabahah Financing and Credit Risks

Hassan and Lewis (2007) argued risks in Islamic modes of financing are complex and evolve. However, they ranked Islamic modes of financing upon the level of credit risks. They revealed that credit risk appears at the least in Murabahah financing. Khan and Ahmad (2001) added that credit risks arise in the form of the counterparty defaulting in paying the debts in full and in time. Therefore, the higher levels of murabahah financing are expected to generate higher degree of credit risks. Accordingly, this argument formulates the hypothesis as follows:

H₃: The higher Murabahah financing, the higher non-performing financing.

2.4 Murabahah Financing and Profitability

Murabahah is defined as a transaction between two parties in which one party pays the purchase in the form of money and the other party gives the certain goods. Furthermore, the certain goods are sold with original price known and added the profit margin agreed. Therefore, the seller has to convey the basic price to the buyer.

Peter (1999) showed that assets price of Murabahah financing and the degree of risk that acceptable by bank have a vital effect on the level of profitability of Islamic bank. Moreover, Ratansari and Rayando (2012) concluded that Islamic banks are subject to have higher degree of profitability from Murabahah based on the degree of risks in their investment projects. Furthermore, Zaini and Rosly (2009) argued that the uses of Murabahah financing in context of Islamic bank investments generate positive profit margin. Thus, this argument formulates the hypothesis as follows:

H₄: The higher level of Murabahah Financing, the higher level of profitability.

2.5 Credit Risks and Profitability

The higher level of risks is associated with higher potential returns. However, lower levels of uncertainty are associated with low potential returns. Elgari (2003) stated that return on investment or profit is directly to its risk. Investors prepared themselves to bear higher risks if these are accompanied by the probability of compensatory returns. Specifically, credit risks are deemed to be the most important type of risks faced by a bank in its relationship with owner's wealth (Elgari, 2003). Zaini and Rosly (2009) argued that profitability position of Islamic banks depends mainly upon the level of risk in their investment projects. Thus, this research expects that higher degree of nonperforming (risk) is expected to generate high level of profitability. Therefore, the hypothesis in this study stated that:

H₅: The higher level of nonperforming financing, the higher level of profitability

Figure 1: Conceptual Framework

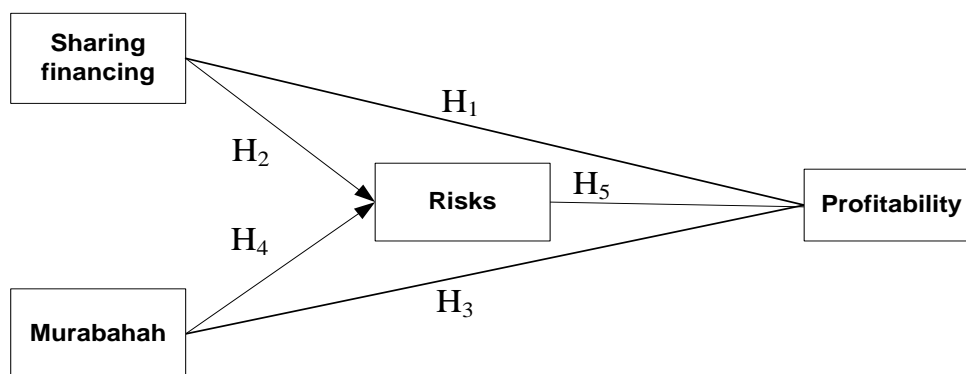


Figure 1 shows the theoretical framework of research model. The objective of the construction of this model is to examine whether Islamic financing and credit risks have an impact on the earnings in Indonesian Islamic banks. Thus, equity and debts financing represent the independent variable. Nonperforming financing (risk factor) is the intervening variable and the level of profitability is the dependent variable.

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Most of the previous studies focused on the influence of some Islamic modes of financing on profitability of Islamic bank, such as Kuppusamy et al (2010), and Ratnasari and Ryandono (2012). But, they ignored the effect of risk degree in explaining future earnings. In fact, there were no previous studies primarily conceptualized the relationship between Islamic modes of financing, credit risks, and profitability all together. Partially, this research added new intervening (non-performing financing) variable has not been examined before in past literatures.

3. Data and Methodology

This paper uses quantitative methodology to examine whether Islamic modes of financing and nonperforming financing have influence on Islamic bank profitability. The secondary data were obtained from the monthly disclosed reports for Islamic commercial banks published by central Bank of Indonesia. Thus, this sample is selected by the researcher in order to achieve some meaningful significant results. This manuscript also covers the period from January 2008 until December 2013 in order to test its hypotheses and to provide sufficient data for analysis the research variables. The reason of mentioned criteria is that these Islamic banks have operated during the current global financial crises. Path analysis model is used in this study to examine the influence of Islamic financing variables {Mudarabah, Musharakah (PLSF), Murabahah (NPLSF)} and nonperforming financing (NPF) on profitability (ROA) of Islamic banks. However, there are important backwards in this approach. Firstly, the estimation of return on assets (ROA) and nonperforming financing (NPF) are based on their historical or book values, therefore the accounting data has not completely reflected its market values. Secondly, the analysis is done with limited data availability because the monthly data research variables are not fully disclosed from Bank Indonesia Database.

The objective of the paper is providing empirical evidence from Indonesia about the effectiveness of Islamic investments and risks in explaining future earning of Islamic banks. Therefore, this research develops several hypotheses to answer the topic of this research, since there are several methods to proxy profitability, this study decided to use return on assets (ROA) in order to measure the future earnings. This ratio is commonly used by previous studies such as Bashir (2001), Sarker (2006), and Rosly (2005). On the other hand, this research uses the levels of Mudarabah, Murabhah, Musharakeh financing as explanatory variables. These ratios are used in some of prior studies such as Ratnasari and Ryandono (2012), and Kuppusamy et al (2010). Moreover, this research uses nonperforming financing (risk) as intervening variable (Hasbi and Haruman, 2011).

In Indonesia, as well as Islamic countries, there are no prior studies were primarily examined the interrelationship among profit loss sharing financing, debt financing, credit risks, and profitability in the area of Islamic finance. The research constructs the methodology of previous studies by adding nonperforming financing (NPF) as intervening variable in explaining the influence of equity and debt based financing on profitability of Islamic banks. Furthermore, this research constructs new research model in predicting future earnings of Islamic banks regarding to the performance of equity and debt financing. Thus, this section of the study represents operational definitions of data variables and research model which are used in testing the research hypotheses.

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3.1 Data and Variables

3.1.1. Return on assets (ROA)

This study uses return on Assets as proxy for measuring profitability. Bashir (2001) defined return on assets as the ability of bank to generate earnings from its existing assets. Meanwhile, this ratio is measured as bank net profit after tax divided by total assets (Rosly, 2005). Moreover, Bashir (1999) argued it gauges how effectively banks utilize their financial and real assets to generate profits. Thus, return on asset is calculated as the following:

$$ROA = (\text{Net Profit} / \text{Total Assets})$$

There are two independent variables included in research model. These include:

3.1.2 Profit-loss sharing financing (PLSF)

This ratio is defined as how the Islamic bank has successfully met the objective of sharing profit or loss with investors (Chong and Liu, 2009). Siddiqi (1981) mentioned that profit-loss sharing financing are an Islamic partnership which classified by two equity-based financing, namely Mudarabah and Musharakah financing. This study formulates the profit loss sharing financing as percentage of Mudarabah and Musharakah financing from total Islamic financing (Kuppusamy, et al, 2010).

$$PLSF = (\text{Mudarabah} + \text{Musharakah} / \text{Total financing})$$

3.1.3 Non-profit-loss sharing financing (NPLS)

This ratio is defined as a Murabahah financing whereby the bank purchases the goods desired by the buyers and resell them at an agreed mark-up price plus original cost, and the payments being settled within agreed time frame (Samad, 2004).

$$NPLSF = (\text{Murabahah financing} / \text{Total financing})$$

3.1.4 Non-performing financing (NPF)

This study uses nonperforming financing as intervening variable in order to measure the ability of assets to generate profit in long run, and to describe the capacity of bank in spreading risks and recovering default loans (Sundarajan and Errico, 2002). The common indicator that was used to identify uncollectable fund from financing is nonperforming financing regarding to total assets (Sarker, 2006).

$$NPF = (\text{The amount of bad financing} / \text{Total assets})$$

3.2 Research Model

In this study, the researcher has used a multivariate analysis of partial least square (PLS) in order to find and explain the casual relationship among the mentioned variables through testing hypotheses. Technically, path analysis model is run with regression technique, considering that technique is well accepted and commonly used to construct research model because path analysis can comprehensively capture the direct and indirect causal

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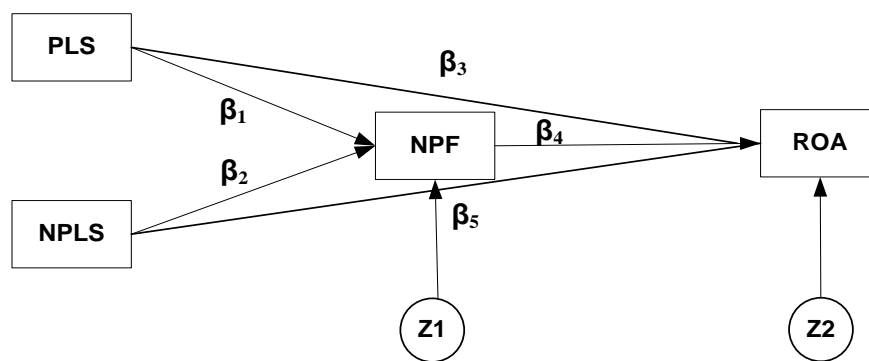
relationship among research variables (Olobatuyi, 2006). Therefore, casual relationships between variables are formulated as follows:

$$NPF_{it} = \beta_1 (PLSi_t) + \beta_2 (NPLS_{it}) + z_1 \quad (1)$$

$$ROA_{it} = \beta_3 (PLSi_t) + \beta_4 (NPF_{it}) + \beta_5 (NPLS_{it}) + z_2 \quad (2)$$

Where the NPF is the risk variable, PLS and NPLS are the Islamic modes of financing, while ROA is the profitability of Islamic bank. (i) and (t) represent the bank and the year respectively, the research used 11 Islamic banks and 6 years (2008-2013). β_1 - β_5 is the coefficients of research variables and z_1 - z_2 are residual errors. Therefore, the casual relationship could be constructed by using path diagram as follows:

Figure 2: Path Diagram of Research Variables



4. Data Analysis

This research aims to investigate the influence of Islamic modes of financing and nonperforming financing on profitability. Therefore, this section presents the descriptive statistics for the research variables, correlation analysis, path analysis, and discussing the results.

4.1 Descriptive Statistics of Data Variables

Table 1 displays the average, standard deviation, maximum, and minimum values of all variables used in this research.

Table 1: Descriptive Statistics for Research Variables

Variable	Observation	Minimum	Maximum	Mean	Std. Dev.
1. PLSF	72	0.269	0.378	0.334	0.037
2. NPLS	72	0.537	0.597	0.568	0.015
3. NPF	72	0.023	0.057	0.039	0.009
4. ROA	72	0.006	0.024	0.018	0.003

The profitability (ROA) variable has a mean value of 1.8% of total assets and deviated by 0.3%. The low variability of return on assets indicates that Islamic banks in Indonesia are maintaining conservative policy for participation their Islamic financing in high risky investments.

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The average (mean) of nonperforming financing is 3.9%, this means that Islamic banks have 3.9 percent as default financing from their total Islamic investments, where standard deviation is 0.9%. This is also low relative percentage from their Islamic financing.

The profit loss sharing financing (Mudarabah and Musharakah) have a mean value of 33.4% from total Islamic financing and the standard deviation is 3.7%. This indicates that Mudarabah and Musharakah contracts have relatively low participation in the context of Islamic banks financing.

The results of data analysis show that non-sharing financing has a mean value of 54% from total Islamic financing with a standard deviation of 1.5%, this ratio is relatively high compared with profit loss sharing financing. This means that Indonesian Islamic banks prefer to invest their fund based on non-sharing financing rather than sharing financing. This is due to the high profitability and the low degree of risk.

4.2 Correlation Analysis

Table 2 exhibits the Pearson correlation coefficient among research variables and it also shows the significant indicators using two tailed tests. We used correlation matrix in order to identify the existence of multi-co-linearity problem among observed variables before path analysis could be implemented. The result concludes that correlation score among explanatory variables (PLS and NPLS) is relatively too low.

The result from correlation analysis indicates that sharing financing is highly significant at 1% level and positively correlated with nonperforming financing (87%). This means that financing by Mudarabah and Musharakah contracts generate high level of uncollectable fund. Therefore, the degree of risk in profit loss sharing financing is relatively high. On the other hand, it shows that non-sharing financing is positively correlated with profitability measured by ROA (34.3%) and significant at 1% level. This indicates that the more Islamic investments by Murabahah contracts are more profitable Islamic banks.

Table 2: Pearson Correlation Matrix of Research Variables

Variables	PLS	NPLS	NPF	ROA
PLS	0			
NPLS	-0.012	0		
NPF	0.870**	-0.015	0	
ROA	0.124	0.343**	0.13	0

** , correlation is significant at the level 0.01 (2 tailed)

4.3 Path Analysis

Table 3 represents the relationship between financing, risk, and profitability of Islamic banks. The hypotheses testing criteria is based on t-statistics greater than t-table 1.96, while p-value less than significant level at 5%. Furthermore, multiple regression models are used to explain the effect of sharing and non-sharing financing on risk and profitability. So, the research models can be applied as follows:

$$\text{NPF (risk)} = -0.03 + 0.871 (\text{PLS}) - 0.005 (\text{NPLS}) + 0.022$$

$$\text{ROA (profit)} = -0.023 + 0.042 (\text{PLS}) + 0.099 (\text{NPF}) + 0.345 (\text{NPLS}) + 0.014$$

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As shown in table 3, the results of tested hypotheses are based on t-value and p-value. Therefore, the researcher can summarize the results as follows:

1. Profit loss sharing financing (PLS) has a positive and significant influence on nonperforming financing (NPF), t-value is 13.411 greater than the rule of thumb 1.96 and p-value less than the level of significance at 5%. Thus, H_1 is accepted.
2. Non-profit loss sharing financing (NPLS) doesn't have significant influence on non-performing financing; t-value is 0.077 less than 1.96 and p-value greater than the level of significance at 5%. Thus, H_2 is rejected.
3. Profit loss sharing financing (PLS) doesn't have significant influence on profitability (ROA), t-value is 0.166 less than 1.96 and p-value greater than the level of significance at 5%, and then H_3 is rejected.
4. Non-profit loss sharing financing (NPLS) has a positive and significant influence on profitability (ROA); t-value is 2.776 greater than 1.96 and p-value less than the level of significance at 5%. Thus, H_4 is accepted.
5. Non-performing financing has no significant influence on profitability (ROA) of Islamic banks; t-value is 0.391 less than 1.96 and p-value greater than the level of significance at 5%. H_5 is rejected.

Table 3: The results of direct effect hypotheses

Hypothesis	Independent	Dependent	Beta (β)	t-value	p-value	Decision
H ₁	PLS	NPF	0.871	13.411	0.000	Accepted
H ₂	NPLS	NPF	-0.005	-0.077	0.939	Rejected
H ₃	PLS	ROA	0.042	0.166	0.868	Rejected
H ₄	NPLS	ROA	0.345	2.776	0.007	Accepted
H ₅	NPF	ROA	0.099	0.391	0.697	Rejected

4.4 Discussion the Results

The results of path analysis between financing, risk, and profitability are presented in table 3. This research concludes that there is a significant positive relationship between profit loss sharing financing and uncollectable fund (NPF). This indicates that higher level of participation in sharing financing will generate high degree of credit risks (bad financing). The researcher argues that sharing financing between Islamic bank and entrepreneur (investor) or other partners increases the probability of uncollectable fund. This argument is consistent with other prior studies such as Parastoo and Housang (2011). They argued that profit and losses sharing financing are positively correlated with credit risks in Islamic banks as well as conventional banking case. This result also indicates that equity financing is not feasible for funding investment projects due to avoiding taken risks. This makes Indonesian Islamic banks prefer debt financing in order to ensure a high degree of liquidity. Therefore, this argument is also consistent with research of Mawardi et al (2012).

Based on path analysis, this study found that non-sharing financing does not affect non-performing financing. The path coefficient is negative but it is not statistically significant. This means the higher level of Murabahah financing in context of Islamic bank has limited effect on nonperforming financing. The reason is that Islamic banks prefer to invest their

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fund in high degree of liquidity investments and low risky projects. This result is empirically supported by Hassan and Lewis (2007). They stated that Murabahah financing has relatively low degree of credit risks compared with other Islamic modes of financing.

The findings also revealed that profit loss sharing financing (PLS) does not have influence on profitability of Islamic bank in Indonesia. This indicates that higher levels of sharing financing do not motivate the profitability of Islamic banks. However, no such relationship is observed in context of Islamic banking literatures. This argument is in contrary with some prior studies such as Ratnasari and Ryandono (2012) and Kuppusamy et al (2010). Therefore, this result concludes that Islamic banks with high level of sharing financing have limited support their profitability.

The result of research also concluded that non-sharing financing has a positive significant effect on profitability of Islamic bank in Indonesia. This implies that those higher levels of Murabahah financing are more likely to increase the degree of profitability in Islamic banks. This study finding is consistent with studies result of Mawardi and Rayando (2012) and Zaini and Rosly (2009). They argued that murabahah financing has a positive productive assets quality and profit margin.

As a result, this research found that there is no trade-off between credit risks measured by nonperforming financing and profitability of Islamic bank. Therefore, this study finding is different in the result of Zaini and Rosly (2009) and Elgari (2003) who found a significant and positive effect of credit risks on profitability of Islamic banks.

5. Summary and Conclusion

The purpose of this research was to examine the effect of Islamic modes of financing and credit risks on profitability of Islamic banks in Indonesia. In particular, this study aims to improve the profitability performance and assets growth of Islamic banks. Further, this study emphasizes on Murabahah, Mudarabah, and Musharakah as Islamic modes of financing, while these Islamic investments reflect some anticipated risks such as default and credit risks which intervene whether these variables effect on variability of profits in Islamic banks. The findings reveal that while Islamic banks grew in their Mudarabah and Musharakah contracts, the degree of nonperforming financing (risks) raised over the time. Consequently, the credit risks could be increased and the assets quality could be declined. Practically, this study found that Islamic banks in Indonesia have low level of participation in profit and loss sharing financing in order to avoid the risk of non-performing financing. Therefore, this empirical result gave strong evidence why Indonesian Islamic banks prefer to invest their fund in debt financing and short term projects. Accordingly, equity based financing has limited support performance or profitability of Islamic banks. However, the result of the paper concludes that Murabahah financing has a positive significant relationship with profitability which indicates that higher degree of debt financing tends to improve profitability of Islamic banks. On the other hand, this research reveals that Murabahah financing does not have influence on non-performing financing (risk) of Islamic banks.

Finally, the constructed research model concludes that the higher level of sharing financing in the context of Islamic banks increase the probability of low quality financing. It also reveals that the use of Murabahah financing has a profitable implication for Islamic banks in Indonesia. Therefore, this study added that credit risks are effectively managed by Islamic banks which make it a positive and more profitable in their financing, because it

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can improve the efficiency of their assets and reduce the low quality of their financing. It also encourages Islamic banks to take risks in their investments in order to achieve growth in their profits.

One of the primary limitations of this paper is the data observation which is limited to implement the research model. In one sense, it depends on the limited quantitative approach applicable to be used. Moreover, the study excluded other Islamic modes of financing in conducting research due to the limited data availability. Further research could be incorporate other debt instruments such as Ijara', Salm, and Istisna' in Indonesian Islamic banking industry.

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