

# How Does Profitability, Size, and Capital Affect Credit Risk ? : Evidence from Islamic Banks in Asian Countries

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## ABSTRACT

### Keywords:

*Islamic bank;  
Credit Risk;  
Capital  
Adequacy Ratio;  
Size;  
Profitability.*

The study aims to analyze the effect of profitability, size, and capital on the credit risk of Islamic banks in Asian countries through the mediating variable of financing by path regression analysis. Data were obtained quarterly from 2015Q1 – 2020Q3. Method of the study used causal research design, namely research that has the main objective of proving a relationship affecting and being influenced by the variables studied. The findings conclude that size and profitability significantly affect credit risk through the financing mediation variable. Capital does not significantly reduce credit risk because it only functions to mediate financing. Meanwhile, increased financing will also increase the credit risk of Islamic banks in the Asian Region. The study can explain why there is an inconsistency of the effect profitability, size, capital, on credit risk because there is a financing mediation role. The implication of policy that the Islamic bankers in Asian countries must more prudent to manage financing so that credit risk is controlled.

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## INTRODUCTION

The stability of the financial sector has a vital role in the economic development of a country. The recent financial crisis has proven the importance of financial institutions and has a significant influence on the national economy. The risks faced by banks can come from internal and external factors such as inefficient managers, poor regulations, and economic conditions (Tehulu & Olana, 2014). Compared to these problems, credit risk is considered one of the main problems that can cause financial instability and threaten the continuity of banking operations.

Credit risk is inherent in the function of the bank as an intermediary institution, namely the activity of channeling funds. The majority of banks currently still rely on their income from disbursing funds (Raj, 2017). Financing growth must be balanced with reasonable financing management efforts to minimize the emergence of credit risk. Credit risk arises from the activities of disbursing funds; credit risk in Islamic banks can be proxied by non-performing financing. Financing is categorized as Non-performing financing or problematic financing when the customer cannot pay off his obligations for more than 90 days (Dimitrios, Helen & Mike 2016; Morina 2020).

In addition to reflecting the effectiveness of financing management, non-performing financing also indicates banking stability (Prasanna, Thenmozhi & Rana 2014). Higher non-performing financing will result in a decrease in bank profits, and usually, this ratio is always related to economic development (Kharabsheh 2019). In addition, higher credit risk can also cause a bank to be liquidated. Based on the important role of the banking system in economic development, a study of the determinants of credit risk needs to be deeply analyzed. Several study have conducted on credit risk studies such Bhattarai (2018), Morina (2020), Kharabsheh (2019), Shkodra & Ismajli (2017); Rahman and Fatmawati (2020), Al-Wesabi & Ahmad (2013). However, the research results are still not able to answer the inconsistency of the research results.

A Study by Bhattarai (2018) and Kharabsheh (2019) found that bank size affect negatively on credit risk. Further Morina (2020) and Al-Wesabi & Ahmad (2013) found that size has a positive and significant effect on credit risk. In contrast, another results was also found in the influence of Return On Assets (ROA) on credit risk by Bhattarai (2018); Shkodra & Ismajli (2017); Setiawan (2017); (Kharabsheh 2019); Rahman & Fatmawati (2020).

Chernykh & Theodossiou (2011) found that larger banks have a better capital structure so that the ability to allocate funds is greater than that of small banks. In addition, large banks will face greater risks as well. Other research conducted done by Vogiazas & Nikolaidou (2011) found that higher credit growth is seen as a negative signal of bank health. Kusnandar (2012) found that banks' high return on assets will increase profit. While Kharabsheh (2019) found there was a positive influence of credit growth on credit risk.

On the other hand, [Panuntun & Sutrisno \(2018\)](#) stated that an increase in CAR that was not matched by efficient capital management will lead to a decrease in the distribution of funds. The decrease in credit disbursed means that the credit risk faced by the bank will also decrease, this result in line with studies by [Louzis et al. \(2012\)](#); [Abid et al. \(2014\)](#); [Chaibi & Fiti \(2015\)](#).

[Murdiyanto \(2012\)](#) explained the cause of the declining condition of financing when CAR increased due to bank concerns about increasing credit risk, encouraging banks to limit credit expansion, and fostering the Capital Adequacy Ratio (CAR) to anticipate the emergence of credit risk. Furthermore, [Kuncahyono \(2016\)](#) found that lower CAR will encourage banks to increase lending to increase profits rather than increase capital. Further, [Panuntun & Sutrisno \(2018\)](#) explained another reason for the negative effect of CAR on financing was inefficient capital management will lead to a decrease in financing. This result also in-line with [Pratiwi & Hindasah \(2014\)](#); [Harmayati & Rahayu \(2019\)](#).

Most of the previous researchers investigated the effect of the independent variable on the dependent using direct regression. At the same time, the influence of some of the variables mentioned is suspected not to affect credit risk directly but will depend on credit quality. Based on this, the purpose of this study was to fill the gaps in the results of previous research through improving the path regression analysis method, which will answer why the influence of profit, capital, and size is inconsistent on credit risk using Islamic Bank objects in Asian countries.

This study aims to analyze the effect of profitability, size, and capital on the credit risk of Islamic banks in Asian countries. The study was conducted on Islamic banks in the Asian Region by highlighting that the growth of Islamic bank assets in these countries was relatively high or an average of 5.5% based on publications. The characteristics of Islamic banks that prohibit mitigating credit risk through liquidation of collateral, especially in mudharabah and musyarakah financing, require them to be more careful in managing their credit risk. In addition, most Islamic banks in the Asian Region operate in a mixed economic system, so they have to compete with conventional banks. Higher credit risk will decrease revenue or profit-sharing capabilities, absorb bank capital and ultimately reduce bank competitiveness, and even risk financial system instability.

In this study the variables of credit (financing) were used to mediate the effect of profit, capital, and size on credit risk. The inconsistency of the findings of previous research on the effect of profitability, size, and CAR on credit risk is caused by the limitations of the research design they use, especially in the analytical model.

## RESEARCH METHOD

The research design used was a causal research which has the main objective of proving a relationship affecting and being influenced by the variables studied. The

population used is the Full Fledge Islamic Banking industry in 22 Asian IFSB member countries. The sampling method used purposive sampling technique based on the following criteria: *first*, Islamic Banking Industry in Asian countries that have been members of the IFSB before 2015, especially which presents financial reports at the IFSB for five years from 2015:Q1 to 2020:Q3.

This study uses Structural Equation Model (SEM) approach that uses Partial Least Square (PLS) software, namely, WarpPLS software version 7.0. PLS is a variant-based structural equation analysis that can simultaneously test the measurement model and test the structural model.

Testing the hypothesis between the dependent and independent variables partially uses a 5% alpha significance level. The criteria for rejecting the hypothesis ( $H_0$ ) if the t-statistics > t-table or if the alpha in the data analysis results was below 5%  $H_0$  was rejected and vice versa.

Inner model was used to test causality (testing hypotheses with predictive models) and describe the relationship between latent variables based on substantive theory. The structural model was evaluated using R-square for the dependent construct.. Assessing the model with PLS begins by looking at the R-square for each latent dependent variable.

This indirect effect was obtained by the formula for the effect of the independent variable on the mediating variable multiplied by the effect of the mediating variable on the dependent variable (Sholihin, 2014). Third, calculate VAF with the following formula:

$$VAF = \frac{\text{direct influence}}{\text{Direct influence} + \text{indirect effect}} \quad (1)$$

#### Goodness of Fit Model

Determine the value of Goodness of Fit, it can be known through the percentage of variance, which is explained by the  $R^2$  value for the dependent latent construct. Evaluation of the Goodness of Fit Model in WarpPLS uses the Fit and Quality Indices Model as shown in Table 2,

**Table 2.** Criteria for goodness of fit model on warp PLS

No	Model fit and quality indices	Fit Criteria
1.	Average Path coefficient (APC)	Accepted if $p < 0.05$
2.	Average R-squared (ARS)	Accepted if $p < 0.05$
3.	Average adjusted R-squared	Accepted if $p < 0.05$
4.	Average block VIF (AVIF)	Accepted if 5
5.	Average full collinearity VIF	Accepted if 5
6.	Tenenhaus GoF (GoF)	Small > 0.1, ; Moderate > 0.25, ; Large > 0.36

Source : (Nitzl & Cepeda-carrion 2017)

## RESULT AND DISCUSSION

The effect of the variable size, CAR, on ROA through the mediation of Financing and NPF was examined in Islamic banking in Asia in the period 2015 first quarter to 2019 third quarter with a selected sample of 10 Islamic banks that met the requirements. The results of path analysis through warp PLS 7.0 are as follows:

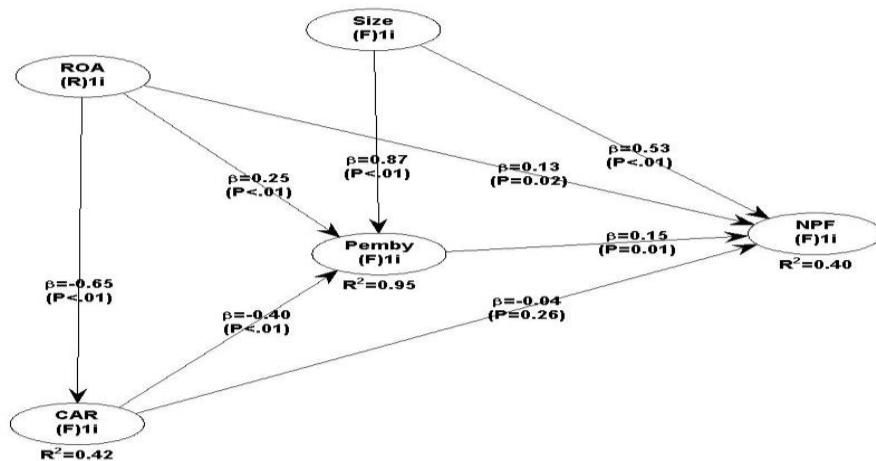


Figure 1. PLS Warp Analysis Output Results

### Goodness of fit Result

The initial stage in path analysis is to determine the model used has a model that is fit/goodness. The goodness of fit can be known by comparing the indicator with a predetermined value. Based on the model fit criteria, it shows the fit model because the values of APC (0.001), ARS (0.001), AARS (0.001), AVIF (3.313), AFVIF (2.750), GoF (0.768) meet the requirements (rule of trump). In addition, the model in this study is free from multicollinearity because the AVIF (3.313) and AFVIF (2.750) values are less than the predetermined limit of 5.

### R-Square ( $R^2$ ) Result

The magnitude of the effect of CAR, Size, ROA on Financing is seen from the  $R^2$  value of 0.95, which means 95% of changes in financing variables are explained by a combination of variables in the research model (CAR, Size, ROA) while other variables outside the model influence the remaining 5%. R-Square ( $R^2$ ) CAR is 0.42 or 42% so that it can be interpreted that the ROA variable can explain changes in NPF. At the same time, the R-Square ( $R^2$ ) NPF of 0, 40, or 40% change in ROA is influenced by the selected combination of variables (CAR, Size, Financing, ROA). In comparison, other variables outside the research model explain the remaining 63%.

### Hypothesis testing

Hypothesis testing aims to explain the direction of the relationship between the independent variable and the dependent variable. Hypothesis testing in this study uses path analysis; The results of the path coefficients above can be explained by: Size, Financing Size, ROA, has an influence on credit risk with a value of  $p$  value  $< 0.05$  while CAR has no influence on credit risk indicated by the value  $p$  Value  $> 0.05$ . While on the influence, CAR Size ROA on financing has an influence on financing indicated by  $p$  value  $< 0.05$ . Based on the result of mediating testing model, it known that financing was a partial mediator on the effect of size on NPF (20%), CAR on NPF (60%), ROA on NPF (22%). In contrast, in CAR mediation on the effect of ROA on NPF, no mediating effect was found due to CAR as a variable mediation has no significant effect on NPF.

The result described that size had a positive and significant effect on credit risk. It has an empirical understanding that increasing size will increase credit risk. The study results support the concept of too big to fail policy, namely that the larger the size of the bank, the greater the incentive to take credit risk. For Islamic banks, a larger size requires increasing efficiency by increasing asset productivity to provide revenue sharing to depositors. This result support findings by [Shahid & Abbas \(2012\)](#); [Alexandri & Santoso \(2015\)](#); [Abedifar et al., \(2015\)](#); [Mousa & Zaiani, \(2018\)](#); [Morina \(2020\)](#) which found that size has a positive effect on credit risk. Meanwhile [Rajhi & Hassairi \(2013\)](#) found that large banks usually have many transactions to gain profits so that the risks they face are even greater.

On the other hand, the results also found financing had a positive and significant effect on credit risk. This result in line with research by [Kharabsheh \(2019\)](#) found that high credit growth without efficient management will lead to low credit quality. The credit risk faced by banks also increases. Further, [Vogiazas & Nikolaidou \(2011\)](#) stated that higher financing growth was seen as a negative signal of bank health. However as mentioned by [Louzis, Vouldis, & Metaxas \(2012\)](#) that financing management inefficiency will significantly increase credit risk, even previous prior studies show a positive influence between credit and credit risk at banks ([Abid, Ouertani & Zouari-Ghorbel 2014](#)); ([Chaibi & Ftiti 2015](#)).

The study result also found that ROA had positive affects on credit risk. This result in-line with the theory of procyclical credit policy related to short-term reputation of bank management. As [Suhartono \(2013\)](#) stated that profitable will place more reserves for loan losses while profit-oriented banks are willing to take a lot of risk to earn a profit. The results of this study are supported to the result of the study by [Blanco & Gimeno \(2012\)](#); [Vatanseve & Hepsen \(2013\)](#); [Alexandri & Santoso \(2015\)](#); [Gunawan & Daryanto \(2016\)](#).

On the other hand, the hypothesis test shows that there was a discrepancy with the hypothesis formed that CAR has a significant negative effect on credit risk. The insignificant effect of CAR on credit risk was due to Islamic banks in Asia allocating CAR for expanding financing to increase profits. However, the direction of the influence



of CAR on credit risk shows the opposite direction (negative), which indicates conformity with the moral hazard theory. This result in-line with the study conducted by [Diyanti, 2012](#)); [Suhartono \(2013\)](#); [Makri, Tsagkanos & Bellas \(2014\)](#).

The result also found that CAR had a significant effect on financing. Based on the concept offered by moral hazard theory, the condition of low bank capital will encourage banks to increase financing in the hope of increasing profits. This result in-line with the result found by [Murdiyanto \(2012\)](#); [Pratiwi & Hindasah \(2014\)](#); [Kuncahyono, \(2016\)](#); [Panuntun & Sutrisno \(2018\)](#); ([Harmayati & Rahayu 2019](#)), stated that the decrease in financing when the CAR increases are due to by banks' concerns about increasing credit risk prompting banks to limit credit expansion, and fostering a Capital Adequacy Ratio (CAR).

While the result of the hypothesis test show that size had a positive and significant effect on financing. The result of this study had an empirical understanding that an increase in bank size will increase the financing channeled. The results of this study support the concept described by the too big to fail theory. The result of this study was in-line with [Chernykh & Theodossiou \(2011\)](#); [Ladime & Kofi \(2013\)](#); [Malede \(2014\)](#); [Adnan et al. \(2016\)](#); [Purnamasari \(2020\)](#); [Vo et al. \(2021\)](#) which found that large banks are more aggressive in expanding financing due to the safety net from the government, so that the larger a bank, the greater the credit disbursed. The larger bank, the greater the total assets it has.

The result of hypothesis also found that that ROA had a positive effect on financing, this study found that increasing ROA will increase the amount of financing disbursed by banks. The higher ROA indicates the optimal use of assets to gain profits so that banks guarantee the current and future availability of funds. The result of this study were in-line with the research by [Arianti, Andini & Arifati \(2016\)](#); [Handayani \(2018\)](#); [Prihartini & Dana \(2018\)](#) which found that more high ROA will the more increase the distribution of financing.

The result show that ROA had negatively effect on CAR. An increase in ROA will cause a decrease in CAR. The results also show consistency with moral hazard behavior theory where banks placing their funds in risky projects which causes risky bank assets (RWA) to increase. The result support the previous result by [Dreca \(2014\)](#); [Alajmi & Alqasem \(2015\)](#); [Jaseviciene & Jurksaityte \(2014\)](#); [Yahaya, Mansor & Okazaki \(2016\)](#); [Vu & Dang \(2020\)](#) which stated that the higher the bank's profit indicated the lower the need for capital to absorb losses.

## CONCLUSION

The primary results of this study demonstrate that that ROA and size positively affect credit risk through the financing mediation variable. This explains that Islamic

banks in Asia will increase financing as size and ROA will slowly increase. The results also reveal that bank profitability (ROA) was not used to increase CAR but it should be used to increase financing so that at the same time it reduces CAR. The decline in CAR and increase in credit risk for Asian Islamic banks are still within the limits of Bank soundness provisions. So by the increase in CAR that has not been utilized to reduce losses (NPF).

Despite of the compelling results, this study acknowledges a research limitation. although this study's results offer a model that can explain how and why credit risk varies, they have not made forecasting for the benefit of policy intervention for Islamic bankers and supervisory authorities. Due to the limitation, the authors suggest future research to develop the determinants of credit risk by analyzing bank-specific factors and macroeconomic variables. In addition, it is necessary to develop a dynamic model that can predict and forecast the credit risk in a position of equilibrium both in the short and long run.

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