



# What Influences Capital Adequacy Ratio in Islamic Commercial Banks? Evidence from Indonesia

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## Abstract

**Objective** – This study aims to examine whether Return on Assets (ROA), Financing to Deposit Ratio (FDR), Size, Net Interest Margin (NIM), and Deposit (DEP) have any influence on Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period of 2015-2017.

**Design/methodology** – The population in this study is all Islamic Commercial Banks operating in Indonesia for the period 2015-2017. The data was collected from financial statements of the Islamic Commercial Banks for the period of three years totalling of 36 observations. Multiple Linear Regression was used to analyse the data.

**Results** – The results showed that Return on Assets (ROA) has a negative effect on Capital Adequacy Ratio (CAR). Meanwhile financing to Deposit Ratio (FDR) has a negative effect on Capital Adequacy Ratio (CAR) and size has a negative effect on Capital Adequacy Ratio (CAR). Furthermore, net Interest Margin (NIM) has a positive effect on Capital Adequacy Ratio (CAR) and lastly Deposit (DEP) has a negative effect on Capital Adequacy Ratio (CAR).

**Research limitations/implications** – This study has limitations due to the short observation period of only 3 years from 2015 to 2017. Future studies are recommended to enhance this current study by embarking a longer period of study or by performing a comparative analysis between Islamic banks in different countries.

**Keywords:** Capital Adequacy Ratio, Return on Aset, Financing to Deposit Ratio, Size, Net Interest Margin, Deposite.

## 1. Introduction

Islamic Banking System in Indonesia began in 1992 where the first Islamic bank in Indonesia was established, namely Bank Muamalat Indonesia (BMI). The law which specifically regulates sharia banking is Law No.21 of 2008, which states that it guarantees legal certainty for stakeholders and at the same time gives confidence to the public in using Islamic bank products and services. The law emerged after the development of Islamic banking in Indonesia experienced a significant increase.

The development of the Islamic financial industry is expected to strengthen national financial system stability. This expectation provides optimism to see the spread of the Islamic banking office network currently experiencing very rapid growth. In the process of running its business, banking companies are required to measure their performance every few periods to determine the condition of their business. This is done in addition to formulating appropriate policies, as well as evaluating the application of prudential principles, compliance with applicable regulations and risk management. The method that is often used to assess bank performance and its level of health is the Capital adequacy, Asset quality, Management, Earning and Liquidity and Sensitivity (CAMELS) method, one aspect of which is the valuation of business capital (Olalekan & Adeyinka, 2013).

Based on revisions to the provisions of the minimum capital requirement (KPPM) of Islamic banks in PBI Number 7/13 of 2005. Revisions to Islamic banks'

KPMM rules follow the capital calculation standards of the Islamic Financial Service Board (IFSB) where sharia commercial banks must meet the effective CAR starting January 2015. Therefore, it can be assessed that there are still Syariah banks in Indonesia that have a low or unhealthy capital level (below 14%). In addition, banks must also add a CAR risk profile of around 4 percent and surcharge capital of 2.5 percent (until 2019).

In general, the development of the CAR ratio in Sharia Commercial Banks in Indonesia for the period 2010-2017 can be seen in the following table.

**Table 1.** Development of the Sharia Commercial Bank CAR Ratio in Indonesia in 2010-2017

No.	Year	CAR Ratio (%)
1	2010	16,25
2	2011	16,63
3	2012	14,13
4	2013	14,42
5	2014	15,74
6	2015	15,02
7	2016	16,63
8	2017	17,91

Source: Financial Services Authority Sharia Banking Statistics

Based on table 1 it can be seen that the development of the CAR ratio of Sharia Commercial Banks in Indonesia has fluctuated from 2011-2016. In Islamic banking to realize a strong and stable capital can be done by improving performance, especially related to variables that can drive the optimization of the CAR it has. Various banking-specific variables have been investigated so far for CAR, but most of the research subjects are conventional banks.

Some studies on Islamic banking that examine the effect of bank-specific variables on CAR are research conducted by Andhika & Suprayogi (2017), Mekonnen (2015), Shaddady & Moore (2015), Andini & Yunita (2015) Abusharba, Triyuwono, Ismail, & Rahman (2013) Olalekan & Adeyinka (2013), Büyüksalvarci & Abdioğlu (2011), Krisna (2008), and Shitawati (2006).

This study aims to examine the effect of Return on Assets (ROA), Financing to Deposit Ratio (FDR), Size, Net Interest Margin (NIM), and Deposite (DEP) jointly to the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the 2015-2017 period.

This research is useful for sharia banking investors, namely as a material consideration before investing their funds by knowing the factors that influence the level of bank health (CAR). This research is also useful for Islamic banking, which is a matter of consideration for determining strategies to maintain the condition of banks to remain healthy and be able to compete with conventional banks.

The discussion begins with discussing literature studies relating to Islamic banking, capital adequacy and the factors that influence it. Then proceed with explaining the research method used. After that, followed by a discussion of the findings of the research, and finally, this study provides some conclusions and suggestions for the parties concerned.

## 2. Literature Review, Theoretical Framework and Hypothesis Development

### *Islamic Banking in Indonesia*

Law Number 21 of 2008 concerning Islamic Banking states that "Islamic banking is everything that concerns the Islamic banks and sharia business units, including institutions, business activities, and the ways and processes in carrying out their business

activities". According to Rivai (2013), the notion of Islamic banks is financial institutions that have laws, rules, and procedures as a manifestation of commitment to sharia principles and prohibit receiving and paying interest in the process of the operation carried out. Islamic banking is a banking system developed based on sharia (Islamic law)

Islamic banks were established with the aim of promoting and developing the application of Islamic principles into financial and banking transactions and other related businesses. The main principles that are followed by Islamic banks are (Rodoni & Ali, 2010:123): a) Prohibition of usury in various forms of transactions, b) Conducting business activities and trading based on legal gain, c) Giving zakat.

#### *The Influence of Return on Aset (ROA) on Capital Adequacy Ratio (CAR)*

According to Kuncoro & Suhardjono (2011:519), Capital Adequacy Ratio is a capital adequacy ratio that shows the ability of banks to maintain sufficient capital and the ability of bank management to identify, measure, supervise, and control the risks that arise that can affect the size of bank capital. The amount of capital gives a sense of security to candidates or requester of money (Dendawijaya, 2009:121). CAR is a "ratio that shows how far all risk-bearing bank assets (credit, shares, securities, bills on other banks) are financed from the bank's own capital funds in addition to obtaining funds from sources outside the bank, such as public funds, loans (debt), etc. "

ROA is used to measure the effectiveness of a company in generating profits by utilizing assets/assets owned. In other words, this ratio is used to measure the ability of bank management to obtain overall profits (profits). The greater the ROA of a bank, the greater the level of profit achieved by the bank thus the position of the bank will be better in terms of the use of assets (Rivai, 2013:157).

The results of the study by Abusharba et al. (2013) state that "profitability has positive effects on capital adequacy on which the study uses ROA to measure profitability". These results are in line with the results of the research of Andini & Yunita (2015) which determine that ROA partially has a significant positive effect on CAR. The increase in ROA will increase CAR because the higher the bank's ability to generate profits, the more funds will be allocated to increase capital so that the value of CAR will also increase. Based on the description, this study proposes a hypothesis:

H1: Return on Assets (ROA) has a positive effect on Capital Adequacy Ratio (CAR)

#### *The Influence of Financing to Deposit Ratio (FDR) on Capital Adequacy Ratio (CAR)*

The theory of financial intermediation states that banks function as intermediary institutions, especially in lending or financing to Islamic banks. The bank has a role as an intermediary that will channel excess funds from party funds obtained from Third Party Funds (DPK) to those who need funds. Therefore, the Bank has an important role in the overall movement of the economy. Financing to Deposit Ratio (FDR) is a comparison between the level of financing channelled by Islamic banks to third-party funds collected from the community (Dendawijaya, 2009:116). The low value of FDR shows that banks are liquid with an excess capacity of funds that are ready to be mortgaged (Latumerissa, 1999:23).

By channelling financing, the bank can benefit. If the FDR ratio is high, then it can be interpreted that the amount of financing provided by Islamic banks is greater. The greater financing provided by Islamic banks to customers will increase the bank's profits. The advantages of Islamic banks will be allocated to capital, so that the greater the financing, the capital obtained will also increase (Oktaviana & Syaichu, 2016).

Mekonnen's (2015) research states that "Liquidity position has a statistically significant effect capital adequacy". These results are in line with the results of research by Andhika & Suprayogi (2017) showing that FDR has a positive effect on CAR. This is in accordance with the theory presented by Hempel & Simonson (1999:323-324) that banks that provide loans aggressively must have more capital than banks that have less

risk (less aggressive in lending). Based on the description of these thoughts, there is a logical thought by proposing the following hypothesis:

H2: Financing to Deposit Ratio (FDR) has a positive effect on Capital Adequacy Ratio (CAR).

*The Influence of Size on Capital Adequacy Ratio (CAR)*

Size is a measure that shows the scale of a bank's business which can be seen from the number of assets. The increase in bank assets shows the increase in investment made (Siringoringo, 2012). Investments will provide the possibility of risks, such as the risk of funds being channelled does not return. Therefore, capital is used to cover the risk of losses on investments, especially those originating from third-party funds or the community (Rahayu, 2013).

Banks with large assets that have large investments must have a big risk. The bank will experience a decrease in capital if the investment made is a loss. Banks with large assets have lower CARs than banks with small assets (Ahmad, Ariff, & Skully, 2009). Raharjo, Hakim, Manurung, & Maulana (2017) state that large-sized banks have a smaller capital adequacy ratio than small banks. The increase in bank assets is generally caused by an increase in financing and investment in risky assets so that the potential for bank losses due to bad debts and falling prices for financial instruments are increasing.

Based on research conducted by Yunialdo (2015), Bateni, Vakilifard, & Asghari (2014), Raharjo et al. (2017), and Romdhane (2012), that size has a significant negative effect on Capital Adequacy Ratio (CAR). The research results of Andhika & Suprayogi (2017) produce a negative relationship between the size of the bank and CAR. Mekonnen's (2015) research results are slightly different from the results of previous studies which state that company size has a positive influence on CAR. Based on the description of these thoughts, the hypothesis propose is:

H3: size has a negative effect on Capital Adequacy Ratio (CAR).

*The Influence of Net Interest Margin (NIM) on Capital Adequacy Ratio (CAR)*

Capital costs are the interest costs paid by the bank to each source of funds, so to increase NIM's income it needs to reduce the cost of funds. Overall, the costs that must be incurred by the bank will determine what the credit interest rate is given to customers to obtain a bank's net income (Krisna, 2008).

Previous researchers conducted by (Indira, 2002) used NIM as a bank health measurement variable and showed that NIM was used as an indicator to predict bank health (one of which was proxied through CAR). Krisna's (2008) research results show that bank income derived from funds placed in the form of loans (credit) is allocated for debt restructuring.

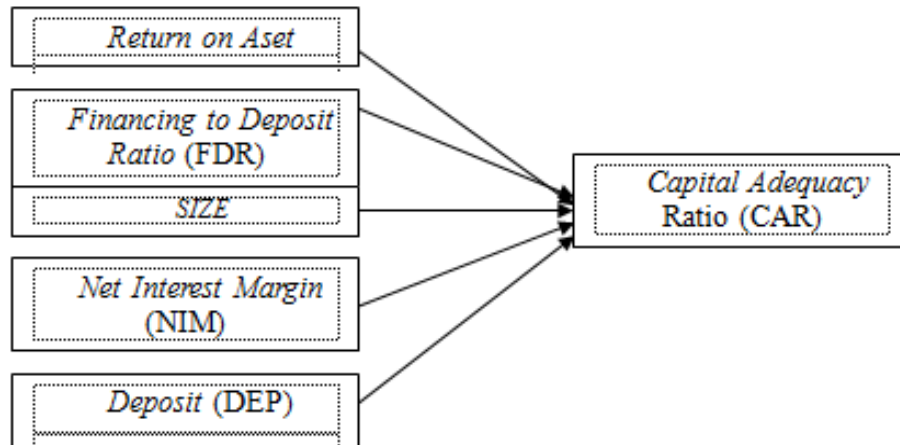
H4: Net Interest Margin (NIM) has a positive effect on Capital Adequacy Ratio (CAR).

*The Influence of Deposit (DEP) on Capital Adequacy Ratio (CAR)*

Deposits are one of the savings products as a source of funds in the bank. These deposit funds must be cheaper than loan funds or financing instruments (such as financing with bonds or syndicates and securities loans)(Kleff & Weber, 2003). When the source of deposit funds increases, proper management, and control are needed by the bank to guarantee the rights of depositors while protecting the bank from loss or bankruptcy.

The bank will maintain a lower capital ratio if the depositor does not know the level of the financial health of the bank. If the depositor knows the level of bank capital strength, the bank will observe and maintain the optimal capital ratio that can be received by depositors because large capital causes lower deposit interest rates (Büyüksalvarci & Abdioğlu, 2011).

Based on the results of the study of Asarkaya & Özcan (2007), the deposit has a negative relationship and a capital adequacy ratio. Similar results were found by Dreca (2013) who concluded that savings had a negative effect on capital adequacy. Furthermore, the results of research by Handayani & Taswan (2017) show that deposits have a negative effect on CAR. Therefore hypothesis is proposed:  
H5: Deposit (DEP) has a negative effect on Capital Adequacy Ratio (CAR).



**Figure 1.** Conceptual framework

### 3. Research Method

The population in this study are all Sharia Commercial Banks operating in Indonesia. The unit of analysis of this study is the financial statements of Islamic Commercial Banks for the period 2015-2017.

Operationalization of variables in this study can be described as follows; Return on Assets (ROA) is used to measure the effectiveness of a company in generating profits by utilizing its assets/assets. This ratio is used to measure the ability of bank management to obtain overall profits (profits). The greater the ROA of a bank, the greater the level of profit achieved and the position of the bank in terms of better use of assets (Rivai, 2013: 157).

Financing to Deposit Ratio (FDR) shows how far the bank is able to repay funds withdrawals made by the community by relying on financing provided as a source of liquidity. This means how far the provision of financing to customers can offset the bank's obligation to fulfill the demand of depositors who want to withdraw funds that have been used by the bank to provide such financing.

The size is the scale of the company seen from the total assets at the end of the year. The size of the company can be measured by its total sales which cause higher sales costs so that high sales tend to have accounting policies that reduce profits. Net Interest Margin is a ratio used to measure the ability of bank management in managing its productive assets in order to generate net interest income".

Deposit (DEP) as according to the Law of the Republic of Indonesia Number 10 of 1998 concerning Banking, deposits are deposits whose withdrawals can only be made at a certain time based on the agreement of depositors with banks. Capital Adequacy Ratio (CAR) or often called the capital adequacy ratio is the basic capital that must be met by the bank. According to Kuncoro & Suhardjono (2011: 519), Capital Adequacy Ratio is a capital adequacy ratio that shows the ability of banks to maintain sufficient capital and the ability of bank management to identify, measure, monitor, and control risks that arise and can affect the size of bank capital.

In this study, secondary data is used, namely the financial statements of Islamic Commercial Banks in Indonesia for the period 2015-2017. Data collection was carried

out by documentation techniques. Hypotheses were tested using multiple linear regression analysis testing which is a statistical technique used to test the effect of two or more independent variables on the dependent variable. This research is a census study, so no significance testing is carried out. The design of hypothesis testing is performed in two stages, namely the design of testing hypotheses together and the design of partial hypothesis testing.

#### 4. Result and Discussion

##### *Population and Sample*

This study took a population of all Sharia Commercial Banks operating in Indonesia for the period 2015-2017. Based on observations of data in the financial statements, the overall number of Islamic banks that provide research data (Return on Assets, Financing to Deposit Ratio, Size, Net Interest Margin, Deposits, and Capital Adequacy Ratio) for 3 consecutive years is 12 banks hence it gives a total of 36 observations.

##### *Descriptive Analysis*

Descriptive statistics used in this study are the mean value, standard deviation (standard deviation), lowest value (minimum), and the highest value (maximum). Descriptive results of research data for Return on Assets, Financing to Deposit Ratio, Size, Net Interest Margin, Deposits, and Capital Adequacy Ratio based on 36 issuers during the period 2015-2017 can be seen in table 2.

**Table 2.** Descriptive statistics

	<i>Return on Asset</i>	<i>Financing to Deposit Ratio</i>	<i>Size</i>	<i>Net Interest Margin</i>	<i>Deposit</i>	<i>Capital Adequacy Ratio</i>
No. of observations	36	36	36	36	36	36
Mean	1.97	89.57	29.99	5.21	53.47	22.41
Std. Deviation	8.07	11.12	1.24	4.27	15.32	12.70
Minimum	-20.13	69.44	27.87	-11.23	20.43	11.51
Maximum	24.24	134.73	32.11	12.00	77.27	75.83

Data Source: Financial Statements of Islamic Banks in Indonesia, processed (2018).

##### *Hypothesis Testing Results*

The results of hypothesis testing using multiple linear regression from the effect of Return on Assets (ROA), Financing to Deposit Ratio (FDR), Size, Net Interest Margin (NIM), and deposit (DEP) to Capital Adequacy Ratio (CAR), in this study, can be seen in table 3.

**Table 3.** Results of Testing Research Hypotheses

Regression Equations: $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$
$CAR = 315.674 - 0.416 ROA - 0.211 FDR - 8.342 S + 0.615 NIM - 0.496 DEP + \varepsilon$
R = 0.833
R <sup>2</sup> = 0.694

##### *Discussions*

The results showed that ROA had an effect on CAR in Islamic Commercial Banks in Indonesia for the period 2015-2017. Obtained a negative relationship between ROA and CAR. This means that an increase in ROA can reduce CAR in Sharia Commercial Banks. Until the researchers get the results of this study, there has not been found the same or appropriate research results where ROA has a negative effect on CAR, so that researchers do not have enough references to discuss the influence between these variables.

The results of this study are not in accordance with the results of research conducted by Andini & Yunita (2015) which states that ROA partially has a significant positive effect on CAR. The results of this study are also not in accordance with the results of research by Bateni et al. (2014) which resulted that partially ROA had a significantly positive effect on CAR at the Iranian Bank. This means that every increase in the value of ROA will increase the value of CAR because the higher the bank's ability to generate profits, the more funds are allocated to increase capital and the value of CAR will increase as well.

The results showed that FDR had an effect on CAR in Islamic Commercial Banks in Indonesia for the period 2015-2017. The negative relationship between FDR and CAR was obtained. This means that the increase in FDR will reduce CAR in Sharia Commercial Banks. Based on some of the results of previous studies obtained a positive relationship between FDR and ROA. The researcher has not obtained the same results or according to the results of this study. As the results of the research by Oktaviana & Syaichu (2016) which show that FDR has a significant positive effect on CAR. This is because the high FDR ratio indicates the amount of financing provided by Islamic banks to the community is greater. The greater financing provided by Islamic banks to customers will increase the bank's profits. The advantage of Islamic banks will be allocated to capital, so that the greater the financing, the capital obtained will also increase.

The results of the study indicate that the size of the bank has an effect on CAR in Islamic Commercial Banks in Indonesia for the period 2015-2017. The negative relationship between size and CAR is obtained. This means that the increase in the size of the Bank will reduce CAR for Islamic Commercial Banks. The results of this study are in accordance with the results of research conducted by Oktaviana & Syaichu (2016) which prove that the size has a negative effect on CAR in Sharia Commercial Banks in Indonesia for the period 2010-2014. The results of this study are also consistent with the results of research by Handayani & Taswan (2017) which show that the size has an effect on CAR on banks listed on the Indonesia Stock Exchange for the three years of the 2012-2015 observation period.

The results of the study indicate that the NIM has an effect on CAR in Sharia Commercial Banks in Indonesia for the period 2015-2017. The positive relationship between NIM and CAR was obtained. This means that the increase in NIM will increase CAR for Islamic Commercial Banks. The results of this study are in accordance with the results of Shitawati (2006) study which indicates that NIM has a significant positive effect on CAR. This also indicates that bank revenues obtained from funds placed in the form of loans (credit) are allocated to the stability of the bank by carrying out debt restructuring. The results of this study are also consistent with the results of research conducted by Handayani & Taswan (2017) which concluded that NIM had a positive and significant effect on CAR. These results indicate that the greater the ratio, the higher the interest income on earning assets managed by banks will be so that the possibility of a bank in a troubled condition will be smaller.

The results of the study indicate that the DEP has an effect on CAR in Islamic Commercial Banks in Indonesia for the period 2015-2017. Obtained a negative relationship between DEP and CAR. This means that the increase in DEP will reduce CAR in Sharia Commercial Banks. The results of this study are in accordance with the results of research conducted by Handayani & Taswan (2017) which prove that DEP has a negative effect on CAR. The results of the Asarkaya & Özcan (2007) studies also show the direction of the negative influence between the share of deposits (DEP) and the capital adequacy ratio (CAR). A similar result was found by Dreca (2013) who concluded that savings (DEP) had a negative effect on capital adequacy (CAR).

## 5. Conclusions

The conclusions that can be taken in this study are Return on Assets (ROA), Financing to Deposit Ratio (FDR), Size, Net Interest Margin (NIM), and Deposit (DEP) together to influence the Capital Adequacy Ratio (CAR) on Sharia Commercial Banks in Indonesia for the period 2015-2017. Return on Assets (ROA) has a negative effect on the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period 2015-2017. Financing to Deposit Ratio (FDR) has a negative effect on the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period 2015-2017. Size has a negative effect on the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period 2015-2017. Net Interest Margin (NIM) has a positive effect on the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period 2015-2017. Deposit (DEP) has a negative effect on the Capital Adequacy Ratio (CAR) of Islamic Commercial Banks in Indonesia for the period 2015-2017.

On the basis of the results of the analysis obtained, it is advisable for the bank management to be able to pay attention to three variables that are proven to have an effect on CAR, namely the variable Size, NIM, and DEP. Banks should also maintain their capital (CAR) to stay at 14% according to OJK regulations. In addition to maintaining public trust, it will also maintain the health of the bank. In connection with these regulations, the management of Sharia Commercial Banks must also pay attention to the achievements of their financial performance and corporate policies, such as the distribution of profits to shareholders, as these affect efforts to optimize CAR in order to create a strong and stable sharia banking capital in the future.

For future researchers, it is advisable to add independent variables or replace the independent variables already present in this study. Future researchers are expected to take on the object of broader research such as Islamic banks in several countries. Or you can compare between Islamic banks in Indonesia and Islamic banks that are abroad. Suggestions that can be given to future researchers is to extend the period or observation period, such as 5 years, 10 years or other, the longer the observation period the clearer the results can be discussed.

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