Islamic Bank Profitability: A Study of Islamic Bank in Indonesia

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Abstract. The aims of this paper are to examine the effect of factors that contribute towards the profitability of Islamic bank in Indonesia over the period 2008 – 2017. The research method used in this study is the explanatory method. We use secondary data obtained from the OJK to examine the effect of Bank Specific & Macroeconomic Determinants of Islamic Bank Profitability and then analyse the data using GMM techniques. The result of the study found that only Bank Size of Bank Specific determinant had a positive effect both ROA and ROE while Capital, credit risk and Liquidity had a negative effect on the profitability of Islamic banking in Indonesia. Finally, the macroeconomic determinant found only inflation had positive effect while GDP had no significant effect on Islamic bank profitability. The result indicates that Islamic bank in Indonesia need well developed and well supported by government through independent regulation out of the bank of Indonesia, this mean Islamic bank could develop regulation and well Islamic product as conducted by Islamic law and Sunnah

Keyword. capital; credit risk; islamic banking; inflation; liquidity; profitability; GDP

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INTRODUCTION

Islamic banking sector has an important role as an alternative financial institution that provides both products and services in accordance with the principles of Sharia, especially for Indonesia as a country with the largest Muslim majority in the world (Chusaini and Ismal, 2013). In the global context of Islamic banking is growing very fast both in Muslim and non-Muslim countries (Azmi, 2017), with total assets of US $ 2,293 trillion, consisting of 75% of Islamic Bank assets, 15% sukuk, 4% funding, 1% tafakul and microfinance and 4% other fields (GIFR, 2016). Based on the statistical data of Islamic banking the number of Islamic banks in Indonesia until 2016 is 199 banks consisting of 12 Islamic Commercial Banks, 22 Syariah Business Units and 165 Islamic rural bank spread around Indonesia (OJK, 2016).

There are few studies investigating Islamic bank profitability both in Indonesia and in international country. Majority of studies on Islamic bank profitability, use linear model to investigate the impact various factors that influences Islamic Bank Profitability, (Ramlan and Sharrizat, 2016). Recent study using GMM estimation (Chowdhury et al., 2017); (Trad et al., 2017); (Munir et al., 2017); (Zarrouk et al., 2016); to examine the impact of Bank Specific & Macroeconomic Determinants of Islamic Bank Profitability. The study (Chowdhury et al., 2017) found capital and macroeconomic variables such as inflation have a positive effect on the profitability of Islamic banks. Study (Trad et al., 2017) using dynamic data panels (GMM), the results of the study found that the main factor most responsible for improving profitability and stability of Islamic banks are the banks size and capital which further reduces credit risk, while GDP and exchange rates are the most macroeconomic determinant that affect the stability and profitability of Islamic banks.

The competition of financial industry and banking in Indonesia is very tight that can affect bank profitability. It could be increase-banking risk, lower profitability, reduce public thrush, investors, business and government and The Islamic Bank must perform an improvement. One indicator of Islamic banking performance is profitability, and the higher the level of profitability shows the best performance of the banking. Both ROA and ROE are the proxy used to measure Islamic bank profitability. The performance of Islamic banking will determine the sustainability, provide certainty to investors and provide shareholder returns. Profitability is an important information for both investors and managers, profitability describes the stability and banks performance (Zarrouk et al., 2016).

Acording to study (Khediri, 2010), The study provides evidence that capital, size, higher economic growth and inflation increase bank's profitability whereas credit risk and operating efficiency reduce it. Bank characteristics and macroeconomics variables are important in explaining Islamic banks profitability. According to (Masood and Ashraf, 2012), bank with the large asset and with efficient management lead to greater profitability. In view of these facts, the main objective of this study was to analyze the Bank Specific & Macroeconomic Determinants of Islamic Bank Profitability. The study is expected to contribute to the enrichment of the literature to fill Islamic financial Management and business research gaps and as empirical evidence and reference for further research.

The studies of Islamic bank profitability are focused either on cross and panel data of Islamic banking, the study on bank specific, industry specific and macroeconomic determinant. The result of the study is varying one to another depend on dataset, method and environment differ.The study of conventional banking profitability has been done by many researchers but the study on the Islamic banking profitability still on early stage, especially in developing countries such as Indonesia. Recent studies on the profitability of Islamic banks (Munir et al., 2017); (Zarrouk et al., 2016) found evidence that the profitability is largely determined by cost-effectiveness, asset quality and capital level, the study also found that non-financial activities increase the profitability of Islamic banks, no determinant difference in profitability between conventional and Islamic banks. Furthermore, the study (Ramlan and Sharrizat, 2016) found that Islamic banks are more profitable than conventional banks, and more efficient in managing credit risk (Hassan, 2009), bank size and customer growth are the most important factors in improving bank profitability.

According to (Haron, 1996), the profitability of Islamic banks is influenced by liquidity, total expenditures, funds invested in Islamic securities, the percentage of profit-sharing ratio between banks and debtors, interest rates, market share, bank size, total capital, and money supply. The next study found that bank profitability was influenced by Credit Risk (Boahene, S. H., Dasah, J. and Agyei, 2012), because credit risk requires special attention of all financial institutions (Supiyadi et al., 2017). Bank institutions that have the highest level of Credit Risk due to the inability to pay the debtor, and the highest risk of financial institutions derived from loans. The high credit risk is not only sourced from the activities of the Investment Bank itself but is sourced from Credit Risk, Liquidity Risk and Market Risk (Mohammad, 2013), both important to be considered to maintain the bank profitability (Ben et al., 2017)**.**

Study (Kayode et al., 2015); (Bayyoud and Sayyad, 2015); (Djalilov and Piesse, 2016); (Trad et al., 2017), the study found that credit risk negative effects on banking performance and increased credit risk reduces profitability. According to (Trad et al., 2017) the main factors responsible increasing profitability and stability of Islamic banks and reducing their credit risk are bank size and capital, it's also found GDP are able to improve bank stability. In their study (Alshatti, 2015), stated that the credit risk is very influential factors on banks profitability, as well as the study (Harianto, 2017) found that credit risk and operating efficiency are the most important factors in improving bank profitability.

The study on the determinants Islamic banking performance was done by (Daly and Frikha, 2017), the main factors affecting the profitability of Syariah banks are bank size and consumer growth. The impact of bank-specific and macroeconomic factors has been done by (Jara-Bertin et al., 2014), the results show that bank profitability is positively related to bank specific factors, such as service diversification, size, capital ratio, and specialization degree, and to macroeconomic-industrial factors such as economic growth, inflation, and bank concentration. On the other hand, the results show that bank performance are negatively relate to credit risk, liquidity risk, and operational inefficiencies. (Sufian and Habibullah, 2009), examine determinants of bank profitability in a developing economy, he found size has a negative impact on return on average equity (ROAE), while the opposite is true for return on average assets (ROAA) and net interest margins (NIM). As for the impact of macroeconomic indicators, inflation has a negative relationship with banks profi tability, (Sufian and Chong, 2008). (Alharthi, 2016), examines the determinant profitability of Islamic banks, the study found that credit and capital risk negatively affect profitability, while bank size, loan intensity, deposit ratio has a positive effect on profitability; macroeconomic variables such as GDP negatively affect the profitability of Islamic banks.

Study conducted by (Hassan and Bashir, 2005) the factors that determine the profitability of Islamic banks are large capital, loan to asset ratio, and macroeconomic conditions. The study found statistically significant and positive effect for the loans activities ratio and capital adequacy on the Islamic banks profitability. A study conducted by (Masood and Ashraf, 2012), the study found capital adequacy shows positive relationship with return on assets (ROA) and negative relationship with return on equity (ROE) and assets size has positive and significant impact on the profitability of Islamic banks.

METHOD

The method used in this research is explanatory research; explanatory research used to determine the causal relationship between some social phenomenons. The sampling technique used is purposive sampling, with the following criteria: (a) Bank is a Islamic Commercial Bank (b) Bank must be registered in OJK from 2008 - 2016, (c) Banks must issue financial statements during the study period from 2008 - 2016, (d) the bank must issue the financial statements in rupiah. This study use sample of 12 Islamic bank panel data taken from Otoritas Jasa Keuangan Republic Indonesia (OJK), over the period 2008-2016. We use annual data collected for bank specific variable and data obtained from income and balance sheet statements. The data of macro-economic variable, the data annual gross domestic per capital and inflation rate are obtained from Badan Pusat Statistik. Table 1, shows the 9 variables in this study to analyze Bank Specific and Macroeconomic Determinants of Islamic bank profitability.

Dependent Variable. Previous study use return on asset (ROA) and return on equity (ROE) to measure Islamic Bank profitability, (Masood and Ashraf, 2012); (Chowdhury et al., 2017). Return on assets (ROA) and return on equity (ROE) is a common measure to analyze and evaluate for banks profitability, return on assets (ROA) is the ability of banks to generate return from its sources of funds to produce profit. On the other hand, second measure are return on equity (ROE) represents the return generated from the shareholders equity. *Independent Variable*. In this study, independent variable divided into two categories: Bank Specific and Macroeconomic variable. *Bank Specific* is internal factors as determinants by the policy objectives and banks management decisions. For determining the bank profitability, bank Specific variables are used in this study consist of four variables namely Capital Adequacy, Credit Risk, Liquidity Risk and Bank Size. *Macro-economic variables*, macro-economic determinants are factors that affect the bank profitability that sourced from outside the bank are the policies set by the government. As external determinants in the previous studies, normally two macroeconomic (annual real gross domestic product growth rate and annual inflation rate) variables are used.

Table 1 Definitions and notation of the variables of Islamic banks profitability

Variables	Notation	Measure	Result
Dependent Variable			
Profitability Ratio	ROA	Net profit/TA	
	ROE	Net profit/Equity	
Independent Variable			
Bank Specific			
Capital Adequacy	CAR	Equity/Assets	+/-
Credit Risk	CRL/NPF	NPF/Total Financing	-
Liquidity Risk/FDR	LR	Total Financing/Total Asset	+/-
Bank Size	BS	Natural Log of Total Asset	+
Macro-economic			
GrossDomestic Product	GDP	Annual real GDP growth rate	+
Inflation	INF	Current period of annual inflation rate	+/-

The study following previous study by (Chowdhury et al., 2017); (Trad et al., 2017); (Djalilov and Piesse, 2016). We are uses GMM Techniques to analyze Bank Specific & Macroeconomic Determinants, GMM proposed by (Arellano and Bond, 1991) and then developed by (Arellano and Bover, 1995); (Ahna and Schmidt, 1997); (Blundell and Bond, 1998) and (Blundell and Bond, 2000). The basic model is the following the panel regresion model as writen bellow:

$$\boldsymbol{y_{nt} = \alpha + \beta x_{nt} + \varepsilon_{nt}}$$

Where y_{nt} is profitability, α is intercept, β is ekplanatory variable and x_{nt} is observed variable that is 1 x k, t = 1, ... ,T; n = 1, ... ,N, then the panel regresion model is given by:

Profitability= f (Bank specific variables, Macro-economic Variables)

Where profitability is Return on Assets (ROA) and Return on Equity (ROE), *Bank specific variables* are capital, credit risk, liquidity and bank size, and *Macro-Economic Variables* are gross domestic product and inflation. By extending equation (2) then obtained two equations as follows:

$$\boldsymbol{ROA = \beta_0 + \beta_1 CAR_1 + \beta_2 CR_2 + \beta_3 LR_3 + \beta_4 BS_4 + \beta_5 GDP_5 + \beta_6 INF_6 + \varepsilon}$$

$$\boldsymbol{ROE = \beta_0 + \beta_1 CAR_1 + \beta_2 CR_2 + \beta_3 LR_3 + \beta_4 BS_4 + \beta_5 GDP_5 + \beta_6 INF_6 + \varepsilon}$$

Where:

ROA or ROE = Profitability
CAR = Capital
CR = Credit risk

LR	= Liquidity
SIZE	= Bank Size
GDP	= Annual real GDP growth rate
INF	= Inflation
β_0	= Constanta
$\beta_1 \ldots \beta_n$	= Regression Coefficient
ε	= error.

RESULTS AND DISCUSSION

Table two reports summary statistics for variables used in this study, it decribe an overview of mean value of Islamic bank profitability (ROA and ROE) over period 2008–2016. The result show that the profitability of Islamic banks in Indonesia has mean value of 0.029 (ROA) and 0.024 (ROE), it mean that the profitability of Islamic banks in Indonesia both in terms of ROA and ROE has not shown maximum results, this affects the company value and stakeholder wealth. Bank specific variables, Capital, Credit Risk, Liquidity and Bank Size have mean values of 0.144, 0.057, 55.755 and 159.925 respectively. The mean value of macro-economic variables, GDP and Inflation respectively are 5.473 and 0.058, over all liquidity and bank size has the highest standard deviation that is 108.165 and 33.794; it can be conclude that bank spesifik and macroeconomic environment are stable in Indonesia.

Tabel 2 Sumary of Descriptive Statistik Data

Name	Mean	Std. Dev.	Minimum	Maximum
ROA	0.029722	0.049454	0	0.25
ROE	0.24963	0.168722	0.05	0.89
Capital	0.144426	0.018258	0.11	0.17
Credit Risk	0.0575	0.02247	0.02	0.1
Liquidity	55.75537	108.1653	4.23	439.06
Bank Size	159.9259	33.79451	117	276
Gdp Growth	5.473056	0.938422	3.23	6.8
Inflation	0.058241	0.023594	0.03	0.12

Table 3 shows the results of the correlation matrix between the independent variables, according to (Hair et al., 2014), multicollinearity occurs when there is a strong correlation between the research variables, if the correlation value between all the independent variables tested greater than 0.9. The correlation matrix generally shows that all variables aren't strongly related to each other. This study based on the correlation matrix free from multicollar problems. The result shown on table 4, that all the independent variable are significant at 5% level, except GDP not significant, the value of *J-statistic* is 0.00, indicating GMM model valid and the best model for our study. Coefficient of determination (Adjusted R-squared) displayed on Table 4, the result of analysis shows that adjusted R^2 value is 0.881. This means that as much as 88.81 % the Islamic bank profitability is influenced by bank specific & macroeconomic determinants while the rest of 11.19 % is influenced by other factors. The greater coefficient determinant value and closer to 1, it explain that the model is more feasible.

Table 3. Correlation Between Indevendence Variables

	ROA	ROE	Capital	Credit Risk	Liquidity	Bank Size	GDP Growth	Inflation
ROA	1	0.738	0.276	-0.271	0.086	0.869	-0.533	-0.185
ROE	0.738	1	-0.254	-0.595	0.081	0.384	-0.292	0.145
Capital	0.276	-0.254	1	0.238	0.171	0.551	-0.099	-0.248
Credit Risk	-0.271	-0.595	0.238	1	-0.481	0.006	-0.147	0.062
Liquidity	0.086	0.081	0.171	-0.481	1	0.137	0.157	-0.288
Bank Size	0.869	0.384	0.551	0.006	0.137	1	-0.608	-0.356
Gdp Growth	-0.533	-0.292	-0.099	-0.147	0.157	-0.608	1	0.270
Inflation	-0.185	0.145	-0.248	0.062	-0.288	-0.356	0.270	1

This section provides an empirical evidence on analysis of Islamic bank profitability as presented in table 4. The result of the study using system GMM technique as displays on table 4 over period 2008-2006, the negative coefficient of the lagged independent variable can be explained by partial adjustment, suggesting that any profitable bank will be imitated by less profitable banks as a consequence of loses the profitable edge. Capital adequacy is the most important factor for the banking sector, capitalization represents the resilience to face risks and uncertainty of investment in the banking sector. The effect of capitalization is positive and highly significant as we expected. There are many reasons that can explain that higher capitalization improve bank profitability. (1), Islamic banks with higher capital ratio and PLS engage in prudent lending. (2), Islamic bank with a sound capital position is able to pursue business opportunities more effectively and increased profitability. (3), the high owned capital allows the bank to have lower risk and lower funding cost, well capitalized banks are able to reduce costs and enhance their profitability. (4), a well capitalized bank need to borrow less to support a given level of assets. (5), PLS principle allows the Islamic bank to make additional financing with beneficial return which should imply higher profitability, (Bourke, 1989); (Demirgüç-Kunt and Huizinga, 1999); (Pasiouras, Kosmidou, et al., 2006); (Pasiouras, Gaganis, et al., 2006); (Athanasoglou et al., 2008); (Al-Qudah and Jaradat, 2013); (Zarrouk et al., 2016).

Table 4. GMM Estimation Result

Independent Variabel	ROA			ROE		
	Coefficient	t-Statistic	Prob.	Coefficient	t-Statistic	Prob.
Capital	-0.454681	-3.646858	0.0004	-3.800760	-6.162844	0.0000
Credit Risk	-0.687259	-7.621045	0.0000	-4.446448	-9.967953	0.0000
Liquidity	-6.934005	-3.687302	0.0004	-0.000210	-2.261181	0.0259
Bank Size	0.001528	18.89676	0.0000	0.003557	8.892621	0.0000
GDP Growth	0.001747	0.702616	0.4839	-0.008639	-0.702550	0.4840
Inflation	0.235268	3.075033	0.0027	2.198180	5.808301	0.0000
C	-0.128846	-6.023299	0.0000	0.416399	3.935238	0.0002
R-squared	0.894404			0.778020		
Adjusted R-squared	0.888131			0.764833		
S.E. of regression	0.016541			0.081820		
Durbin-Watson stat	1.311316			1.937053		
S.D. dependent var	0.049454			0.168722		
Prob(J-statistic)	0.000000			0.000000		

The results of the study found that capital adequacy negatively affects the profitability of both ROA and ROE, these findings indicate that the level of capitalization of banks is inadequate, Islamic banks have not maximized capital in their operationalization, most of the financing activities in Islamic Bank is not covered by capital, so that financing activities have high risk that affects profitability, thus Islamic banks need to maximize and improve capital, which means lowering capitalization leads to decrease in profitability. This evidence suggests that Islamic bank in Indonesia low capitalization that reduces their profitability, our findings are in line with previous studies by (Zarrouk et al., 2016); (Alharthi, 2016).

Credit risk is defined as the risk of failure of the debtor to meet its obligations or deteriorate the repayment capacity of the borrower. Credit risk is the most common source of risk for Islamic banks and conventional banks that are the main source of bank failure. Credit risk plays an important role on the performance of financial institutions because the risk of bad debts will affect the performance of financial institutions. In line with previous research by (Kayode et al., 2015); (Bayyoud and Sayyad, 2015); (Alharthi, 2016); (Djalilov and Piesse, 2016); (Trad et al., 2017); (Munir et al., 2017), The results of the study found that credit risk had a significant and negative impact on the profitability both ROA and ROE, indicating that Islamic banking in Indonesia is less risky it's mean Islamic banking able managing credit risk properly.

Liquidity risk occurs if the bank can not provide the cash to meet the customer's transaction needs and fulfill the obligation to be repaid within a certain period, the customer withdraws a large amount of money and when the demand for credit increases (Mohammad, 2013). Factors that affecting low liquidity are the inability of banks to maximize their revenue because of the urgency of liquidity needs. The results of the study found significant and negative liquidity risk to the profitability of both ROA and ROE, these findings indicate that Islamic banks in Indonesia have a high liquidity risk resulting in negative profitability, these findings are in line with the study (Bassey and Moses, 2015); (Almazari, 2014).

The results of our study found that the influence of bank size on profitability is significant and positive both ROA and ROE, meaning firm size has a positive effect on profitability. The results of the study are in line with previous research, (Hassan and Bashir, 2005), (Alharbi, 2015), (Alharthi, 2016), (Ben et al., 2017) where size banks have a positive effect on profitability, firm size describes firm strength, and firm size tends to generate high profitability (Hall and Weiss, 1967).

Profitability is very sensitive to macroeconomic conditions, in general high economic growth tend to increase bank profitability. High inflation decrease purchasing power as a result of highest market prices. The size of the inflation rate will affect the company's financial performance, especially in terms of profitability. The results of the study found that significant and positive inflation affects the profitability of Islamic banks in Indonesia, these findings are in line with research by (Khediri, 2010), (Sufian and Chong, 2008); (Sufian and Habibullah, 2009); (Khediri and Khedhiri, 2009); (Zarrouk et al., 2016); (Jara-Bertin et al., 2014). These findings illustrate that the Indonesian Muslim community despite inflation still has significant purchasing power.

Gross Domestic Product (GDP) is a macroeconomic indicator that also affects bank profitability. If GDP rises, it will be followed by an increase in income so that the ability to save also increases. In line with the study (Zarrouk et al., 2016) our study found that GDP has no significant effect on both ROA and ROE on the profitability of Islamic banks, the results contradict previous research cunducted by (Khediri and Khedhiri, 2009), (Shaista Wasiuzzaman, 2010), (Masood and Ashraf, 2012), (Alharbi, 2015), (Alharthi, 2016), (Trad et al., 2017). The macroeconomic conditions in Indonesia indicate that the average income of the Indonesian population has not been able to set aside their income for saving, this is due to the fact that government policies are not pro-workers, whereas some Indonesian workers are outsourced employees with low bargaining power both in legal and income aspects, and this affects the profitability of Islamic banking.

CONCLUSION

This study aims to examine the Bank Specific & Macroeconomic Determinants of Islamic Bank Profitability in Indonesia. For the purposes of this study, the study used the GMM approach, this approach was first proposed by (Arellano and Bond, 1991) then depeloved by (Arellano and Bover, 1995); (Ahna and Schmidt, 1997); (Blundell and Bond, 1998) and (Blundell and Bond, 2000).

The empirical findings indicate that the bank specific and macro-economic determiant have a significant effect on profitability, capital, credit risk, and liquidity have significant negative effect while bank size and inflation has a positive effect on the profitability of Syariah bank in Indonesia, but on our study GDP has not significant on profitability.

Based on the results of the study, the level of capital adequacy of banks is inadequate, Islamic banks have not maximized capital, most of the financing activities in Islamic Banks are not covered by capital, so that financing activities have a high risk, thus Islamic banks need to maximize and increase capital. Islamic banks have a high liquidity risk, need to perform efficiencies and increase funding through deposits or expand the business sector. The results of this study indicate that Islamic banking in Indonesia is less risky it's mean Islamic banking able managing credit risk properly. Bank size- represented by total assets, is the main determinant of Islamic banks profits, demonstrating that large banks take advantage of the economies of scale and the differentiation of their products and service. The most influential macroeconomic factor on the profitability of Islamic banks is the inflation rate, whereas GDP does not affect the profitability of Islamic banks.

Finally, the main factors that most affect profitability are bank size, credit risk and inflation. Islamic banks in Indonesia have low credit risk, credit risk is managed and well anticipated. Overall Islamic bank in Indonesia need well developed and well supported by government through independent regulation out of the bank of Indonesia, this mean Islamic bank could develop regulation and well Islamic product as conducted by Islamic law and Sunnah.

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