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# The Impact of Fintech Development to Profitability of Islamic Bank

**Ardiany Monika[1], Achsani Noer Azam[2], Saptono Imam Teguh[3]**

[1,2,3]School of Business, IPB University, Bogor, Indonesia.

Corresponding Author: Ardiany Monika

## ABSTRACT

This study aims to look at the determinants that influence the profitability of Islamic commercial banks in term of slowing asset growth, deposits and financing. This study uses ROA as a measure of profitability and independent variables consisting of internal performance, macroeconomic factors and Fintech development by using data accumulation of peer to peer lending transactions. This study uses panel data analysis of 10 Sharia commercial banks in the 2017-2019 period. Based on the results of testing data on state-owned Islamic banks, bank ROA is influenced by BOPO factors, growth rates and Fintech developments, whereas in testing data on private Islamic banks, bank ROA is influenced by FDR, BOPO, Deposit to assets, BI rate and Fintech developments. The development of Fintech has a positive effect on ROA of private Islamic banks and has a negative effect on ROA of state-owned Islamic banks.

***Keywords:*** Fintech development, Internal Indicators, Islamic banks, Macro economics Factors, profitability

## INTRODUCTION

Financial services companies are entering a new era with the development of digital technology. This development brings new players in the financial services industry known as Financial Technology or Fintech. The development of Fintech, especially peer to peer lending, is very interesting to observe as the development of the accumulation of loan transactions from 2017 to 2018 grew by 785% and see the impact of its presence towards banking industry. Seeing from this potential, the development of Fintech can be a threat or commonly called disruption for banks that have controlled the financial services sector. But not a few who think the presence of Fintech can also be an opportunity to collaborate, such as expanding the distribution of financing that can reach people who are still "unbankable" or increasing fee base through payment gateways collaborations.

Islamic commercial bank, as one of the banks that serves the banking needs of community by using Islamic principles in its operations, first established in 1991 pioneered by Muamalat Bank and still continues to grow. Until now there are 14 Sharia commercial banks managed by State-owned Enterprises, private and regional governments with total assets under management of 322.95 trillion rupiahs, total managed funds of 266.57 trillion rupiahs and distribution of funding of 212.56 trillion rupiahs.

The growth and development of banking in the economy, is largely determined by the large level of profits obtained in its operational activities. The level of profit can be an indication that the bank has run its intermediation function. One indicator that is used to measure the level of profitability of Islamic banks is Return on Assets (ROA). ROA is used to measure the success of management in generating profits. The smaller the percentage ratio indicates a lack of management capability of banks in terms of managing assets to increase revenue or reduce costs

ROA performance itself, according to Khasif et.al (2016) is influenced by internal performance factors and macroeconomic conditions. Internal factors that affect company performance include Size, FDR, market share, DPK, besides that in Yusuf et.al's research (2016) NPF, CAR, FDR and BOPO are also determinants of internal performance that affect the profitability of Islamic banking. Meanwhile, macroeconomic factors that influence the profitability of Islamic banking include interest rates, GDP, exchange rates and inflation both in the form of direct or indirect influence (Nidausallam 2015). The stable microeconomic and macroeconomic banking sector shows a country's economic growth.

The financial performance of sharia banks in 2018 based on Financial Services Authority of Indonesia (OJK) reports in terms of assets, financing disbursed and third party funds has decreased growth. Islamic bank asset growth in 2018 of 12.57 percent experienced a declining growth of 6.4 percent from 2017, while growth in disbursed financing (PYD) in 2018 decreased by 3.03 percent from the previous year or grew by 12.21 percent. The declining growth was also experienced by third-party funds (DPK) which only experienced a decline in growth of 11.14 percent where in 2017 it experienced a growth of 19.89 percent (OJK 2019). In addition, Indonesia's macroeconomic conditions that are very dynamic are partly due to the global economic conditions, especially the trade war between the United States and China which can affect the internal performance of Sharia commercial banks. This study aims to look at the factors that influence ROA of Islamic commercial banks in terms of internal performance, macroeconomic factors and the development of peer to peer lending Fintech.

## LITERATURE REVIEW

The results of research conducted by Yusuf et.al (2018) show that BOPO has a negative impact on ROA. This proves that the more efficient the operational performance of Islamic banking, the greater the benefits obtained. FDR in influencing profitability as has been studied by Kashif et.al (2016) has a positive impact on profitability, but the Nahar et.al (2017) study found that FDR can negatively affect bank ROA. This can be caused by the quality of financing that falls into the non-current category so that an increase in FDR actually has a negative effect on bank ROA.

Related to Size, there are also some inconsistencies in the results of previous studies. Size has a positive and significant effect on profitability as shown in Hamid's research (2017) while other studies Almazari (2014) found that size actually has a negative impact on bank profitability. DPK as one of the sources of funds used to generate income based on research by Nuha et.al (2016) has a positive effect on ROA, in contrast to the results shown in the Kashif et.al (2016) study that savings have a negative effect on profitability. Deposit can negatively affect bank ROA because the composition of funds obtained from third parties is dominated by expensive funds such as deposits, so the difference in income obtained from funds channeled back in the form of financing and profit sharing provided to depositors is very small.

Research conducted by Qaisar (2018) shows that GDP and inflation have a positive effect on bank profitability, but other research conducted by Khasif et.al (2016) shows that GDP has a negative effect on profitability. Even research conducted by Nidausallam (2014), Alper et.al (2011), shows no effect of GDP on the profitability of Islamic banking. While inflation has a negative effect on profitability based on the results of Ratih's research (2019).

Based on research conducted by Nidausallam (2014), obtained both the interest rate (BI rate) and the exchange rate have a negative effect on ROA of Islamic banks. This shows that the weakening of the exchange rate will be accompanied by high inflation which results in a fall and weakening of the value of the currency which causes a diversion of investment in forms other than savings.

The influence of Fintech on the profitability of Islamic banks has not been found in previous studies, but there is research conducted by Yinqiao et.al (2017) regarding the effect of Fintech start-ups on the stock returns of incumbent banks, the results show that the development of funding volumes in Fintech companies has a positive influence against stock returns from banks. In addition, collaboration between Islamic commercial banks and Fintech has been carried out, this shows the complementarity between FinTech and banks, so it can be concluded that the presence of Fintech has a positive influence on company performance.

## MATERIALS & METHODS

This study uses secondary data from the quarterly financial statements of Islamic commercial bank, the accumulation of transaction reports Fintech peer to peer lending and other related data. Processing and analysis are done using a descriptive approach to interpreting data and panel data regression to test the effect of each variable. The sample in this study was 10 Islamic Commercial Banks consisting of 3 State-owned Islamic commercial banks and 7 private Islamic commercial banks. The study uses financial statements in the third quarter of 2017 to the third quarter of 2019.

### Return On Assets (ROA)

According to Kasmir (2014: 201), Return On Assets is a ratio that shows the results (return) on the amount of assets used in the company.

ROA calculation as follows

$$\boldsymbol{ROA} = \frac{Net\ Income}{Total\ Assets}\ x\ 100\%$$

This ratio measures the ability of bank management in obtaining profits (profits) as a whole. The higher the value, the better the condition of the bank in terms of asset use.

### Finance to Deposit Ratio (FDR)

FDR is a ratio that calculates the size of the composition of loans given with bank third party funds (depositors/savers). According to Veitzal (2007) Financing to Deposit Ratio (FDR) is the ratio of the total amount of financing provided by banks to funds received by banks.

The calculation of FDR / LDR according to Bank Indonesia regulations is

$$\boldsymbol{LDR} = \frac{Total\ Credit}{DPK}\ x\ 100\%$$

Based on Yusuf's research (2018), it was concluded that FDR has a significant positive effect on ROA in Islamic banks, the results of this study indicate that with high rates of financing distribution, banks will also get high income, both from sales and purchase, rental and revenue margins obtained from profit sharing. In the end, it will increase profits and cause a positive relationship with profitability. Therefore, financing management becomes very important to be managed properly in accordance with the targets set by the bank.

**Hypothesis 1: An increase in FDR has a positive effect on ROA**

### Ratio of Operating Costs to Operating Income (BOPO)

BOPO is a comparison between operating costs including interest expense and operating income including interest income. The greater the ratio, the less efficient a bank is. Bank efficiency is said to be improved, indicated by the decrease in the ideal BOPO value so that a bank is declared efficient is 70% -80% (Dendawijaya, 2015).

$$\boldsymbol{BOPO} = \frac{Operational\ Cost}{Operational\ Income}\ x\ 100\%$$

According to Yusuf (2018) there is a relationship when BOPO increases, the ROA obtained will decrease. This condition occurs because any increase in operational costs of the Bank that is not accompanied by an increase in operating income will result in reduced profit before tax, which in turn will reduce ROA. Thus, BOPO has a negative impact on ROA.

**Hypothesis 2: An increase in BOPO has negative effect on ROA**

**Third Party Funds (DPK)**

According to Kasmir (2016) third party funds namely (DPK) are funds trusted by the public to banks in the form of demand deposits, time deposits, certificates of deposit, savings or which can be likened to it. The calculation is

$$\boldsymbol{Deposit\ to\ Asset} = \frac{DPK}{Asset}\, x\ 100\%$$

Funds owned by banks are also one of the factors that can affect the level of profitability. Funds owned by banks are very important for investment planning and conducting business activities. Without funds, banks cannot carry out their functions at all. Therefore, the amount of third party funds raised by the bank will determine the level of profitability; this is in line with the research obtained by Nuha et.al (2016).

**Hypothesis 3: Increase in Deposits per Asset has a positive effect on ROA**

***Size Growth***

Size is one of the factors that affect capital adequacy. Bank size illustrates the size seen from the assets owned, so that the greater the assets owned, the greater the capital that must be fulfilled (Ssenyonga and Prabowo, 2006).

$$\boldsymbol{Size\ growth} = \frac{Total\ Asset_t - Total\ Asset_{t-1}}{Total\ Asset_{t-1}}$$

Based on Khasif et.al (2016) study, Size has a positive relationship with profitability and this shows the economies of scale that can minimize costs. So it can be concluded that the size of a large company can increase bank ROA, Size has a positive relationship with ROA.

**Hypothesis 4: Increase in Size growth has positive influence ROA**

**Exchange rate *growth***

According to Nopirin (2012) the exchange rate is the price in the exchange of two different types of currencies where there will be a comparison of values or prices between the two particular currencies. This value comparison is called the exchange rate.

The calculation of the exchange rate used is the value of $ 1 against the rupiah with the following formula:

$$\boldsymbol{Exchange\ Rate\ Growth} = \frac{Exchange\ rate_{it} - Exchange\ rate_{it-1}}{Exchange\ rate_{it-1}}$$

**Note :**

Exchange Rate it = The value of the exchange rate change of $ 1 against Rupiah i in the third quarter

Based on research conducted by Nidausallam (2014), it was found that the exchange rate has a negative effect on ROA of general Islamic banks. The high exchange rate will have an impact on inflation which will later have a negative impact on the performance of Islamic banks.

**Hypothesis 5: An increase in the exchange rate of growth has negative effect on ROA**

**Inflation**

Inflation is an economic measure that shows the extent to which an increase in the average price of goods and services produced by the economic system. According to Nopirin (2012) inflation is a process of increasing general prices continuously over a certain period.

Based on Hamid, et.al (2017), inflation has a negative and not significant effect on profitability. This indicates that with high inflation will reduce the value of money so that the impact on the transfer of investment funds in the form of money made by bank customers in the form of investment in real assets rather than financial assets.

**Hypothesis 6: An increase in inflation has negative effect on ROA**

**GDP *growth***

Economic growth is a process of increasing per capita output in the long run. The emphasis is on three aspects: process, per capita output and long term. GDP growth is measured by comparing the GDP in the period t with GDP in the period t-1. The data used is quarterly growth according to other data used. Data is taken from BPS which has been provided on a quarterly basis.

GDP growth can be calculated by the formula (BPS 2008):

$$\boldsymbol{GDP\ growth} = \frac{GDP_t - GDP_{t-1}}{GDP_{t-1}}$$

Bilal et.al (2016) found that GDP has a positive influence on banking profitability. This shows that high GDP attracts investors to invest in countries that increase bank business, low GDP decreases bank returns and affects bank loan portfolios.

**Hypothesis 7: An increase in GDP growth has a positive effect on ROA**

**BI *rate***

Bank Indonesia Interest Rate (BI Rate) is the interest rate policy that reflects the attitude or stance of monetary policy determined by Bank Indonesia and announced to the public (Bank Indonesia). Theoretically, there are two main channels of transmission mechanism for monetary policies, namely through the channel of the amount of money that is circulation and price channels through interest rates. This interest rate channel is important for the Indonesian economy. The development of unreasonable interest rates can directly interfere with the development of banking. The interest rate is a measure of how much costs or income is related to the use of money for a certain period of time.

Based on research conducted by Nidausallam (2014), it was found that the interest rate (BI rate) has a negative effect on ROA of general Islamic banks because the system that is used by Islamic banks is not based on the BI rate but profit sharing. High interest rates will encourage customers to place funds in conventional banks that will reduce the placement of funds in Islamic banks which results in reduced profitability of Islamic banks.

**Hypothesis 8: An increase in the BI rate has a positive effect on ROA**

**Fintech**

**Definition of Financial Technology (Fintech)**

Fintech in general and in a broad sense refers to the use of technology to provide financial solutions (Arner, et al, 2015), while according to Hsueh, (2017), Peer-to-Peer Lending is an Internet-based business model that meets the needs of inter-lending financial intermediary. This platform is intended for medium and small companies which they think the requirements of bank loans may be too high. Peer-to-Peer Lending has lower costs and higher efficiency than traditional bank-based loans.

The influence of Fintech on the profitability of Islamic banks has not been found in previous studies. Based on consumer theory, Fintech has an influence as a substitute, complementary or does not affect the performance of the bank. Previously there has been cooperation between Islamic commercial banks and Fintech companies. This suggests complementarity between FinTech and traditional banking, rather than substitution and disruptive innovation. In conclusion, the presence of Fintech a positive influence on the performance of the company.

**Hypothesis 9: An Increase in Fintech Development will have a positive effect on ROA**

## RESULT

**Regression Analysis**

One of the different characteristics of state-owned and private companies is that state-owned Islamic bank is mostly dominated by Government Banks where the prevailing government policy is closely related to management policies in carrying out company operations.

The first test uses data of 3 state-owned Islamic commercial banks. Based on the Chow test results, the probability value is smaller than 5 percent, so the suitable model is Fixed effect. However, because there are fewer cross section data compared to period data, the Hausman test cannot be performed. Next, the normality test is performed where the probability value of 0.102058 or greater than 5 percent indicates that the data is spread normally. Based on Durbin Watson value of 1.697313 so it can be concluded that there is no autokoliniearity. Likewise, the multicollinearity test with a correlation value below 0.8 showed no multicollinearity. Heteroscedasticity test results showed that the absolute residual value is greater than 0.05 percent so that heteroscedasticity does not occur.

Based on Table 1. R square value of this test is 0.996740 or 99.6740 percent, so it can be concluded that the panel data model with fixed effects illustrates the independent variable of 99.6740 percent able to explain the diversity of ROA, so it can be concluded that the model is good. Based on the simultaneous test of determination shows a Prob (F-statistic) value of 0.0000 or smaller than 5%, it is concluded that there is a joint effect on ROA or at least one independent variable that influences ROA.

Furthermore, the testing of seven private Islamic banks was conducted. Based on the Chow test results on the data of state-owned Islamic Banks, the Prob value is smaller than 5 percent, so that the suitable model is Fixed effect. However, because the cross section data is less than the period data so the thirst test cannot be done. Furthermore, a normality test is performed where the probability value of 0.985868 or greater than 5 percent indicates that the data is spread normally. Based on the Durbin Watson value of 2.040483 it can be concluded that there is no autokolinierity. Likewise, the correlation value below 0.8 indicates the absence of multicollinearity. Heteroscedasticity test results showed that the absolute residual value is greater than 0.05 percent so that heteroscedasticity does not occur.

Based on table 1. R square value of Private Islamic Commercial Banks of 0.999660 or 99.9660 percent, so it can be concluded that the panel data model with fixed effects illustrates the independent variable of 99.9660 percent able to explain the diversity of ROA, so it can be concluded that the model is good. Based on the simultaneous test of determination shows a Prob (F-statistic) value of 0.0000 or smaller than 5%, it is concluded that there is a joint effect on ROA or at least one independent variable that affects ROA. Then the T test is performed with the results as listed in table 1 below:

**Table 1. The results of the panel regression of factors affecting the profitability (ROA) of state-owned and Private Islamic Bank**

| | State-owned | | Private | |
|---|---|---|---|---|
| **Variabel** | **Coef** | **Prob** | **Coef** | **Prob** |
| C | 9.9661 | 0.0000 | 11.7011 | 0.0000 |
| FDR | 0.0078 | 0.0530 | -0.0043 | 0.0001 |
| BOPO | -0.0964 | 0.0000 | -0.0917 | 0.0000 |
| Dep to Aset | 0.0017 | 0.7367 | -0.0145 | 0.0000 |
| Aset growth | -0.0002 | 0.9572 | 0.0003 | 0.4942 |
| Kurs growth | -0.0145 | 0.0486 | 0.0014 | 0.6635 |
| INF | -0.0535 | 0.2377 | -0.0388 | 0.1096 |
| BI Rate | -0.0317 | 0.2850 | -0.0553 | 0.0002 |
| GDP growth | 0.0041 | 0.5966 | -0.0004 | 0.8937 |
| Ln Fintech | -0.0446 | 0.0149 | 0.0421 | 0.0000 |
| R- squared | 0.996740 | | 0.999660 | |
| F-statistic | 416.9683 | | 9200.172 | |
| Prob (F-Statistic) | 0.0000 | | 0.0000 | |

*Sources : E-views 9*

## Internal Performance influence on profitability (ROA)

Based on Table 1 shows the variables that affect bank ROA has a Prob value below 5 percent or 0.05. It can be concluded that the variables that influence ROA of state-owned Islamic commercial banks are BOPO, growth rate and Fintech negatively affect ROA of state-owned Islamic commercial banks. Whereas the results of the regression of private Islamic commercial banks show that FDR, BOPO, deposit to assets and BI rate have a negative effect on ROA of private Islamic banks.

The results of testing Islamic commercial banks and state-owned islamic commercial banks show that FDR has no effect on ROA in line with research. These results are in line with the results of Fitriana's research (2017), while the testing of private Islamic commercial banks FDR has a negative influence on ROA in line with the results of Nahar et.al (2017) research.

The results of this study indicate that in state-owned Islamic commercial banks, the distribution of financing that should be a source of income, but due to the level of Non-performing Loans (NPF) that causes additional reserve costs so that an increase in FDR has no effect on bank ROA. Whereas in private Islamic banks there are NPFs above 5%, this condition causes an increase in FDR to have a negative effect on ROA.

BOPO has a negative effect on ROA which is consistent with the results of Yusuf's research (2018). While the deposit to the assets of private Islamic banks has a negative effect on the profitability of the company which is in line with the results of the research Kashif et.al (2016). This condition can occur because of the composition of CASA which is dominated by deposits so that the value of profit sharing is high and has an impact on the ROA reduction of private Islamic banks. While growth assets do not have an effect on ROA of Islamic commercial banks, both state-owned and private, this result is in line with previous research conducted by Kashif et.al (2016).

**Influence of Macroeconomic Factors on profitability (ROA)**

The exchange rate has a negative effect on ROA of state-owned Islamic banks. These results are consistent with the results Nidausallam (2014), where the weakening of the exchange rate negatively impact state-owned islamic commercial banks because they has a transactions that using foreign currency, so the increase in exchange rate will lower the growth of Islamic banks ROA of SOEs. The growth rate has no effect on private Sharia private banks because there are not many foreign exchange transactions.

Tests on private Islamic commercial bank are consistent with the initial hypothesis in which the BI rate negative effect on ROA and also in line with the results Nidausallam (2014). Islamic banking does not refer to the BI rate but rather the profit sharing. But in practice, the determination of the profit sharing ratio will be adjusted to the level prevailing in the BI rate. An increase in the BI rate will usually directly affect the level of profit sharing of DPK, while adjustments to the results of financing will only be made thereafter. The adjustment gap caused a negative impact on ROA of private Islamic banks. ROA of state-owned Islamic commercial banks is not affected by the BI rate because the level of FDR of state-owned banks is lower than that of private banks so that the increase in the BI rate does not affect ROA of BUMN Islamic commercial banks.

In this study, GDP growth and inflation have no effect on ROA of Islamic commercial banks. This condition shows that throughout the research period, Sharia commercial banks have controlled inflation. As for GDP growth, it can be concluded that people do not automatically increase their funds in Islamic commercial banks.

**Fintech Developments influence on profitability (ROA)**

Tests on state-owned Islamic banks in table 1. shows results that are not in accordance with the initial hypothesis, where the development of Fintech has a negative effect on bank ROA. According to Consumer theory, the development of Fintech is still considered disruption by banks. state-owned Islamic banks are less aggressive in immediately adapting to technological developments. Although collaboration between state-owned islamic banks and Fintech peer to peer lending has begun, the results of this study indicate the development of Fintech still has a negative impact on ROA of state-owned islamic banks.

Tests on private Sharia commercial banks in table 1. shows results in accordance with the initial hypothesis that the development of Fintech has a positive effect on profitability. The test results show that the development of Fintech on ROA has a positive relationship with ROA of private Islamic banks, this result is in accordance with the research of Yinqiao et.al (2017). Based on consumer theory (Aaker and Keller 1990), the positive relationship between fintech growth and ROA of Private Sharia Commercial Banks shows that the presence of Fintech as a complementary can be offset by Islamic Commercial Banks. The growth of FinTech companies which experienced high growth has weakened the bank's dominant position so that it encouraged Islamic commercial banks to carry out their operations efficiently by utilizing information technology. On the other hand, private Islamic banks have taken action to respond to these challenges, one of them by collaborating with Fintech peer to peer lending companies..

Cooperation between banks and Fintech can provide benefits such as for banks, partnerships can generate profits through expansion by developing new customer segments, products, and services through new technologies that create new revenue opportunities by using new technologies that can improve efficiency. This is important because banks are often associated with a lack of innovation either because of a stable market position or because they are subject to complicated and severe government regulations (Anagnostopoulos 2018).

## CONCLUSION

**Conclusions**

1. The development of ROA of Sharia Commercial Banks during the third Quarter 2017 to the third Quarter 2019 experienced fluctuations in state-owned Sharia Commercial Banks and Private Banks. Research testing conducted with the independent variables of internal performance, namely Assets, FDR, DPK and BOPO, showed that BOPO had a negative effect on ROA of Sharia commercial banks, both state-owned and Private.
2. Other variables that influence the testing of private Islamic banks are FDR and deposit to assets which have a negative effect on bank ROA.
3. Macroeconomic factors tested in this study are GDP growth, the BI rate, the exchange rate and inflation. The results of the test show that overall, macroeconomic factors have no effect on ROA of Islamic Commercial Banks, while testing on the category of state-owned Islamic Commercial Banks results that the growth of exchange rate has a negative effect on ROA. Whereas in the category of private Sharia commercial banks, the BI rate has a negative effect on ROA.
4. Based on the test, it was found that the development of Fintech had a positive influence on ROA of Private Islamic Commercial Banks, on the contrary the Sharia commercial banks of state-owned banks actually had a negative effect on ROA of banks. This shows in accordance with consumer theory that the development of Fintech and ROA of Islamic Commercial Banks is complementary. This indicates that the development of Fintech which was initially considered Disruption can be anticipated by the impact of private Islamic Commercial Banks, among others, through the development of digital services to meet the development needs of consumers formed by the presence of Fintech. As for state-owned Islamic banks, the development of Fintech is still a disruption.

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