

The Influence of Financial Technology (Fintech) Development on the Profitability of Islamic Banking Listed on the Indonesia Stock Exchange

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ABSTRACT: *This study aims to determine the impact of Financial Technology on the profitability of Islamic banks in Indonesia, which is proxied by Return on Assets (ROA), Return on Equity (ROE), or Net Profit Margin (NPM). The method used in this research is a quantitative method, with the population being Islamic banks listed on the Indonesia Stock Exchange during the 2017-2022 period. The sample used is the entirety of the existing population, amounting to 13 banks. This study employs a purposive sampling method with statistical testing using the SPSS program. The analysis technique used in this research is multiple linear regression. The results of this study indicate that the development of Financial Technology has a significant impact on profitability, as proxied by Return on Assets (ROA), Return on Equity (ROE), or Net Profit Margin (NPM).*

KEY WORD: *Fintech, Profitability, ROA, ROE, NPM, Islamic Bank*

Date of Submission: 14-11-2024

Date of acceptance: 29-11-2024

I. INTRODUCTION

The profitability condition for a company reflects the extent to which the company is able to generate profits from its business activities. Healthy profitability signifies that the company manages revenue and expenses efficiently, generates enough profit to meet its operational obligations and deliver returns to shareholders.

Disruption innovation is an innovation that changes business models to be more effective and efficient and can disrupt old market players. According to (Harefa & Kennedy, 2018) disruptive innovation is an innovation that introduces ease of access, practicality, convenience and economic cost that has succeeded in changing a pre-existing market system. Several industrial sectors in Indonesia are currently offering technology-based innovations, one of which is the financial sector. Technological innovations that are developing in the financial sector are known as financial technology (Hsueh & Kuo, 2017). According to Harefa & Kennedy, (2018) fintech is the maximum use of technology in improving financial services. Currently, fintech in Indonesia is developing very rapidly. According to data from the Indonesia's Fintech Association (IFA) in a dailysocial.id report entitled Indonesia's Fintech Report 2016, the number of fintech players in the 2015-2016 period grew by 78 percent. In the first quarter of 2016 there were around 51 companies then in the fourth quarter of 2016 it shot up to 135 companies, according to data sourced from the Financial Services Authority (OJK) in 2017. Fintech is a term used to denote companies that offer modern technology in the financial sector. These companies have been around since 2010. Fintech companies are mostly micro, small or medium-sized companies that do not have a lot of equity, but have a clear idea of how to introduce new innovations or how to improve existing services in the financial services market (Saksonova 2017).

The application of fintech in the world of Islamic banking itself has started in various bank features such as Cash Management System, mobile banking, internet banking, SMS banking, QR Code, E-money and ATM. According to Bank Indonesia Regulation No. 19/12/PBI/2017 concerning the implementation of financial technology, "Bank Indonesia regulates the obligation to register with Bank Indonesia for those who carry out payment system activities". The registration obligation is exempted for payment system service providers that have obtained a license from Bank Indonesia and for financial technology operators under the authority of other authorities. Research conducted by (Shah et al. 2023) found that fintech awareness and adoption are not the same across Islamic countries. The Asia-Pacific region is far superior to the other two regions, where Indonesia excels in terms of fintech awareness and adoption, and Malaysia excels in terms of the use of credit risk management. The study also found that Islamic banks experienced the problem of "Adverse selection in sharia compliance.". Furthermore, research conducted by (Kharrat et al., 2024) obtained the result that there is a significant bidirectional relationship between the fintech index and all performance measures in all countries except Tunisia, both for

conventional and sharia banks, showing that fintech growth improves bank equity performance and the fintech rate increases significantly for each unit increase in ROE measures.

The results of research conducted by (Muchlis, 2018) found that by collaborating Islamic banking institutions with the provision of financial technology services, it provides convenience for the public to access Islamic banking service products so as to create customer comfort to remain consistent in transactions in banking, which will increase the number of Third Party Fund (DPK) customers and Islamic banking financing which can increase profitability.

The results of the research conducted by (Ma'ruf, 2021) obtained from the survey results show that fintech has an effect on financial performance (ROA, ROE, BOPO, CAR, FDR). The more sophisticated Fintech services in the field of Islamic finance will be more important for the financial performance of Islamic banks.

II. METHODS

2.1. Population and Sample

In the context of statistics, population refers to an entire collection of individuals, objects, or events that meet certain criteria and become the object of statistical study or analysis. Population represents the totality of all relevant elements for the research question or problem being studied. The sample used in this study is 13 Islamic banking companies, so the sample from this study is the entire population. The sample criteria in this study are as follows:

- 1) Sharia banks with a classification in the form of banks registered with the OJK during the 2017-2022 period.
- 2) Banks registered with the OJK that consistently submit annual reports during the research period.
- 3) Data on the variables to be studied are available in the annual financial report published for the period 2017-2022.

The data collection method uses documentation techniques, namely by looking at documents that have occurred (annual reports and financial statements) of Islamic banking companies in Indonesia.

2.2. Analisis Model

Before the statistical test, the calculation of each variable is carried out, with the following formula:

- 1) Growth of Fintech Companies (F) (X)

The growth of Fintech companies is the amount of growth of Peer to Peer lending (P2P) companies registered with the OJK from 2017-2022. The researcher collected data on the number of registered and active fintechs during the period 2017 – 2022.

- 2) Return on Assets (ROA) (Y1)

$$\text{Return on Asset} = \frac{\text{Net Profit after Tax}}{\text{Total Asset}} \times 100 \%$$

- 3) Return on Equity (ROE) (Y2)

$$\text{Return on Equity} = \frac{\text{Net Profit after Tax}}{\text{Equity}} \times 100\%$$

- 4) Net Profit Margin (NPM) (Y3)

$$\text{Net Profit Margin} = \frac{\text{Net Profit}}{\text{Profit}} \times 100\%$$

III. RESULTS AND DISCUSSION

3.1. Descriptive Statistical Analysis

Descriptive statistics aim to analyze data sets that can describe or describe them without generalizing conclusions. This can be seen from the mean value, median value, maximum value, minimum value, standard deviation, and the number of observations used

Table 1: Descriptive Analysis Test Results

Information	N	Minimum	Maximum	Mean	Std. Deviation
Financial Technology	78	1,000	7,000	5,326	2,325
Return on Assets (ROA)	78	2,362	14,580	2,402	1,252
Return on Equity (ROE)	78	5,632	25,204	5,421	3,252
Net Profit Margin (NPM)	78	3,335	26,332	6,253	3,423
Valid N (listwise)	78				

The fintech variable is an independent variable whose data uses logit based on fintech features owned by banks, based on the table with a sample of 78 has a mean value of 5.326510. The maximum value of fintech is 7.00, meaning 7 features owned by Islamic banking companies. The minimum value of fintech is 1.00, meaning at least 1 feature owned by Islamic banking companies. So it can be said that from each sample, on average, there are at least 1 fintech feature. The standard deviation value of FIN is 2.325321. The standard deviation value is

smaller than the mean value, which can be interpreted that the distribution of fintech variable data is not too varied and likely will not be far from the average value. Thus, the average value of Fintech can be distributed normally.

The ROA variable is a variable that can show the earnings of a bank based on asset turnover, with the table known to have a mean of 78 samples with an average value of 2.402521. As well as a maximum ROA value of 14.580032 and a minimum ROA value of 2.362521 The standard value of ROA deviation is 1.252113. The standard deviation value is smaller than the mean value, which can be interpreted that the distribution of the ROA variable data is not too varied and likely will not be far from the average value. Thus, the average value of ROA can be distributed normally.

The ROE variable is a variable that can show the earnings of a bank based on equity turnover, with the table known that the mean of 78 samples has an average value of 5.421320. As well as a maximum ROE value of 25.204301 and a minimum ROE value of 5.632223 The standard value of ROE deviation is 3.252013. The standard deviation value is smaller than the mean value, which can be interpreted that the distribution of the ROE variable data is not too varied and likely will not be far from the average value. Thus, the average value of ROE can be distributed normally.

The NPM variable is a variable that can show the earnings of a bank based on net profit, with the table known to mean that the 78 samples have an average value of 6.253331. As well as the maximum NPM value of 26.332612 and the minimum NPM value of 3.335261 The standard value of NPM deviation is 3.423001. Thus, the average value of NPM can be distributed normally.

3.2. Normality Test

The normality test in this study used Kolmogorov – Smirnov. The criteria for making a decision are if the Asymp value. Sig. (2-tailed) ≥ 0.05 normally distributed data:

Table 2: Test Result Normalitas

		Unstandardized Residual
N		78
Normal Parameters ^{ab}	Mean	OE-7
	Std. Deviation	1.85376487
	Absolute	,131
Most Extreme Differences	Positive	,131
	Negative	-,075
Kolmogrov-Smirnov Z		1,335
Asymp.Sig. (2-tailed)		,082

a. Test distribution is Normal.
b. Calculated from data.

In the results of the Kolmogorov-Smirnov (K-S) non-parametric statistical test, it can be seen that the value of Asymp.Sig. (2-tailed) of 0.077. From these results, it can be seen that the significant value with the Kolmogorov - Smirnov one-sample test for all variables is greater than 0.050, so it can be concluded that the data is distributed normally. This indicates that all the data used in the study are normally distributed or it can also be said that the regression model meets the normal assumptions

3.3. Multicollinearity Test

The threshold of the multicollinearity test can be seen from the Tolerance and Variance Inflation Factor (VIF) values. If the Tolerance value ≥ 0.1 and the VIF < 10 , then it can be concluded that there is no multicollinearity. If the Tolerance value < 0.1 and the VIF ≥ 10 , it can be concluded that there is multicollinearity. The results of the multicollinearity test are as follows:

Table 3: Multicollinearity Test Results

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant) Financial Tecnology	0,329	1,253

a. Dependent Variable: Profitabilitas

Based on the table above from the results of the multicollinearity test based on the available data, it is known that the tolerance value is $0.329 > 0.1$ and the VIF value is $1.253 < 10$. So based on the threshold of the provisions, it is known that from the results it can be concluded that there is no multicollinearity.

3.4. Autocorrelation Test

In the autocorrelation test using the Durbin-Watson Test, there are two important thresholds, namely dL (lower bound) and dU (upper bound). The Durbin-Watson value (d) generated from the analysis will be compared with these two limits to determine the presence of autocorrelation. If $d < dL$: There is a positive autocorrelation, If $dL < d < dU$: There is no autocorrelation (a condition of doubt), and If $d > dU$: There is a negative

autocorrelation. Understanding the thresholds in the Durbin-Watson test is essential to ensure that the regression model used is valid and does not experience autocorrelation issues. If autocorrelation is detected, then the analysis results may be inaccurate, so it is necessary to improve the model or further analysis. The following are the results of the autocorrelation test in this study:

Table 4: Autocorrelation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,672 ^a	0,427	0,521	1,846796	1,637

The Durbin-Watson value of 1.637 is this value when compared to the value of the Durbin-Watson Table using a 5% confidence degree with a sample number of 13 and the number of independent variables (K) of 1, then in the Durbin Watson table you will get a dl value of 1,009 and a du value of 1,340. It can be concluded that $dw < 4-du$, which means that the value of dw (1.637) is smaller than the value of 4-du (2.659). So it can be decided that there is no positive or negative autocorrelation in the regression model

3.5. Coefficient of Determination Test (R²)

The significant coefficient shows that the independent variable contributes significantly to the prediction of the dependent variable. Coefficient tests help determine the relevance and strength of independent variables in the regression model, as well as whether they make a meaningful contribution to the prediction model. The results of the coefficient test in this study are:

Table 5: Coefficient Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0,672 ^a	0,527	0,521	1,846796	1,637
a. Predictors: (Constant), Financial Technology					
b. Dependent Variable: Profitabilitas					

Based on the table above, it can be seen that the magnitude of the double correlation coefficient in column R is 0.672. The determination coefficient in the R Square column shows the number 0.527. The Adjusted R Square column is a corrected determination coefficient of 0.521 or 52.1%, which shows that the *financial technology* variable contributes to the profitability of Islamic banking which is proxied by ROA, ROE and NPM. by 52.1%, while the remaining 47.9% is influenced by other variables.

3.6. Model Feasibility Test (F)

The F test aims to determine whether the regression model used in the study can predict the observation value well. If the significance value of $F < 0.05$, then the regression model is acceptable and considered feasible. On the other hand, if the significance value of $F > 0.05$, then the regression model is unacceptable and needs to be revised. The following are the results of the model feasibility test (F test).

Table 5: Model Feasibility Test Results (F)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	175,301	1	175,301	64,523	0,000
	Residual	375,105	76	3,430		
	Total	550,406	77			

a. Dependent Variable: Profitabilitas

b. Predictors: (Constant), Financial Tecnology

From the table, it can be seen that the F count is 54.533 while the F table is obtained through the F table so that $D_k: 1 \text{ Df}: 78-1-1 = 77$, then the F value of the table is 3.960, meaning that $F \text{ calculates} > F_{\text{table}} (64.523 > 3.960)$ and the significant level of p-value $< 0.05 (0.000 < 0.05)$, thus H_a is accepted, then the model is accepted and the research can be forwarded to the next research.

3.7. Hypothesis Test

The purpose of the hypothesis test is to decide whether the proposed hypothesis can be accepted or rejected based on the data obtained. In the context of the t-test, the null hypothesis (H_0) states that there is no difference between the two groups, while the alternative hypothesis (H_a) states that there is a difference. The t-test helps researchers to test the truth or falsity of the hypothesis using sample data. The following are the results of the hypothesis test in this study:

Table 6: Hypothesis Test Results the Influence of Fintech Development on the ROA of Sharia Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std Error	Beta		
1	(Constant)	10,603	1,303		12,042	0,002

Fintech	0,519	0,199	0,280	2,602	0,015
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a. Dependent Variable: ROA

From the table above, there is a summary of the results of hypothesis testing, namely the influence of independent variables on dependent variables. The results of the hypothesis test show that the significance level of fintech (0.015), the value is smaller than the probability of 0.05 ($0.015 < 0.05$) which means significant. So it can be concluded that H_a is accepted, so financial technology has a significant effect on the Return on Asset (ROA) of Islamic banking in Indonesia.

Thus, the regression equation is obtained as follows:

$$Y = 10,603 + 0,519X$$

The above equation can be interpreted as follows:

10,603 = means that if *financial technology* Zero value (0), so *Return on Assets (ROA)* Worth 10,603.

0,519 = means that if *financial technology* increased by one unit, so *Return on Assets (ROA)* will increase by 1,995 unit.

Table 7: Hypothesis of the Influence of Fintech Development on the ROE of Sharia Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std Error	Beta		
1	(Constant)	12,422	1,323		9,042	0,003
	Fintech	0,526	0,231	0,322	2,602	0,000

a. Dependent Variable: ROE

From the table above, the results of the hypothesis test show that the significance level of fintech (0.000), the value is smaller than the probability of 0.05 ($0.000 < 0.05$) which means significant. So it can be concluded that H_a is accepted, so financial technology has a significant effect on the Return on Equity (ROE) of Islamic banking in Indonesia. Thus, the regression equation is obtained as follows:

$$Y = 12,422 + 0,526X$$

The above equation can be interpreted as follows:

12.422 = means that if financial technology has a value of zero (0), then the Return on Assets (ROA) is worth 12.422.

0.526 = means that if financial technology increases by one unit, then Return on Equity (ROE) will increase by 0.526 units

Table 8: Hypothesis The Influence of Fintech Development on NPM of Sharia Banks

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std Error	Beta		
1	(Constant)	12,211	1,355		10,042	0,021
	Fintech	1,015	0,311	0,351	3,412	0,020

a. Dependent Variable: NPM

From the table above, the results of the hypothesis test show that the significance level of fintech (0.000), the value is smaller than the probability of 0.05 ($0.000 < 0.05$) which means significant. So it can be concluded that H_a is accepted, financial technology has a significant effect on the Net Profit Margin (NPM) of Islamic banking in Indonesia. Thus, the regression equation is obtained as follows:

$$Y = 12,211 + 1,015X$$

12,211 = meaning that if Financial Technology is worth zero (0), then the Net Profit Margin (NPM) is worth 12,211.

1.015 = means that if Financial Technology increases by one unit, then the Net Profit Margin (NPM) will increase by 1.015 units.

3.8. Discussion

3.8.1. The influence of financial technology (fintech) on Return on Asset (ROA) of Islamic banking in Indonesia

The results of this study show that financial technology (fintech) has a significant positive influence on the Return on Assets (ROA) of Islamic banking in Indonesia. Where this can be known from the acquisition of a statistical t-value of 2.602. And for t table of 1,991. so that $2.602 >$ out of 1.199 and the significance value is $0.015 < 0.05$. The results indicate that fintech developments have a significant influence on ROA, providing important information on how the adoption of financial technology affects the profitability of financial institutions. Understanding whether the influence is positive or negative can help in strategic planning and better decision-

making regarding investment and implementation of fintech technologies. Proper adjustments and continuous monitoring will help maximize the benefits of fintech adoption.

Firm value theory states that a company's value is determined by its ability to generate stable profits and increase over time. Fintech introduces operational efficiency through the automation and digitization of banking processes, which reduces operational costs and improves efficiency. Higher efficiency means banks can generate more profits by using existing assets, thereby increasing ROA.

3.8.2. The influence of financial technology (fintech) on the Return on Equity (ROE) of Islamic banking in Indonesia

The results of this study show that financial technology (fintech) has a significant positive influence on the Return on Equity (ROE) of Islamic banking in Indonesia. This can be seen from the results of the hypothesis test, where the value of the statistical t is $2.602 > 1.991$ and for the significance value of $0.000 < 0.05$. The results of this study indicate that the use of fintech can improve bank management's ability to manage productive assets to generate net interest income, although not all banks show the same results. Thus, it can be concluded that the development of fintech has a positive influence on the ROE of Islamic banking companies in Indonesia, which can improve the company's financial performance and profitability.

Fintech has eliminated traditional barriers associated with access to finance, such as strict financial requirements and complicated bureaucracy. Thus, fintech can improve financial access for more people, thereby increasing banking investment and ROE. Fintech can improve the efficiency of banking operations by reducing operational costs and increasing transaction speed. This can increase banking profitability and ultimately ROE.

3.8.3. The influence of financial technology (fintech) on the Net Profit Margin (NPM) of Islamic banking in Indonesia

The results of this study show that financial technology (fintech) has a significant positive influence on the Net Profit Margin (NPM) of Islamic banking in Indonesia. This can be seen from the acquisition of statistical t -values obtained of $3.412 > 1.991$ and significance values of $0.020 < 0.05$. The results of this study show that fintech allows banks to conduct more accurate and effective risk analysis, so that banks can better allocate credit and reduce credit risk. Thus, it can be concluded that the development of fintech has a positive influence on the NPM of Islamic banking companies in Indonesia, which can increase interest margins and company profitability. Therefore, the implementation of fintech is expected to be an effective strategy for Islamic banking to improve financial performance and face increasingly fierce competition in the financial industry.

Fintech has a significant positive influence on the Net Profit Margin (NPM) of Islamic banking due to its ability to improve operational efficiency, expand market access, and reduce transaction costs. Financial technology innovations such as mobile banking, e-wallets, and peer-to-peer lending allow Islamic banking to offer faster and more accessible financial services, especially for people who were previously less affordable. This reduces operational costs, such as administrative and distribution costs, so profit margins can increase.

IV. CONCLUSION

- 1) The financial technology (fintech) variable has a significant positive effect on the Return on Asset (ROA) of Islamic banking in Indonesia. From these results, it is indicated that the adoption of fintech by Islamic banking in Indonesia provides significant benefits in improving operational efficiency, expanding market reach, better managing risk, and increasing asset profitability, all of which contribute to an increase in ROA.
- 2) The financial technology (fintech) variable has a significant positive effect on the Return on Equity (ROE) of Islamic banking in Indonesia. Technologies such as blockchain used in some fintech applications can increase transparency and trust in financial transactions. This increase in confidence can attract more customers and investments, which has a positive impact on ROE.
- 3) The Financial technology (fintech) variable has a significant positive effect on the Net Profit Margin (NPM) of Islamic banking in Indonesia. The adoption of financial technology helps banks to improve operational efficiency, expand market reach, offer innovative products and services, reduce transaction costs, and better manage risk. All these factors contribute to increased profitability and cost efficiency, which directly increases the NPM of Islamic banks.

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