



## Impact of Finance Technology on Profit at Sharia Banks in Bandung

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**Abstract.** Industry 4.0 is currently giving rise to an innovation in all fields. One of them is the financial services sector by combining application-based funding technology. Innovations in financial services that are currently trending related to access to financial products are known as Financial Technology (FinTech). The purpose of this study is to analyse whether there are differences in earnings before and after the existence of Financial Technology in Islamic Banks. The research method used is descriptive quantitative in the form of a comparison that aims to measure the influence before and after the existence of FinTech on Profits at Islamic Banks for the 2017-2020 period as measured by Net Interest Margin, the population of this study from financial statements which was then narrowed down using purposive sampling so that the sample in this study are the quarterly financial statements of Islamic banks for the period 2017-2020. The results of the study show that in Islamic banks there is no significant effect on the net interest margin before and after using fintech, this is due to several factors including the level of security, long-term maintenance and the bank's ability to maintain internet banking are also experiencing problems. The not yet maximal use of internet banking in Indonesia for banking transactions is also still an obstacle to the development of internet banking services.

**Keywords:** Financial Technology, Sharia Banks, Financial Services

### 1. Introduction

The development of science and technology in Indonesia has touched most aspects of life for people in Indonesia. The very rapid growth of technology in the current digital era that is able to influence being able to access the latest information, and make it easier for people to complete their work effectively and efficiently with various electronic service features that require companies to innovate to provide various conveniences to their customers. One of the technological developments that is currently a trending topic is Financial Technology (FinTech) in financial institutions. These companies have been around since 2010.[1]

Financial technology (FinTech) is the use of technology in the financial system that produces new products, services, technology, and or business models and can have an impact on monetary stability, the financial system, and/or the efficiency, smoothness, security and

reliability of the payment system [2]. With the existence of Fintech, it is able to serve the Indonesian people who cannot be served by the traditional financial industry due to strict banking regulations and the limitations of the conventional banking industry in serving the community in certain areas. In addition, FinTech is also able to become a more democratic and transparent funding alternative, even more practically, FinTech is a transaction that can be connected via the internet [3].

The development of the Fintech industry in Indonesia is supported by the increasing number of internet and smartphone users in Indonesia. Based on the results of the 2016 Indonesian Internet User Statistics survey conducted by the Association of Indonesian Internet Service Providers or called APJII, the number of internet users in Indonesia in 2016 was 132.7 million users or about 51.5% of the total population of Indonesia. Of the total 132.7 million internet users, 63.1 million or around 47.6% of users use mobile devices (smartphones). With the convenience provided, the internet and smartphones have become important things for the people of Indonesia and ultimately affect consumer behaviour in conducting product and service transactions, including financial services. Currently, the average Indonesian people aged 20-40 years have made online product and service transactions [4].

With various practical innovations that make it easier for people to make transactions without having to leave the house, OJK views that information technology has been used to develop the financial industry and can encourage the growth of alternative financing for the community. OJK also supports the growth of information technology-based financial service institutions so that they can contribute more to the national economy. For this reason, OJK has issued OJK Regulation Number 77/POJK.01/2016 concerning Information Technology-Based Borrowing-Lending Services or Peer-to-Peer (P2P) Lending, which will be followed by other provisions related to fintech so that regulations are clearer and more complete. The huge potential it has makes fintech need to be given room to grow. [5].

Fintech is not a new phenomenon, but in the 1900s banks had issued teller machines and credit cards. Some of the commonly used fintech banking services are ATMs, mobile payments, electronic money, phone banking and electronic banking or e-banking. However, this digital banking service is still enjoyed by some people. Banking penetration in Indonesia is still considered low in the Global Findex report, which shows that only 36 percent of Indonesian adults have conventional banking accounts in 2014. In 2017 the research agency Euromonitor (2018) found that as many as 170 million Indonesians have used telephones. smart people, 130 million of whom use mobile phones to access the internet, while 80 million of them do not have financial access [6].

Technological developments in the financial sector have developed in recent years and have an impact on changes in people's behaviour in financial transactions. This can be a solution to the financial problems faced by Micro, Small and Medium Enterprises (MSMEs) the limited ability and knowledge of MSME actors is actually realized by Financial Technology service providers, so trying to synergize with Islamic Banks to overcome this can certainly increase the existence of Islamic banks can be more competitive in the financial market and also help accelerate the process of financing at Islamic banks with easier, more efficient and effective applications with wider access by customers and Islamic banks. [7]. With FinTech, the financing process can be faster and scalable. Based on this, the attention of Islamic banks to the opportunities obtained from the use of FinTech is very important to expand the Islamic banking market that can meet the needs of the community.

The impact of financial digitalis will increase profits for Islamic banks, then with the increase in profits it will expand opportunities for Islamic banks to have long-term

investments, namely by using FinTech in their service processes. Profit is the main source for banks [8]. If the bank's financial system runs efficiently, the bank's profit will increase. The higher the bank's profitability, the better the bank's financial performance [9].

Research conducted [10] found that by collaborating with Islamic banks with the provision of Financial Technology (FinTech) services, it will be easier for the public to access the service products offered by Islamic Banks so as to create customer convenience to remain consistent in transactions, it will increase the number of Third Party Fund customers (DPK) and Islamic Bank financing that can increase profitability or profit capability are very important for the Islamic Bank financial institution industry because they can reflect the success of a Sharia Bank. The profitability ratio itself is a ratio that assesses the company's ability to seek profit. The higher the profitability of an Islamic bank, the better the performance of the Islamic bank [11].

Based on the background described above, on the emergence of Financial Technology (FinTech) in Indonesia and the state of profits. So, the author is interested in knowing about the emergence of FinTech in Islamic banking by raising the title of the study: The Impact of Financial Technology (FinTech) on Profits in Islamic Banks.

## 2. Method

This study uses a quantitative descriptive method which is a collection of activities that includes data collection, processing and presentation of data in a good form, meaning research that describes and describes the data that has been collected as it is. While quantitative as a method that presents data in the form of numbers that at a glance are easier to know or compare with one another with the aim of testing the established hypothesis. The data used is secondary data, which is a data source that does not directly provide data to data collectors, for example through other people or through documents [12].

The population used in this study was to take data from financial statements obtained from the website of Islamic banks for the period 2017-2020. The sample used in this study is the income statement for the 2017-2020 period listed in the financial statements on the Islamic Bank web. This study wants to know the effect of net interest margin before and after using Fintech with Islamic Banks. The sampling technique used is Non-probability Sampling with purposive sampling technique because not all samples have criteria that match the phenomena studied. Therefore, the researcher chose the purposive sampling technique which determined certain considerations or criteria that the samples used in this study had to fulfil. The criteria are as follows: 1. Islamic banks that have implemented Fintech services (SMS Banking and Mobile Banking), 2. Islamic banks that have carried out transactions via mobile phones, 3. Financial Reports issued from 2017-2020

The purpose of this study is to determine the profit with net interest margin before and after using financial technology. The cut off is determined in 2018 so that the period before using fintech is 2017-2018, the period after using fintech is 2019-2020.

## 3. Results and Discussion

### 3.1. Data Analysis

Islamic banks carry out various innovations and developments to welcome the industrial era 4.0 where technology plays an important role in supporting various processes carried out in the banking industry in general. Optimizing the use of the latest technology is one of the

keys to carrying out the transformation that has been carried out since the end of 2018. The transformations carried out include aspects of products, channels, processes, systems, human resources and work culture. Various development initiatives have been carried out in order to improve the quality of interactions and services to customers, build effective and efficient processes, make strategic decisions and develop new business potentials while still meeting risk control and compliance aspects. The implementation of automation and digitization will, of course, lead to improvements in internal processes or services, and the opening of new channels, which make it easier for customers to access Bank services, such as opening new accounts and other services.

The development of the Islamic Bank Information Technology System is carried out to create reliable Digital Banking services for each Customer through the provision of various convenience services, such as account opening (customer onboarding), book-entry (internal bank and interbank fund transfers) as well as bill payments. All of these services can be obtained through ATM, Internet Banking, and Mobile Banking.

**A. Descriptive Analysis**

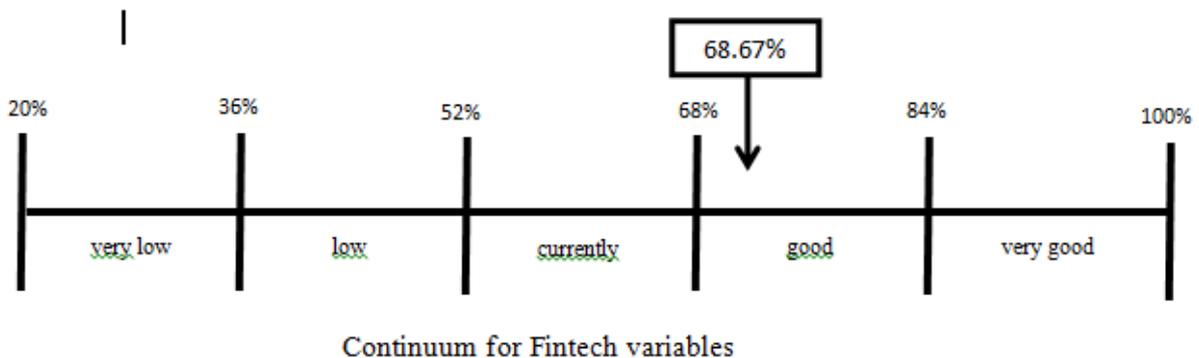
**1. Fintech (financial Technology)**

Descriptive analysis is used to determine respondents' responses to each statement. In this study, respondents' responses to each statement will be presented in the form of a recapitulation and percentage distribution table to make it easier for researchers to explain the results of respondents' responses.

**Table 1. Fintech variable recapitulation**

| item number | indicator   | actual | ideal | presentation | Description |
|-------------|-------------|--------|-------|--------------|-------------|
| 1           | M-Banking   | 101    | 150   | 67,33%       | Good        |
| 2           | SMS Banking | 105    | 150   | 70,00%       | Good        |
| Total       |             | 206    | 300   | 68,67%       | Good        |

Based on the table above, the percentage of the total score of respondents' answers is interpreted in the table of the percentage scale of respondents' answer scores, which are presented as follows:



**Figure 1. Continuum for fintech variables**

The results of the calculation of the percentage of the total score of the Financial Technology variable 68.67% are in the 68.01% - 84.00% interval, thus it can be interpreted that the Financial

Technology variable is in the good category. The highest indicator is for SMS banking users at 70.00% in the good category and the lowest indicator is for mobile banking users at 67.33% in the good category. Because Finance technology has a very important role in the development of Islamic banking. Fintech can provide convenience and efficiency in terms of technology-based financial management including digitizing financial reports, payment technology and online-based loans. Fintech can also increase access to new customers through market expansion for the unbanked with practical and easy digital financial transaction services.

**2. Profit (Net Interest Margin)**

According to BNI's Chief Economist, Ryan Kiryanto. The decline in banking NIM was caused by a faster and higher increase in the funding rate compared to the slower and lower lending rate increase. In addition, the increase in the BI rate also causes the NIM to decline.

**Table 1. Sharia bank financial report data 2017-2020**

| Description   | Final Statement | Period      | Net Interest Margin |
|---------------|-----------------|-------------|---------------------|
| Before        | 2017            | Quarterly 1 | 1.44                |
|               |                 | Quarterly 2 | 1.35                |
|               |                 | Quarterly 3 | 1.26                |
|               |                 | Quarterly 4 | 1.28                |
|               | 2018            | Quarterly 1 | 0.6                 |
|               |                 | Quarterly 2 | 0.62                |
|               |                 | Quarterly 3 | 0.57                |
|               |                 | Quarterly 4 | 0.56                |
| Average Value |                 |             |                     |
| After         | 2019            | Quarterly 1 | 0.45                |
|               |                 | Quarterly 2 | 0.41                |
|               |                 | Quarterly 3 | 0.5                 |
|               |                 | Quarterly 4 | 0.68                |
|               | 2020            | Quarterly 1 | 0.45                |
|               |                 | Quarterly 2 | 0.86                |
|               |                 | Quarterly 3 | 1.27                |
|               |                 | Quarterly 4 | 1.74                |
| Average Value |                 |             |                     |

The table above is a financial report published in quarterly I-IV reports which have been classified into 2 descriptions of the period before the period in 2017-2018 and the period after the period in 2019-2020.

There is a difference in the average net interest margin before and after using fintech. The average is determined as a reference for assessing profitability criteria in accordance with the provisions of BI regulations, so the net interest margin before and after using fintech can be said to have met the requirements as a Healthy Bank, so that the data used in the study does not raise any doubts about the health of the bank under study

**B. Verification Analysis Results**

**Methods of Successive Interval (MSI)**

The MSI calculation has been carried out, where the data processed in this section is the result of the transformation from ordinal values to interval values, so that the requirements for processing linear regression data have met the requirements.

**Table 3. Simple regression coefficients\***

| Model        | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|--------------|-----------------------------|------------|---------------------------|-------|------|
|              | B                           | Std. Error | Beta                      |       |      |
| 1 (Constant) | .005                        | .008       |                           | .574  | .573 |
| Fintech      | .003                        | .002       | .252                      | 1.105 | .284 |

a. Dependent Variable: NIM

**Path Analysis.**

Based on the table above, the regression equation is as follows:

$$Y = a + bx$$

$$Y = 0.005 + 0.003x$$

It means:

- The constant value is 0.005 which means that the consistent value of the participation variable is 0.005
- Regression coefficient X of 0.003 states that for every 1% addition to the value of trust. Then the participation value increases by 0.003. the regression coefficient is positive. So, it can be concluded that the direction of the influence of the variable X on Y is positive.

**Structural Equation Model**

That is, if each dependent variable (endogenous) is uniquely determined by a set of independent variables (exogenous). The structural equation model based on statistical testing is as follows:

**Table 4. The influence of fintech on NIM\***

| Model             | Unstandardized Coefficients |            | Standardized Coefficients | t    | Sig. |
|-------------------|-----------------------------|------------|---------------------------|------|------|
|                   | B                           | Std. Error | Beta                      |      |      |
| 1. Fintech => NIM | .005                        | .008       | .252                      | .574 | .573 |

Based on the table above, it can be concluded that Financial Technology on the Net Interest Margin of 25.2% means that there is an influence between Fintech and the Net Interest Margin of 25% even though the effect is very small.

**Coefficient of Determination**

Analysis of the coefficient of determination is used to measure how far the model's ability to explain the variation of the dependent variable. The coefficient of determination between the Financial Technology variable and the Net Interest Margin is obtained by:

**Table 5. Coefficient of Determination**

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .252 <sup>a</sup> | .064     | .012              | .0112269                   |

Based on the table above, the coefficient of determination is 0.064, which means that the large influence between Financial Technology on Net Interest Margin is 6.4%, the remaining 93.6% is influenced by other variables not examined in this study.

**Correlation Test**

**Table 6. Correlation test**

|         |                     | Fintech | NIM  |
|---------|---------------------|---------|------|
| Fintech | Pearson Correlation | 1       | .252 |
|         | Sig. (2-tailed)     |         | .284 |
|         | N                   | 30      | 20   |
| NIM     | Pearson Correlation | .252    | 1    |
|         | Sig. (2-tailed)     | .284    |      |
|         | N                   | 20      | 20   |

In the table above, it can be seen that the correlation coefficient value obtained between Fintech and Net Interest Margin (NIM) is 0.252. this shows that the two variables have a positive relationship with a weak degree of relationship between 0.21 - 0.40. However, the Pearson correlation score, which is 0.252 < from r table of 0.361, means that there is no relationship.

**Hypothesis testing**

**Table 7. Hypothesis testing**

| Model        | Unstandardized Coefficients |            | Standardized Coefficients | t     | Sig. |
|--------------|-----------------------------|------------|---------------------------|-------|------|
|              | B                           | Std. Error | Beta                      |       |      |
| 1 (Constant) | .005                        | .008       |                           | .574  | .573 |
| Fintech      | .003                        | .002       | .252                      | 1.105 | .284 |

Based on the table above, it can be seen that the significance value is  $0.284 > 0.05$  with a t count value of  $1.105 < t$  table of 1.697, so it can be concluded that the hypothesis is rejected, which means that there is no influence on the Fintech variable on the Net Interest Margin.

### 3.2 Discussion

The results of research on Islamic banks show that between before and after using FinTech there is no significant effect on the net interest margin. This is contrary to the hypothesis, according to research from [13], which says that the provision of internet banking services has no significant effect on banking financial performance as measured by NIM and ROE. This is due to several factors including the level of security of customer data as well as long-term maintenance and the bank's ability to maintain internet banking is also experiencing problems. The not yet maximal use of internet banking in Indonesia for banking transactions is also still an obstacle to the development of internet banking services, Plus the use of fintech is starting to get busy but its use is not comprehensive or every customer does not necessarily use this facility. Fintech is able to generate income other than higher interest, but this income has not been able to cover the costs incurred.

Meanwhile, according to research from [14], suggests that fintech instruments that encourage financial inclusion such as ATM and E-money and do not have a significant impact on the performance of financial system stability, research [15] on the Net Interest Margin ratio there is no significant difference from before and after the existence of fintech. Indonesian Bankers Association, 2020: 11, NIM growth has not yet recovered, banks are faced with the presence of Fintech which continues to grow consistently. Although fintech companies have not been able to compete with banks, the presence of fintech companies will slightly disrupt bank growth in the consumer sector so that it can greatly affect NIM.

The fintech phenomenon is unavoidable, in fact, banks are responding to this phenomenon. This means that banks participate in innovating technology in providing financial services and evaluating their business models so that they are not eroded by the presence of fintech start-ups. The results above show that the development of the fintech system is a strategy to address the fintech phenomenon and is expected to increase Islamic banking profits. This phenomenon is not in direct contact with banking, it is proven that fintech actually encourages the development of its own banking fintech system. In line with the results of research [16] stated that it is very important for banks to synergize with fintech along with the development of bank services. [17] also said that fintech will be used by banks as partners to reach consumers who have not been touched by financial institutions.

#### 4. Conclusion

Fintech used by Islamic banking has not been able to increase profits or have a significant impact on net income (NIM), this happens because Fintech is a new technology for banking, so it still has to be addressed to maintain profits and has a less broad scope, high maintenance costs and a lack of marketing strategies make the profits received are not as expected, but still keep abreast of technological advances. Islamic banking needs to synergize with fintech because it provides many benefits, according to Bank Indonesia, these benefits can be for borrowers, investors and banks in Indonesia: (1) for borrowers, the benefits can be felt such as encouraging financial inclusion, providing alternative loans for debtors who are not creditworthy, the process is easy and fast, and the resulting competition encourages lower lending rates; (2) for fintech investors, perceived benefits such as investment alternatives with higher returns with the greatest default risk for many investors with a fairly low nominal each and investors being able to choose funded borrowers according to their preferences; (3) for banks, cooperation with fintech can reduce costs such as using non-traditional credit scoring for initial filtering of credit applications, adding Third Party Funds (DPK), adding credit distribution channels and being an investment alternative for banks.

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