



Can the Implementation of FinTech Improve Banking Performance? Evidence from Banking Industry in Indonesia

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Abstract. The growth of FinTech in Indonesia provides an opportunity for the banking industry to continue improving its banking services through digital innovation. This study focuses on analyzing the effect of FinTech implementation on the cost efficiency rate, revenue growth rate, and banking performance. Data were taken from 30 banks audited financial statements which listed on the Indonesia Stock Exchange from the 2019 to 2021 period. The results of this study indicate that ATMs influence banking efficiency and performance. Mobile banking only affects efficiency. Internet banking does not affect any variable. Mobile payments affect efficiency, increase revenue, and banking performance. The cost efficiency rate can mediate ATM and mobile payments only for ROA and directly affects ROA. The revenue growth rate is not able to be a mediating variable.

Keywords: FinTech Implementation · Cost Efficiency Rate · Revenue Growth Rate · Banking Performance

1 Introduction

FinTech in modern times has become a worldwide trend by today's inovators [1], form of financial service-based technological innovation capable of producing business models, applications, processes, or products with material effects related to the provision of financial services [2]. Within ASEAN, FinTech is divided into 10 sectors, where the largest is payment/mobile wallet (43%) [3]. Previous studies emphasized that FinTech innovations in banking can increase the level of cost efficiency of banks and developing the technology used in banking [4]. The better and more customized banking services come from FinTech techology, previously from traditional services to a cost-effective and flexible way [5]. When speaking about revenue, it has an impact on the company's valuation, both technology and non-technology companies [6]. Digitalization has affected banking efficiency that irrelevance of distance in banking transactions has reduced costs and increased bank revenue [7]. FinTech contributes especially in terms of payment systems such as ATMs (Automated Teller Machines), mobile payment, internet banking, and mobile banking. These products continue to provide the best for their customers, increase revenue, and increase cost-effectiveness in the company. It shows that the 3 out of 4 variables have a significant positive impact on banking performance [8] (Fig. 1).

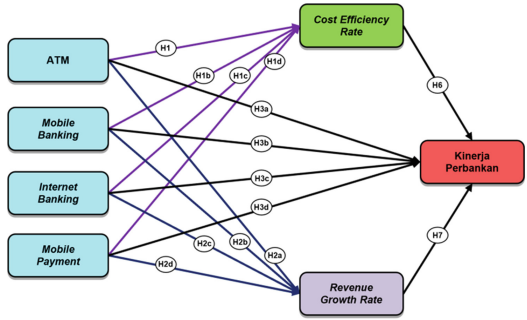


Fig. 1. Research Model.

FinTech is defined as a technology used to provide financial products or financial services to financial markets [9]. FinTech in a company could cut operational costs [10]. The development of FinTech industry could improve bank efficiency, and the technology banks use [4]. H1. FinTech affects the banking cost efficiency ratio (BOPO).

The minority companies with FinTech loans reported much higher expectations regarding future earnings growth (94.6%) than minority companies that refused to finance (73.0%) [11]. The innovation created by companies could have a significant positive impact on company performance [12]. H2. FinTech affects the banking revenue growth rate (RGR).

FinTech had a positive and significant relationship on ROA [13]. FinTech also has a positive and significant impact on ROE and NIM, as well as a positive effect but not significant on ROA [14]. The existence of internet banking as a form of technological innovation can increase banking ROA and ROE [15]. H3. FinTech affects the banking return on assets (ROA).

There is an influence of FinTech in reducing the company’s operational costs [16]. Cost efficiency had a negative correlation with ROA and ROE [17]. This indicates that a lower cost efficiency rate will increase the company’s ROA and ROE. H4. Cost efficiency rate (BOPO) mediates FinTech on banking return on assets (ROA).

Internet banking affects banking performance through increased income that the bank receives, as well supports banking performance in the long term [18]. H5. Revenue growth rate (RGR) mediates FinTech on banking return on assets (ROA).

There is a significant relationship between the cost efficiency rate and flexibility in market-based company performance [19]. One of the findings explained that cost efficiency (BOPO) impacts banking performance (ROA). H6. Cost efficiency rate (BOPO) affects the banking return on assets (ROA).

There is a positive relationship between sales revenue and ROA as a proxy for company performance [20]. Also there is a positive and significant relationship between sales growth and profitability (ROA and PBV) so that in the future, this revenue growth will also have an impact on increasing company profits [21]. H7. Revenue growth rate (RGR) affects the banking return on assets (ROA).

Table 1. Descriptive Statistical Analysis

Variable	Minimum	Maximum	Mean	Standard Deviation
ATM (unit)	4	19,184	2,834.556	5,607.758
MB (transaction)	7,435	10,109,000,000	299,195,318.589	1308,215,856.227
IB (transaction)	2,640	4,252,000,000	207,560,030.097	799,752,881.194
BOPO	0.542	2.611	0.941	0.407
RGR	-0.416	5.047	0.134	0.717
ROA	-0.159	0.042	0.006	0.032

Table 2. Coefficient of Determination

Variable	R-Square
BOPO (Z1)	0.118
RGR (Z2)	0.070
ROA (Y)	0.827

2 Research Method

Hypothesis testing uses multiple linear regression analysis with SmartPLS 4.0, significant level of 0.1. Data collected from the annual financial statements of banks listed on the Indonesia Stock Exchange for 2019–2021. Only 30 out of 46 banks met the criteria: 1. The bank as listed on Indonesia Stock Exchange. 2. The bank had a comprehensive and audited annual financial statement in 2019–2021. 3. The bank had data on the implementation of FinTech, such as the number of ATMs owned by the bank, the number of mobile banking transactions, the number of internet banking transactions, and mobile payment ownership.

The related variables are measured as: a. Cost efficiency rate is measured using BOPO, that the company exceeds 90% and close to 100% categorized as inefficient in carrying out its operations. The formula is shown as: $BOPO = (\text{Operating Expenses})/(\text{Operating Income}) \times 100\%$. b. Revenue growth rate is measured using RGR that is called negative if the company has an RGR of less than 0% vice versa [22]. The formula is shown as: $\text{Revenue Growth Rate (RGR)} = (\text{Revenues}_n - \text{Revenues}_{(n-1)})/\text{Revenues}_{(n-1)} \times 100\%$. c. Banking performance is measured by ROA, as: $\text{Return on Assets (ROA)} = (\text{Net Profit after Tax})/(\text{Total Assets}) \times 100\%$.

3 Results and Discussion

FinTech influences 11.8% of the cost efficiency rate (BOPO) and 7% of the revenue growth rate (RGR). ROA is influenced 82.7% by FinTech, the cost efficiency rate, and the revenue growth rate, which is categorized large because this variable has been influenced by various variables (Tables 1, 2, 3).

The data are significant if the P-value is less than 0.1. Only 7 out of 14 paths have a significant effect on the dependent variable. ATM has a negative effect on BOPO and a positive effect on ROA. Mobile banking has a negative effect only on BOPO. Internet banking has no effect at all. Mobile payment has a negative effect on BOPO and RGR, as well as a positive effect on ROA. BOPO has a negative effect on ROA. RGR has no effect at all (Table 4).

From the data above, only 2 out of 8 paths are mediated by mediating variables. BOPO mediates the effect of both ATM and mobile payment on ROA. RGR has no mediating effect at all.

Table 3. Total Effect (T statistic)

Variable Relation	Original Sample (O)	T statistic (O/STDEVI)	P-Values
ATM (X1) → BOPO (Z1)	-0.127	2.161	0.017
ATM (X1) → RGR (Z2)	0.007	0.162	0.436
ATM (X1) → ROA (Y)	0.202	2.885	0.002
Mobile Banking (X2) → BOPO (Z1)	-0.080	1.308	0.097
Mobile Banking (X2) → RGR (Z2)	-0.020	0.265	0.396
Mobile Banking (X2) → ROA (Y)	0.030	0.503	0.308
Internet Banking (X3) → BOPO (Z1)	0.011	0.189	0.425
Internet Banking (X3) → RGR (Z2)	0.031	0.433	0.333
Internet Banking (X3) → ROA (Y)	0.020	0.302	0.381
Mobile Payment (X4) → BOPO (Z1)	-0.580	2.365	0.010
Mobile Payment (X4) → RGR (Z2)	-0.604	2.716	0.004
Mobile Payment (X4) → ROA (Y)	0.531	2.118	0.018
BOPO (Z1) → ROA (Y)	-0.883	14.381	0.000
RGR (Z2) → ROA (Y)	0.016	0.573	0.284

Table 4. Specific Indirect Effects

Variable Relation	Original Sample (O)	T statistic (O/STDEV)	P-Values
ATM (X1) → BOPO (Z1) → ROA (Y)	0.112	2.046	0.022
Mobile Banking (X2) → BOPO (Z1) → ROA (Y)	0.071	1.265	0.104
Internet Banking (X3) → BOPO (Z1) → ROA (Y)	-0.010	0.183	0.428
Mobile Payment (X4) → BOPO (Z1) → ROA (Y)	0.512	2.308	0.012
ATM (X1) → RGR (Z2) → ROA (Y)	0.000	0.067	0.473
Mobile Banking (X2) → RGR (Z2) → ROA (Y)	0.000	0.133	0.447
Internet Banking (X3) → RGR (Z2) → ROA (Y)	0.001	0.186	0.427
Mobile Payment (X4) → RGR (Z2) → ROA (Y)	-0.010	0.750	0.227

4 Conclusion

This study found the impact of FinTech on the banking cost efficiency rate, revenue growth rate, and banking performance. ATMs, mobile banking, and mobile payment have a negative and significant effect on the cost efficiency rate which in line with Rangkuti [10]. Only mobile payment is negatively and significantly impacting revenue growth rate which is not in line with Schweitzer & Barkley [11]. ATMs and mobile payment have a positive and significant influence on banking performance which is in line with Mardawiyah [13]. Internet banking has no effect on cost efficiency, revenue growth, and banking performance. The cost efficiency rate only mediates the relationship between ATM and mobile payments to banking performance which is in line with R. Wang et al., [17]. Revenue growth rate (RGR) does not mediate the relationship between all the fintech implementation to banking performance. Based on the findings, the banking industry should develop ATMs to ease the public on deposit/withdraw cash, also mobile payment. Apart from these two services, mobile banking and internet banking should continue to be developed. Banking can also provide data on transaction volume and the number of customers using FinTech services in financial reports so that further research has more detailed data sources related to banking FinTech. In this study, the growth uses the RGR proxy and end up having insignificant result. So further research is suggested to use fee-based income, a non-operational revenue that contains commission income from e-banking revenue. In addition, mobile banking and internet banking often provide insignificant results. Thus, further research can use the number of users or transaction value to measure mobile and internet banking. In addition, future research can pay attention to variations in data that can affect the significance of the research hypothesis.

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