

Impact of fintech income on financial performance of Islamic commercial banks: Evidence from Bangladesh

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Abstracts

Recently, the wave of technology has rolled out across the world. Technology becomes the prime ingredient for future growth and development of the banking services industry. Fintech is the amalgamation of technology based computerized innovation together with financial services intended to enhance the productivity of the financial services industry. This study assesses the impact of fintech income on the financial performance of Islamic banks in Bangladesh. Six Islamic commercial banks are selected as sample and 5 years (2017 to 2021) of data are included. Financial performance of sample Islamic commercial banks is considered as explained variable where return on assets (ROA) and return on equity (ROE) are surrogates for financial performance. Islamic commercial banks generate revenue from diverse fintech based financial services recognized as explanatory variable in this study. The result reveals that fintech income is positively associated with financial performance of sample Islamic commercial banks in Bangladesh. Our study recommends Bangladeshi Islamic commercial banks should enhance investment in fintech products and services for uplifting their financial performance.

Keywords Fintech, Financial Performance, Islamic commercial banks

Paper type Research paper

Introduction

Over the last decade, the advent of Fintech has interrupted the ritual financial stratum either by dint of consumer movements or switching to better financial service facilitators or by financial centers associated with Fintech startups to achieve competitive advantage. This has directed to escalate investment in Fintech by stakeholders or financial organizations affiliating with Fintech initiatives. Fintech has been seen in the mode of payment, banking, indemnification and asset along with wealth management because of easier use, swift service, better client service and 24/7 availability. There is a notable development of financial sector in investment in financial technologies. It becomes detectable since 2010 with a view to two indispensable reasons. Firstly, the economic disaster of 2008, which worked on the entire world and secondly, the comfort and expediency provided by the up-to-date



technologies over ritualistic banking system. Fintech could be designated as financial technologies besides financial innovation which concentrates on tiny companies to sizeable corporations including financial institutions (Panjwani & Shili, 2020).

Therefore, Fintech can be imagined as a sunshade term to define financial service areas together with business models which are facilitated by innovative technologies. This can also be described as a financial ecosystem that is organized through virtual platforms along with artificial intelligence technologies facilitating financial services that are usually complimentary or opposite to old fashioned banking. Fintech evolution can be classified into three ways. Fintech 1.0 materialized nearby 1866 to 1987- the financial services industry was first connected with analog technology, where it used telegraphy. Fintech 2.0 started in 1987 until 2008- the technology was transformed from analog to digital. Fintech 3.0 - new digital devices are being introduced such as smartphone, smart wearable's, health tech instruments, 3D printers, smart homes etc. in this era (Rickinghall, 2022).

Banking industry is considered a significant pillar of the financial system which is recognized as the blood of the economy of a country. As a mixed economy country there exist both interest-based banking and interest free banking in Bangladesh. Basically, interest free banking is most widely known as profit-loss sharing banking or Islami banking system. Islamic commercial banks ensure significant contributions to the economic development of Bangladesh along with conventional commercial banks. Though the number of Islamic commercial banks is only ten (10) but they occupy almost forty percent (40%) market share of the banking industry in Bangladesh. According to the central bank database, Islami banks ensure 27.26% deposits, 27.55% investment and 38.24% foreign remittance of the entire banking sector of Bangladesh (Annual report of the Bangladesh Bank, 2022). In accordance with Bangladesh bank information there are eight (8) conventional commercial banks that facilitate Islamic banking services among their customers over the country with the help of 39 Islamic banking branches as well as there are 13 conventional commercial banks also provide Islamic banking services to their client with the help of 194 windows (Annual report of the Bangladesh Bank, 2022). Besides the conventional commercial banks, Islamic commercial banks also lay out all the update e-banking & digital banking services to all of their customers in Bangladesh. For survival in this competitive market Islamic banks should ensure infrastructural facilitates for providing all kinds of update banking services to their target customers. Islamic banks are able to generate remarkable portion of the revenue through providing fintech based financial services along with their traditional banking services. As per researcher knowledge there is no

significant study that evaluate the impact of fintech on the financial performance of Islamic banks in Bangladesh. This research is to fill this research gap in the context Islamic banking in Bangladesh.

Fintech in Islamic banking sector of Bangladesh

Some banks have already established in house IT systems to cope with the advent of Fintech. According to Bangladesh Bank, presently 87 percent of branches of the bank are online and 8 percent are moderately online (Bangladesh Bank, 2022). Five percent of the branches do offline banking. It is noticeable that, 78 percent of the rural branches in Bangladesh are now online (Bangladesh Bank, 2022). Many tools and banking mechanism facilitate and promote the word 'Fintech' in the banking sector. Technological Innovations in financial services such as Fintech convey interruptions to the overall banking system. Fintech tools such as E-KYC, digital on boarding, transaction profile monitoring, data archiving tools, etc. are assisting banks in converting currently paper-based documentation into digital formats and ensuring the continuous progression of end-to-end electronic processing of banking modes of operations. Giga E-KYC facilitates Financial Institutions to onboard customers digitally in a few minutes while ensuring AML/CFT protocols & policies and allows financial inclusion and access to financing.

Fintech has been well recognized in the Islamic banking sector as the latest advanced mode of presenting banking services. The acceptance of Fintech in Islamic financial sectors is appreciated by Shariah because it impedes some operations in transactions like interest, gambling, eluding etc. Islamic banking sector contributes USD 1.72 trillion in the assets of 71% of the Islamic finance industries. As a result, it represents a prevalent sector of Islamic finance industry that has been computerized along with formed "Digital Islamic Banking" owing to the emergence of Fintech. It enriches authorized Islamic manners in banking deal by minimizing costs, upgrading the outlook of financial services along with enhancing a more differentiated as well as steady financial sector (Panjwani & Shili, 2020). For that reason, models of Islamic Fintech could magnify the market particularly crowd funding, P2P lending as well as wealth management. It will also assist to maintain the humoring of dealing in accordance with Shariah. The effective implementation of Fintech as a convenient solution to financial inclusion helps to achieve a sustainable economic growth. Through handling the difficulties which are faced by countryside crowds to well being from banking services, financial inclusion has performed a significant role in economic growth. Prevailing Islamic banks as well get benefitted when they avail Fintech to accept new earnings models together with domestic cost structures, - authorizing them to go on the aggressive to recover diminishing asset growth as well as deposits with

Islamic banks. The Waqf group banking program is a considerable indication of this. Waqf offers the capability to unlock a bank account, utilizing e-KYC (electric Know Your Customer) along with an uncomplicated customer service without going a bank, in a few minutes. It is the platform with the help of which customers are emotionally involved with banks as they realize that their capital generates social impressions. These emotionally involved customers have added a greater value to the banks through their entire lifetime.

Fintech product in the banking industry

Banks are now investing to establish technology-based infrastructure. Considering the taste of the customers, banks are now emphasizing on launching new products and services like virtual banking (no-man banking), atm, mobile banking, online banking, internet banking, television banking, point of sell services, internet payment gateway etc. Islami Bank Bangladesh PLC (IBBPLC) is the first and largest Islamic private commercial bank in Bangladesh which was established in 1983. As an industry leader, IBBPLC addresses different fintech based innovative financial services for its customers such as mobile wallet, debit card, credit card, point of sales, ATM, CRM, I-banking etc. It is remarked that IBBPLC produces a good amount of income through fintech based financial services. Income generates from financial technology based financial services are mobile wallet (BDT 1, 4618, 061), Commission on NPS network transaction (BDT 130,801,217), SMS charge (BDT 930,709,224), Commission on online transaction (BDT 819, 894,471), electronically processed transaction fees (BDT 49, 482, 552), other fintech based services- debit card, credit card, point of sale services (BDT 1,648,016,916) (IBBL, 2022).

Statement of the problem

The banking industry is evolving with fintech and it has boundless significance that cannot be denied and ignored. Growing urgency of modernization as well as comprehensive use of technologies has modified the banking business worldwide. Financial technologies have become a fundamental segment of banking as well as currently banks have commenced to keep up not only with each other but also facing increased competition from nonfinancial institutions. Fintech dependent financial services not only reshape the whole banking structure from a branch-specific process but also to provide several digital mediums like online, social media, along with mobile. Fintech reduces the Islamic commercial banks reliance on paper-based functions and activities. It is important for the Islamic banking sector as well as the conventional banking sector. Though some papers have been written on the impact of Fintech in the

banking channel, a theoretical and empirical or qualitative or quantitative analysis of potential impact of Fintech on financial performance of Islamic Banking has yet to be investigated. The current study is organized to analyze the impact of Fintech on financial performance of selected Islamic commercial Banks in Bangladesh.

Literature review

Fintech in banking channels has been practiced since the last few decades. In this part, it is considered to represent a gist of some previous studies of fintech in the banking sector that are crucially helping to identify the research gap of this study.

Berger (2003) studied on economic effect of upliftment in technology in development of the banking field. The researcher outlined in first segment background statistics concerning modifications in the banking sector over time due to technological advancement as well as in the second segment he showed microeconomic explorations on technological fluctuations illustration in the banking field. Berger inferred that, from one perspective, costs and lending capacity have improved because of the development in “back office” technologies as well as from the other perspective, consumers benefit from the progressive “front office” technologies. So, the researcher recommends, financial technological advancement be enabled and amalgamated the banking sector.

Panjwani and Shili (2020) studied the impact of fintech on the growth of Islamic banking sector in the current world. The main objective is to implement technology based financial facilities in Shariah based Banking industry along with its sequel on thriving of assets in Islamic Banking system. Researcher assesses matrix correlation between Islami banking assets together with fintech barometers like total investment activity in fintech, global private investment in fintech: cyber security, global private investment in block chain as well as crypto currency to assess economic development of Islamic banking system. Result of this study outlines that interest free banks are in a good position compare with conventional banks as Islamic banks are thriving areas of Islamic finance. Through adequate investment in interest free banking property players in Fintech can lead to fruitful uplift of the Shariah based banking approach.

Al-Salem (2009) studied the impact of financial product innovativeness on Islamic financial organizations. In his research, a qualitative method was used for collecting and analyzing the views of Islamic finance seekers. The study revealed that Shariah based financial institutions have poor restyling levels, as the growth of Islamic finance is seen as a contemporary phenomenon. Moreover, a program is necessary for the innovation of funding instruments which help flourish in the Islamic finance arena.

Philippon (2016) examining the impact of Fintech on the finance industry, concentrating on financial stability together with access to services. In his study, he pointed out the financial durability and services pretention. An economic model was applied by the author to include households, business sector as well as financial intermediary arena. He inferred that the arrival of new segments in the financial world is adjusted through expensive financial services as well as the prevailing system is adapts with political budget along with cost coordination. It will lead to incapability to adapt remarkable changes. Immense changes as well as important regulatory challenges can be created by the innovation of Fintech.

Guild (2017) scrutinized the effect of up-to-date technology on the financial province. He applied a qualitative analysis in his research that is: online reimbursement system in India as well as Kenya together with peer-to-peer lending in China. He concluded in the study that in Kenya as well as China, the pace and authorities of growth of the Fintech industries will be interfered only when there is an existence of a market risk and regulatory resolution. But in India, this pace of the development of Fintech industries will be intervened by the government which will lead to significant economic disturbance.

Dorfleitner, Hornuf, Schmitt, Weber, Dorfleitner, Hornuf, and Weber (2017) offered in their book “the Fintech market in Germany” a new and fascinating outlook of the Fintech market in Germany. In 2015, the authors assessed the overall market value of Fintech firms was 2.2 billion (EURO) in the area of finance as well as wealth management proportion in Germany. An important segment of crowd funding was 270 million (EURO) and robot-advice podiums was 360 million (EURO). The study can be concluded that the Fintech sector never propagate market risk at present to the German economy and also acknowledges that Fintech committed to increase the funding in small and medium-volume enterprises (SME's) in Europe.

Bulatova, Potapova, Fathutdinova, and Yandiev (2019) studied in their paper titled, “The Fintech and Islamic Finance synthesis in the modern world” the economic needs of Islamic finance development in contemporary world. Researchers examined the relationships among Shariah based finance and banking as well as the financial technologies that constructed the advent of digital Islamic banking. In this research, the impact of the Fintech application on the upliftment of Islamic finance was examined and was initiated the fundamental requisites for prospective sustainable development in this Islamic financial sector. The study delivers a structural-dynamic analysis of GDP for four countries and Dow Jones to determine more effective as well as cheap Fintech application into the Islamic nations of the world. Researchers concluded that the expansion of

companies having both Fintech and Islamic finance can develop rapidly compare to those who do not have.

Lines (2016) found in his research that peer-to-peer lending, Robo-Advisory, online banking, internet banking, mobile banking as well as crowd fund to be some of the most capitalized Fintech technologies in the financial industry. This has been very much popular and helps to grow startup firms, incumbent companies, government level and super organizations vastly.

Omarini (2018) discussed about Fintech which was first familiarized in 2006, since then it has gained massive popularity rapidly. It can be said that Fintech facilitates individual and business units of banks as well as targets to dispartate the customers from the traditional banking through designing of services along with the creation of solutions with technology.

Baber (2020) studied the impact of Fintech and crowd funding on holding the customer among Islamic banks in Malaysia and the United Arab Emirates. As Malaysia received the utmost position in the Islamic Finance Country Index and the United Arab Emirates as the largest market share in Islamic finance, so these countries were selected for such analysis. According to this analysis, financial services based on crowd funding have an optimistic impact on retaining customers for Islamic banks functioning in Malaysia and the UAE.

Methodology of the study

Methodology is the scientific systematic process to solve an identified research problem. At present there are ten (10) fully fledged Islami commercial banks provide banking services to their respective clients that are the population of this study. Among them, the six largest Islami commercial banks are purposively chosen as sample of this study where five (5) years balance panel data are included from 2017 to 2021. Financial performance of sample Islami commercial banks is considered as dependent variable in this study, where return on assets (ROA) and return on equity (ROE) are proxies of financial performance. Islamic commercial banks generate revenue from diverse fintech based financial services (debit card, credit card, ATM, fund transfer through EFTN & RTGS, point of sell services, no man banking, internet banking etc.) through fees, commission, service charges etc. recognized as explanatory variables in this study. Fintech is the surrogate of income or revenue that Islami commercial banks obtain from various technologies based financial services. Researchers employ secondary data in this study that are collected from the Dhaka stock exchange. Collected data were analyzed with Stata-12 econometric software.

Hypothesis: Based on the existing literature in the studied researcher area, the following hypothesis is developed.

H₁: Fintech income positively impact on financial performance of sample Islami commercial banks in Bangladesh.

Model specification: On the basis of identified variables following liner regression models are developed for this study.

Model-1: Return on Assets (ROA) = $\alpha + \beta_1$ fintech income + e_{it}

Model-2: Return on Equity (ROE) = $\alpha + \beta_1$ fintech income + e_{it}

Table I

Sample Islami Commercial Banks

Name of the Sample Banks	Date of Inauguration
Islami Bank Bangladesh PLC (IBBPLC)	March 13, 1983
EXIM Bank Limited	August 3, 1999
Al Arafah Islami Bank Limited (AIBL)	September 27, 1995
Social Islami Bank Limited (SIBL)	May 12, 1995
First Security Islami Bank Limited (FSIBL)	October 25, 1999
Shahjalal Islami Bank Limited (SJIBL)	May 10, 2001

Sources: website of respective Banks

Analysis & inference

Table II

Descriptive statistics

Variables	Observations	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
ROA	30	.061533	.022508	.03	.11	.969794	3.452643
ROE	30	.09512	.0178626	.0695	.1407	.7616655	3.446626
Fintech income	30	.056307	.0625449	.00011	.223	1.000614	3.427735

Sources: researchers' own analysis

Table II outlines descriptive statistics of dependent as well as independent variables of this study. This study incorporates five (5) years data from 2017 to 2021. Descriptive statistics is vital because of assessing the normality of data, selecting a parametric or non-parametric test, together with pick out outliers in the data set. From the table it is observed that mean value of the return on asset (ROA) is 0.061533, standard deviation is .022508 as well as value of skewness is less than 1 and value of the kurtosis is near about 3. All the values of descriptive statistics on ROA indicate that there is consistency among observations on those independent variables. The mean value of ROE is 0.09512 (average return on equity of sample Islamic commercial banks is 9.52%), standard deviation is 0.0178626 (deviation of return on equity from mean value is 1.79%), skewness is 0.7616665 and kurtosis is 4.446626 which also indicates normality of the collected data on the return on equity of the studied Islamic banks in Bangladesh. Descriptive statistics on fintech incomes are mean 0.056307, standard deviation 0.0625449, skewness 1.000615, and kurtosis 3.427735. These values on fintech income also emphasize normality on observations. Finally, it is said that there is normality in dataset for identified variables in this study.

Table III
Correlation analysis

	ROA	ROE	Fintech income
ROA	1		
ROE	0.6894	1	
Fintech income	0.4639	0.3475	1

Sources: researchers' own analysis

Correlation estimates the dimension together with the level of relationship between two variables. Value of the correlation indicates that r lies between +1 to -1. If value of the correlation between two variables is 1 ($r = 1$), this means that there is perfectly positive relationship between these variables. On other hand, if $r = -1$ regarding two variables this outlines there is a perfectly negative correlation between these two variables. Again, if it is observed that $r = 0$ for two variables, this means that is no relationship between these two variables. Alternately fintech income which includes all earnings from fintech products and services facilitates by sample Islami commercial banks is deemed as the explanatory variable here. Correlation matrix, revealed that the relationships between return on asset and return on equity is 0.6894 which outlines there is moderate positive correlation between these two dependent variables. From the table II, it is also observed that value of the correlation between return on assets (ROA) and fintech income is 0.4639 as well as return on equity (ROE) and fintech income is 0.3475.

Simple Linear Regression Model

$$\text{Model-1: } ROA_{it} = \alpha + \beta_1 \text{ fintech income} + e_{it}$$

In model-1, ROA is the explained variable, which is a proxy for the financial performance of sample Islamic commercial banks in Bangladesh and fintech income is the explanatory variable, which includes all the earnings of fintech products and services that facilitate studied Islamic commercial banks in Bangladesh.

Table IV
Regression analysis (dependent variable ROA)

	ROA	Cof.	Std. Err	P> t
Fintech income		0.0166932	0.0060249	0.000
Cons		0.0070933	0.0005023	0.000

Number of observation = 30

F (1, 28) = 7.68

Prob> F = 0.0098

R-square = 0.2152

Adj R-square = 0.1871

Root MSE = 0.00203

Sources: researchers own analysis

In the aforementioned regression model, ROA is the response variable as well as fintech income is the explanatory variable. The F-value of this

model is 7.68 and P value is 0.0098 which indicates the fitness of the set model. From computation, it is noticed that the value of the R-square (R^2) is 0.2152, which refers explanatory variable fintech income explains 21.52% of the return on assets (ROA) of the studied Islamic commercial banks in Bangladesh. That is, fintech income is liable for 21.52% of the variation in return on assets of studied Islami commercial banks in Bangladesh. It is also found in above table that the value of adjusted R^2 is 0.1871 or 18.71%, which emphasizes the reliability of the set model, as there is consistency in the values of both the R^2 and adjusted R^2 . The above result also indicates that fintech income positively (0.0166932) impact on financial performance (ROA) of sample Islamic commercial banks in Bangladesh, which is notably significant at the 1% level. That is, Islami commercial banks' return on assets (ROA) increases almost 2%.

Model-2: $ROE_{it} = \alpha + \beta_1 \text{ fintech income} + e_{it}$

In model-2, the response variable is return on equity (ROE), which is a surrogate for the financial performance of sample Islamic commercial banks in Bangladesh as well as fintech income, which is a proxy for the earnings of fintech products and services, is the explanatory variable.

Table-V

Regression analysis (dependent variable ROE)

ROE	Cof.	Std. Err	P> t
Fintech income	0.09925	0.0506089	0.060
Cons	0.1007085	0.0042197	0.000

Number of observations	= 30
F (1, 28)	= 3.85
Prob> F	=0.0599
R-square	= 0.1208
Adj R-square	= 0.0894
Root MSE	= 0.01705

Sources: researchers own analysis

The result of the above simple regression analysis revealed that the set model is statistically significant at the 5% level, where value of the F-statistics is 3.85. Here, the value of R^2 is 0.1208, which indicates that fintech income explained 12.08% of the variation in the financial performance (ROE) of the sample Islamic commercial banks in Bangladesh. It is also observed that the adjust R^2 value is 0.0894, which is consistent with value of R^2 0.1208. Both values of the adjust R^2 and R^2 also concentrated on reliability of the set model in this study. The preceding computation also reveals that fintech positively impact on return on equity, which is statistically significant at the 10% level. The coefficient of the explanatory variable is (fintech income) 0.09925, which means that owing to an increase of 1% in investment in fintech products and services Islamic commercial banks in Bangladesh are able to increase returns on equity by 9.26%.

Conclusion

The motion of technology has spread across the world recently. Technology has become an indispensable ingredient in the continuous growth and development of the financial services industry. So, in this journey, the banking sector does not rely only on the traditional banking system. Nowadays, the banking sector has proliferated its wings to incorporate all types of banking services to provide anywhere in the world in competitive environments. In that way, Islamic commercial banks face vigorous competition from both local and foreign commercial banks. The prime challenge for the Islamic banking system is to launch newer technologies-based financial services to reduce administrative and operating expenses along with uplift income or profit. Through incorporating fintech in the Islamic banking system, Islamic banks are able to facilitate flagship financial services speedily and proficiently to their customers. For the survival of this competitive market, Islami banks must generate adequate profit with the help of more updated banking services compared with their conventional counterparts in Bangladesh. The main objective of this study is to determine the impact of fintech income on financial performance of sample Islami banks in Bangladesh on the period of 5 years from 2017 to 2021. Financial performance, which is represented by return on assets (ROA) and return on equity (ROE), is the response variable and fintech, income which is generated through different kinds of technology-based financial services of sample Islami commercial banks, is the explanatory variable. For analyzing data, econometric software stata-12 is employed, where descriptive statistics, correlation matrix as well as regression analysis are performed. The result of this study shows that fintech income is with the performance of sample Islamic commercial banks, which is represented by ROA and ROE. In the model-1, it is observed that fintech income is liable to 21.52% deviation in the financial performance of sample Islamic commercial banks in Bangladesh, where return on assets (ROA) is the surrogate of financial performance. In this model it is also remarked that fintech income positively impact on financial performance of chosen Islamic commercial banks, which is statistically significant at the 1% level. Model-2 revealed that due to fintech income, there is 12.08% variation on financial performance of the studied Islamic commercial Banks, where return on equity is the foxy of financial performance. Model-2 also outlines that fintech income positively influences the financial performance of illustrative Islamic commercial banks in Bangladesh, which is statistically noteworthy at 5% at the level. So, this study recommended that sample Islamic commercial banks in Bangladesh should enhance investment in fintech related products and services for uplifting their financial performance. Outcome of this study significantly contributes not only

to academic research purpose but also to stakeholders of Banks, such as top executives, member of the board of directors and managers to improve their fintech process.

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