

Impact of Fintech on Islamic Bank Performance in Malaysia: Descriptive Study on Fintech

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Abstract. This paper aims to evaluate the impact of Islamic FinTech innovations on Malaysia's banks' performance by utilizing the eighteen regional commercial banks that started Islamic banking in Malaysia. The data is from 2005 - 2020 with four hundred and seventy observations. Multivariate regression has been used to evaluate the research questions empirically. This research is the first to statistically evaluate the Islamic fintech innovation impact on the bank's performance in Malaysia. Furthermore, research on financial metrics is presented thoroughly for the years 2005-2020. We have contributed to the Islamic FinTech era with the following findings: (i) The Islamic FinTech has a positive effect on the bank's performance in Malaysia; (ii) The Islamic FinTech has also positively affected the banks' income; (iii) The impact of Islamic FinTech on economic performance was more substantial for the small-banks compared with large-banks; (iv) In terms of balance sheet debts, small banks' funds of money market are positively influenced by the application of Islamic FinTech; (v) In terms of consumer loan repayments to the small banks have been positively impacted by the app of Islamic FinTech; (vi) The per capita GDP does have a good impact on *ROE* of banks; (vii) Penetration rates of Islamic banking has positively impacted bank' return on assets and equity.

Keywords. Innovations of Fintech, bank performance, apps of Islamic FinTech, Malaysia, theories of Technological Innovation.

1. Introduction

Malaysian Banking sector is voluminous in terms of services [1] These services could be established based on the novel, inventive concepts, or they may be obsolete but supplied in the latest trend to simplify the transaction processes and expand client' reach to the economic facilities [2]. This has led Malaysian Banking sector to have dedicated Islamic FinTech as a new trend, whereby all Islamic banking services are offered through the new technology. As a result, Islamic FinTech is playing an essential part in the growth of the banks in Muslim countries. As Malaysia is an Islamic country with a 61.1% population of practicing Muslims, so the overall sentiment of the country is towards Islamic practices [3]. Generally, the traditional banking mechanism in the Muslim community is considered forbidden or at least Makrooh [4]. In Malaysia, the concept of Islamic banking was introduced in 1963 when the PWSBH was established as a foundation for Muslims to save for Hajj expenses [5]. The first Malaysian Islamic

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bank was publicly announced in 1983. Afterward, in 1993, merchant banks, commercial banks, and other finance corporations were granted Islamic banking services. However, it was compulsory to keep conventional and Islamic banking funds separate [6].

FinTech is about involving or injecting technology in financial proceedings. This could be in banking or any finance related services. The concept of mobile-banking is part of e-banking, whereas, the payment channel in mobile banking can be classified under FinTech [7]. Fintech is the new applications, processes, products, or business models in the financial services industry, composed of one or more complementary financial services and provided as an end-to-end process via the Internet[8]. Theory of technology and innovation describes about the meta-learning concept, and the concept of technological interdependence which are used to relate technology and innovation to strategic management [9]. And Islamic FinTech is about doing all that within the Shariah universe as defined by Polyzos [10].

Several studies have been done earlier about Malaysian banking industry. In fact, there are equivalent studies related to FinTech in Malaysia [7]. This respective research could be an extension for those researches. There are twenty-seven commercial banks in Malaysia, from which nineteen are traditional foreign banks, eleven investment banks, eighteen Islamic banks, and many other non-bank financial corporations [7]. The noticeable development in Islamic banking in the finance industry (FinTech) has created numerous possibilities. Islamic financial transactions have arisen to replace conventional banks [11]. Fintech innovation, particularly Islamic FinTech applications, has lately grown substantially in the digital era. There exists several theoretical and practical researches on the influence of Islamic FinTech on banks' performance all around the globe. However, empirical research on how Islamic FinTech applications affect overall [7] banking industry performance is still unknown, notably within Malaysia, where almost no empirical research exists. Furthermore, it is vital to examine the impact of Islamic FinTech on banking metrics in the fourth industrial revolution. In order to critically examine the overall impact, we have adopted the following research questions:

RQ 1. Does Islamic Fintech adoption affect all the indicators of finance across the banks?

RQ 2. Does Islamic FinTech adoption have additional fee revenue for the small-banks compared to large-banks?

RQ 3. Does Islamic FinTech adoption have different operational costs for the small-banks compared to large-banks?

RQ 4. Is there any more remarkable influence on the repayment of customer loans in small-banks than large-banks?

RQ 5. Does Islamic FinTech adoption have a more significant effect on the ROA and ROE of small banks than large banks?

In order to answer the above-mentioned questions, we have adopted the Theories of Technological Innovation and exploratory research methodology [12]. Multivariate regression has been used to answer the research regarding a relationship between various research variables concerning bank performance and Islamic FinTech

innovations [3]. Excel tools and STATA-14 are employed to conduct a multivariate regression framework. The ordinary least squares approach has been used to predict parameters in regression equations and independently assessed coefficients. The rest of the paper is organized in the following manner [8]. Section II explains the method of data collection and variables utilized in the research. Section III provides the results and analysis of the data. Section IV proved a comprehensive discussion on the research questions and the outcomes of the results. It concludes the research with the future directions [13].

2. Methodology of Islamic FinTech innovation' Evaluation

A. Dataset

We have utilized a range of various data for examining the impact of the Islamic fintech reform on the bank efficiency of eighteen Islamic banks in Malaysia from years 2005 to 2020 as follows:

- Balance sheets and revenue statements from 2005– 2020 were taken from the Central Bank of Malaysia [14].
- Annual reports from 2005 - 2020 are obtained from the websites of each bank [13].
- News and notifications from every bank's website detect Islamic FinTech activities, performance, and strategy[13].
- Guidelines and news clippings from the Central Bank of Malaysia website to detect legal restrictions controlling Islamic FinTech businesses, commercial banks, & the present situation of payments [14] .

B. Research Variables

The independent factors studied for innovation of FinTech include the era of the Islamic FinTech apps (*MBA_AGE*) [15], penetration rates of mobile (*MPP_RATE*), and GDP per capita (*GDP_PC*) [16]. The bank's performance is the outcome of the dependent variable [13]. This research examines 17 distinct financial variables, such as revenue stream, spending structure, profitability, and balance sheet design, like *ROA*, *ROE* given in Tab. 1.[16]

This paper employs multivariate regression using the Islamic FinTech tabular finance and banking data from 2005 to 2020. Many economic indicators are evaluated depending on each application stage.

3. Results and Analysis

Islamic FinTech years are recorded from 2005 - 2020. The console of the regression model is performed independently for a complete sample of eighteen banks' domestic trade throughout Malaysia (four hundred and seventy observations) from 2005 to 2020 [17]. An application of Islamic FinTech (*MBA AGE*) was employed for the

study's independent variables. In addition, the panel regression includes the extra independent study of *GDP per capita* variables and Islamic banking penetration rate to examine the effect of the market and macroeconomic factors.

Table 1. Summary of the Variables utilized for Analysis of Bank Performance

Variable	Description	References
<i>NIC_ASS</i>	$\frac{\text{Total Interest Income}}{\text{Total Assets}}$	[17]
<i>FEIN_ASS</i>	$\frac{\text{Fee Income}}{\text{Total Assets}}$	[1]
<i>NEX_ASS</i>	$\frac{\text{Total Interest Expense}}{\text{Total Assets}}$	[18]
<i>SALA_ASS</i>	$\frac{\text{Total Salaries}}{\text{Total Assets}}$	[19] [20]
<i>CASH_ASS</i>	$\frac{\text{Total Cash}}{\text{Total Assets}}$	[21][16]
<i>SGA_ASS</i>	$\frac{\text{Total Selling General \& Admin Exp}}{\text{Total Assets}}$	[22]
<i>SEC_ASS</i>	$\frac{\text{Total Securities}}{\text{Total Assets}}$	[16]
<i>LOAN_ASS</i>	$\frac{\text{Total Loans}}{\text{Total Assets}}$	[5]
<i>CONSLO_LO</i>	$\frac{\text{Total Consumer Loans}}{\text{Total Loans}}$	[23]
<i>COMLO_LO</i>	$\frac{\text{Total Commercial Loans}}{\text{Total Loans}}$	[24]
<i>Adj_ROA</i>	The adjusted return on assets	[6]
<i>NPL – LOA</i>	$\frac{\text{Non- Performing Loans}}{\text{Total Loans}}$	[6]
<i>DD_DEP</i>	$\frac{\text{Total Demand Deposits}}{\text{Total Deposits}}$	[24]
<i>DEPO_ASS</i>	$\frac{\text{Total Deposits}}{\text{Total Deposits}}$	[25]
<i>Adj_ROE</i>	Return on equity	[26]
<i>MM_DEP</i>	$\frac{\text{Money Market \& Savings Account Deposits}}{\text{Total Deposits}}$	[8]

Table 2. Research variables' analysis in the model of equation

Variables	Max	Min	Mean	Std_Dev
<i>MBA_AGE</i>	8	0	2.34	2.143
<i>MPP_RATE</i>	0.35	0.21	0.42	0.06
<i>GDP_PC</i>	3012	1564	2244.6	233.412
<i>INEX_ASS</i>	0.069	0.003	0.051	0.011
<i>NIC ASS</i>	0.121	0.042	0.076	0.012
<i>CASH – ASS</i>	0.032	0.007	0.007	0.003
<i>COMLO_LOAN</i>	0.384	0.254	1.76	0.543
<i>CONSLO LOAN</i>	0.876	0.976	0.789	0.002
<i>Adj_ROE</i>	26.37	0.08	9.89	9.12
<i>DEPO_ASS</i>	0.963	0.461	0.996	0.090

The Islamic Banking positively affected the whole sample's fee income (*FEIN. ASS*) at 0.067, including an adjusted R2 of 87%, as shown in **Fig. 1**. The fees of account-service, securities trading, foreign exchange, loan, and credit use are all part of fee income [13]. All the local and commercial banks in Malaysia with Islamic banking are classified into two groups based on their median asset size: small banks with under VND one hundred and fifty trillion in the assets and major banks with over VND one hundred fifty trillion in the assets [18]. At the asset side of balance sheets, Islamic FinTech has the most significant impact on consumer loans, *CONSLO_LOAN*, 2.74 (Fig. 2), with an adjusted R2 of 82% as Islamic FinTech applications are integrated into an increasing number of devices. As a result, consumer investments and loans are made easier [19]. The key conclusion is that Islamic banking did not affect interest revenue or interest expenditure in small and big banks [8]. However, Islamic banking increased small banks' fee revenue by 0.315, including an adjusted R2 of 56.2%, which answers the **RQ1**. Islamic FinTech applications had a negative impact on bank payroll and the SG&A expenditures of the small banks, which answers the **RQ2** on operational cost reduction [20]. The most critical result among variables came from consumer loans positively influenced by Islamic FinTech applications. Its impact was significantly more significant on the small banks with *CONSLO_LOAN* of 3.988 and adjusted R2 of 74.8%. That is the most significant coefficient, indicating that an annual rise in Islamic FinTech use would raise consumer loans of small banks by 4.28%, which answers the **RQ3**.

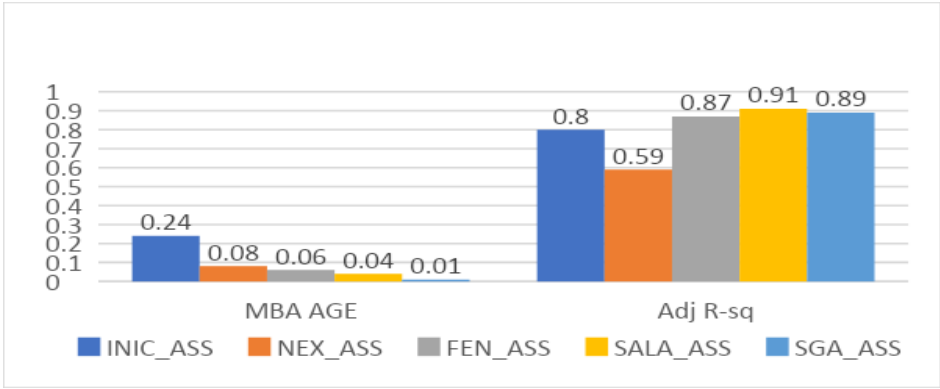


Fig 1. Effect of Islamic Banking on all banks' financial performance using variables from Income statements

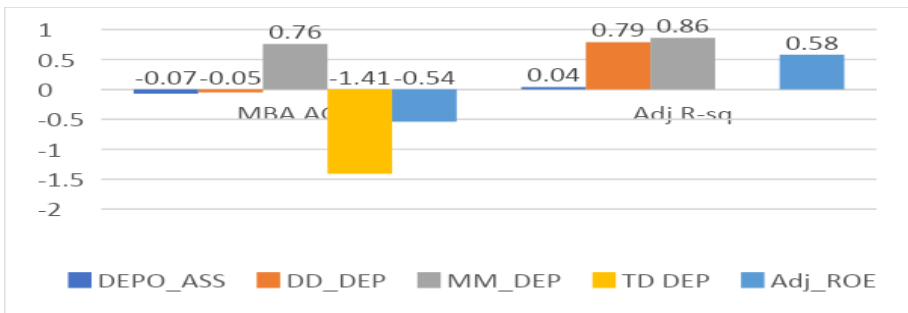


Fig 2. Effect of Islamic Banking on all banks' financial performance using variables from Assets side of Balance Sheet

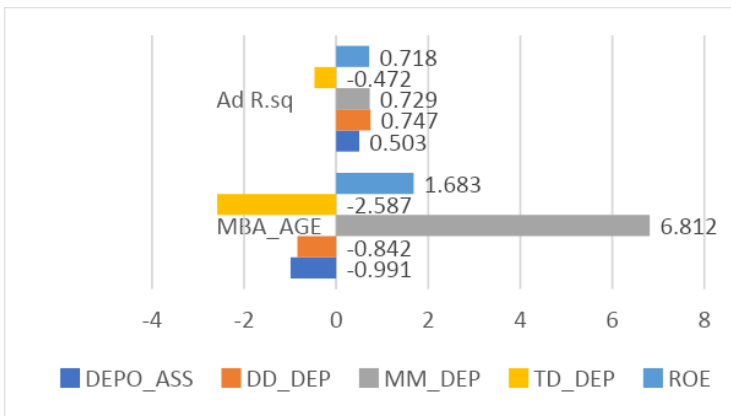


Fig 3. Islamic Banking effect on the small banks OLS method using Liabilities and Equity side

Overall, Islamic FinTech applications positively impacted securities assets and cash, and they had a positive effect on loan assets [27]. The banking application positively affected an adjusted ROA of significant banks, which was 0.026 (Fig. 3) less than the coefficients of small banks, which were 0. 20 (Fig. 3) answering the RQ4. Islamic banking had a negative impact on deposits assets of -3.179, including an adjusted R2 of 67% (Fig. 4). Islamic FinTech had a negative impact on adjusted ROE at 0.87, including an adjusted R2 at the 62% (Fig. 5). These findings show that the Islamic banking methods did not improve large banks economic performance, answering the RQ5 of more significant technological impacts on the small banks. The income statements of the large banks were highly unaffected, lending credence to the concept of Islamic banking's impact on the small banks [27].

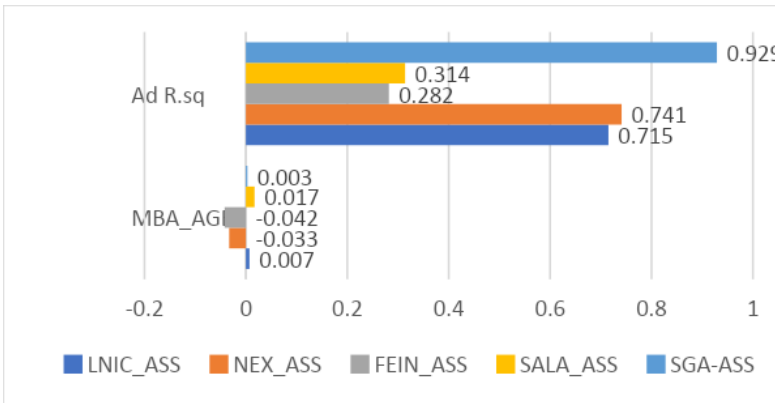


Fig 4. Islamic Banking effect on the large banks by using Income statement variables using OLS method

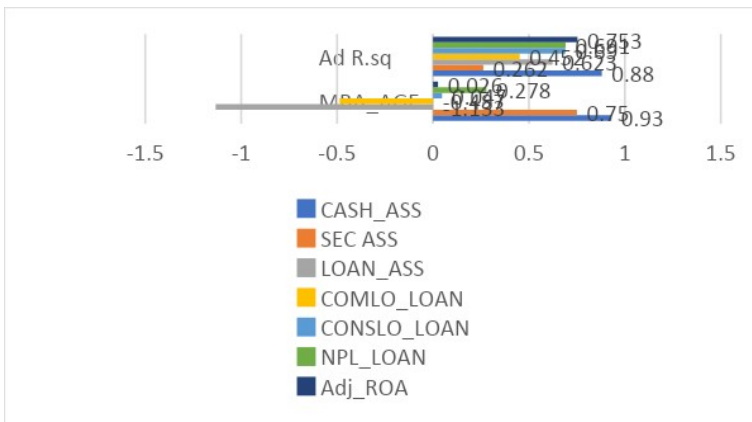


Fig 5. Islamic Banking effect on the large banks using Assets side variables by employing PLS method

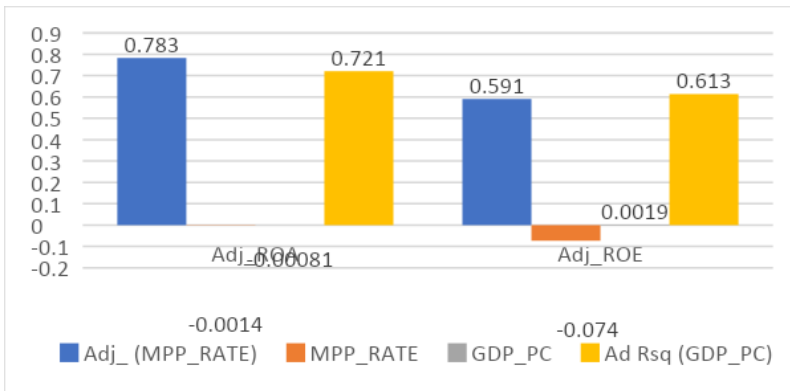


Fig 6. GDP per capita effect, penetration rates of mobile phone on ROE and ROA (large banks)

Finally, from Fig. 6, it can be seen that *GDP_per_capita* positively impacted large banks' adjusted ROE, which was 0.0019, with adjusted R2 being 61.31%. On the other hand, *GDP_per_capita* had a negative impact on large banks' adjusted ROA, which was -0.00081, including a 77.1% adjusted R2. Islamic Banking application penetration rates have a detrimental impact on *Adj_ROE* and *Adj_ROA* in the big banks [21]. As a result, the regression framework demonstrates the total influence of the GDP per capita upon ROE. The ROE and GDP are inextricably linked. More capital would be needed when the economy grows quicker, resulting in greater liquidity and credit inside the finance market [22]. This encourages the Islamic banking methods and its penetration in the Malaysians' economy via inflows through the stock market, resulting in better returns for the financial market [23]. There will be more equity. ROE seems to be more influenced than ROA, which indicates that the financial debt/ investment /leverage is more susceptible to the exterior macroeconomic environment [24]. Furthermore, Islamic FinTech prevalence has a beneficial influence on the small banks' ROE and ROA [25]. Based on the findings, it is possible to infer that banks' performance is influenced by their capacity to harness Modern methodologies, in this case, Islamic FinTech, by increasing Islamic FinTech client base & activating their usage [26].

4. Conclusion

To the best of our knowledge, it is among the few, if not first, studies were undertaken in Malaysia to examine the influence of Islamic Banking on bank performance. The study's findings have far-reaching consequences for future research [27]. To start, most of the existing research on the influence of financial technology innovations on the bank's performance in Malaysia is qualitative [28]. In comparison, our quantitative study comprehensively evaluates the impact of Islamic Banking on the financial performance of banks using variables derived from all the aspects in the financial statements [29]. Our research has some practical consequences. First, the findings indicate that Islamic Banking has a beneficial influence on the bank's performance in Malaysia. It is advised that the commercial banks within Malaysia invest more in Islamic Banking technology to improve their revenue. Second, the influence of Islamic Banking was felt more strongly by small banks than big banks [30]. Shortly, large

banks in Malaysia should explore further investing in Islamic Banking for a more substantial financial capital [16]. Third, the influence of market impacts on a bank's financial performance, such as GDP per capita and Islamic banking app penetration rate, is shown. Our study team has made specific proposals for commercial banks and policymakers, such as further investment or a legislative framework for the future [3]. Regarding future work, the analysis data is one year older than now, broadening the study scope to uncover its long-term consequences. Second, it is highly beneficial to expand the study topic since the influence of Islamic Fintech has no longer [3]

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