

The effect of financial technology on Islamic banks performance in Jordan: Panel data analysis**Ibrahim Radwan Alnsour^{a*}**^a*Irbid National University, Jordan***CHRONICLE***Article history:*

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*Keywords:**Islamic Banking**Fintech Services**Islamic Bank**Panel Data**Jordan's Islamic Bank (JIB)***ABSTRACT**

Thanks to technological advancements in finance, Islamic banking might surely spread throughout developing nations and become more viable in the financial industry. The present investigation aims to thoroughly explore the impact of fintech upon Islamic banks and also investigate how fintech facilities affect Islamic banks performance within Jordan. A strategy known as a quantitative-descriptive inquiry was used in the inquiry. This study made use of yearly data (a panel data) that was collected from banking organizations using statistics based on yearly reports provided by Jordan Islamic bank, Safwa Islamic Bank and International Arab Islamic Bank listed alongside the Amman Stock Exchange between 2017 and 2021. The study discovered that financial performance of Islamic Banks was significantly impacted by Fintech services including online banking along with mobile banking. The increased beta value predicts that between 2017 to 2021, the financial prosperity of Arab Islamic International Bank, Jordan Islamic Bank, and Safwa Islamic Bank would be positively correlated with Fintech services. Additionally, it was discovered that SMS Financing and crowdsourcing had a detrimental impact on Islamic Banks financial performance. The investigation concludes by recommending that Islamic banking included in the study step up their attempts to educate the public about Islamic banking facilities.

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1. Introduction

Fintech, employed by the country's National Digital Research Center (NDRC), represents a word during developments in the domain of monetary services. By boosting the application of technology across various financial services, major gains are achieved by reducing costs and increasing efficiency, as stated by Alam et al. (2019). Fintech offers the ability to raise the level of humanity through increased openness, decreased prices, the removal of middlemen, as well as simpler methods to obtain financial data (Zavolokina et al., 2016). Financial technology was developed to address groups that financial facilities don't currently serve, as stated by Salambasis and Mention (2018). In the UK, a platform for peer-to-peer lending called Zopa served as the foundation for fintech. Currently, Zopa saw an opportunity to provide financing in the form of readily available goods with reasonable interest rates. The funding circle followed, offering more than 40,000 loans to small businesses. After fintech became popular in Europe, many countries, including America and China, began to use it. China currently has the highest peer-to-peer borrowing market in the globe (Stern et al., 2017), and the country has had outstanding digitized financial development (Zhou et al., 2018). The largest number of banks across China make investments in a range of sectors, with a focus on digitization including fintech services, like blockchain, artificial intelligence and big data.

Fintech rapidly grew as digitization became widely used. The financial sector has advanced more because of the growth in digital creativity, encompassing financial knowledge and related education, banking, plus investment. Since 2011 till the present, the fintech industry has experienced substantial growth (Al-Eitan et al., 2021; Almashhadani & Almashhadani, 2022).

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Due to its similar yet disruptive monetary services, fintech constitutes an imminent risk to the conventional banking and financial industry (Daryanto et al., 2020; Vives, 2017). Since Islamic institutions demand higher fees than conventional banks do, Islamic banking along with financial sectors additionally operate under a lot of strain. Fintech has inevitably engulfed the financial industry (Zuhroh, 2021).

Long-term fintech growth will have an impact upon the performance of financial services, especially banks. Regarding findings of Phan et al. (2019) concerning the expanding fintech marketplaces in Indonesia, rise in the number of fintech firms has a substantial impact upon the Bank's performance. The banking industry would thus be impacted, particularly the Islamic financial sector. Fintech around Indonesia embraces the idea of financial inclusion by assisting established sectors along with small and micro enterprises.

Fintech is additionally employed to collect and disperse Islamic social investment funds such waqf and Sadaqah and (Ali, 2020). Fintech has the greatest potential because it can help Islamic banks as well as other shariah-compliant financial institutions scale up their operations, increase their revenue, and make conducting business alongside their customers more convenient and straightforward. IFIs (Islamic Finance Institutions) would benefit substantially from fintech, which would increase their market share and enable them to compete globally. Even if some customers still like making transactions at brick-and-mortar stores, the marketplace is limited (Haqqi, 2020). Islamic finance can consequently consider the potential advantages of doing business online. According to Hasnan (2019), countries using conventional financing enjoy a higher share of fintech clients even while countries with Islamic finance have better levels of monetary access. Fintech can be applied to Shariah-compliant solutions that are critical for generation, conveniently accessible, speedier, and comparably less expensive than the alternatives because they are backed by cutting-edge technology (Todorof, 2018). In accordance with Navaretti, Calzolari, Mansilla-Fernandez, & Pozzolo (2018), fintech includes four sectors: (i) capital raising services and deposits, credit, (ii) clearing, payments, and settlement products and services, such as digital currencies; (iii) management of investments services, like trading; as well (iv) insurance.

Nowadays, thanks to globalization, technological advancements are a part of all social activities. The same rule is applicable to financial institutions, particularly Islamic banking. Since Islamic banking can succeed in the current technological era, it must learn how to employ technology (Siska, 2022). Apriyanti (2018) asserts that there presently exists intense competition within Islamic banking sector, both between Islamic banks along with conventional financial institutions, and also inside Islamic banks. Islamic banking must be able to handle problems and gain a competitive edge through the development of new products and services related to finance via Fintech to stay above the competition as a provider of monetary services.

There are already many studies conducted on financial products and services, particularly fintech. Fintech improved the financial viability (ROA & NIM) and operational efficiency (BOPO) for banks owned by governments such Bank Mandiri, BTN, BNI and BRI, as reported by Puspa and Hendratno (2020). Mar'atushsholihah and Karyani (2021) discovered discrepancies in LDR, CAR, ROA and NIM at traditional conventional banking institutions following the adoption of Fintech legislation in 2016. According to a study by Lestari et al., in 2021, Fintech facilities related to banking could help Islamic banks operate better financially by means of BOPO ROA, along with NPL. After that, the research by Kristianti and Tulenan (2021) came to the same conclusion, which demonstrates that Fintech goods and services may aid conventional banks improve their financial performance. This analysis differs from earlier studies in terms of the financial ratios used by Fintech services, including ROA, BOPO, LDR, NPL, along with NIM. In the great majority of earlier research, samples from financial institutions were utilized. The purpose of this study is to investigate widely fintech upon Islamic banks along with examining the impact of fintech Services on Islamic financial performance of banks across Jordan using financial metrics identified by the bank Jordan's regulations Return on Equity, or in addition to a total of four fintech products and services (crowdfunding, internet banking, mobile payment, and SMS) (Massolution, 2012; Mateka et al., 2016). Past studies (Siska, 2022 & Anindyastri, Lestari & Sholahussin, 2022) as nicely as Liu et al. (2020), who investigated 6.

2. Literature Review

Fintech development, which is now present in traditional banking as well, had an impact on Islamic banks today. Fintech revolution within Islamic banking refers to technical development with sharia-compliant terms which can protect clients from lending deals. Thanks to technological innovations in finance, Islamic banking might surely spread throughout developing nations and become a stronger competitor within the financial industry. Among profits gained by fintech across financing islamically are efforts to make it simpler on customers to perform monetary transactions and investments inline with sharia laws as well as struggles toward making this very easy and simpler for clients to perform banking-associated businesses despite being required to attend in person. Banking. As per sharia law (Santoso, Safari Anzelina, Erwanda & Iskandar, 2021). Additional advantages of fintech over Islamic banking include the capacity to serve clients that conventional Islamic financial industry wasn't able to do so because of severe banking principles as well as regular Islamic finance sector's limited capacity to serve individuals around definite regions. Another benefit remains that it serves as an alternate means of finance from traditional Islamic financing business, because it's very transparent which follows sharia laws for the public populace (Al-Smadi et al, 2020; Ansori, 2019).

Currently, there are opportunities for Islamic banking to flourish in Jordanian banks due to the various advantages of advancing technology in finance. To enhance services in the field of technology, government involvement makes it easier for banks to adhere to rules. One example is the ease of registering. Islamic banks will grow to be more well-known and the clients' preferred choice as a result of these opportunities. Such ease might be used by Islamic banking to grow and challenge conventional banks. Rosyadah, Arifin, Muhtadi, and Safik in 2020. Many Islamic banks have partnerships with fintech-oriented companies. In order to improve their financial performance, the Islamic bank works with fintech firms. Financial performance is defined as the monetary outcomes which a business may accomplish by turning a profit while carrying out activities related to its finances during a predetermined time frame (Darmawan, 2020). Ramadana and Triyonowati (2016) claim that evaluating financial performance provides a way for an organization to fulfill its obligations to its sponsors and also to realize its full financial potential. These points can be proved using financial reports. Evaluating financial performance, especially when it comes to Islamic banks, may demonstrate to the public the credibility of Islamic banking. The metric used to assess financial success is called the economic ratio approach. To evaluate financial performance, indices of liquidity, action, solvency, along with profitability are used.

2.1 Fintech Service in Islamic Banking and Current Practice of Islamic FinTech

FinTech is now widely employed in several countries throughout the world. Financial technology is revolutionizing the banking sector and the world economy faster than ever. Emerging nations are pushing the use of fintech alongside developed nations (Bulatova, Potapova, Fathutdinova, & Yandiev, 2019). Since 2010, Islamic Fintech witnessed rapid growth, signaling the global Fintech ecosystem's development to include an emphasis on client and business financing that conforms with Islamic law. The upcoming wave of Islamic Fintech sounds promising, with almost 1,400 individuals' Islamic banks now operating in 80 countries. Fintech firms that are Islamic have increased in number, including 116 in 2017 to 136 within 2019. The USA, Turkey, Malaysia, Indonesia, the UAE, and UK, are home to the main centers for Islamic financial technology. These centers can be found out throughout many different industries, such as peer-to-peer borrowing, crowdfunding, internet banking, and payment and handling of transactions. There are additionally a variety of renowned Islamic Fintech companies within the peer-to-peer borrowing, crowdfunding, and the investment contacting industries within an Islamic finance sector, including yielders within the UK, Wahed Invest LLC within the US, and the Singaporean sites EthisCrowd.com along with KapitalBoost.com (Lauria, 2020; Baber, 2020).

The burgeoning Islamic Fintech sector has experienced a slow funding inflow. In Europe, Islam investment businesses have raised millions of pounds during the last five years, and Insha similarly plans to close the current quarter for a starting price of roughly 10 million euros. The United Kingdom venture capital company Hambro Perks possesses specific goals to make sizable investments inside Islamic economy throughout the Middle East and North Africa because they have already invested into the Muslim Muzmatch Matchmaking app (Islamic fintech) (Panel & Gateway, 2019). The public at large in Malaysia, wherein there are over two hundred Islamic Fintech companies, is very supportive of the Internet economy. This number is anticipated to increase as greater Islamic banking companies start their digital revolutions and actively look for Fintech partnerships. The next stage in the evolution of Islamic financing can be seen by Islamic Fintech. Although aiming to expand their client base to encompass 1.8 billion people, almost all Islamic Fintech remains in its infancy and grappling with problems including financial imbalance and subpar customer service (Panel & Gateway, 2019).

Fintech has aided Islamic banking through improving and speeding up the processing of business transactions. Islamic banking benefits fintech because it makes transactions easier. Through financial services, customers can also access banking services, which include loans, payments, money transfers, as well as the purchase and sale of shares along with additional securities (Subbarao, 2017). Clients can use laptops or mobile phones to access banking services. The investigation's primary area of interest was Islamic banking financial technology services (Odhiambo & Ngaba, 2019).

Mobile Payment: Because it allows bank customers to conduct monetary transactions and access account information using their own smartphones, wireless banking is preferred by customers (Anindyastri, Lestari, & Sholahussin, 2022; Tiyan et al., 2020). Mobile banking, often known as m-Banking, refers to a service delivered by banking industries that allows customers conduct transactions via apps through their internet-connected smartphones (Tim Zipmex, 2021). Since mobile banking offers additional features, notably a more reliable security system, customers prefer it (Ntwiga, 2020).

H₁: *Mobile Payment has a significant positive effect on Islamic Bank's financial performance.*

Crowdfunding: Crowdfunding as a form of digital economy where many people pooled their financial resources then transferred it online to both companies and individuals (Langley, 2016). It can also be referred to as a loan financing mechanism that enables borrowers to get money from their creditors directly, cutting out the middleman. Budget-conscious lenders are discouraged by financial intermediaries by increasing the cost related to borrowing money (Todorof, 2018). Every overview of crowdfunding must include the following three components: contemporary technology, the collective influence of the masses, and "capital funding". These elements on the crowdfunding platform enabled modest donations to accumulate and grow into a significant source of revenue (Beaulieu et al., 2015; Harrison, 2013). Since there aren't several financial resources available, crowd funding or crowdlending remains the ideal weapon. As stated by Estellés-Arolas & de Guevara (2012), it explains digital activities in which an individual, a corporation, not for profit enterprise, or the organization provides different

kinds of customers a planned service which could include distributing knowledge, assets, or loans with them (Juliette, 2013). (Vulkan et al., 2016) this platform has become one of the solutions to a variety of finance problems, especially for new ventures. Lenders in loan-based crowdfunding demand set monthly deposits as well as the payback of the principal. In contrast to equity-based crowdlending, which depends on the borrower's revenue and equity-sharing, reward-based crowdlending involves lenders participating with the expectation of receiving non-financial compensation; in the earlier crowdlending, contribution-based, investors make contributions with little prospect of receiving something in returns. This tool may be employed for financing equity in line with shariah upon the foundation of murabaha, musharaka, musharakah. In a mudaraba arrangement, one person provides the capital, and others use his or her skills to profit from that capital. They both make investments in musharakah and divide any profits. diminishing musharakah, as other individuals pay the whole amount, is when one person's share of the investment keeps diminishing (Hidayat, 2011). Considering the risk involved and the fact that crowdlending complies with shariah, it is necessary to share the risk for the gains to be considered halal. In contrast to conventional loans, the sharia lending concept is based upon a profit-loss partnership (Pişkin & Kuş, 2019). The appropriate and ethical method of crowdsourcing for small businesses is the adoption of mudaraba agreement or the sharing of profits (Hidajat et al., 2016; Hidajat, 2020). A sharia-compliant arrangement for pilgrims called a mudaraba constitutes a transaction which is used for gain. Such a unique arrangement is fair in comparison to conventional contracts where investors profit and the borrowing partner loses money. When you gain money through mudaraba, the investors and businessmen (mudarib) will distribute it according to the agreement.

H₂: *Crowdfunding has a significant positive effect on Islamic Bank's financial performance.*

Clients can undertake a variety of activities via SMS medium without requiring use of an internet connection, including transfers amongst accounts and among banks, paying bills, checking the status of accounts, changing checking information on accounts, among others. The growing number of users of the numerous SMS banking services can help banks perform financially by increasing their usage rates. According to findings from earlier research, SMS banking provides a favorable and considerable impact upon banking financial performance (Amali & Selvi, 2021; Billah, 2021).

H₃: *SMS Banking has a significant positive effect on Islamic Bank's financial performance.*

Internet Banking: Customers of banks may conduct transactions via online banking, sometimes known as "i-Banking," via their PCs (Tim Zipmex, 2021). The latest exchange rate data is available online, along with alternatives for bill payment and transfer. Customers are not required to possess certain devices in order to take advantage of this facility because it can be carried out using any online-capable device. A further fintech service that banks provided was internet-based banking. Customers can complete a variety of transactions that are provided by Islamic banking using online banking facilities on every device that is linked over the internet. As more people use online banking services, the financial performance of banks is going to rise. When this happens, I-banking could have a positive and significant influence upon how financially successful Islamic banks become. This remains in route with studies that demonstrate how online banks exhibit a big impact upon achieving monetary success (Setiawan, Amri & Darmala, 2020; Damayanti, 2022).

H₄: *Internet banking has a significant positive effect on Islamic Bank's financial performance.*

Fig. 1 shows the research conceptual framework.

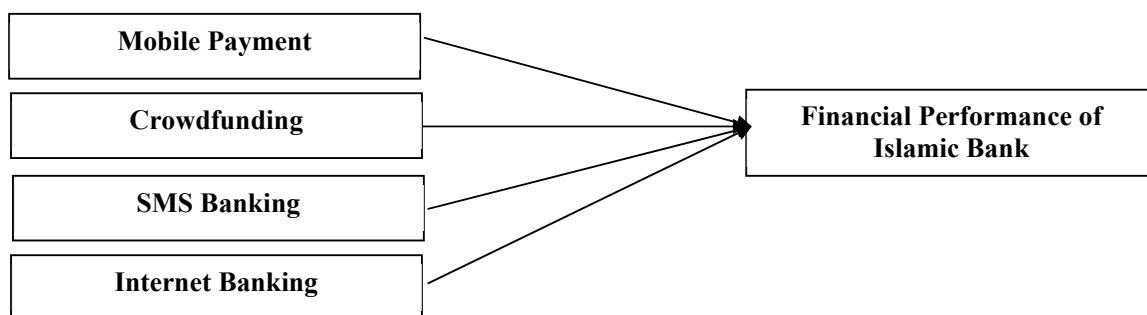


Fig. 1. Research Conceptual Framework

3. Research Material and Method

This investigation involves a descriptive quantitative investigation that aims to be capable of providing information that emphasizes the measurement along with evaluation of connections between the causes and effects among study variables. Three out Islamic Banks within Jordan are used as the research's samples employing the random methodology purposive sampling approach. Jordan Islamic Banking, Safwa Islamic Banking, and Arab International Islamic Bank are a few examples. To conduct this research, annual data that was collected from banking institutions' figures of the annual reports filed by the Stock Exchange of Amman between 2017 and 2021 were used. A type for data analysis method employed during this work is data

panel regression. The method is used with panel data for assessing and determining the influence of independent variable (IV) over dependent variable (DV). To assess the economic performance for Islamic banking in terms of DV, this study employs financial metrics such as ROE (Ilhami & Thamrin, 2021; Siska, 2022; Anindyastri, Lestari & Sholahussin, 2022).

Return on Equity (ROE)

Another financial indicator to evaluate a company's earnings with respect to its overall capital owned by shareholders is ROE (ALNSOUR et al, 2021; Oktavia & Genjar, 2019). A company with a substantial return on equities is likely to be successful. The greater the profit margin on equity the corporation generates, the more profitable it is (Gwatiringa, 2020). We can use the following formula to calculate ROE:

$$ROE = \text{Net Income after Tax} / \text{Total Equity} \times 100\%$$

The variables which are independent for this investigation include crowd funding, SMS banking, mobile payments, and internet banking, as well as other financial technology services available from Islamic banks.

3.1 Data Analysis Techniques

Data might be acquired for this purpose by documenting published data, which uses documentation procedures. Regression analysis of panel data was a data assessment method employed in this study. Employing panel data, the above technique is employed to identify and evaluate the impact of the IV upon the variable that is dependent. The most common are Effect Modeling, Fixed modeling Effect, and Random modeling Effect, all among which are 3-panel data modeling of regression. Testing as necessary can be used to choose the best data-panel regression model. The Chow's Testing, Hausman Testing, along with Lagrange Multiplier Testing are among the tests which may be carried out. The normality examination, autocorrelation evaluations, heteroscedasticity examination and multicollinearity analysis were the four types of tests used in this work to conduct the traditional assumption test. The t test, F test and coefficient of measurement test are used to test hypotheses.

Multicollinearity test: a regression technique If there exists a relationship between the IV, the multicollinearity analysis can be used to find it. In a good regression approach, there ought to be no correlation amongst the IV. The numbers that are typically used to describe the level of multicollinearity involve an acceptance level of 0.1 and a VIF level of 10.

Autocorrelation test :According to Ghozali (2018), from the linear regression technique, testing for autocorrelation can be used to assess if the confounded error for time t and the confounding errors for period t-1 are connected. Difficulty with autocorrelation develops if there is a link. The test developed by Durbin-Watson was used in this investigation to identify autocorrelation. The following method is employed to show autocorrelation using the classification table for d values: a 1,10 d value showing an autocorrelation range of 1,10–1,54 There are no correlations of 1,55-2,46 or autocorrelations of 2,46-2,90. 2,91+ unresolved cases There exist autocorrelation (Wijaya, 2009).

Heteroscedasticity test: For a model of regression, the test for heteroscedasticity serves to determine whether there exists an inequality upon variance among the residuals for both observations. Homoscedasticity exists whenever the variance among the residuals for a single observation with the residuals for another observation remains constant; heteroscedasticity exists whenever the variance varies. A decent regression model has homoscedasticity or not heteroscedasticity. This study employed a plot chart to find heteroscedasticity. When there is no obvious pattern & the points have equal spacing between zero and 0 along the Y-axis, then there exists no heteroscedasticity.

Normality test: Ghozali (2018) claims that the test for normality is employed using a regression model to determine whether the DV and IV possess normal distribution. In this study, the Normal P-P Graph of Regression Generalized Residual was used to check for normality. Whenever the normal chart pattern depicts the points dispersed along a diagonal line but maintains the direction of the diagonal path, the model used for regression satisfies the requirement of normality (Bekhet & Al-Smadi, 2015).

3.2.1 Panel Data Model of Regression Estimation Test

Common Effect Modeling

A common modeling effect was required toward verifying an investigation model's hypotheses without separating the data between time groups. The most common Effect Approach for Panel Data Analysis is as follows.

Table 1

Common Effect Modeling Result

| | Coefficient | Standard deviation | t-statistics | Prob. |
|------------------|-------------|--------------------|--------------|--------|
| Intercept | 0.0132 | 0.0159 | 0.8291 | 0.4164 |
| Mobile Banking | 0.0485 | 0.0240 | 2.0262 | 0.0556 |
| Crowdfunding | 0.0099 | 0.0255 | 0.3882 | 0.7018 |
| SMS Banking | -0.0014 | 0.0281 | -0.0281 | 0.9612 |
| Internet-Banking | 0.0198 | 0.0234 | 0.8463 | 0.4051 |

Source: Secondary Data Processed, (2023)

Fixed Effect Model

Regression models like the model of fixed effects are employed when it is believed an object's behavior varies over time. The investigation's model of fixed effects is shown in Table 2.

Table 2
Fixed Effect Modeling Result

| | Coefficient | Standard deviation | t-statistics | Prob. |
|------------------|-------------|--------------------|--------------|--------|
| Intercept | 0.0088 | 0.0159 | 0.5499 | 0.5870 |
| Mobile Banking | 0.0707 | 0.0196 | 3.6112 | 0.0013 |
| Crowdfunding | 0.0198 | 0.0234 | 0.8463 | 0.4051 |
| SMS Banking | -0.0206 | 0.0232 | -0.8865 | 0.3835 |
| Internet-Banking | 0.0707 | 0.0196 | 2.5122 | 0.0012 |

Source: Secondary Data Processed, (2023)

Random Effect Modeling

The Random Effects Modeling (REM) remains a type of regression approach which makes the assumption because there's a time influence present but unrelated to the dependent variable. The outcomes of the model based on random effects are presented in a subsequent table.

Table 3
Common Effect Modeling Result

| | Coefficient | Standard deviation | t-statistics | Prob. |
|------------------|-------------|--------------------|--------------|--------|
| Intercept | 0.0088 | 0.0158 | 0.5589 | 0.5110 |
| Mobile Banking | 0.0708 | 0.0192 | 3.6207 | 0.0012 |
| Crowdfunding | 0.0099 | 0.0255 | 0.3882 | 0.7018 |
| SMS Banking | -0.0014 | 0.0281 | -0.0281 | 0.9612 |
| Internet-Banking | 0.0178 | 0.0224 | 0.8403 | 0.4059 |

Source: Secondary Data Processed, (2023)

4. Classical Assumption Test

While each of the conventional assumption assessments such as the one for autocorrelation, heteroscedasticity testing, and normality testing, were conducted to ensure the data employed is free of econometric problems the results of multicollinearity investigation show a Fintech VIF obtain of 1,000, which is smaller compared to 10, as well as an overall Fintech VIF receive is 1,000. Thus, it can be claimed that multicollinearity is not present. In accordance with the findings of the autocorrelation assessment, the Durbin-Watson (DW) value is 1,816, which ranges from 1,55 to 2,46. The model is said to be autocorrelation-free. The measurement's heteroscedasticity result explains the pattern, as the dotted lines are evenly spaced along the Y-axis between 1 to 0. The Consistent P-P Plot for Regression Typical Residual sequence, demonstrating the average number of points over the straight line that flows in exactly the similar directions with a line along the diagonal, is provided by the test of normality for ensuring that the data are not heteroscedastic. Regression modeling follows an assumption of normalcy as a result.

4.1 Panel Data Regression Model Selection

In order to undertake the analytic process using each of the regression approaches discussed above, the most effective one must be determined. The following tests were run to determine the appropriate model:

Chow Test

Among the Common Effects Model with the Fixed- Effects Approach, a Chow test served to evaluate which model is the most effective. The fixed-effects approach remains the approach of choice when the probability ratio for the Chisquare cross-sectional is lower than the acceptable threshold (5%). In the meantime, the model with common effects is selected when the probability ratio for Chi-square Cross-sectional view is greater over threshold of significance (5%). Table 4 displays the outcomes for the Chow examination.

Table 4
Chow Examination Result

| Effect test | Statistics | df | Probability |
|--------------------------|------------|--------|-------------|
| Cross-section F | 1.1714 | (5,21) | 0.3560 |
| Cross-section Chi-Square | 7.3799 | 5 | 0.1939 |

Source: Secondary Data Processed, (2023)

According to Table 4, when the score is more than 0.05, the expected value for Chi-square Cross-sectional view was 0.1939. The Common Effects Approach thus constitutes the most accurate model according to Chow test.

Hausman Testing

The Hausman examination, which seeks to distinguish between the Fixed Effect Approach along with the Random Effects Approach, was conducted utilizing a random description effect. When the probability ratio for the random cross-sectional is lower compared to the 5% alpha significance, the model with fixed effects is to be used. The Random Effects Model (REM) is chosen when the probability level for random cross-section occurs to be larger than the alpha ratio of 5%. Outcomes of Hausman testing are as follows,

Table 5
Hausman Testing Outcome

| Summary | Chi-Square. Statistics | Chi-Square. d.f. | Probability |
|---------|------------------------|------------------|-------------|
| | Crossection | | |
| Random | 3.93633 | 3 | 0.2684 |

Source: processed Secondary Data (2023)

Table 5 illustrates a Random Effects approach as the one that is selected for the Hausman examination since the probability level of randomized cross-sectional with 0.2684 which exceeds alpha score with 0.05.

Lagrange Multiplier Test

Chow examination outcomes indicate that a model with common effects is chosen, and a Hausman examination results indicate that a model with random effects is chosen. In order to determine which model is more appropriate amongst the model known as Common Effect approach plus a Random Effects Modeling, the Lagrangian Multiplier testing must be tested.

Table 6
Lagrange Multiplier Test Result

| Null (no. rand. Effect) Alternative | Crossection One-sided | Period One-sided | Both |
|-------------------------------------|-----------------------|--------------------|--------------------|
| Breusch-Pagan | 0.0764 (0.7822) | 1.9049 (0.1675) | 1.9813 (0.1592) |

Source: Secondary Data Processed, (2023)

Breusch-Pagan displays a probability score that is higher than 0.05 on 0.7822. According to the results of the Lagrangian Multiplier examination, it might be said that a Random Effects Model as the proper one

Hypothesis Test

F Testing

The F test, which is among the hypothesis tests, is used in this investigation to see if each of the IVs exhibit an impact upon the dependent variable simultaneously and depicted in the subsequent Table 7.

Table 7
The results of F-Test for random effect modeling

| | | | |
|--------------------|----------|--------------------|----------|
| R-squared | 0.437618 | F-statistic | 4.417416 |
| Adjusted R-squared | 0.361189 | Prob (F-statistic) | 0.012249 |
| S.E. of regression | 0.044187 | | |

Source: processed Secondary Data , (2023)

The probability (F-statistic), with a significance level of 0.012249, represents a statistic that shows the outcomes of an F test. The result is less than the 0.05 threshold of significance. As a result, a dependent variable becomes jointly influenced by each of independent variables for this Investigation.

T-testing

The results that follow show the outcomes from the t-tests of the IVs for this investigation, which is used to demonstrate if an independent variable has a partial impact upon the dependent variable.

Table 8
The results of the t-test for random effect model

| | Coefficient | t-statistics | Prob. |
|------------------|-------------|--------------|--------|
| Intercept | 0.008771 | 0.558937 | 0.5810 |
| Mobile Banking | 0.070676 | 3.6207188 | 0.0011 |
| Crowdfunding | 0.019812 | 0.860120 | 0.3976 |
| SMS Banking | -0.020586 | 0.3759 | 0.0012 |
| Internet-Banking | 0.081676 | 2.570188 | 0.4059 |

Source: Secondary Data Processed, (2023)

It might be noticed that Mobile Banking, which possesses a probability ratio of 0.0011 0.05 along with the favorable coefficient for 0.070676, possesses an encouraging and significant impact upon Islamic bank's financial performance (ROE), at contrast to Crowdfunding, which had the insignificant impact upon financial performance when measured by ROE along with a probability ratio of $0.3976 > 0.05$ as well as an encouraging coefficient of 0.019812. As a result, it can be seen how SMS Banking, which is the independent variable in the present investigation, has an unfavorable and insignificant impact upon a dependent variable, which is namely a financing performance of Islamic banks (ROE). I-Banking, however, had a probability ratio of 0.0012 0.05 along with a coefficient of significance of 0.081676, indicating that it's having an important and positive impact upon ROE.

Coefficient of Determination Test

By examining an Adjusted R-squared score upon the examination outputs using the appropriate model, someone can evaluate a coefficient of correlation. The above test was performed to ascertain the extent to which the IV in the present investigation may account for a dependent variable. The findings of the research study's degree of determination assessment are listed below.

Table 9
Coefficient Determination Testing for random effect modeling

| | | | |
|--------------------|----------|--------------------|----------|
| R-squared | 0.437618 | F-statistic | 4.417416 |
| Adjusted R-squared | 0.361189 | Prob (F-statistic) | 0.012249 |
| S.E. of regression | 0.044187 | | |

Source: processed Secondary Data , (2023)

The modified R-squared score is 0.361189 according to table 9. Therefore, it might be concluded that every one of the independent variables within the present investigation, namely SMS banking, internet banking and mobile banking, may account for 36.12% regarding the DV, or as the financial performance (ROE) from Islamic banking, whereas the remaining 63.88% is clarified by other factors not included in this investigation.

5. Discussion

According to the test findings, it is obvious mobile banking, that is an independent variable, had a favorable and significant impact upon Islamic bank's financial performance when measured ROE. This demonstrates that the further effective Islamic financing's mobile banking facility is, the higher it will aid Islamic banking improve its financial performance. Anindyastri, Lestari, and Sholahussin's research from 2022 lends credence to the study's findings. However, this study's findings show that a crowdfunding element has a negligible and small effect upon Islamic bank's financial performance. The decrease in subscribers of crowdfunding services yearly within the research period constitutes one of several explanations. The findings of this investigation are consistent with earlier research, such as studies of (Siska, 2022; Anindyastri, Sholahussin & Lestari, 2022; Alghadi et al, 2021).). Similarly, the SMS banking component had an unfavorable and insignificant impact upon the monetary performance of Islamic banks just like measured by ROE.

This is conceivable for several reasons, including a relatively low degree of privacy associated with SMS banking facility and its comprehensiveness of services that are not popular. Due to these elements, SMS banking as a means for transaction is not as effective for the general public or clients. Finally, as measured by Return on the Equity (ROE), internet banking had an encouraging and considerable effect upon the financial performance in Islamic banking. This demonstrates that the further effective Islamic banks mobile banking facility is, the greater it will aid Islamic banking to improve its financial performance. Future studies were thus advised by this investigation because there remain many aspects whose effects upon financial performance require to be clarified, particularly additional fintech services provided by new fintech companies which have been integrated alongside banking institutions. Other financial measures, like liquidity ratios, return on assets (ROA), solvency ratios, including activity ratios, may be employed during studies to examine the impact upon financial performance. Future research may potentially use financial institutions that are not banks or other businesses to analyze data, adding samples for analysis to render it a better representation for the public.

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