







Islamic Financial Services and Profitability of Islamic Banks

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Received: 04/03/2025

Accepted for publication: 01/03/2026

Published: 30/04/2026

Abstract

The adoption of shariah-compliant financial services has been reflected in Islamic banking's contribution to the growth of the Islamic financial market in recent years. However, Islamic banks occupy a small share of domestic banking markets worldwide. The low market share has raised some questions regarding the profitability of various Islamic financial services. This study, therefore, examined the effect of Islamic financial services on the profitability of Islamic banks in selected countries. Specifically, the study assessed the effects of exchange-based, equity-based, fee-based, and supporting financial services on the profitability of Islamic banks. Quarterly data were collected from the Islamic Financial Services Board (IFSB) database between 2014Q1 and 2022Q4. Fixed Effects Regression analysis was used to analyse the data. The study found that Murabaha (coef = 0.12, $p = 0.004$), Istisna' (coef = 0.03, $p = 0.001$), Musharaka (coef = 0.09, $p = 0.000$), and Ijarah (coef = 0.05, $p = 0.000$) had positive, significant effects while Mudharaba (coef = -0.25 , $p = 0.021$) and Qard Hasan (coef = -0.68 , $p = 0.007$) had negative effects on Islamic banking profitability in selected countries. The study concluded that exchange-based, equity-based, fee-based, and supporting financial services had a significant impact on the profitability of Islamic banks. It was therefore recommended that Islamic banks focus on providing excellent customer service to enhance customer satisfaction and loyalty, thereby increasing their profitability.

Keywords: Cost-plus, Exchange-based, Equity-based financing, Islamic banks, Profitability

1. Introduction

Modern global Islamic banking can be traced to Africa, with the Mit Ghamr Savings Bank in Egypt in the 1960s (Africa Economic Outlook, 2015). The evolution was driven by the large Muslim community yearning for interest-free financial products and services (Gelbard et al., 2014). According to Prandi and Colecchia (2021), the philosophy of Islamic banking and finance is premised on the principles of risk and profit sharing, wealth distribution, and social justice. It also emphasised the prohibition of interest rates, gambling, speculation, and non-Shariah-compliant investment opportunities (Prandi & Colecchia,



2021). Recognising the need to meet the demand of the large Muslim population who might have been financially excluded due to their religious beliefs, Islamic financial windows of conventional banks, as well as full-fledged Islamic banks, were established. The consistent growth and potential for future development are also evident in Islamic banks' contributions to economic growth and development, especially in financial inclusion. Religion was identified as one major reason for low financial inclusion, particularly in the region with a large percentage of the Muslim population. The exclusion seemed voluntary, driven by people's belief in the prohibition of interest, which is central to conventional financing. In the Islamic banking system, a high percentage of people were able to overcome voluntary exclusion due to religious reasons, which in turn boosted their socio-economic status.

The catalytic role of Islamic banks in enhancing financial inclusion has also manifested in increased numbers of Islamic banks, bank branches, and automated teller machines. According to IFSB (2024), Egypt had 3 full-fledged Islamic banks with 125 branches and 219 ATMs in 2013. These increased to 147 branches and 829 ATMs as of the first quarter of 2024. Similar improved financial inclusion indicators were recorded for Nigeria, which had just 1 full-fledged Islamic bank operating from 13 branches in 2013. However, since 2023, Nigeria has had 3 Islamic banks with 73 branches serving various customers. The role of Islamic banks in promoting financial inclusion is particularly evident in Sudan, where the entire banking system is shariah-compliant. Sudan currently has 38 Islamic banks, 1079 branches, and 1524 ATMs through which customers can access Islamic banking services (PSIFIs database).

However, Islamic banks operate in a context where they are forced to compete with conventional banks. This is because, regardless of the mode of operation, the banking business revolves around financial intermediation. The competitiveness of Islamic banks in Africa depends on the profitability of their operations. Nugroho et al. (2022) stated that an Islamic bank's performance in terms of profitability can be improved if its product sales are adequately optimised. It was further argued that the main product of Islamic banks with a direct impact on revenue is financing. Financing in Islamic banks consists of buying and selling contracts (murabahah, istishna, salam), cooperation contracts (mudharabah and musharakah), and rental contracts (ijarah) (Nugroho et al., 2022). Mabrouk and Farah (2021) posit that these Islamic financing contracts can be classified as equity financing (such as Mudaraba and Musharaka) and debt financing (such as Murabaha, Ijara, and Istisnaa).

Unlike conventional banks, which thrive on interest from lending activities, Islamic banks developed shariah-compliant products (financing contracts) to serve their various customers. These financing contracts are classified into exchange-based, equity-based, fee-based financing and supporting contracts (Hassan et al., 2013). Murabahah (cost-plus financing), istisna' (manufacturing contract), salam (forward sale), Bay al-dayn (sale of debt) and bay al-inah (buy back sale) are classified as exchange-based contracts. Fee-based contracts include Ijarah (leasing), Ujrah (fee-based services), and Ju'alah (reward-based services), while equity-based contracts include products such as mudarabah and musharaka. The supporting contracts of Islamic banks are Hawalah (debt transfer), Rahn (pledge), Kafalah (guarantee), Wakalah (agency), and Wadi'ah (Jimoh, 2022). Many of these Islamic banking products are now offered across all habitable continents of the world.

Despite efforts to design various financing instruments to make Islamic banks more profitable and competitive in banking markets, their market share remains very small. The small market share of Islamic banks casts doubts on the profitability of their banking products, as profitability is directly linked to market share. Market share affects profitability through the mechanisms of market power and operating efficiency (Bhattacharya et al., 2021). It is against this backdrop that this study examined the effects of Islamic financial services on Islamic banking profitability.

The paper is structured such that the literature review follows this introduction. This is followed by the methodology section, which details the model specification, method of data collection and analysis, among others. Results of the data analysis are then presented, with descriptive and inferential statistics reported in various tables and the findings discussed. This section is followed by the conclusion drawn from the study's findings.

2. Literature Review



Although some past studies attested to the profitability of Islamic banks on the continent, the low market share raised a major concern about the profitable operations of the banks in terms of the execution of their various financing contracts. Kulmie et al. (2023) assessed the profitability of Islamic banks in Somalia using cost-plus and profit-sharing products. Using a correlational research design, data were obtained via questionnaire from 56 respondents. It was found that Murabaha and Mudarabah had a statistically significant positive effect on the profitability of Islamic banking institutions. Similarly, Moustapha and Nadir (2023) examined the effect of Islamic financing products on the profitability of Islamic banks in Qatar. Al Rayan Islamic Bank was used as the case study, and quarterly data were collected from the bank for the period from 2011 to 2023. Musharaka, Murabaha, Istisna' and Ijarah financing were selected as explanatory variables while return on equity (ROE) was used to measure profitability. The relationship between the independent and dependent variables was assessed using the Autoregressive Distributed Lag (ARDL) Model. The results of the ARDL bounds test indicate long-term cointegration between bank profitability and the variables related to Islamic finance products. The long-term analysis's findings demonstrated that, at the 5% level, Musharaka funding significantly and favourably affects ROE. However, ROE is significantly and negatively impacted by murabaha financing, whereas there is no discernible impact of the Istisna' and Ijarah variables on ROE. The short-term dynamics show that Ijarah and murabaha financing have a major and detrimental impact on the profitability of Islamic banks.

Mahdi and Aprilianto (2023) examined the effect of financing product schemes on the financial performance of Islamic banks in a different study. The Sharia Banking Statistics reports released by OJK from 2012 to 2022 provided the monthly data that was used. Vector Error Correction Modelling (VECM) was used to analyse the data. The study found that debt-based financing and leasing-based financing had a long-run significant effect on return on assets. However, leasing-based financing was found to have greater benefits for Islamic banks. Similarly, Afrizal et al. (2023) examined the impact of murabahah, mudharabah, and musharakah financing on the financial performance of Indonesian Sharia commercial banks. Eleven Islamic commercial banks were chosen using purposive sampling. Secondary data were gathered from the annual financial reports of Sharia-compliant banks for the period 2010-2019. The study revealed that Mudharabah and murabahah financing had a positive and significant impact on return on assets (ROA).

Furthermore, Sari and Maharani (2022) investigated how the profitability of Indonesian Islamic commercial banks was affected by murabahah, musyarakah, and ijarah financing between 2016 and 2020. Islamic banks that are registered with Indonesia's Financial Services Authority (OJK) were the study's primary focus. Over the course of the five-year study, eight banks were selected through purposive sampling. The financial and annual reports of the chosen Islamic commercial banks provided the data. Descriptive statistical tests, capital estimation method tests, and panel data regression model estimations were used to analyse the data. The study's conclusions showed that murabahah financing significantly and favourably affected Islamic commercial banks' return on assets (ROA). Musharakah financing was found to have a negative and significant effect, while Ijarah financing had no significant effect on bank profitability. In a study on cost-plus financing of Islamic banks in Indonesia, Ar Rumaishaa and Zamzami (2022) examined the impact of Istisna' and murabahah financing on net income. The study population comprised Islamic commercial banks registered with the Financial Services Authority (OJK) between 2018 and 2020. Using a panel regression approach to analyse data from banks' annual reports, the study found that murabahah financing increased banks' profitability, as measured by net income.

Tjoteng et al. (2022) evaluated the impact of profit-sharing financing on the profitability of Islamic General Banks in Indonesia. They gathered information on mudharabah and musyarakah financing from 16 Islamic General Banks (BUS) whose reports were released by the Financial Services Authority (OJK) of Indonesia for the years 2020 and 2021. They used multiple regression and descriptive analysis to analyse the data, and the findings showed that mudharabah financing had a significant negative impact on banks' profitability, while musyarakah financing had a positive and significant impact on banks' reported profitability. In an earlier study on profit-loss sharing financing, Syahri and Harjito (2020) examined the impact of profit-sharing financing products on the profitability of Sharia Banks in Indonesia from 2012 to 2016. The study used two products - Mudharaba and Musharaka as proxies for profit-loss sharing products, while profitability was measured by return on equity of the banks. A multiple regression analysis was utilised to evaluate the data, and it was observed that both Mudharaba and Musharaka have a significant effect on the profitability of Sharia banks. While the effect of Mudharaba was beneficial, that of Musharaka was detrimental to profitability.



An earlier study by Yusuf and Isa (2021) examined the effect of Ijarah (lease) finance on the performance of Islamic banks in Malaysia between 2004 and 2018. Multiple regression analysis was used to estimate Random Effect Models, and the results showed that Ijarah financing significantly and favourably affected banks' net profit margins. Additionally, Halim (2020) evaluated how financing agreements affected Islamic banks' risk management and profitability. Using a quantitative approach, the study found a favourable correlation between bank profitability and financing contracts for ijarah, musyarakah, mudharabah, and murabaha. More so, Salleh et al. (2021) examined how financing agreements affected Malaysian Islamic banks' Net Profit Margin (NPM). Two finance agreements between Bai' Bithaman Ajil (BBA) and Al-Ijarah Thumma Al-Bai' (AITAB) are the subject of the study. Information about Islamic banks in Malaysia was gathered between 2008 and 2018. According to a static panel data analysis, only AITAB significantly affected banks' NPM.

Furthermore, Belkhaoui et al. (2020) examined Islamic bank profitability in GCC countries, as well as financing methods, risk-taking, and efficiency. The findings of a regression analysis showed that financing modes had a major impact on banks' profitability. The results showed that for Islamic banks in the GCC, murabahah financing boosts profitability while also improving capitalisation ratios and cost-effectiveness. Similarly, Alzoubi (2017) examined the profitability of Islamic finance instruments across 13 MENA nations over the period 2006-2016. Data analysis using a fixed effect panel was performed on a sample of 41 banks. The study's results showed that while murabaha and ijarah had no discernible effect on the profitability of Islamic banks in the MENA region, mudarabah and istisna' significantly contributed to high profitability. Risfandy (2018) investigated the impact of equity financing of mudarabah and musharaka on the profitability of Indonesian Islamic banks in a study on equity financing contracts. Data for the years 2009 through 2014 were gathered from a sample of nine Islamic banks. The results of a regression analysis showed a negative correlation between the banks' return on assets and the total amount of murabaha and musharakah financing. Kulmie (2024), on the other hand, evaluated the connection between Islamic banks' profitability and Musharakah financing. A questionnaire was used to gather data. The association between Islamic commercial banks' profitability and musharakah financing was investigated using correlation analysis. The analysis's findings demonstrated a positive correlation between Islamic commercial banks' profitability and musharakah financing.

In the same vein, Sutrisno and Widarjono (2022) analysed the effect of profit-and-loss-sharing financing on the profitability of Islamic banks in Indonesia by selecting 31 Islamic commercial banks and collecting quarterly data from 2016 Q1 to 2020 Q4, using the two-step system GMM estimator. The analyses indicated that profit-and-loss-sharing financing had a significantly negative effect on profitability. Roziq and Sukarno (2021) examined the effect of the financing scheme on the financing performance of Indonesian Islamic banks by collecting secondary data from the financial reports of Indonesian Islamic banks. Profit-and-loss-sharing plans had a considerable impact on the study's dependent variable; leasing financing had no discernible impact. Wulandari (2017) examined the impact of mudharabah and musharakah on the profitability of Indonesian sharia banks from 2013 to 2015. Secondary data were obtained from banks' published reports, and a quantitative descriptive approach was employed. The study's data analysis, using PLS-SEM, revealed that only mudharabah financing significantly affected bank profitability.

Aress and Abdul (2023) investigated the impact of Islamic banking products on the financial performance of Kenyan banks in Africa. With a total of 853 respondents across 8 banks, the study used a descriptive research methodology. A sample of 240 respondents was selected from the population using stratified sampling. Questionnaires and bank financial statements were used to gather primary and secondary data, respectively. Secondary data were gathered between 2017 and 2021. The study used multiple regression analysis and found that asset-backed financing products (murabaha, ijarah, and salam) and profit and loss sharing products (musharaka and mudaraba) had a statistically significant impact on the financial performance of the selected banks. Mohamed (2018) also examined how Islamic banking products affected the financial results of Kenyan Islamic banks. Data on Islamic financial products such as murabaha, mudarabah, musharak, and ijarah financing were gathered from two Islamic banks. Analysis of Variance (ANOVA) and the regression approach were used to analyse the data. The study discovered that every instrument significantly and favorably affected Islamic banks' financial performance.

2.1 *Theory of Financial Innovation*



Joseph Schumpeter first proposed the theory of financial innovation in 1934, emphasising the role of innovation in promoting economic development and prosperity. According to the theory, financial innovations, such as new systems, procedures, and products, are essential for enhancing financial markets because they lower transaction costs, increase access to capital, and make them more efficient. According to Schumpeter, innovation, especially in the financial industry, is a major force behind economic change because it enables businesses to better manage resources and take advantage of new market opportunities. It describes how improvements in financial technology, services, and products can revolutionise the financial sector and boost institutions' productivity, competitiveness, and profitability. Derivatives, credit instruments, and alternative financing models are examples of financial product innovations that assist banks in satisfying the various needs of their clientele, therefore improving the financial system. The theory holds that to adapt to shifting consumer expectations, regulatory frameworks, and market conditions, financial innovation is crucial. It enables organisations to better control risks, provide clients with specialised solutions, and open new revenue streams. The theoretical basis for understanding the relationship between Islamic banking products and bank profitability is financial innovation theory. According to the hypothesis, financial innovation, such as the creation of new goods and services, can boost financial institutions' profitability.

Financial innovation theory has been used in some studies to examine its effects on various facets of financial markets and institutions. Wahyudi and Tristiarto (2020), for example, looked at how financial innovations affected risk management and the expansion of the financial services industry, emphasising the advantages of launching new financial products to boost market efficiency. In a similar vein, Chen et al. (2021) applied the theory to examine how financial innovation affects business performance and found that companies that deploy innovative financial products typically see increases in profitability and market share. The investigations demonstrated that financial innovation has far-reaching effects on financial institutions and the broader economy.

Financial innovation theory is highly relevant to this study's investigation of the relationship between Islamic banking products and profitability. Islamic banking products, including Mudaraba and Murabaha, are creative solutions designed to meet the needs of customers seeking financial services that adhere to Sharia law. Because the products are founded on risk-sharing and ethical ideals, they differ from traditional financial instruments. Islamic banks encourage financial inclusion and market diversity by introducing such innovations and offering clients alternatives that adhere to religious beliefs. This study examines how the introduction and adoption of various Islamic banking products affect banks' financial performance using the financial innovation theory. The theory suggested that, by serving a wider market segment, the creative character of the goods can boost banks' competitiveness, draw in new customers, and enhance profitability. Furthermore, the ethical and risk-sharing features of Islamic financial products might lead to more sustainable financial practices, thereby supporting Islamic banks' long-term stability and expansion. This study shed light on how Islamic banks use innovation to boost their financial performance and add value for stakeholders by analyzing the function of these products using the prism of financial innovation theory.

3. Methodology

The relationship between Islamic financial services and the profitability of Islamic banks in Indonesia, Iraq, Jordan, Kuwait, Malaysia, Nigeria, Oman, Saudi Arabia, and Sudan was expressed as follows:

$$\text{Profitability} = f \{ \text{Islamic financial services} \}$$

In establishing this relationship, the study adopted Mohamed's (2018) model of the relationship between Islamic banking products and profitability. The model was modified as follows:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{MUS}_{it} + \beta_2 \text{MUD}_{it} + \beta_3 \text{MUR}_{it} + \beta_4 \text{IST}_{it} + \beta_5 \text{IJR}_{it} + \beta_6 \text{QRD}_{it} + \beta_7 \text{LIQ}_{it} + \beta_8 \text{ISMD}_{it} + \mu_{it} \dots 2$$

Where:

ROA = return on asset

MUS= Musharaka financing



MUD = Mudharaba financing

MUR = Murabaha financing

IST = Istisna' financing

IJR = Ijarah financing

QRD = Qard Hasan Financing

LIQ = Islamic banking Liquidity

ISMD = Size (Level) of Islamic banking market development

μ_{it} = random error term

A priori expectation

$\beta_1 > 0, \beta_2 > 0, \beta_3 > 0, \beta_4 > 0, \beta_5 > 0, \beta_6 < 0, \beta_7 > 0, \beta_8 > 0$

An ex post facto research design, appropriate for investigating the impact of independent factors that existed before the study on the behaviour of the dependent variable, was used in this investigation. The study's population consists of 27 countries whose financial information is available in the Islamic Financial Services Board (IFSB) database. Purposively, a sample of nine nations was chosen from the total population. These nine nations were chosen based on data availability. The nations in the sample are those whose Islamic banking data are accessible through the IFSB database. Indonesia, Iraq, Jordan, Kuwait, Malaysia, Nigeria, Oman, Saudi Arabia, and Sudan were selected.

The IFSB database provided the secondary data used in this study, which included information on Islamic banking operations and bank-specific factors. From 2014Q1 to 2022Q4, data were gathered quarterly, including 324 observations for the study and 36 observations for each nation. Both descriptive and inferential statistical analyses were used to examine the data. The Hausman test was used to choose between fixed- and random-effect models because the study is panel-based. The Fixed Effects Model was then used to do regression analysis.

3.1 Variable Measurement

Both the dependent and independent variables were measured to facilitate analysis. In Table 1, measurements for each variable, including the proxy and the method used to measure or indicate it, were presented. Literature support was also provided for each variable.

Table 1. Measuring the study variables

S/N	Variable	Proxy	Measurement	Source(s)
1	Profitability	Return on Asset (ROA)	Net income/ Total Asset	Badawi et al. (2023); Mohamed (2018)
2	Musharaka Financing	Musharaka (MUS)	musharaka financing/total financing	Halim (2020)



3	Mudharaba financing	Mudharaba (MUD)	mudharaba financing/total financing	Halim (2020); Mohamed (2018)
4	Murabaha financing	Murabaha (MUR)	murabaha financing/total financing	Halim (2020); Mohamed (2018)
5	Istisna' financing	Istisna' (IST)	istisna' financing/total financing	Moustapha & Nadir (2023)
6	Ijarah financing	Ijarah (IJR)	Ijarah financing/total financing	Yusuf & Isa (2021); Mohamed (2018)
7	Qardh Hasan Financing	Qardh (QRD)	Qard-Hasan Financing/total financing	Oktaviani et al. (2022)
8	Liquidity	Liquid asset ratio (LIQ)	Liquid Asset/Total Asset	Jimoh et al. (2022)
10	Islamic Market Development	ISMD	Growth rate of Islamic financing to private sector	PSIFIs

Source: Authors' elaboration

4. Results

This section included the presentation and interpretation of the findings from panel regression and descriptive analysis. The parameters in the summary statistics were explained in detail via descriptive analysis. Following the completion of certain preliminary tests, including the Hausman and multicollinearity tests, the regression was analysed.

4.1. Descriptive Analysis

Descriptive results were presented in Table 2 to summarise and describe the data features of the study variables. The results described the data in terms of observation, mean, standard deviation, minimum, and maximum values as presented in Table 2 below.

Table 2. Summary Statistics



Variable	Obs	Mean	Std Dev.	Min	Max
MUR	324	57.62337	25.65982	17.5892	100.0000
IST	324	3.67582	6.363967	0.010764	27.9788
IJR	324	22.30957	17.35446	0.00000	62.12835
MUS	324	4.15167	3.472922	0.00000	11.32257
MUD	324	.9765498	1.67995	0.00000	5.880767
QRD	324	.1961509	.3236732	0.0000	2.430375
LIQ	324	26.06553	14.71607	-0.014957	70.8125
ISMD	324	40.11515	197.5493	-11.39384	2447.453
ROA	324	1.143652	1.512161	-4.78185	4.898387

Source: Authors' elaboration

Table 2 presents the mean values of the variables in the Islamic banking data for the selected countries across Africa over the study period. The average murabaha financing (MUR) rate is 57.62%. That is, murabaha accounted for an average of 57% of total financing at Islamic banks in the selected countries between the first quarter of 2014 and the fourth quarter of 2022. This means that murabaha financing accounted for more than half of the Islamic banking market in Africa during the periods under investigation. The Table also shows a standard deviation of about 25% for MUR, indicating that the percentage of total financing extended under murabaha spreads around the mean by 25%. In other words, murabaha financing for a particular period could be plus or minus 25% of the average value. Other important parameters of interest are the minimum and maximum values presented in the Table. According to Table 2, Murabaha financing (MUR) had a minimum of 17.59% of total financing, while the maximum value was found to be 100%. The maximum value of 100% shows that at some point in time, at least one country had the entire Islamic banking market covered with only murabaha financing. This means that murabaha has been a dominant product in the African Islamic banking market.

Another financial product that Islamic banks in Africa offer is called Istisna' (IST). Table 2 shows that the mean value of IST was 3.67%, indicating that IST's funding accounted for only about 4% of Islamic banks' total financing in the selected countries. This indicates that Istisna's accounted for only a very small percentage of all Islamic bank funding agreements in a few selected countries. The standard deviation of 6.36 indicates that the spread around the mean score is not very wide, suggesting the reliability of the mean estimates. Also, the minimum Istisna' financing rate reported in the table was 0.01%, indicating negligible Istisna' financing in some markets for Islamic banking products. Table 2 also reports the maximum IST of 27.98%. The maximum percentage of Istisna' financing showed that some Islamic banking markets in some countries had an appreciable level of patronage even though the product was not doing very well.



Regarding Ijarah (IJR) financing, the average ratio was 22.31% of total financing. The mean ratio indicated that, on average, approximately 22% of Islamic banks' total financing came from ijarah transactions. This means that Ijarah ranked second just after Murabaha in terms of market share. The mean score had a standard deviation of 17.35%, indicating a high spread of plus or minus 17% around the mean. That is, the actual ijarah financing from an average bank in the continent, at any given period, could be 17% higher or lower than the mean value. A minimum of 0.00% was also reported for Ijarah financing, meaning that over some periods, at least a country's Islamic banks had no Ijarah contract executed. The maximum value of ijarah financing, however, was found to be 62.13% of total financing. This was even higher than the average value of murabaha financing, and it means that for some period, ijarah contracts got more patronage than even the Murabaha, which dominated the market.

For the two equity-based financing contracts, Musharaka (MUS) and Mudharaba (MUD), Table 2 shows low values for the summary statistics parameters. From the Table, MUS had a mean of 4.15% and a standard deviation of 3.47%, representing the average musharaka financing ratio to total financing in the periods under review. This means that total musharaka financing accounted for less than 5% of the entire Islamic banking market. The standard deviation indicates a spread of plus or minus 3.5% around the mean. Also, the minimum value reported was 0.00%, buttressing the low patronage of musharaka services among many Islamic banks' customers. In other words, musharaka financing occupies a very small portion of the market and this is supported by the maximum value of 11.32% as the highest value of musharaka financing over the periods of the study. On the other hand, mudharaba (MUD) financing had a mean value of less than 1%. According to the table, the mean value is 0.98% of total financing. It follows, therefore, that mudharaba takes the least share of the entire market, on average. This might be due to customers' low awareness of the products, or to their preference for other Islamic banking products. The standard deviation, minimum and maximum values were recorded as 1.68%, 0.00% and 5.88%, respectively. Both the minimum and maximum values of mudharaba financing indicated the limited funding available for economic activities through mudharaba in the region.

Lastly, Qard Hasan (QRD), which was taken as a supporting service, had a mean value of 0.196, which means that Qard Hasan (benevolent loan) took just about 0.20% of the total financing of Islamic banks in selected countries. The standard deviation, minimum and maximum values were 0.32, 0.00 and 2.43%. The low statistics were expected, as Qard Hasan was not meant to be a high-profit-generating unit for the banks. It is an interest-free loan to help individuals without financial gain to the banks. The product was meant to support the customers in need and encourage them to be loyal to the bank in terms of future patronage. Higher statistical values would have indicated inefficiency in banking operations, which may have affected the bank's financial performance.

Islamic market development (ISMD) and liquidity (LIQ) were established as two control variables in the study. It was anticipated that the two factors would have some impact on Islamic banks' performance. The ratio of liquid assets to total assets (LIQ) had an average of 26.06% and a standard deviation of 14.72% in the descriptive statistics. According to Table 2, the lowest liquidity ratio was 0.01%, and the highest was 70.81%. In relation to Islamic market development (ISMD), financing growth was measured as the percentage change in total financing from period to period. From Table 2, ISMD showed a mean of 40.12%, indicating that, on average, total financing increased by 40% on a quarterly basis over the study period. However, the standard deviation was very large, about 198%. The minimum growth rate of total financing from period to period was -11.39%, while the maximum was 2,447%. The summary statistics on ISMD indicate that the Islamic banking market is developing by the day, and that greater development may affect the profitability of Islamic banks.

Return on Assets (ROA) is the model's dependent variable and was treated as a function of other variables. The behaviour of ROA was also determined by the descriptive statistics presented in Table 2. ROA, according to Table 2, had a mean value of 1.14% and a standard deviation of 1.51%. This showed that the banks were, on average, profitable during the period under study. The minimum value was -4.78%, indicating that some banks recorded a net loss in at least one year of operations during the period under consideration. The maximum of 4.90% indicates that the net income of Islamic banks in selected countries has never exceeded 5% of their total assets. Notwithstanding the minimum and maximum values, the descriptive statistics showed that the banks were, on average, doing well in terms of profitability.



4.2 Test of Multicollinearity

Pairwise correlations were conducted to assess collinearity among the variables, as high correlations can indicate potential multicollinearity. The result of the correlation analysis was presented in Table 3.

Table 3. Pair-wise correlation

Variable	MUR	IST	IJR	MUS	MUD	QRD	LIQ	ISMD
MUR	1.000	-0.078	-0.409	0.369	-0.104	0.087	0.070	-0.120
IST	-0.078	1.000	0.457	-0.006	0.194	-0.008	0.442	-0.086
IJR	-0.409	-0.457	1.000	-0.537	-0.622	0.111	-0.564	0.257
MUS	0.369	-0.006	-0.537	1.000	-0.622	-0.015	0.166	-0.121
MUD	-0.104	0.194	-0.622	0.140	1.000	-0.029	0.056	-0.052
QRD	0.087	-0.008	0.111	-0.015	-0.029	1.000	0.113	-0.057
LIQ	0.070	0.442	-0.564	0.166	0.056	0.113	1.000	0.179
ISMD	-0.120	-0.086	0.2575	-0.121	-0.052	-0.057	0.179	1.000

Source: Authors' elaboration

The correlation matrix for every pair of independent variables is shown in Table 3. Gujarati (2004) states that when the correlation coefficient between two independent variables exceeds 0.8, the relationship between them becomes problematic. In other words, a strong correlation of more than 80% between a pair of explanatory variables will result in a multicollinearity problem, and a regression analysis result marred by multicollinearity tends to be unreliable. However, Table 3 shows that none of the coefficients even approaches 0.8. As a result, there would be no multicollinearity issues when using the variables in the regression model. Since the test indicated the absence of multicollinearity, a regression model was then fitted to determine the effects of the explanatory variables.

4.3 Variance Inflation Factor

Furthermore, the variance inflation factor (VIF) was used as a stronger test for multicollinearity among the study's variables. The VIF results were presented in Table 4.

Table 4. Variance Inflation Factor

Variable	VIF	1/VIF
MUR	2.43	0.411021
IST	3.06	0.326307



IJR	3.72	0.269073
MUS	2.36	0.424035
MUD	3.43	0.184178
QRD	1.16	0.859045
LIQ	2.53	0.395538
ISMD	1.37	0.731476
Mean VIF	2.51	

Source: Authors' elaboration

For each independent variable, the VIF and its inverse (tolerance) are shown in Table 4 above. A variable is considered extremely collinear if its VIF is more than 5 and vice versa. Every variable in the table has a VIF of less than five. They are not collinear, based on this.

4.4 Unit Root Tests

Unit root tests were conducted to examine the stationarity of the panel data set. Levin-Lin-Chu (LLC) and Fisher PP tests were carried out to determine the stationarity of the data and avoid spurious regression results.

Table 5. Results of Unit Root Tests

Variable	LLC		HT		Fisher-PP	
	Stat.	p-value	Stat.	p-value	Stat.	p-value
MUR	7.33	0.000	-5.81	0.000	4.11	0.000
IST	-9.12	0.000	-2.74	0.011	6.44	0.000
IJR	-3.06	0.021	5.77	0.000	3.19	0.017
MUS	8.66	0.000	7.24	0.000	5.20	0.000
MUD	2.95	0.024	10.15	0.000	2.68	0.041
QRD	4.99	0.000	8.64	0.000	6.01	0.000
LIQ	11.67	0.000	5.47	0.000	2.97	0.025
ISMD	8.39	0.000	3.82	0.000	4.55	0.000

Source: Authors' elaboration

The unit root test results were presented in Table 5, with the unit root test statistics of each procedure and their respective p-values. All tests have a null hypothesis of the presence of a unit root, which means that the significance of the test statistic



implies rejection of such a null hypothesis in favour of the absence of a unit root. The results of the tests (Table 5) suggested that the variables are stationary and, consequently, model estimates using pooled OLS, fixed effects or random effects methods were reliable.

Table 6. Regression Results

Variable	OLS			Fixed Effects			Random Effects		
	Coef.	T	p-value	Coef.	T	p-value	Coef.	Z	p-value
MUR	0.01	3.09	0.010	0.12	2.79	0.004	0.46	1.05	0.296
IST	0.05	2.38	0.018	0.03	3.46	0.001	0.04	2.38	0.017
IJR	-0.03	-4.23	0.000	0.05	5.47	0.000	-0.03	-4.23	0.000
MUS	-0.07	-2.25	0.026	0.09	4.50	0.000	-0.07	-2.25	0.024
MUD	-0.05	-0.49	0.624	-0.25	-2.27	0.021	-0.05	-0.49	0.623
QRD	-0.36	-1.48	0.141	-0.68	-2.73	0.007	-0.36	-1.48	0.139
LIQ	0.02	2.75	0.007	-0.07	-0.46	0.649	0.02	2.75	0.006
ISMD	-0.10	-7.42	0.000	0.02	5.02	0.000	-0.30	-7.42	0.000
Constant	1.45	3.20	0.002	2.93	2.91	0.004	1.45	3.20	0.001
R-squared	0.63	-	-	0.69	-	-	0.766	-	-
F-statistic	31.4	-	0.000	13.33	-	0.000	-	-	-
Wald Chi-squared	-	-	-	-	-	-	251.1	-	0.000
F-test of Homo.				8.08		0.000			
BP-CW test				3.20		0.018			
Hausm test				33.88		0.000			
Autocorrelation test				2.19		0.342			
Av. VIF				2.51		-			

Source: Authors' elaboration



The importance of the test's outcome is indicated by Table 6's F-test of homogeneity, which displays a statistic value of 8.08 and a p-value of 0.000. The F-test of homogeneity assumes that panel members are not heterogeneous. The test statistic's significance indicates heterogeneity in the panel observations, so the homogeneity null hypothesis is rejected. This means that there is diversity among the panel members. To further assess the suitability of Pooled OLS regression for the analysis, the Breusch-Pagan/Cook-Weisberg (BP/CW) test for heteroskedasticity was conducted. According to Table 6, the hypothesis of constant variance was rejected, with a BP/WC statistic of 3.20 and a p-value of 0.018. This indicates that the model estimation process was not suitable for the Pooled Ordinary Least Squares (POLS) approach, which presumes homogeneity among panel members. Therefore, fixed- or random-effects heterogeneous panel approaches were used. The Hausman test was used to choose between the Fixed Effects and Random Effects Models. The Hausman test results indicate a p-value of 0.000 and a statistic of 33.8. The Hausman test hypothesis was that the coefficients from the fixed- and random-effects models did not differ systematically. The outcome of random effects would thus be favoured. However, the Hausman test in Table 6 indicated that the Fixed Effects model estimates were better suited for interpreting the regression results. Consequently, the Fixed Effects Model estimates served as the foundation for the interpretation of the results.

With an R-squared of 0.69 for the fixed-effects approach, the regression model accounted for almost 69% of the variance in the return on assets (ROA) of Islamic banks. The p-value for the Wooldridge test of autocorrelation is 0.342, and the statistic value is 2.19. This indicates that there is no autocorrelation issue with the observations. Additionally, the average value of the variance inflation factor (VIF) is 2.51, which is significantly lower than the 10 recommended by the rule of thumb (Asteriou & Hall, 2016). This indicates that the model lacks multicollinearity. The effects of the explanatory variables on the dependent variable (ROA) were reported as follows, after it was confirmed that the models fit well and that the Fixed Effects model estimator was the best estimate technique. The results of the Fixed Effects model for exchange-based financial services indicate that Murabaha (MUR) financing improved the banks' return on assets (ROA). Given the t-value of 2.79 and the p-value of 0.004, the result was determined to be statistically significant at the 5% level, with a coefficient of 0.12 indicating the direction of the effect. Similarly, it was discovered that Istisna's (IST) financing had a favourable and noteworthy correlation with ROA.

Table 6 shows that a 1% increase in IST typically leads to a 0.03% rise in ROA. With a t-statistic of 3.46 and a p-value of 0.001, which is below the 5% significance level, the outcome was statistically significant. Regression analysis of equity-based financial services showed that Musharaka (MUS) considerably improved Islamic banks' return on assets (ROA). The coefficient of 0.09, t-value of 4.50, and p-value of 0.000 all show that the banks' return on assets (ROA) will increase with the size of MUS. Conversely, Mudharaba (MUD) finance exhibited a statistically significant negative coefficient (-0.25), a t-statistic of -2.27 and a p-value of 0.021. This indicates that a 1% increase in MUD would probably result in a roughly 0.25% drop in the banks' ROA. The return on assets (ROA) of the banks and Ijarah (IJR), a fee-based financing option, were found to be positively and significantly correlated. The coefficient of 0.05 indicates that a 1% increase in Ijarah financing would raise the banks' return on assets (ROA) by 0.05%. A p-value of 0.000 (less than 5%) indicated that there was a statistically significant link between these factors. On the other hand, Qard Hasan (QRD) financing, the sole auxiliary financial service, had a detrimental impact on the banks' return on assets (ROA). With a p-value of 0.007, below the 0.05 level of significance, the effect was deemed statistically significant. The t-statistic of -2.73 further confirmed the impact of QRD on ROA.

The fixed-effects model results for the control variables indicate that banks' liquidity (LIQ) had no discernible impact on return on assets (ROA). The coefficient of -0.07 indicated a negative association, while the t-value of -0.46 and the p-value of 0.649 indicate that the relationship is not significant. The ROA of the banks was found to be positively correlated with the growth rate of total financing to the private sector, which is a measure of the size of the Islamic banking market development (ISMD), with a coefficient of 0.02. This implies that Islamic banks will become more profitable as the banking industry grows. The p-value of 0.000, which is less than the 5% significance level, indicates that the connection is significant. T-statistics of 5.02 supported the statistical significance of the association between ISMD and ROA.

4.5 Discussion of Findings

The regression analysis revealed that Murabaha financing had a positive and significant effect on the return on assets (ROA) of Islamic banks in the selected countries. This implies that an increase in the proportion of murabaha financing in Islamic



banks' total financing will enhance return on assets and overall profitability. This is likely to be the case, as murabaha accounts for the largest share of the Islamic banking market. The findings of this study on the relationship between murabaha financing and return on assets are consistent with Kulmie et al. (2023), who reported a positive and significant effect of murabaha financing on bank profitability. However, Moustapha and Nadir (2023) found a negative effect of murabaha financing on return on equity as a measure of profitability. Thus, the findings of this work regarding murabaha financing contradicted those of Moustapha and Nadir (2023). The inconsistency could be because of different measures of profitability. Istisna's financing had a positive, significant impact on return on assets. The result suggests that increasing funding for the manufacturing sector through Istisna's financing will increase Islamic banks' profitability. The study's findings ran counter to those of Moustapha and Nadir (2023), who discovered no meaningful connection between Istisna and Islamic banks' profitability. The results of this study also contradicted those of Ar Rumaishaa and Zamzami (2022), who found that Istisna had little impact on profitability. Because more countries were considered than in Moustapha and Nadir's (2023) single-country study, the findings of this paper regarding Istisna appear more credible.

Musharaka financing was also found to have a positive and significant effect on return on assets. This means that financing entrepreneurial opportunities through partnerships has had an impact on the profitability of Islamic banks in the selected countries. The implication is that more equity financing in the form of musharaka is likely to increase return on assets and improve bank profitability. The report of this study on the effect of musharaka on return on assets appeared to conflict with prior research that considered the variables. For example, Sari and Maharani (2022) found that musharaka financing negatively affected the profitability of Islamic banks in Indonesia, whereas Afrizal et al. (2023) found no significant effect of musharaka on ROA. However, the report by Tjoteng et al. (2022) was in line with this study's findings, showing a positive and significant effect of musharaka financing on the profitability of Islamic banks. In mudharaba financing, a significant negative effect was found on the return on assets of Islamic banks in the selected African countries. Even though mudharaba is a profit-sharing financial product, the banks could not maximise the opportunity to boost their profitability. This could have been due to low patronage, or perhaps the banks were reluctant to finance mudharaba contracts because of the associated risks. The findings of this work on mudharaba financing were consistent with Sutrisno and Widarjono (2022), who reported a positive effect of mudharaba financing on profitability. This finding was inconsistent with Syahri and Harjito (2020), who reported that mudharaba financing was positively correlated with banks' return on equity. Halim (2020) had earlier reported a positive and significant effect of mudharaba financing on banks' profitability, a finding that the current study also contradicts.

In the case of ijarah financing, a positive and significant relationship was found between ijarah and return on assets. This means that Ijarah financing affected the profitability of Islamic banks in Africa. This could have been possible with the rentals on lease financing, which increased banks' net income and significantly improved return on assets. The positive relationship found in this study between ijarah and return on assets is consistent with the studies by Yusuf and Isa (2021) and Halim (2020), which reported a positive and significant effect of ijarah on bank profitability. However, the findings of the current study conflict with those of Moustapha and Nadir (2023), Sari and Maharani (2022), and Alzoubi (2017), who found that ijarah had no significant effect on the profitability of Islamic banks. It was found that Qard Hasan had a detrimental impact on Islamic banks' return on assets in the selected countries. The results' importance shows that the bank was ineffective at using Qard to attract and retain more clients for other products that would have increased its profitability. Regarding the two control variables of liquidity and size of Islamic banking market development, the study found a significantly negative relationship between liquidity and profitability of the banks. The finding is understandable for the liquidity profitability trade-off. Conversely, the Islamic banking market had a positive and significant effect on the profitability of Islamic banks in selected countries. Finally, the findings of this study regarding Islamic financial services and their impact on profitability were consistent with the theories of financial innovation and financial intermediation. In this context, the development or adoption of shariah-compliant products is a form of financial innovation and offering such products by Islamic banks tends to boost their profitability. In relation to financial intermediation theory, the significance of the relationship between the various instruments and the return on asset testifies to the ability of Islamic banks to use shariah-compliant products to mobilise funds for productive investment, which, in turn, earned them higher returns.



5. Conclusion

Findings of the study revealed that Murabaha, Istisna', Musharaka, and Ijarah had positive, significant effects while Mudharaba and Qard Hasan had negative, significant effects on the profitability of Islamic banks in the selected countries. The finding revealed that increasing murabaha tends to enhance return on assets and overall bank profitability. This is likely to be the case, as murabaha accounts for the largest share of the Islamic banking market. The result reported on Istisna' is suggestive of the possibility of increasing funding for the manufacturing sector through Istisna's financing to achieve increased profitability of Islamic banks in selected countries. The study's findings also revealed that the positive effect of musharaka financing indicates that focusing more on financing entrepreneurial opportunities through partnerships can enhance the profitability of Islamic banks in the selected countries. In other words, more equity financing is likely to increase return on assets and improve bank profitability. The positive result reported for Ijarah could have been achieved through rental income under lease financing, which increased banks' net income and significantly improved their return on assets. The level of Islamic market development was found to have a positive, significant effect, whereas liquidity did not affect Islamic banks' profitability. Based on these findings, the study concluded that the adoption of exchange-based (Murabaha, Istisna'), equity-based (Musharaka, Mudharaba), fee-based (Ijarah) and supporting (Qard Hasan) financial services had a significant impact on the profitability of Islamic banks in the selected countries.

Based on the findings of this study and the conclusion drawn therefrom, the study recommends that Islamic banks should employ aggressive marketing of exchange-based services, especially Istisna', to the manufacturing companies in their respective countries. This will enable the product to collaborate with Murabaha financing to enhance banks' profitability. The management of Islamic banks should deepen the market by increasing equity-based financing through Musharaka (a partnership between banks and entrepreneurs) to promote entrepreneurial businesses and, in turn, improve the profitability of Islamic banks. Islamic banks should improve the low patronage of mudharaba financing by offering competitive profit-sharing rates to attract more customers to participate in mudharaba contracts. This can help increase the volume of mudharaba funds in the market and enhance banks' profitability. Islamic banks should streamline their Ijarah financing processes to improve efficiency and profitability. Qard Hasan (interest-free loan) should be maintained in moderation, while banks focus more on providing excellent customer service to enhance customer satisfaction and loyalty. This will also lead to increased profitability.

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