Profitability of Islamic Banking – A Study of Select Islamic Banks from Asia

Mohammed Ali Malek*

G. Vidyasagar Rao**

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Abstract

Recently, the trend of Islamic banking profitability has attracted much attention in the literature of banks' profitability. This study attempts to measure the impact of internal and external (macroeconomic) factors on the profitability of Islamic banking using data of select Islamic banks from Asia (Bahrain, Iran, Turkey and Malaysia) in the period of 2011– 2020. Panel data method is used in the empirical analysis. Return on Average Assets (ROAA) and Return on Average Equity (ROAE) are used as proxies of profitability in this study. Descriptive statistics, correlation and regression analysis are applied to the variables under study. Illustratively, there is a positive correlation between Liquidity Ratio (LQR) and Operating Expenses Ratio (OER). In addition, there is a negative correlation between Bank Age (BA) and Inflation Growth Rate (IGR). According to the test findings, Bank Size (BS) and Equity Ratio (ER) have statistically positive significant impact on profitability; while Bank Age (BA) has statistically negative significant impact on profitability of select Islamic banks. Inferentially, it is revealed that external (macroeconomic) variables viz., GDP Growth Rate (GDPGR), Inflation Growth Rate (IGR) and Type of Banking System (TBS) have non-significant impact on profitability of select Islamic banks.

Keywords: Islamic Banking, Profitability, Return on Average Assets, Return on Average Equity, Internal and External Variables, Macroeconomic.

Jel Codes: C52, G21, O53

* PhD Research Scholar, College of Commerce and Business Management, Osmania University, malekmbaphd@gmail.com, ORCID: 0000-0001-6335-0217

* Assistant Professor, College of Commerce and Business Management, Osmania University, gvsraog@gmail.com, ORCID: 0000-0001-6375-6698

Introduction

Any bank acts as a mediation between the surplus units and deficient units in a society, it also performs the role of custodian of wealth. Where the people intend to put the wealth with a person of trust. All banks around the world are either interest banking or free-interest banking. They should operate with the purpose to maximize the wealth and to achieve socio- economic system. The system of Islamic banking depends on Shariah (Islamic law) and it is guided by Islamic economic rules. Mainly, Islamic law forbids the payment and collection of interest (usury). Commonly, it also bans trading in financial risk as a form of gambling. It also prohibits investing in businesses considered forbidden such as those selling alcohol or pork. Furthermore, in Islamic banking, the interest rate is zero. Zero interest rate does not mean zero profit for capital. Instead, it means that there is no predetermined interest rate for capital, Malek (2021). The main principle in Islamic banking is the participation of profit and loss. This harmony gives Islamic banks the key of quality to be free-interest banks and to be asset-backed banks. Primarily, the profitability of Islamic banking is subjected to the principles of Islamic law (Shariah); Which significantly affects the performance of Islamic banks. The relationship among the bankers and their customers is not among debtors and creditors; rather, it means sharing risks as well as rewards. Islamic banking is taking root in Asia. The Islamic financial institutions have worked to increase and spread the awareness of Islamic banking in many regions in order to offer financial products and services that complaint with Islamic principles. In the last two decades, Islamic banking and finance have become a significant feature for positive change in central Asia, Gresh (2007). Asia is an important continent of the global economy as well as the Islamic financial and banking system. Asia is the home to the largest portion of the Muslim population in the world, Komijani & Taghizadeh-Hesary (2018). The share of Islamic banking to the Islamic finance in 2019 was 72.4%. The Gulf Cooperation Council (GCC) region had the largest share of the global Islamic banking, followed by Middle East & South Asia, then South East Asia and the rest for other regions around the world as the following percentage respectively 48.4%, 13.6%, 33.1% and 4.9%, Islamic Financial Services Board (2020). Most of the previous studies have focused on either the area of Gulf Cooperation Council (GCC) countries or individual countries in the Middle East; although, some other areas in Asia have contributed immensely to the growth of Islamic banking either theoretically or practically. so, this has pushed the researchers to include countries out of the area of Gulf Cooperation Council (GCC) countries. In addition, data of Islamic banking in such countries under study are available and accessible. From the other side, the study covers the available data of select Islamic banks from 2011-2020. Therefore, it attempts to fill the time gap in the related researches of Islamic banking profitability. lately, the banks' profitability has been affected by the Coronavirus pandemic which influenced directly or indirectly the performance of either Islamic banks or conventional banks in Asia and other continents. In this paper, the researchers are looking for an answer to the question of "measuring the profitability of Islamic banking?" Where, profitability of Islamic banking is one indicator of Islamic banking performance, the internal and external variables should be under study to measure their

impact on the profitability of select Islamic banks from Asia. Furthermore, previous studies have helped the researchers to determine the internal and external variables. Obviously, internal variables have a direct influence on the performance of Islamic banks; while, external variables have an indirect influence on the performance of them. Classifying the independent variables into internal and external variables helps the researchers to test the impact of them collectively or separately. The internal and external variables which have been examined in this study are applicable to Islamic and conventional banks except the dummy variable viz., Type of Banking System (TBS) that can be only used to Islamic banks because Islamic bank can be a subsidiary of conventional bank e.g., Islamic windows within conventional bank, but the opposite is not. This study deals with the profitability in terms of Return on Average Assets (ROAA) and Return on Average Equity (ROAE) that have been used previously in terms of Return on Assets (ROA) and Return on Equity (ROE). Where, Return on Average Assets (ROAA) and Return on Average Equity (ROAE) provide more accurate pictures since both averages smooth out changes or volatility in assets and equity over an accounting period. Additionally, the study evaluates the dynamic change in GDP and inflation, in terms of growth rate of both; while, the previous studies have focused on the static performance of involved external variables. After diving more deeply into the previous related studies, the study has highlighted on e.g., bank size, equity ratio, liquidity ratio, operating expenses ratio and bank age as internal variables; besides, gross domestic product growth rate, inflation growth rate and type of banking system as external variables. The relations between profitability of Islamic banks and its determinants under study are analyzed quantitatively. The programs that have been used to analyze the collected data are i.e., SPSS version 20 and Microsoft-Excel. Specifically, Enter Method in multiple linear regression analysis has been conducted to test the impact of internal and external variables with one another. The remainder of the paper is organized as follows: Section 1 review the earlier studies on profitability of Islamic banking. Section 2 describes data and methodology. Section 3 interprets the empirical results of the study. Finally, section 4 concludes the paper.

1. Review of Literature

In this study, the literature of Islamic banking profitability is classified into factors and variables that were discussed in the previous studies. Most of the earlier researches covered Return on Assets (ROA) and Return on Equity (ROE) as proxies of profitability. Furthermore, these factors and variables are categorized under the internal and external factors.

1.1 Internal Factors

Asset size is the total assets of a bank as described in the balance sheet. Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Abduh & Baharoon (2016) and Muda, Shaharuddin & Embaya (2013) revealed that the assets size had a significant relationship with profitability of Islamic banks under study. Alharbi (2017), Mongid (2016), Eljelly (2013), Masood & Ashraf (2012), Idris et al. (2011) and Karim, Sami & Hichem (2010) pointed out that the bank size had a positive and significant impact on profitability of Islamic banks under study. Al-Homaidi,

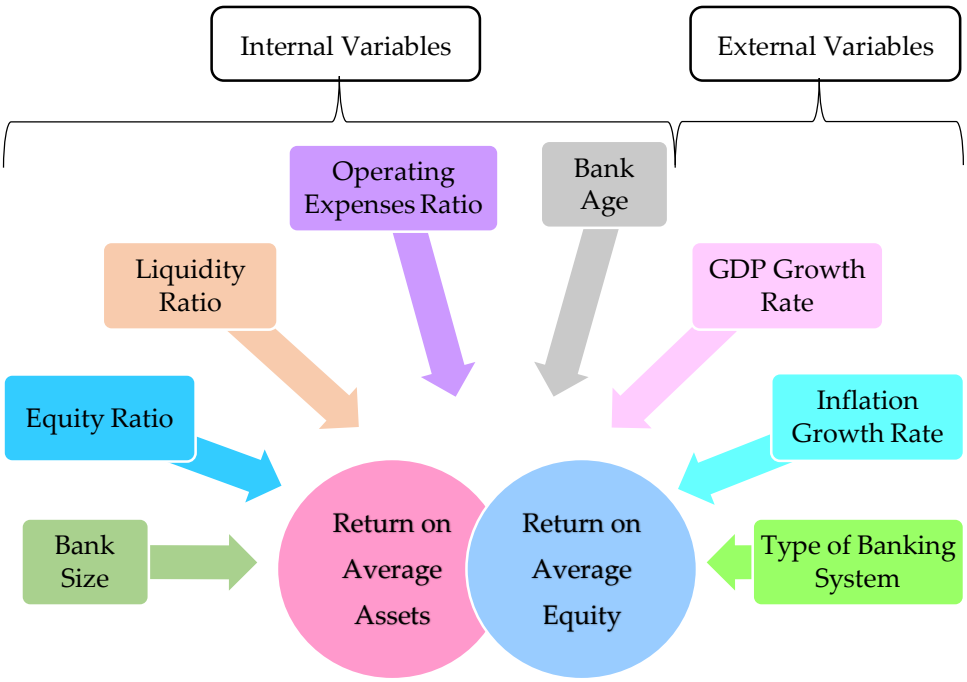
Tabash & Ahmad (2020), Asadullah (2017) and Zeitun (2012) indicated that the total assets had a negative and significant impact on profitability of Islamic banks under study. Equity refers to the shareholders' equity (or owners' equity for privately held banks). Alharbi (2017), Mongid (2016) and Chowdhury (2015) found that the equity of Islamic banking had a positive and significant impact on profitability of Islamic banks under study. Liquidity is the ability of a bank to have sufficient liquid assets i.e., cash to pay the bills and obligations on time. Asadullah (2017), Mongid (2016), Kakakhel, Raheem & Tariq (2013), Eljelly (2013) and Wasiuzzaman & Tarmizi (2010) showed that the liquidity of Islamic banking had a positive and significant effect on profitability of Islamic banks under study. Maqbool (2014) indicated that the liquidity of Islamic banks had a negative and significant effect on the profitability of Islamic banks under study. Abduh & Baharoon (2016) and Chowdhury (2015) revealed that liquidity of Islamic banks had a non-significant effect on the profitability of Islamic banks under study. Cost-effectiveness is a degree to which a bank is effective and productive in relation to its cost. Zarrouk, Jedidia & Moualhi (2016) and Eljelly (2013) stated that the cost-effectiveness of Islamic banking had a positive and significant impact on profitability of Islamic banks under study. Karim, Sami & Hichem (2010) revealed that the operating ineffectiveness of Islamic banks reduced the profitability of Islamic banks under study. Elgadi & Yu (2018), Chowdhury (2015), Muda, Shaharuddin & Embaya (2013), Wahidudin, Subramanian & Kamaluddin (2012) and Sufian (2010) pointed out that overhead cost negatively related to the profitability of Islamic banks under study. Bank age is the length of time during which the bank has established. Senan, Noaman, Al-dalaien & Al-Homaidi (2021) revealed that the bank age of Islamic banks had a significant relationship with profitability of Islamic banks under study. Al-Homaidi, Tabash & Ahmad (2020) and Elgadi & Yu (2018) found that the bank age of Islamic banks had a negative and significant impact on profitability of Islamic banks under study. The other studies either quantitative or qualitative related to the internal factors of profitability of Islamic banks e.g., Asset quality, Asset Turnover Ratio, Asset Utilization, Capital Adequacy, Capitalization, Concentration of Islamic Banking, Corporate Governance Information, Corporate Social Responsibility (CSR) Disclosure, Credit Risk, Customer Satisfaction, Debt to Asset Ratio, Deposit, Efficient Management, Financial products of Islamic Banks, Investment, Leverage, Loan Efficiency, Non-performing Finance Ratio, Operating Income, Operational Efficiency, Ownership and Specialization of Islamic banks are not in the scope of this study.

1.2 External Factors

Gross Domestic Product (GDP) measures the market value of all final goods and services that have been produced in a specific time period. Muda, Shaharuddin & Embaya (2013) revealed that the Real GDP growth rate of macroeconomic had a significant influence on profitability of Islamic banks under study. Alharbi (2017) stated that the GDP per capita had a positive and significant effect on profitability while, Real GDP growth rate had a negative and significant effect on the profitability of Islamic banks under study. Zarrouk, Jedidia & Moualhi (2016), Amzal (2016), Zeitun (2012), Wasiuzzaman & Tarmizi (2010) and Karim, Sami & Hichem

(2010) indicated that the Real GDP growth rate of macroeconomic had a positive and significant impact on profitability of Islamic banks under study. From the other side Chowdhury (2015) proved that the Gross National Income (GNI) which is the other alternative of Gross Domestic Product (GDP) had a negative and significant influence on the profitability of Islamic banks under study. Inflation or Customer Price Index (CPI) defines the amount of price increases of goods and services in an economy. Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016) and Khan, Ijaz & Aslam (2014) showed that the inflation of macroeconomic had a significant relationship with profitability of Islamic banks under study. Amzal (2016), Ijaz, Akmal & Gillani (2015), Chowdhury (2015) and Wasiuzzaman & Tarmizi (2010) revealed that the inflation of macroeconomic had a positive and significant impact on profitability of Islamic banks under study. Zarrouk, Jedidia & Moualhi (2016) and Zeitun (2012) found that the inflation of macroeconomic had a negative and significant influence on the profitability of Islamic banks under study. A banking system is a group or network of financial institutes that provide financial services to the society. Arshad, Zakaria & Sulaiman (2015) concluded that the operation of Islamic banks in a dual banking system were affected by the included Displaced Commercial Risk (DCR) which affected negatively the profitability of Islamic banks under study.

Figure 1: Profitability Determinants of Select Islamic Banks Under Study



Source: Model developed by the authors

The macroeconomic conditions influence the whole aggregated economy e.g., GDP, inflation, unemployment etc. Effendi (2019) pointed out that the macroeconomic conditions were not significantly affecting the profitability of Islamic banks under study. Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016) found that the internal factors were more

imperative than external factors. Abduh & Baharoon (2016) and Eljelly (2013) revealed that the macroeconomic variables had no or very weak effect on the performance and profitability of Islamic banks. Chowdhury (2015) and Khan, Ijaz & Aslam (2014) indicated that the bank-specific factors had more impact rather than macroeconomic (external) variables on the profitability of Islamic banks. While, Financial Technology is related to ideas, methods, products and services that bring improvement in offering goods and services. Mongid (2016) displayed that the innovation of macroeconomic had a negative and significant effect on the profitability of Islamic banks under study. Malek & kumar (2019) revealed that FinTech mattered seriously to help the startup business to survive during unsteady conditions specially the current circumstances of COVID-19. The other studies either quantitative or qualitative related to the external factors of profitability of Islamic banks e.g., Background about Islamic Banks, Financial Stability, Global Financial Crisis, Innovation, Insurance Schemes, Interest Rate, Legal System, Market Share, Oil Price, Socio-economic Conditions and Taxes were not in the scope of this study.

2. Data and Methodology

Panel data of select Islamic banks is used to measure profitability of Islamic banking. The time series set is used for this purpose, and the select Islamic banks are chosen based on 4 Islamic banks from 4 countries. The sample Islamic banks are from four regions viz., Gulf Cooperation Council (GCC) countries, Middle East except (GCC) countries, Western Asia and Asian-Pacific. Ten years data from the period 2011 to 2020 is used for the purpose of analysis. Select Islamic banks are chosen from different regions based on the availability and accessibility of data. The available data helps the researchers to measure the profitability of select Islamic banks. For each Islamic bank, the annual financial reports are the sources of internal data. The internal data are obtained and calculated from profit and loss accounts (income statements) and balance sheet statements. On the other side, external variables e.g., the data of economic activity, annual inflation rate and banking system are obtained from Knoema's platform of world database, Knoema (2021). The data are collected and assessed from different regions and cover 4 countries i.e., Bahrain, Iran, Turkey and Malaysia.

2.1. Variables

The 10 variables are considered in this study to measure and analyze the profitability of select Islamic banks. The first two variables are used as dependent variables and the rest of variables are considered as independent (explanatory) variables. Independent variables are categorized into internal and external variables of profitability of select Islamic bank (Table 1).

Table 1: Variables of Islamic Banking Profitability of Select Islamic Banks Under Study

Type of variables	Variables	Measure	Notation
Dependent variable	Return on Average Assets	Net Profit$_t$ / Average Total Assets$_t$	ROAA
	Return on Average Equity	Net Profit$_t$ / Average Total Equity$_t$	ROAE
Independent variables	Bank Size	Natural Logarithm of Total Assets$_t$	BS
	Equity Ratio	Total Equity$_t$ / Total Assets$_t$	ER
	Liquidity Ratio	Current Assets$_t$ / Current Liabilities$_t$	LQR
	Operating Expenses Ratio	Total Operating Expenses$_t$ / Total Operating Income$_t$	OER
	Bank Age	Number of Years since inception	BA
	GDP Growth Rate	(GDP per capita$_t$ - GDP per capita$_{t-1}$) / GDP per capita$_{t-1}$	GDPGR
	Inflation Growth Rate	(Inflation rate$_t$ - Inflation rate$_{t-1}$) / Inflation rate$_{t-1}$	IGR
	Type of banking system (dummy variable)	0 = Dual banking system 1 = Islamic banking system	TBS

2.1.1. Dependent Variables:

Regarding dependent variables, most of previous studies have used Return on Asset (ROA) and Return on Equity (ROE) as a measure of profitability of banks, but in this study Return on Average Asset (ROAA) and Return on Average Equity (ROAE) are used as proxies of profitability of Islamic banks. Return on Average Assets (ROAA) shows the percentage of net profit to average of total assets. Return on Average Equity (ROAE) shows the percentage of net profit to average of total equity. The two ratios of profitability are used in this study to analyze the profitability of select Islamic banks. Return on Average Assets (ROAA) ratio commonly measures the bank's profitability to evaluate and analyze the ability of Islamic banks to generate revenue from their sources of funds to produce profit. Oppositely, second ratio viz., Return on Average Equity (ROAE) evaluates and analyzes the ability of Islamic banks to generate revenue from shareholders' equity.

- Return on Average Assets: It is used as a proxy for profitability of Islamic banking. Return on Average Assets is represented by the net profit (net income) divided by average total assets.
- Return on Average Equity: It is used as a proxy for profitability of Islamic banking. Return on Average Equity is represented by the net profit (net income) divided by average total equity.

2.1.2. Independent Variables:

Independent variables are categorized in these two sub-groups i.e., internal variables; and external variables.

1) Internal Independent Variables:

Internal variables have been determined as bank-specific factors where they coincident with the objectives of the study. For determining the profitability of Islamic banking, the variables in this study are explained below e.g., Bank Size, Equity Ratio, Liquidity Ratio, Operating Expenses Ratio, Bank Age:

- Bank Size: The bank size or assets size variable is mostly used in the literature of finance and banking. The total assets of bank are used as a proxy for bank size. The bank size is represented by the natural logarithm of total assets (In N = x).
- Equity Ratio: It is used to evaluate the proportion of equity used to finance a bank's assets. Equity Ratio is represented by the Shareholders' Equity divided by total assets.
- Liquidity Ratio: It is a financial ratio used to measure the ability of a bank to pay off its short-term expenditures. Liquidity Ratio is represented by the current assets divided by current liabilities.
- Operating Expenses Ratio: It is used to measure the operation's financial efficiency of a bank. Operating Expenses Ratio is represented by the operating expenses divided by operating income.
- Bank Age: It is the length of time that a bank has started its financial activities.

2) External Independent Variables:

External variables have been determined as country-specific factors where they coincident with the objectives of the study. For determining the profitability of Islamic banking, the external variables in this study are explained below e.g., Gross Domestic Product Growth Rate, Inflation Growth Rate and Type of Banking System:

- Gross Domestic Products Growth Rate: Annual change of Gross Domestic Product (GDP) per capita, Knoema (2021).
- Inflation Growth Rate: Annual change of Inflation Rate, Knoema (2021).
- Type of Banking System: Dummy variable indicates (0,1) either Dual banking system or Islamic banking system.

2.2 Impact of Independent Variables on The Profitability of Islamic Banks from Previous Studies

The previous researches have been conducted to examine the impact of various independent variables on profitability of Islamic banks in terms of Return on Assets (ROA) and Return on Equity (ROE). Impact of internal and external (independent) variables on the profitability of

Islamic banks from previous studies paved the way for looking differently at the influence of independent variables under study on the dependent variables of profitability in terms of Return on Average Assets (ROAA) and Return on Average Equity (ROAE). Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Abduh & Baharoon (2016), Muda, Shaharuddin & Embaya (2013), Alharbi (2017), Mongid (2016), Eljelly (2013), Masood & Ashraf (2012), Idris et al. (2011) and Karim, Sami & Hichem (2010) found a positive impact of Bank Size (BS) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Al-Homaidi, Tabash & Ahmad (2020), Asadullah (2017) and Zeitun (2012) revealed a negative impact on it. Alharbi (2017), Mongid (2016) and Chowdhury (2015) indicted a positive impact of Equity Ratio on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE). Asadullah (2017), Mongid (2016), Kakakhel, Raheem & Tariq (2013), Eljelly (2013) and Wasiuzzaman & Tarmizi (2010) pointed out a positive impact of Liquidity Ratio (LQR) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Maqbool (2014) stated a negative impact of Liquidity Ratio (LQR) on it. On the contrary, Abduh & Baharoon (2016), Chowdhury (2015) indicated a non-significant impact of liquidity on it. Zarrouk, Jedidia & Moualhi (2016), Muda, Shaharuddin & Embaya (2013), Eljelly (2013), Karim, Sami & Hichem (2010) and Sufian (2010) showed a positive impact of Operating Expenses Ratio (OER) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Elgadi & Yu (2018), Chowdhury (2015) and Muda, Shaharuddin & Embaya (2013) opined a negative impact of Operating Expenses Ratio (OER) on it. Senan, Noaman, Al-dalaien & Al-Homaidi (2021) mentioned a positive impact of Bank Age (BA) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Al-Homaidi, Tabash & Ahmad (2020) and Elgadi & Yu (2018) discovered a negative impact of Bank Age (BA) on it. Zarrouk, Jedidia & Moualhi (2016), Amzal (2016), Zeitun (2012), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) specified a positive impact of GDP Growth Rate on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Alharbi (2017) pointed out a negative impact of GDP Growth Rate on it. Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Amzal (2016), Ijaz, Akmal & Gillani (2015), Chowdhury (2015), Khan, Ijaz & Aslam (2014), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) stated a positive impact of Inflation (Inf) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE), while Zarrouk, Jedidia & Moualhi (2016) and Zeitun (2012) proved a negative impact of Inflation (Inf) on it. Arshad, Zakaria & Sulaiman (2015) stated a negative impact of Type of Banking System (TBS) on profitability i.e., Return on Assets (ROA) and Return on Equity (ROE). Effendi (2019), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Abduh & Baharoon (2016), Chowdhury (2015), Khan, Ijaz & Aslam (2014) and Eljelly (2013) discovered that the macroeconomic conditions e.g., GDP, Inflation etc., had no or very weak effect on the performance and profitability i.e., Return on Assets (ROA) and Return on Equity (ROE) of Islamic banks and they were not significantly affecting it.

2.3. The Models Used to Examine the Islamic Banking Profitability of Select Islamic Banks

The panel data is used in analyzing the profitability determinants of select Islamic banks. In the panel data, the used model consists n cross-sectional units, denoted n = 1,2,3, ... ,N, observed at each of (t) time periods, t = 1,2,3 ... ,T. In year set, the total observation is n * t. The basic formula for the panel data is defined as per the following regression model:

$$y_{nt} = \alpha + \beta x_{nt} + \varepsilon_{nt} \quad (1)$$

Where the dependent variable (Profitability) denoted by y_{nt}. Intercept term used and denoted by α, on the explanatory variables, β is a k * 1 vector of parameters to be estimated, and vector of observations is x_{nt} which is 1 * k, t = 1,2,3, ... ,T; n = 1,2,3, ... ,N. The functional form of above model is as follows:

Profitability = f (Bank Size, Equity Ratio, Liquidity Ratio, Operating Expenses Ratio, Bank Age, GDP Growth Rate, Inflation Growth Rate, Type of Banking System) (2)

$$\text{ROAA} = \alpha + \beta_1 BS_{nt} + \beta_2 ER_{nt} + \beta_3 LQR_{nt} + \beta_4 OER_{nt} + \beta_5 BA_{nt} + \beta_6 GDPGR_{nt} + \beta_7 IGR_{nt} + \beta_8 TBS_{nt} + \varepsilon_{nt} \quad (3_1)$$

$$\text{ROAA} = \alpha + \beta_1 BS_{nt} + \beta_2 ER_{nt} + \beta_3 LQR_{nt} + \beta_4 OER_{nt} + \beta_5 BA_{nt} + \varepsilon_{nt} \quad (3_2)$$

$$\text{ROAE} = \alpha + \beta_1 BS_{nt} + \beta_2 ER_{nt} + \beta_3 LQR_{nt} + \beta_4 OER_{nt} + \beta_5 BA_{nt} + \beta_6 GDPGR_{nt} + \beta_7 IGR_{nt} + \beta_8 TBS_{nt} + \varepsilon_{nt} \quad (4_1)$$

$$\text{ROAE} = \alpha + \beta_1 BS_{nt} + \beta_2 ER_{nt} + \beta_3 LQR_{nt} + \beta_4 OER_{nt} + \beta_5 BA_{nt} + \varepsilon_{nt} \quad (4_2)$$

3. Empirical Results

To test the impact of internal and external variables on the profitability of Islamic banks, the whole variables are subjected to descriptive statistics analysis and inferential statistics analysis as follows:

3.1. Descriptive Statistics

In the Table II, the descriptive statistics are presented to measure and analyze the profitability of select Islamic bank. The table includes the central tendency. It shows the mean, standard deviation, minimum and maximum values of the variables under study. Mean represents the average value, standard deviation displays deviation of value from the mean, and Max & Min represent the maximum and minimum values of collected and calculated data.

The descriptive statistics shows the average of profitability in terms of Return on Average Assets (ROAA) of select Islamic banks is 0.014 across banks for the study period. The Return on Average Assets (ROAA) standard deviation is 0.013. The average of profitability in terms

of Return on Average Equity (ROAE) of select Islamic banks is 0.149 across banks for the study period. The Return on Average Equity (ROAE) standard deviation is 0.078. The average of bank size (BS) which calculated as natural logarithm of total assets of select Islamic banks is 23.805 across banks for the study period. The Bank Size (BS) standard deviation is 0.552. The average of Equity Ratio (ER) of select Islamic banks is 0.091 across banks for the study period. The Equity Ratio (ER) standard deviation is 0.036. The average of Liquidity Ratio (LQR) of select Islamic banks is 3.348 across banks for the study period. The Liquidity Ratio (LQR) standard deviation is 1.998. The average of Operating Expenses Ratio (OER) of select Islamic banks is 0.505 across banks for the study period. The Operating Expenses Ratio (OER) standard deviation is 0.142. The average of Bank Age (BA) of select Islamic banks is 16 across banks for the study period. The Bank Age (BA) standard deviation is 10.153.

Table 2: Descriptive Statistics of Variables of Islamic Banks Profitability Under Study

Variables	Mean	SD	Min	Max
ROAA	0.014	0.013	-0.011	0.050
ROAE	0.149	0.078	-0.097	0.318
BS	23.805	0.552	22.691	24.867
ER	0.091	0.036	0.044	0.179
LQR	3.348	1.998	0.985	9.712
OER	0.505	0.142	0.269	0.918
BA	16	10.153	4	37
GDPGR	0.024	0.101	-0.324	0.273
IGR	-0.343	1.835	-10.333	2.146
TBS	0.250	0.439	0	1

Source: Data collected from the annual financial reports of select Islamic banks

The average of Gross Domestic Product Growth Rate (GDPGR) of origin countries of select Islamic banks is 0.024 across origin countries of banks for the study period. The Gross Domestic Product Growth Rate (GDPGR) standard deviation is 0.101. The average of Inflation Growth Rate (IGR) of origin countries of select Islamic banks is -0.343 across origin countries of banks for the study period. The Inflation Growth Rate (IGR) standard deviation is 1.835. Finally, the average of Type of Banking System (TBS) of origin countries of select Islamic banks is 0.250 across origin countries of banks for the study period. The Type of Banking System (TBS) standard deviation is 0.439.

3.2. Correlation Analysis

The Table III below shows the two tailed test of Pearson correlation among all variables viz., dependent and independent variables which include internal and external variables to measure the strength of one variable affecting the other variable. The Table III displays that there is a correlation among all variables independent as well as dependent variables. At the 0.05 level of confidence, the correlation is significantly negative; firstly, between Bank Age

(BA) and Return on Average Equity (ROAE); secondly, between Inflation Growth Rate (IGR) and Bank Age (BA). Furthermore, at the 0.05 level of confidence, the correlation is significantly positive; firstly, between Operating Expenses Ratio (OER) and Liquidity Ratio (LQR); secondly, between Type of Banking System (TBS) and Return on Average Equity (ROAE). On the other hand, the low correlation coefficients explain that there is no multicollinearity exists among the variables.

Table 3: Correlation of Profitability Determinants of Select Islamic Banks Under Study

Variables	ROAA	ROAE	BS	ER	LQR	OER	BA	GDPGR	IGR	TBS
ROAA	1									
ROAE	.799**	1								
BS	-.122	.278	1							
ER	.774**	.281	-.511**	1						
LQR	.246	-.059	-.754**	.535**	1					
OER	.411**	.050	-.231	.571**	.386*	1				
BA	-.248	-.347*	.035	-.014	-.054	.194	1			
GDPGR	-.085	.091	.134	-.108	.008	.008	-.008	1		
IGR	.049	.053	-.051	.000	.063	.126	-.327*	.035	1	
TBS	.580**	.370*	.036	.543**	.184	.515**	-.259	.095	.195	1

**. Correlation is significant at the 0.01 level (2-tailed - Pearson Correlation).

*. Correlation is significant at the 0.05 level (2-tailed - Pearson Correlation).

Source: Data collected from the annual financial reports of select Islamic banks

3.3. Regression Analysis

The multiple linear regression analysis is used for advanced analysis. Return on Average Assets (ROAA) and Return on Average Equity (ROAE) are represented the profitability of Islamic banking in this study. The multiple linear regression equation of Return on Average Assets (ROAA) has two models. First model includes internal and external variables; second model includes only the internal variables. This is applied also on the multiple linear regression equation of Return on Average Equity (ROAE).

3.3.1. Determinants of Return on Average Assets (ROAA)

In general, the whole results of the multiple linear regression analysis of profitability in terms of Return on Average Assets (ROAA) are close to the results of related previous studies. Model (1) assumes that internal and external variables impact on the Return on Average Assets (ROAA) of select Islamic banks. The value of R = 0.874 which shows that all the explanatory variables explain Return on Average Assets (ROAA) 87.4 percent. The value of F-statistic

resulting from a standard statistical test used in ANOVA and multiple linear regression analysis to determine if variances between means of select Islamic banks are significantly different. The value of F-statistics is 12.515 and Prob. F-statistic (p-value) is 0.000 showing that the whole model is fit for analysis.

Concerning the internal variables in this study, Bank Size (BS) shows a positive and significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. The earlier studies i.e., Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Abduh & Baharoon (2016), Muda, Shaharuddin & Embaya (2013), Alharbi (2017), Mongid (2016), Eljelly (2013), Masood & Ashraf (2012), Idris et al. (2011) and Karim, Sami & Hichem (2010) confirmed that the Bank Size (natural logarithm of total assets) had a positive and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study Equity Ratio (ER) shows a positive and significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. The earlier studies i.e., Alharbi (2017), Mongid (2016) and Chowdhury (2015) confirmed that the Equity Ratio had a positive and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study Liquidity Ratio (LQR) shows a non-significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. The earlier studies i.e., Abduh & Baharoon (2016) and Chowdhury (2015) confirmed that the Liquidity Ratio had a non-significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study Operating Expenses Ratio (OER) shows a non-significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. Contrary, the earlier studies i.e., Zarrouk, Jedidia & Moualhi (2016), Muda, Shaharuddin & Embaya (2013), Eljelly (2013), Karim, Sami & Hichem (2010) and Sufian (2010) confirmed that the Operating Expenses Ratio had a positive and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study Bank Age (BA) shows a negative and significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. The earlier studies i.e., Al-Homaidi, Tabash & Ahmad (2020) and Elgadi & Yu (2018) confirmed that the Bank Age had a negative and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. Regarding external Variables in this study, GDP Growth Rate (GDPGR) shows a non-significant relationship with Return on Average Assets (ROAA) with a negative value of coefficient. In a different way, the earlier studies i.e., Zarrouk, Jedidia & Moualhi (2016), Amzal (2016), Zeitun (2012), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) confirmed that the GDP Growth Rate had a positive and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study, Inflation Growth Rate (IGR) shows a non-significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. Conversely, the earlier studies i.e., Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Amzal (2016), Ijaz, Akmal & Gillani (2015), Chowdhury (2015), Khan, Ijaz &

Aslam (2014), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) confirmed that the Inflation Rate had a positive and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. In this study, Type of Banking System (TBS) as a dummy variable shows a non-significant relationship with Return on Average Assets (ROAA) with a negative value of coefficient. Contrarywise, the earlier studies by Arshad, Zakaria & Sulaiman (2015) confirmed that the Type of Banking System had a negative and significant impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance.

Table 4: Multiple Linear Regression Models of Islamic Banking Profitability i.e., (ROAA)

Types of Variables	Variables and Values	ROAA - Model 1			ROAA - Model 2		
		Coefficients	t-statistic	Sig.	Coefficients	t-statistic	Sig.
Internal Variables	(Constant)	-0.235	-2.692	0.011	-0.219	-2.960	0.006
	BS	0.009	2.650	0.013	0.009	2.891	0.007
	ER	0.341	6.709	0.000	0.336	8.237	0.000
	LQR	0.000	0.152	0.880	0.000	0.066	0.948
	OER	0.001	0.087	0.931	-0.001	-0.071	0.944
	BA	0.000	-2.475	0.019	0.000	-2.828	0.008
External Variables	GDPGR	-0.004	-0.361	0.721	---	---	---
	IGR	0.000	-0.110	0.913	---	---	---
	TBS	-0.001	-0.288	0.775	---	---	---
Summary of Model 1 & 2	R	0.874	---	---	0.873	---	---
	R^2	0.764	---	---	0.762	---	---
	Adjusted R^2	0.703	---	---	0.726	---	---
	SE. of the Estimate	0.007	---	---	0.007	---	---
	F - statistic	12.515	---	---	21.718	---	---
	Prob. (F-statistic)	0.000	---	---	0.000	---	---

Source: Data collected from the annual financial reports of select Islamic banks

On the other hand, Model (2) assumes that only the internal variables impact on the Return on Average Assets (ROAA) of select Islamic banks. The value of R = 0.873 which shows that all the internal explanatory variables explain Return on Average Assets (ROAA) 87.3 percent as much as model (1). The value of F-statistic resulting from a standard statistical test used in ANOVA and multiple linear regression analysis to determine if variances between means of select Islamic banks are significantly different. The value of F-statistics is 21.718 and Prob. F-statistic (p-value) is 0.000 showing that the whole model is fit for analysis. In model (2), Bank Size (BS) and Equity Ratio (ER) show a positive and significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient; while, Bank Age (BA) shows a

negative and significant relationship with Return on Average Assets (ROAA) with a positive value of coefficient. This is same as model (1). Similarly, the earlier studies i.e., Effendi (2019), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Abduh & Baharoon (2016), Chowdhury (2015), Khan, Ijaz & Aslam (2014) and Eljelly (2013) confirmed that the external (macroeconomic) variables had no or very weak impact on the profitability of Islamic banks in terms of Return on Assets (ROA) at 0.05 percent level of significance. This is clear from two sides; firstly, there is no significant value for any external variable in model (1). Secondly, the difference of Adjusted R^2 values in both models. Where, the values of Adjusted R^2 in model (1) and model (2) are 0.703 & 0.726 respectively. Therefore, the value of Adjusted R^2 in model (2) is greater than the value of Adjusted R^2 in model (1). Hence, model (2) which includes only the internal variables explains the percentage of variation of the dependent variable (ROAA) that really affected by the internal independent variables. Therefore, internal variables have more impact than external variables on the profitability of Islamic banks in terms of Return on Average Assets (ROAA). That is supported by the equal value of standard error of the estimate = 0.007 for both models. Moreover, the value of F- statistic = 21.718 in model (2) is greater than the value of F- statistic = 12.515 in model (1). Table IV depicts the comparison between model (1) and model (2) of Multiple Linear Regression Models of Islamic Banking Profitability i.e., (ROAA).

3.3.2. Determinants of Return on Average Equity (ROAE)

The entire results of the multiple linear regression analysis of profitability in terms of Return on Average Equity (ROAE) accord with the results of related previous studies. Model (1) assumes that internal and external variables impact on the Return on Average Equity (ROAE) of select Islamic banks. The value of R = 0.691 which shows that the explanatory variables explain Return on Average Equity (ROAE) 69.1 percent. The value of F-statistic resulting from a standard statistical test used in ANOVA and multiple linear regression analysis to determine if variances between means of select Islamic banks are significantly different. The value of F-statistics is 3.543 and Prob. F-statistic (p-value) is 0.000 showing that the whole model is fit for analysis.

About the internal variables in this study, Bank Size (BS) shows a positive and significant relationship with Return on Average Equity (ROAE) with a positive value of coefficient. The earlier studies i.e., Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Abduh & Baharoon (2016), Muda, Shaharuddin & Embaya (2013), Alharbi (2017), Mongid (2016), Eljelly (2013), Masood & Ashraf (2012), Idris et al. (2011) and Karim, Sami & Hichem (2010) confirmed that the Bank Size (natural logarithm of total assets) had a positive and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study Equity Ratio (ER) shows a positive and significant relationship with Return on Average Equity (ROAE) with a positive value of coefficient. The earlier studies i.e., Alharbi (2017), Mongid (2016) and Chowdhury (2015) confirmed that the Equity Ratio had a positive and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study Liquidity Ratio (LQR) shows a

non-significant relationship with Return on Average Equity (ROAE) with a positive value of coefficient. The earlier studies i.e., Abduh & Baharoon (2016) and Chowdhury (2015) confirmed that the Liquidity Ratio had a non-significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study Operating Expenses Ratio (OER) shows a non-significant relationship with Return on Average Equity (ROAE) with a negative value of coefficient. Contrary, the earlier studies i.e., (Zarrouk, Jedidia & Moualhi (2016), Muda, Shaharuddin & Embaya (2013), Eljelly (2013), Karim, Sami & Hichem (2010) and Sufian (2010) confirmed that the Operating Expenses Ratio had a positive and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study Bank Age (BA) shows a negative and significant relationship with Return on Average Assets (ROAA) with a negative value of coefficient. The earlier studies i.e., Al-Homaidi, Tabash & Ahmad (2020) and Elgadi & Yu (2018) confirmed that the Bank Age had a negative and significant impact on the profitability of Islamic banks in terms of Return on equity (ROE) at 0.05 percent level of significance. Regarding external variables in this study, GDP Growth Rate (GDPGR) shows a non-significant relationship with Return on Average equity (ROAE) with a positive value of coefficient. In a different way, the earlier studies i.e., Zarrouk, Jedidia & Moualhi (2016), Amzal (2016), Zeitun (2012), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) confirmed that the GDP Growth Rate had a positive and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study, Inflation Growth Rate (IGR) shows a non-significant relationship with Return on Average Equity (ROAE) with a positive value of coefficient. Conversely, the earlier studies i.e., Senan, Noaman, Al-dalaien & Al-Homaidi (2021), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Amzal (2016), Ijaz, Akmal & Gillani (2015), Chowdhury (2015), Khan, Ijaz & Aslam (2014), Wasiuzzaman & Tarmizi (2010) and Khediri & Ben-Khedhiri (2009) confirmed that the Inflation Rate had a positive and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. In this study, Type of Banking System (TBS) as a dummy variable shows a non-significant relationship with Return on Average Equity (ROAE) with a negative value of coefficient. Contrarywise, the earlier studies by Arshad, Zakaria & Sulaiman (2015) confirmed that the Type of Banking System had a negative and significant impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance.

On the other side, Model (2) assumes that only the internal variables impact on the Return on Average Equity (ROAE) of select Islamic banks. The value of R = 0.685 which shows that the internal explanatory variables explain Return on Average Equity (ROAE) 68.5 percent almost as model (1). The value of F-statistic resulting from a standard statistical test used in ANOVA and multiple linear regression analysis to determine if variances between means of select Islamic banks are significantly different. The value of F-statistics is 6.016 and Prob. F-statistic (p-value) is 0.000 showing that the whole model is fit for analysis. In model (2), Bank Size (BS) and Equity Ratio (ER) show a positive and significant relationship with Return on Average

Equity (ROAE) with a positive value of coefficient; while, Bank Age (BA) shows a negative and significant relationship with Return on Average Equity (ROAE) with a negative value of coefficient. This is same as model (1).

Table 5: Multiple Linear Regression Models of Islamic Banking Profitability i.e., (ROAE)

Types of Variables	Variables and Values	ROAE - Model 1			ROAE - Model 2		
		Coefficients	t-statistic	Sig.	Coefficients	t-statistic	Sig.
Internal Variables	(Constant)	-2.425	-3.004	0.005	-2.316	-3.367	0.002
	BS	0.105	3.207	0.003	0.101	3.590	0.001
	ER	1.499	3.189	0.003	1.363	3.598	0.001
	LQR	0.007	0.813	0.422	0.007	0.904	0.373
	OER	-0.065	-0.636	0.530	-0.084	-0.937	0.355
	BA	-0.003	-2.265	0.031	-0.002	-2.497	0.018
External Variables	GDPGR	0.056	0.539	0.594	---	---	---
	IGR	0.000	-0.036	0.971	---	---	---
	TBS	-0.018	-0.501	0.620	---	---	---
Summary of Model 1 & 2	R	0.691	---	---	0.685	---	---
	R^2	0.478	---	---	0.469	---	---
	Adjusted R^2	0.343	---	---	0.391	---	---
	SE. of the Estimate	0.063	---	---	0.061	---	---
	F - statistic	3.543	---	---	6.016	---	---
	Prob. (F-statistic)	0.000	---	---	0.000	---	---

Source: Data collected from the annual financial reports of select Islamic banks

Similarly, the earlier studies i.e., Effendi (2019), Siddique, Khaleequzzaman & Atiq-ur-Rehman (2016), Abduh & Baharoon (2016), Chowdhury (2015), Khan, Ijaz & Aslam (2014) and Eljelly (2013) confirmed that the external (macroeconomic) variables had no or very weak impact on the profitability of Islamic banks in terms of Return on Equity (ROE) at 0.05 percent level of significance. This is clear from two sides; firstly, there is no significant value for any external variable in model (1). Secondly, the difference of Adjusted R^2 values in both models. Where the values of Adjusted R^2 in model (1) and model (2) are 0.343 & 0.391 respectively. Therefore, the value of Adjusted R^2 in model (2) is greater than the value of Adjusted R^2 in model (1). Hence, model (2) which includes only the internal variables explains the percentage of variation of the dependent variable (ROAE) that really affected by the internal independent variables. Therefore, internal variables have more impact than external variables on the profitability of Islamic banks in terms of Return on Average Equity (ROAE). That is supported

by the value of standard error of the estimate of model (2) = 0.061 is less than the value of standard error of the estimate of model (1) = 0.063. Additionally, the value of F- statistic = 6.016 in model (2) is greater than the value of F- statistic 3.543 in model (1). Table V depicts the comparison between model (1) and model (2) of Multiple Linear Regression Models of Islamic Banking Profitability i.e., (ROAE).

Conclusion

This paper measures the profitability of Islamic banking and what are the most significant variables affect the profitability in terms of Return on Average Assets (ROAA) and Return on Average Equity (ROAE). To conduct the research, data was taken from annual financial reports of select Islamic banks from four countries in Asia, each country represents one region. The period of study covers ten yeas 2011-2020. Results suggest that the select Islamic banks have an increasing trend of profitability except during the period of breakdown of Coronavirus which have influenced the whole financial system. Furthermore, the principles of Islamic banking effect immensely the performance of select Islamic banks. Correlation results of profitability determinants of select Islamic banks indicate that there is a positive correlation between Liquidity Ratio (LQR) and Operating Expenses Ratio (OER). Beside that there is a negative correlation between Bank Age (BA) and Inflation Growth Rate (IGR). Regression results reveal that Bank Size (BS), Equity Ratio (ER) and Bank Age (BA) are statistically significant related to profitability. Bank Size (BS) and Equity Ratio (ER) have a positive impact on Return on Average Assets (ROAA), while Bank Age (BA) has a negative impact on it. Likewise, Bank Size (BS) and Equity Ratio (ER) have a positive impact on Return on Average Equity (ROAE), while Bank Age (BA) has a negative impact on it. Supporting the results of previous studies, external (macroeconomic) variables viz., GDP Growth Rate (GDPGR), Inflation Growth Rate (IGR) and Type of Banking System (TBS) have non-significant impact on the profitability i.e., Return on Average Assets (ROAA) and Return on Average Equity (ROAE) of select Islamic banks. Which means only internal variables determine the profitability of Islamic banks. The implications of this study are that along with indirect impact of external (macroeconomic) variables, the decision-makers and Islamic bankers in Asia need to critically emphasis on the internal factors of Islamic banks. Examining other internal factors that have strong relationship with profitability of Islamic banks to react dynamically to the changing environment of business. The findings of this study not only fill the gap in the literature of profitability with reference to Asia, but also provide some support to Islamic bankers to understand the impact of internal factors on profitability and help them to improve an efficient profitability by considering other effective factors. Financial technology can help Islamic banks to avoid the consequences of COVID-19 pandemic by providing access to electronic transactions and non-physical contact with entrepreneurs and clints. The limitation of this paper is based on the availability and accessibility of data. Finally, findings of this study have opened the door to examine the other internal variables that influence the profitability of Islamic banking. Further, to study separately the impact of internal and external factors on profitability of Islamic banks.

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