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Determinants of Islamic banking performance in OIC member countries

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Abstract

The aim of this article is to identify the determinants of the performance of Islamic banks by examining the relative contribution of the said determinants in the member countries of the Organization of Islamic Cooperation (OIC). The methodology used is based on a multivariate framework, in particular, Generalized Least Squares and the Generalized Method of Moments. From a set of quarterly data of 20 OIC member countries collected over the period 2013 to 2020, we find that: i) liquidity ratio, profitability ratio and presence of compliance committee in sharia improve the performance of Islamic banks. ii) Liquidity ratio and presence of Shariah compliance committee are found to be more important in influencing the performance of Islamic banks in OIC member countries with respective weights of 0.510 and 0.699. It is therefore up to the actors of the Islamic banking sector of the OIC member countries to establish an overall governance policy framework and to comply with the rules and principles of the Islamic Shariah while maintaining strict control over the various transactions, which will lead to the reduction of costs and will make it possible to take measures which can contribute to increasing their resources and their investments which will make it possible to make economies of scale.

Keywords: OIC, Islamic Bank, Performance, GMM.

1. Introduction

Over the past decade, Islamic Banks (IsB) have played a very important role in the financial system of Member States of the Organization of Islamic Cooperation (OIC) and are increasingly exported to Western countries (SESRIC , 2019). Islamic finance (IFs) is not just for 1.5 billion Muslims. Several Western countries [2] are interested in it, because of its attractive characteristics in terms of transparency and banking regulation. The Fis was until some time an unknown sector of global finance, it has been growing rapidly for several years and represented, in 2019, nearly 2,400 billion euros in assets worldwide. By 2024, it could reach around 3.1 billion euros.[3] On average, this banking sector is growing 50% faster than the conventional banking industry (Mollah et al. 2016). IsB are financial institutions that act as intermediaries between parties with finance capability and those in need of finance to carry out business and other Sharia-compliant activities (Noor, 2021) . Brokerage is based on the principle of sharing profits and losses on the deposit side and on the funding side. This participative intermediation constitutes the specificity of IsB in terms of intermediation by making it possible to offer a model that is both ethical and profitable. Islamic Sharia principles prohibit IsB from collecting or charging interest. Nor do they have the right to speculate or invest in activities prohibited by Islamic law. The priority objective of the FIs is not only the disproportionate pursuit of profit, because it also promotes ethical finance (Guéranger, 2009).

In addition to its religious specificity, the Islamic banking sector has shown its solidity and its ability to withstand crises such as the subprime crisis (Mehdi, 2014). On the other hand, the conventional banking system has been weak due to the quality of its institutions and its financing procedures (Boulerne and Sahut , 2010). The study conducted by Beck et al. (2013) show that IsB have a better stock market performance compared to conventional banks since they hold "better quality" assets and a higher capitalization. The Islamic banking system, beyond the search for profit, can also favor social ties, risk sharing and especially the development of the region where it operates by sharing the profit generated by its activity (Ali and Azmi , 2016) and its performance leads to poverty reduction (Amin, 2017). Despite these positive results generated by IsB, very few studies have focused on the determinants of their performance and even less on the weight of these different determinants.

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[2] On this point, the United Kingdom acts as a precursor. The *Financial Services Authority* has thus created standards for these new financial products and has opened a specific department dedicated to Islamic finance . In 2004 the *Islamic* Bank of Britain thus opened its doors, a first in Western Europe

[3] Ministry of the Economy, Finance and Industrial and Digital Sovereignty (France)

The analysis of banking performance is of great interest and becomes an important issue in the context of various changes that require the restructuring of the financial system which weakens many financial institutions. The financial system must, for its viability and its survival, overcome the challenges relating to the difficult environment in which it manages its activities, but also to the practices of the IsB themselves. Understanding "the performance of Islamic banks" and "its determinants" becomes an important issue (Süer , 2003).

While several studies have focused on analyzing the determinants of bank performance in developed and developing countries (Naeem et al. 2019; Cihak and Hesse, 2010), in the case of member countries of the OCI in general and with regard to IsB in particular, there are very few studies on this crucial question. To our knowledge, only the studies by Mobarek and Kalanov (2014) and Abedifar et al. (2013) focused on OIC member countries. They focus on comparing the performance of IsB and conventional ones. The scarcity of studies on the subject could be justified by the youth of the emergence of the phenomenon of IsB and its logical consequence which is that of limited data.

Thus, the aim of this article is to fill this gap in the literature by analyzing the determinants of the performance of IsB in OIC member countries [4]. similar views on the popularization of FIs and the stability thereof, is more likely to provide a more homogeneous data set.

We contribute to the literature on IFs at two levels: (i) first, we review the existing literature on the performance of the Islamic banking sector. This performance of banks is measured by accounting ratios such as financial profitability, economic profitability. Dami and Abdelfatteh, (2017) and Abduh and Alias, (2014) focused their research on the internal and external factors that affect the performance of IsB in different countries around the world. Our study differs fundamentally from theirs on several points. Dami and Abdelfatteh , (2017) use ordinary least squares with multiple linear regression for a sample of 22 IsB in the Middle East and North Africa. In contrast, we simultaneously use quarterly and half-yearly data while taking into account potential problems of endogeneity and taking into account specific fixed, unobservable country and time-invariant effects by estimation methods based on the Method Generalized Moments (GMM). More precisely, we estimate a two-step system GMM model with robust standard deviations corrected for finite samples. Regarding Abduh and Alias (2014), they focus on a microeconomic study. Unlike these authors, we assess this relationship within a macroeconomic framework. (ii) We mainly study the IsB of the OIC member countries and

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[4]Ensures the safeguard and protection of their interests in the spirit of economic, sociological and political areas

examine the contribution of these determinants in the IsB by referring to the work of Hillier et al. (2011).

To achieve our objective, we focus on a sample of 20 OIC member countries and we adopt a multivariate methodology, namely, Generalized Least Squares (GLM) and Generalized Method of Moments (GMM) which takes into account the potentials endogeneity issues. The results reveal that the liquidity ratio, the profitability ratio and the presence of a Shariah compliance committee improve the performance of IsB. These results are robust to changes in estimation technique.

The remainder of this article is organized into five sections. Section 2 presents the stylized facts. Section 3 presents the literature review. Section 4 presents the data and methodology. Section 5 analyzes the results and presents the robustness tests. Section 6 concludes.

2. The Performance of Islamic Banks in OIC Member Countries: Some Stylized Facts

In this section, we examine the behavior of the main IsB performance indicators.

Figure 1: Simultaneous Behavior of Return on Assets (ROA) and Return on Equity (ROE) in OIC Member Countries
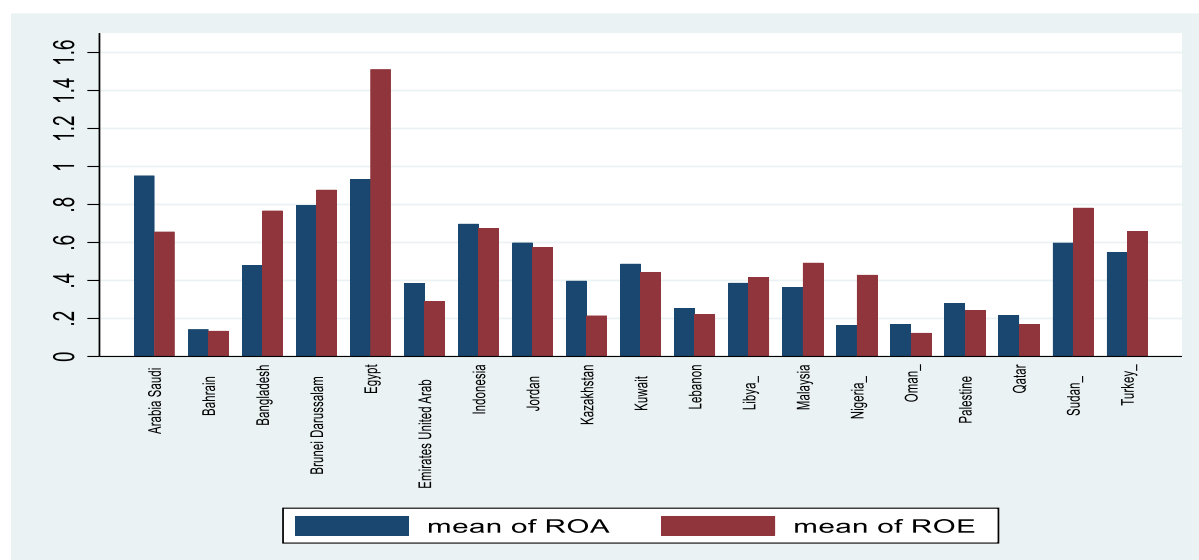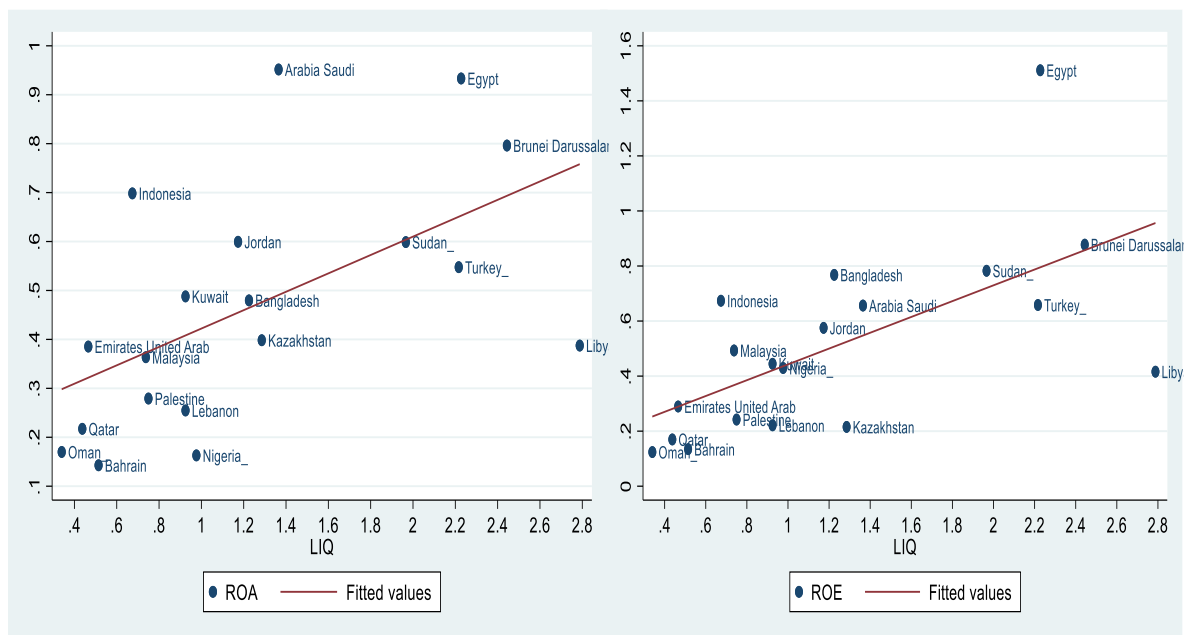

Source: Authors based on raw data from the Islamic Financial Services Board (IFSB)

The graph below shows a map of the performance of the IsB of the countries in our sample. Over the study period, Egypt is the country with the highest ROE and second in relation to ROA, unlike Saudi Arabia which has the highest ROA and second in relation to ROE. Bahrain and Oman occupy the last position which can be justified by the size of the Islamic financial

system in each country. This graph shows that the financial situation of the IsB is good, justifying the fact that the investments have enabled them to create more wealth and value through the behavior of the ROE as for the ROA it indicates that the IsB are efficient in the use of its resources. ROA and ROE are all positive. ROA reflects the fact that IsB generate profits. This is important because it shows how well IsB manage resources. As for the ROE, it helps investors to assess how IsB use their equity to generate profits.

Figure 2: Liquidity ratio adjustments on return on assets and return on equity

Source: Authors based on IFSB raw data

We present the combined evolution between the liquidity ratio and the performance indicators of the IsB. Performance is approximated by ROA and ROE (Hassan and Bashir , 2003; Tafri et al. 2009; Faizulayev , 2011). Figure 2 has an increasing slope indicating that there is a positive relationship between the performance of IsB and the liquidity ratio. In other words, the countries in which the number of IsB is high record high levels of performance. We observe for example at the bottom of the dial above (extreme left) that Qatar, Bahrain, Oman, Palestine and Lebanon with very low performances between 1 and 3%. On the far right (top) of the dial, on the other hand, are countries such as Saudi Arabia, Egypt, Indonesia, Kuwait and Jordan with higher performance than the first group of countries. This positive relationship in Figure 2 gives us an overview of the financial health of IsB and shows that IsB are able to meet their financial commitments with the outside world.

Figure 3: Correlation between asset profitability and performance determinants.
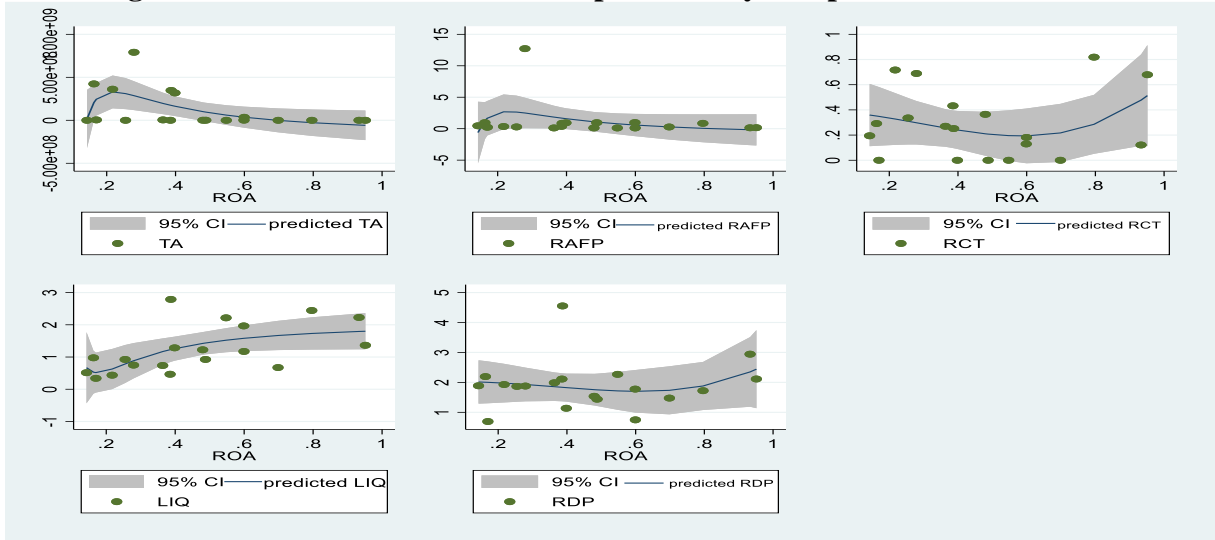
Source: Authors based on IFSB raw data

Examination of figures 3 and 4 suggests that the liquidity ratio, the return on equity and the profitability ratio play a major role in the performance of IsB, which is justified by a positive slope and we also observe that the set of fluctuation intervals around the mean creates a larger fluctuation domain as shown in Figures 3 and 4. However, since correlation is clearly different from causation, this graph is limited to reflecting a presumption of a causal relationship between our different variables. Consequently, these graphs do not allow us to decide on the direction of causality. Moreover, it does not take into account other factors that may explain it, while being related to ROA and ROE. We are thinking in particular of market capitalization and the consumer price index.

Figure 4: Correlation between return on equity and performance determinants
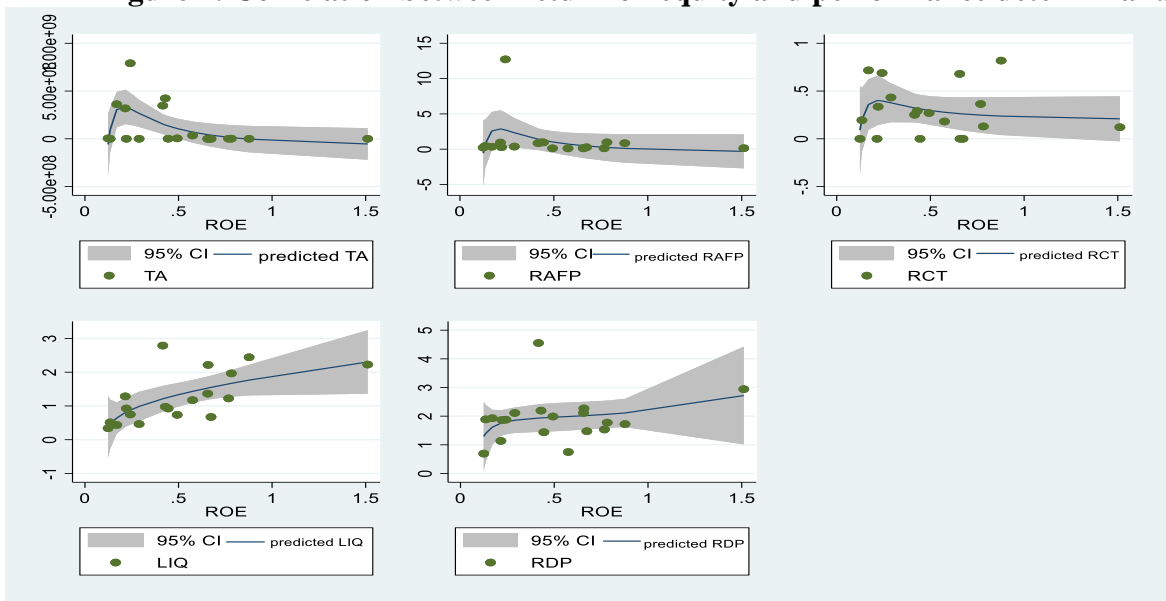
Source: Authors based on IFSB raw data

3. Literature review

Banks play an important role in improving the economy. There is no doubt that banks have been the main engines of economic growth for decades. We wonder here about the contribution of the literature through studies that have shown the factors that influence IsB and those that influence IsB and conventional banks (CB).

3.1 Factors that influence the performance of Islamic banks

Among the researchers who have studied the effects that influence the performance of IsB, we cite: Hassan and Bashir (2003) analyzed how the characteristics of the bank and the global financial environment affect the performance of IsB during the period 1994-2001. The results of the study indicate that the size of the banking system has a negative effect on the performance of IsB. Regulatory tax factors are important in determining bank performance, because according to the results, implicit and explicit taxes affect the measurement of performance. As for Alshehri (2015), he examines the impact of corporate governance on the financial performance of IsB by introducing the size of the board of directors, the presence of female board members, the duality chief of management, size and existence of Shariah compliance committee. Similarly, Abdul, (2015) examines the impact of corporate governance on the financial performance of IsB measured by ROA and ROE and he concludes that the size of the board of directors has an impact on the financial performance , while the manager independence variable has no influence on bank profitability.

According to Faizulayev (2011), the performance of IsB is determined by several variables, such as size, ownership, short-term investments, overheads and (internal) loans, and other external variables that reflect the impact of increases in foreign capital, taxes and market capitalizations. The results show that taxes have a negative impact on the performance of banks and it should be noted that the decline in the performance of IsB is explained by the administrative burdens necessary for the functioning of the Islamic council, which is responsible for verifying the compliance of IsB. in Sharia. The poor performance of Islamic banks is not due to administrative inefficiencies, but rather to constraints imposed by Sharia (Abdul et al, 2015).

The study of Hassan and Bashir (2003), shows that ROA is better than ROE, because ROE is often influenced by ROA and the financial situation of the bank. According to the authors, many

banks use leverage to increase their ROE to competitive levels, which frequently leads to rigged ROE. Similarly, Tafri et al. (2009) also agree that ROE is not better than ROA, as the estimation of ROE takes into account not only the level of risk, but also market conditions, which are continuously dictated by regulation. As for the work carried out by Berguiga et al. (2019) on a sample of 53 IsB in 11 MENA countries between 2007 and 2014, they conclude that the Shariah compliance committee has an ambiguous effect on performance and add that there is no relationship between Sharia compliance and specific risk unlike ROA and ROE which have been widely adopted in previous studies. The net interest margin (NIM) has only been adopted in a few studies. The NIM is considered a measure of the distribution of interest, i.e. the difference between the interest income received on loans granted by banks and the interest rate paid to lenders as a percentage of total interest. income-generating assets (Ongore and Kusa , 2013). According to Ongore and Kusa (2013), the higher the NIM, the higher the bank's profitability and the more stable it is. Therefore, the NIM is considered as one of the main measures of bank profitability. However, this is only seen in studies that address traditional perspectives (Heffernan & Fu, 2008; Dietrich & Wanzenried, 2014). Interest is prohibited from an Islamic perspective, as interest is often seen as a borrowing cost that reflects the opportunity cost of money (Khoury, 2018). If IsB pay interest on loans and borrowings, that is usury, because interest in Islam is considered illegal. According to Bashir (2003), the income of IsB should be interest free, therefore the NIM, which measures interest, is not suitable for use in the Islamic financial sector, as it is against the concept of Shariah.

3.2 Factors Affecting Islamic Banking and Conventional Banking

Among the authors who have studied, the internal and external determinants of banking performance include Eyih and Bouchetara , (2020); Cihak and Hesse (2010); Sufian and Habib (2009); Suzanna and Al-Sayed, (2015). In addition, there are other researchers who in their research describe the factors that influence the performance of IsB and those of CB. Shaista et al. (2013), conduct their study on a sample of 14 banks divided into 5 IsB and 9 CB during the period 2005-2009 in Malaysia. This study uses variables such as profitability, capital adequacy, liquidity, operational efficiency and quality of assets, board of directors and economic conditions. They show that average return on assets, bank size and board of directors improve the performance of CBs while other variables improve the performance of IsB. As for the liquidity and the characteristics of the board of directors, they are considered to be very important in influencing the profitability of the two banks.

Hassan and Hussein (2010) analyzed the elements that influence the national IsB as well as the CB in the United Arab Emirates over the period, 1996 and 2008. According to this study, a regression model was used with dependent variables such as ROE and ROA and independent variables considered internal and external factors, including gross domestic product per capita, size, financial development indicator, liquidity, concentration, costs and number of branches. The results indicate that liquidity and concentration are the most important determinants of CB performance. On the other hand, cost and number of branches are the most important determinants of IsB performance.

Sraïri (2009) studied the factors influencing the profitability of commercial and Islamic CBs operating in the countries of the Gulf Cooperation Council (GCC) during the period, 1999-2006. The data presented in this study covers 66 commercial banks (conventional and Islamic). It used five bank-specific internal variables (capital adequacy, liquidity, asset quality, financial risks and operational efficiency), macroeconomic variables (inflation rate and real GDP), the banking sector and the stock market (banking sector, development of financial markets, banking performance and banking concentration). Using the linear regression method with the other complementary methods (MCG, Lagrange multiplier, OLS and Hausman specification test), he concludes that the profitability of both conventional and Islamic banks is mainly influenced by three variables: the quality assets, credit risk and operational efficiency. Moreover, the liquidity/financial risk ratio only has a positive effect on the profitability of Islamic banks. It has also been proven that all the macroeconomic determinants, except the inflation rate, are significant and positive for improving the performance of banks.

The study conducted by Alharthi (2016) aims to find the determinants of the profitability of IsB, CB and socially responsible banks (SRBs) covering the period 2005-2012. His study uses profitability indicators such as ROA, ROE and NIM. The methodological approach used is based on OLS. The results highlight that ROA and ROE are higher in CB, while BSRs obtained the lowest ROA and ROE. In contrast, BSRs got the highest NIM metrics, while CB have the lowest NIM ratios. Based on the results, IsB are positively affected by size and z-score, while capital ratio, GDP, and inflation significantly reduced profits. Moreover, CB were more profitable with higher size, capitalization, loans and z-score. Finally, BSR earnings have positive and significant relationships with z-score and market capitalization growth. On the other hand, foreign, national and public participations had a negative impact on the performance of these banks. As for Muda et al (2013), they compared the determinants of the performance

of domestic and foreign Islamic banks in Malaysia. The study showed that concentration and liquidity are not able to explain the variability of the performance of IsB.

4. Econometric model, estimation strategy and data

4.1 Econometric model

The objective of this work being to identify the determinants of the performance of IsB in the context of OIC economies, our model is inspired by the work of Dami and Bouri , (2017). Therefore, the overall form of the equations that will be estimated is as follows:

$$ROA_{it} = \alpha_i + \beta_0 TA_{it} + \beta_{1i} RAFP_{it} + \beta_{2i} RCT_{it} + \beta_{3i} LIQ_{it} + \beta_{4i} RPR_{it} + \beta_{5i} \text{CCC}_{it} + \lambda_{1i} \text{CB}_{it} + \lambda_{2i} IPC_{it} + \varepsilon_{it} \tag{1}$$

$$ROE_{it} = \alpha_i + \beta_0 TA_{it} + \beta_{1i} RAFP_{it} + \beta_{2i} RCT_{it} + \beta_{3i} LIQ_{it} + \beta_{4i} RPR_{it} + \beta_{5i} \text{CCC}_{it} + \lambda_{1i} \text{CB}_{it} + \lambda_{2i} IPC_{it} + \varepsilon_{it} \tag{2}$$

In this equation, the subscript i denotes the country while the subscript t represents the year. The measurement of the performance variable (ROA and ROE) is respectively the return on assets and the return on equity; variable TA represents the total assets, RAFP denotes the capital adequacy ratio, RCT represents the total capital ratio, LIQ represents the liquidity ratio of the country while the variable RPR is the Profitability ratio. The CCC variable represents the Shariah compliance committee [5]; CB the market capitalization and CPI the consumer price index. Our variables are derived from a theoretical framework rather than a discretionary selection of control variables.

4.2. Estimation strategy

We estimate our model by the method of Ordinary Least Squares to obtain the basic results. However, our main estimation adopts GCMs as a technique which will allow us to correct heteroscedasticity and autocorrelation biases. Then, we will test the robustness of our results in order to solve the problems of reverse causality (Ghenimi and Omri, 2018), omitted variables and endogeneity and finally we use the GMM estimator of Blundell and Bond (1998). More precisely, we favor the two-step system GMM estimator because it is asymptotically more efficient than the single-step estimation (Roodman , 2009).

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[5]It is a small group of Islamic scholars consisting of around 3-7 people. These scholars combine highly specialized theological, financial and legal knowledge.

4.3. Data

We use quarterly data from the period 2013 to 2020, as it allows to have a long time series, more concretely from the fourth quarter of 2013 to the second quarter of 2020 for 20 OIC member countries [6]. The data comes from various sources: the World Development Indicators (WDI) for macroeconomic data, the Islamic Financial Services Board (IFSB) and FundWork for variables specific to FIs. To reduce data bias, we take the logarithm of variables such as return on assets, return on equity, liquidity ratio and total capital ratio. The logarithmic transformation is intended to explain the coefficients in terms of elasticity. Like Busse et al. (2010), we avoid losing observations with negative or zero values.

The description of the variables used is presented in appendix 1. Tables 1 and 2 respectively present the descriptive statistics and the correlations between our different variables.

Table 1: Descriptive statistics of the variables

Variables	Comments	Mean	standard deviation	Minimum	Maximum
Asset profitability	539	0.582	0.0194	0.541	0.708
Return on equity	540	0.814	1.4049	0.573	11,687
Log Total Assets	540	13,857	3,888	-3.394	21,755
Liquidity ratio	540	0.778	0.1402	0.572	1,240
Capital adequacy ratio	540	0.895	0.120	0.517	1,103
Total capital ratio	540	0.814	1.4049	0.573	11,687
Profitability ratios	540	2,043	0.249	0.150	3,459
Market capitalization	540	50,508	40,819	1,812	303.52
consumer price index	540	112,644	84,443	6,519	1344.19
Sharia Compliance Committee	540	19.8	18,804	3	71

Source: Authors, based on IFSB data.

The descriptive statistics show a large dispersion for the performance variables (ROA and ROE). The averages of return on assets and return on equity are respectively 0.5828 and 0.8148 as shown in Table 1 above. The results further indicate that the minimum return on assets is 0.5410 while the maximum is 0.7085, as for the return on equity, the minimum and maximum are 0.5738 and 11.6874 respectively. . There is a considerable gap between the minimum and the maximum of the variable liquidity ratio (LIQ) of 0.5723 and 1.2401 respectively, which indicates that the IsB cannot cope with a simultaneous demand for reimbursement of the share of all its creditors and we can note a considerable difference between the different countries of our sample compared to the number of Shariah compliance committees (CCC) which may be

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[6]Afghanistan, Bahrain, Bangladesh, Brunei Darussalam, Indonesia, Iran, Jordan, Kazakhstan, Lebanon, Libya, Malaysia, Nigeria, Oman, Pakistan, Palestine, Qatar, Saudi Arabia, Sudan, Turkey, United Arab Emirates.

due in certain jurisdictions such as Iran and Morocco , IsB are not required to have an internal sharia supervisory board. In these countries, a central Shariah board appointed by the central bank oversees the activities of IsB. It should also be noted that the number of CCC members varies from one jurisdiction to another as evidenced (Kachkar and Yilmaz, 2022).

Regarding the link between the two IsB performance indicators and the other variables of our model, we note that the return on assets is negatively associated with total assets, the capital adequacy ratio and the capital adequacy ratio. bank capitalization unlike return on equity which is with liquidity ratio, capital adequacy ratio, market capitalization and consumer price index and are positively related to total assets, the total capital ratio and the profitability ratio and the presence of the sharia compliance committee. This last result shows that the CCC plays an important role in ensuring the conformity of products, services and operations of the FIs industry (Hasan and Dridi , 2010).

Table 2: Correlations between variables

	AR	CPR	lntA	LIQ	RAFP	RCT	BPR	CB	CPI	CCC
Asset profitability	1									
Profitability of capital clean	0.367***	1								
Total assets	-0.091*	0.029	1							
Liquidity ratio	0.140**	-0.122**	-0.071	1						
Match Ratio equity	-0.272***	-0.335***	-0.069	0.274***	1					
Total capital ratio	-0.017	-0.015	0.008	-0.002	0.051	1				
Profitability ratios	**0.067**	0.163***	0.069	-0.055	-0.038	0.006	1			
Market capitalization	-0.132**	-0.046	-0.197***	-0.099*	0.103*	0.142***	-0.046	1		
price index consumption	0.101*	0.293***	-0.064	0.049	-0.181***	-0.018	0.001	-0.104*	1	
Shariah Compliance Committee	0.615*	0.812*	0.079	-0.812	0.665***	0.202	0.053	-0.243***	0.115**	1

Notes: *** $p<0.01$ significant at 1%, ** $p<0.05$ significant at 5%, * $p<0.1$ significant at 10%
Source: Authors, based on IFSB data.

5. Discussion of results

In this part, we first present the results of our study obtained using Ordinary Least Squares (OLS) and Generalized Least Squares (GLS). Second, we present the results of the robustness tests using semi-annual data and another estimation technique and finally we evaluate the contribution of the determinants of the performance of Islamic banks .

5.1. Basic results

To achieve better analyses, we proceed in two phases. Firstly, we believe that there is no Shariah Compliance Committee (CCC) and secondly in the presence of one. Table 3 summarizes the OLS regression results for our banking performance indicators. This shows that the liquidity

ratio, the profitability ratio and the consumer price index are variables that have a concrete impact on performance in column 1 with the respective thresholds of 1% and 10%. Columns 2 and 3 with the presence of the Shariah compliance committee present a positive effect and a change of sign of the coefficients attached to our variables as presented by the variables capital adequacy ratio and the profitability ratio (column 2 and 4). That said, these determinants can thus in one way or another have effects on the performance of IsB. In the following subsection, we will take into account the heterogeneity of temporal and individual specificities.

Table 3: Estimation by OLS on quarterly data

VARIABLES	(1)	(2)	(3)	(4)
	Asset profitability		Return on equity	
Log Total Assets	-0.008**	-0.065***	-0.018	0.0004
	(0.003)	(0.014)	(0.012)	(0.001)
Liquidity ratio	0.063***	-0.051***	-0.049	-0.027
	(0.066)	(0.088)	(0.024)	(0.023)
Capital adequacy ratio	-0.086	-0.055**	-0.307	-0.271*
	(0.011)	(0.018)	(1,002)	(0.012)
Total capital ratio	0.015	0.308*	0.108	0.0308
	(0.007)	(0.767)	(0.006)	(0.206)
Profitability ratios	0.050*	0.0725*	0.090***	0.069***
	(0.014)	(0.380)	(0.086)	(0.018)
Market capitalization	-0.0156***	-0.0129**	-1.005**	-0.306
	(0.055)	(0.055)	(0.365)	(0.011)
Consumer price index	0.007*			0.003**
	(0.003)			(0.075)
Shariah Compliance Committee		0.002*		-0.004
		(0.001)		(0.005)
Constant	0.088***	0.064***	0.253***	0.182***
	(0.152)	(0.026)	(0.054)	(0.056)
Comments	539	539	540	540
Prob > F	0.000	0.000	0.000	0.000
R- squared	0.139	0.031	0.506	0 , 197

Source: Authors, estimates based on IFSB data
Notes : the values in parentheses correspond to the standard deviation. *** $p<0.01$ significant at 1%, ** $p<0.05$ significant at 5%, * $p<0.1$ significant at 10%

All the columns present a positive and significant coefficient at 1% and 10% with the profitability ratio variable respectively with the return on assets and the return on equity. We observe that the equity ratio has a negative influence on performance (column 2 and 4). This result highlights that IsB with higher levels of equity are more profitable. This result is in agreement with that of Bitar and Peillex (2019). That said, these determinants can thus in one way or another have effects on the performance of IsB. We will take into account the heterogeneity of temporal and individual specificities in Table 4.

Table 4: Determinants of performance: GLS estimation

VARIABLES	(1)	(2)	(3)	(4)
	Asset profitability		Return on equity	
ln Total assets	-0.041***	-0.005***	-0.032	-0.479***
	(0.039)	(-0.045)	(0.104)	(-0.034)
Liquidity ratio	0.051**	0.001**	0.009	0.043***
	(0.045)	(-0.007)	(0.009)	(-0.013)
Capital adequacy ratio	-0.018	0.0019	-0.124*	-0.037*
	(0.003)	(0.093)	(0.502)	(-0.005)
Total capital ratio	0.007*	-0.0038*	-1.206***	-0.056***
	(0.003)	(-0.008)	(0.007)	(-0.008)
Profitability ratios	0.068**	0.0046**	0.035*	0.035*
	(0.008)	(0.002)	(0.018)	(-0.018)
Market capitalization	0.034**	0.006**	0.0123*	-0.025**
	(0.345)	(0.206)	(0.009)	(-0.069)
consumer price index	-0.025**	-1.009***	0.076***	0.038***
	(0.034)	(-0.606)	(0.704)	(-1.80)
Shariah Compliance Committee		0.095*		0.034**
		(0.005)		(0.005)
Constant	0.119***	0.085*	0.213***	0.114***
	(0.051)	(0.0046)	(0.035)	(0.039)
Comments	539	539	540	540
Number of countries	20	20	20	20
chi2	56,657	154,543	45,432	143,328
Proba F- Statistic	0.040	0.000	0.030	0.000

Source: Authors, estimates based on IFSB data

Notes : the values in parentheses correspond to the standard deviation. *** $p<0.01$ significant at 1%, ** $p<0.05$ significant at 5%, * $p<0.1$ significant at 10%.

Table 4 presents the regression results for ROA and ROE, respectively. We see here a real improvement on the significance of our coefficients in columns 1 and 2 compared to columns 3 and 4 on the variables of the profitability ratio and the Shariah compliance committee. The Total Capital Ratio (RCT) as expected has a negative and significant impact on ROA (column 2) and ROE (column 4) of 10% and 5% respectively. A negative relationship implies that an increase in the level of capitalization will reduce the relative risk position of a bank, which determines the deterioration of returns. This result is consistent with the findings of Alharthi , (2016) and contrary to that of Ahmad (2017); Ben and Hichem (2009). Our results show that weakly capitalized IsB are less safe than banks with a high capital ratio [7]. The present results revealed negative coefficients for the effect of lnTA on ROA and on ROE and this coefficient is present in columns 1, 2 and 4 at the threshold of (1%). The coefficients associated with the size of the IsB are 0.005 and -0.0327, respectively with the ROA and the ROE (columns 2 and 3). The weak impact of bank size on performance can be explained by the tendency of small banks to try to grow rapidly and increase their market share instead of seeking to improve profitability in their first years of operation (Athanasoglou et al. 2008).

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[7]Access to cheaper and less risky sources of funds leads to increased profitability.

The capital adequacy ratio displays a negative sign at the 1% threshold in columns 3 and 4 of our estimates, which reflects the fact that IsB suffer from a diseconomies of scale over our study period. To gain and retain public trust, a bank must be able to convince of its stability and show that it is ready to repay customer deposits and meet customers' genuine credit needs (Anyanwaokoro , 1996). The liquidity ratio (LIQ) improves the performance of IsB regardless of the dependent variable taken into consideration. The significance of 1% in column 4 testifies to this influence. The Shariah Compliance Committee is seen as the main driver to prevent IsB from taking excessive risks in the IsB multi-level governance model. We find that sharia advice affects the performance of IsB while improving the coefficients and significances of our variables (column 2 and 4). These results provide additional information to Table 3 and highlight the need for a Shariah supervisory board that is independent and meets additional requirements imposed by their nature, i.e. being Shariah-compliant institutions (Muneeza and Hassan, 2014). In other words, the Islamic financial industry implements a dual governance structure (Farag et al. 2018).

We can conclude that the most liquid banks hold the highest levels of capital and our results are in line with those of Ben and Hichem (2009). The positive and significant sign of the profitability ratio (RPR) in all the columns of table 4, reflects that the lower this ratio, the more the bank is able to generate results and has the capacity to generate a profit. Market capitalization has a positive and negative effect respectively on ROA and ROE at the 5% threshold (column 2 and 3). This is consistent with the findings of Alharthi (2016). As a determinant of the performance of IsB, capitalization makes it possible to highlight the capacity of the banking sector to absorb the losses generated by the occurrence of risks .[8]

5.2 Robustness analysis

In order to test the sensitivity of our results and to verify possible endogeneity problems, we use half-yearly data over the period 2014 - 2020 using a robustness test based on the change in the estimation method. . Thus, ignoring this endogeneity problem can lead to biased results. Therefore, to correct for the problems of circular causation, omitted variables and endogeneity, we use the GMM estimator of Blundell and Bond (1998). This technique makes it possible to

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[8] Different theories demonstrate the effect of capitalization on PB, with conflicting results. On the one hand, the pecking order theory and the arbitrage theory agree on the importance of debt not only as a source of financing, but also as a source of associated risks. On the other hand, the market synchronization hypothesis, contrary to the structure of capital theories which asserts that companies use the cheapest type of financing regardless of the level of internal resources (debt and equity), in order to to increase income.

correct the endogeneity of all the regressors (Feeny et al. 2012). More precisely, we favor the two-step system GMM estimator because it is asymptotically more efficient than the single-step estimation (Roodman , 2009). This endogeneity may result from the existence of an inverse causality between our dependent variable (ROA and ROE) and the social capital ratio (Saona , 2011) as well as the equity ratio (Athanasoglou et al. 2008). The table below gives the results obtained from an estimate by the GCM (columns 1 and 2), fixed effects (column 3 and 4) and GMM (column 5 and 6). These estimates make it possible to ensure that the results obtained previously remain unchanged when we take into account the temporal variability and the variability between the individuals of the panel, but also when we correct for the problems of endogeneity.

We note that the sign of the coefficient attached to the variable total logarithm of assets is always negative and significant at 1% (column 1), 10% (column 3) and 1% (column 5) with the variable return on assets as well as with the ROE at the threshold of 5% (column 2 and 6) and 10% (column 4) and 1% (column 5) and regardless of the estimation method used. This result suggests that a higher capital ratio leads to or predicts lower profitability (Saona , 2011). It should also be noted that all the control variables introduced in the regression have the expected signs such as the presence Shariah Compliance Committee, Total Capital Ratio and Consumer Price Index. Our results are robust to changing econometric estimation techniques. They extend the results of Yomna and Aida (2017) and Dami and Bouri (2017). The results of our regressions are presented in Table 5 below.

Table 5: Robustness test on our variables.

VARIABLES	(1) CWM Asset profitability	(2) CWM Return on equity	(3) fixed effects Asset profitability	(4) fixed effects Return on equity	(5) GMM Asset profitability	(6) GMM Return on equity
L. Profitability of assets					0.289*	
					(0.057)	
L. Return on equity						0.137**
						(0.095)
ln Total assets	-0.046***	-0.042**	-0.013*	-0.019*	-0.850***	-0.032**
	(0.060)	(0.016)	(0.031)	(0.091)	(0.329)	(0.104)
Liquidity ratio	0.053**	0.064***	0.008**	0.141***	0.363***	0.043***
	(0.157)	(0.016)	(0.003)	(0.022)	(0.659)	(-0.011)
Capital adequacy ratio	-0.065	-0.039**	0.011	1,193***	-0.894	-0.037*
	(0.015)	(0.015)	(0.054)	(0.162)	(0.011)	(-0.005)
Total capital ratio	-0.007*	-0.206***	-0.134***	-0.047**	-1.008	-0.206***
	(0.023)	(0.909)	(0.021)	(0.061)	(0.107)	(0.007)
Profitability ratios	0.111**	1.248*	0.075*	0.004*	0.095*	0.035*
	(0.0462)	(0.007)	(0.051)	(0.061)	(0.511)	(-0.018)
Market capitalization	0.132***	-0.022***	0.578***	-0.003*	1.205**	-0.012*
	(0.019)	(-0.105)	(0.065)	(0.079)	(0.405)	(0.009)
consumer price index	-0.105*	-0.085*	0.579	0.039***	3.105*	0.076***
	(0.081)	(1,695)	(0.045)	(0.011)	(0.605)	(0.704)
Shariah Compliance Committee	0.436**	0.065**	0.405**	0.019***	0.276*	0.034**
	(0.076)	(0.037)	(0.505)	(0.021)	(0.160)	(0.001)
Constant	0.021***	-2.385*	0.468***	-0.237**	0.078*	0.114***
	(-0.072)	(1,444)	(0.022)	(0.163)	(0.151)	(0.039)
Comments	259	260	260		220	220
Number of countries	20	20	20	20	20	20
R ^{2}			0.870	0.667		
chi2	7,342	667,392				
Proba F- Statistic	0.000	0.000				
AR(1)					0.023	0.034
AR(2)					1.8	1.34
Hansen's test					0.998	1,000

Source: Authors, estimates based on IFSB data

Notes: the values in parentheses correspond to the standard deviation. *** p<0.01 significant at 1%, ** p<0.05 significant at 5%, * p<0.1 significant at 10% .

5.3 Comparative analysis of the contribution of IsB performance determinants

It is a question here of highlighting the fact that each variable contributes to a threshold to the performance of IsB. The objective is to show which of some of our variables are the most effective in improving the performance of IsB. To make this comparative analysis, we refer to the work of Hillier et al. (2011) which allowed us to construct an elasticity index from the mean and the coefficients associated with each variable in the two models and to compare all the determinants from a homogeneous base. The contribution of each determinant according to their coefficients is presented in Table 6 based on the results of Table 4.

The elasticities of the determinants are calculated as follows:

$$f_a = g_a \frac{\bar{y}_a}{g'\,\bar{y}} \ (3\ )$$

Where a represents the determinants of IsB performance, g_a denotes its coefficient, $\bar{y}_a$ its mean, and $g'\,\bar{y}$ is the estimate of the expected value for the dependent variable using the mean value of each regressor . Since the elasticities of the different models cannot be compared directly (Hiller et al. 2011; Uddin et al. 2019), we calculate the weight elasticity index (WEI) by measuring the respective contribution of each determinant in the different models. The index is calculated below:

$$IEP_s = \frac{\sum \frac{f_a}{\sum f}}{m} \ (4\ )$$

Or f_a represents the elasticity, $\sum f$ the sum of the elasticities of the coefficients on all the explanatory variables and m is the number of models where the variables were used. By using this equation, we capture the contribution of each determinant in explaining the performance of IsB.

Table 6: Factor elasticity and IEP

Determinants	Contribution Profitability actives	Contribution Profitability equity	IEP
Log Total Assets	-0.101	-0.003	-0.037
Liquidity ratio	0.024	0.657	0.510
Capital adequacy ratio	0.024	-0.017	-0.104
Total capital ratio	-0.0002	0.362	0.159
Profitability ratios	0.137	0.205	0.149
Market capitalization	-0.004	-0.089	-0.017
consumer price index	0.014	0.568	0.424
Shariah Compliance Committee	0.914	0.046	0.699

Source: Authors, estimates based on IFSB data
Notes: The table above presents the estimates of the elasticity parameters from the GCM regression of our variables under several different specifications used in Table 4. The interpretation of each of the coefficients is the variation of the indicators of the associated profitability to a change of one unit of the determinant and the sign indicates the direction of the association. IEP is the weight elasticity index, which is the average weight of the elasticity of each factor in the two models.

Our results consistently show that the liquidity ratio, profitability ratio, consumer price index and Shariah compliance committee are positively associated with the performance of IsB of OIC member countries. In particular, they indicate the degree of involvement of the variables in the IsB. Indeed, the increase in liquidity and the consumer price index contribute to the improvement of the performance of IsB, a better adequacy of capital and a good market

capitalization thanks to an increase in the value of its actions, which should have a positive impact on the performance of IsB. In this regard, d' Alharthi (2016) provided comprehensive evidence regarding this relationship.

Moreover, our elasticity analysis shows that these factors should be assigned the highest weights of all the variables in explaining IEP performance decision making. This indicates that the level of liquidity and the CCC are very important and exert a positive impact on the performance of IsB (Ben et al. (2015). We argue that the large volume of total capital would lead to an increase in production and , therefore, a change in equity.

6. Conclusion

The objective of this article is to identify the determinants of IsB performance and in this case the relative importance of said determinants by means of the calculation of contributions, which is new in the literature on the determinants of IsB performance. We use the quarterly data for the period 2013 Q4 to 2020 Q2 of 20 OIC member countries. The results we reach indicate that the size of the company, the capital adequacy ratio and the total capital ratio have a significant and negative influence on the performance of IsB. On the other hand, the liquidity ratio, the profitability ratio and the presence of the Shariah compliance committee improve the performance of IsB. As for the consumer price index, it positively affects the return on equity and negatively the return on IsB assets. Our research shows that liquidity and decision-making by the Shariah compliance committee are more important than other factors in immediately accelerating the performance of Islamic banks. Moreover, the results show that the IsB are ready to face the movements of external factors. Nevertheless, external factors are not limited to market capitalization and consumer price index, as there are other factors such as gross domestic product, politics, international situation and others. IsB must take measures that can contribute to increasing their resources and investments, thus making it possible to make economies of scale while maintaining strict control over the various transactions and which will lead to the reduction of costs. In addition, IsB should establish a comprehensive governance policy framework and follow applicable circulars/guidelines issued by supervisory authorities that will help them develop a culture of good governance. Thereafter, the IsB of the OIC Member States must adhere to these basic principles and comply with the rules and principles of Shariah.

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Appendix

Appendix 1: Description of the variables used

VARIABLES	DEFINITIONS	Sources
	Dependent variable (performance)	
AR	RA = net income after tax / total assets or Net margin x Asset turnover	IFSB 2020
CPR	ROE = net income after tax / equity	IFSB 2020
	Independent variables Internal factors	
RAFP	Tier1 (Tier 1 Capital) / Total Assets	IFSB 2020
RCT	Total capital ratio = total capital / total assets	IFSB 2020
YOUR	Total Assets: Larger IsB are expected to enjoy higher profitability due to better access to cheaper funding sources (Lama Tarek Al- Kayed , 2014).	IFSB 2020
LIQ	Liquidity ratio = cash / total assets	IFSB 2020
BPR	Profitability ratios = gross income / total assets Metwall (1997)	IFSB 2020
Sharia Compliance Committee	plays a central role in Islamic finance. Indeed, Sharia filtering is carried out by the Sharia Board.	Documentary research and Funds @ Work
	Independent variables External factors	
CB	This indicator makes it possible to identify the impact of financial market performance on bank profitability (Srairi , 2009).	WDI 2020
CPI	The consumer price index reflects changes in the cost to the average consumer of acquiring a basket of goods and services that can be fixed or changed at specified intervals, such as annually. The Laspeyres formula is generally used. Data are period averages.	WDI 2020

Source: Authors.

Appendix 2: Stationarity tests

variable	LLC		IPS	
	In levels	In difference first	In levels	In difference first
Asset profitability	-14.073 (0.000)***	-24.522 (0.000)***	-6.005 (0.000)***	-14.073 (0.000)***
Return on equity	-2.763 (0.000)***	-12.813 (0.000)***	-14.073 (0.000)***	-14.172 (0.000)***
Total assets	1,881 (0.000)***	-0.192 (0.000)***	2,102 (0.000)***	-12,664 (0.000)***
Liquidity ratio	-15.713 (0.000)***	-9.442 (0.000)***	-4.247 (0.000)***	-13.097 (0.000)***
Capital adequacy ratio	-1.324 (0.000)***	-5.823 (0.000)***	-4.322 (0.000)***	-5.271 (0.000)***
Total capital ratio	-3.469 (0.000)***	-11.608 (0.000)***	-7.225 (0.000)***	-13.602 (0.000)***
Profitability ratios	-0.524 (0.000)***	-96.470 (0.000)***	-4.962 (0.000)***	-6.113 (0.000)***
Market capitalization	-6.124 (0.000)***	-16.452 (0.000)***	-0.691 (0.000)***	-9.208 (0.000)***
consumer price index	-0.982 0.002***	-6.684 (0.000)***	-0.340 (0.000)***	-11.816 (0.000)***
Sharia Board (Shariah Compliance Committee (CCC)	-6.966 (0.000)***	-15.921 (0.000)***	-9.642 (0.000)***	-15.248 (0.000)***

Note: *** Indicates that the statistic is significant at the 1% level. P-values are in parentheses.

Appendix 3: Wooldridge test

Autocorrelation of the Wooldridge panel test	Model 1	Model 2
F(1.19)	30.026	189,166
Pro >F	0.000	0.000

Appendix 4: Test results

Testing	P-value	Conclusion
Homoscedasticity test	0.000	Heteroscedastics
Inter-individual dependency	0.495	Addiction
Temporal autocorrelation	0.000	Autocorrelated