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What Drives Islamic Banks Profitability in the Gulf Cooperation Council Countries?

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Abstract: The purpose of this paper was to assess the profitability determinants of commercial Islamic banks in Gulf Cooperation Council (GCC) countries during the period 2005-2019. The literature review reveals the lack of consensus on the fundamental Islamic banking profitability drivers in these countries considered as the core of the Islamic banking industry in the world. This paper, therefore, considered the most potent factors that might influence the profitability of Islamic banks in countries that rely on a dual banking system. This study used the panel data methodology and Generalized Method of Moments (GMM) estimation with a robustness check. The results reveal that the Islamic banks profitability is strongly influenced by the assets quality, deposits position and cost efficiency. The sizable Islamic banks are not the most robust in profits generation and therefore a reduced size could be recommended for profitability. The capitalisation does not play a crucial role in profitability which might support the tendency of Islamic banks to the leverage-based financing strategy. The effect of the crisis is for the most part evident, which makes the Islamic banks stability view questionable during a crisis period. Liquidity is not determinant for the Islamic banks profitability. Similar results were reached for the macroeconomic variables, which highlights the weak relationship of Islamic bank profitability with the real economy.

Keywords: Islamic banks, profitability, GCC, GMM system

JEL Classification: C13, C23, G21

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Introduction

The recent subprime crisis has been of great interest for the Islamic finance, particularly the Islamic banking industry. Islamic banks have already been established in many countries that have a significant share of Islamic finance in their jurisdictions[1]. The Islamic banks growth and performance observed over the last decades (Islamic Financial Services Board, IFSB, 2020) have been potentially driven by the banks' sustained profitability before and after the financial crisis. As a principal source of capital (Goddard et al., 2004) and an important requirement for sustainability, profitability can prove the success of Islamic banks growth strategy increasingly supported by the main international institutions[2].

The Sharia profit generation in Islamic banks is the result of an interest free business model. Unlike the business model of conventional banks based on credit contract, the profitability of Islamic banks is generated from a variety of assets. In fact, through the *Moudharaba* approach, the intermediation is risk sharing, where the nature of saving and investment deposit is equity-like. The risk sharing and asset backing principles characterize the asset types of Islamic banks (Saadaoui & Hamza, 2020). In this regard, the Islamic bank intermediation relies heavily on two Islamic financing tools. The first is the sale-based and leasing, carried out essentially via the contracts of *Murabaha* and *Ijara*, which constitutes the core financing based on a fixed markup. The second tool is the Profit and Loss Sharing principle achieved through the contracts of *Mousharaka* and *Moudharaba* based on an expected return in relation to the project partnership nature. Given the nature of Islamic banks business model, profitability is the main objective of both of shareholders and investment depositors given their implication in the PLS intermediation differentiating these banks from their conventional counterparts. The hope is that the Islamic banks will be profitable for capital owners as well as depositors (Nienhaus, 1983).

This paper aimed to contribute to the growing literature on Islamic banks profitability considered as the main engine of banking growth. It empirically examined the determinants of Islamic banks profitability in GCC countries considering the previous literature which presents heterogeneous results regarding the main prof-

1 The Islamic banking sector is considered systemically important on the basis of having 15% or more market share of Islamic banking assets in their domestic banking sectors. A recognition of systemic importance is also considered for jurisdictions that are within one percentage point of the 15% benchmark, provided they have active involvement (among the top 10) in the other two sectors of the Islamic Financial Services Industry, Islamic capital markets, and Takaful (IFSB, 2020).

2 IFSB, AAOIFI, International Islamic Fiqh Academy.

itability factors (Srairi, 2009; Zeitun, 2012; Ben Khediri et al., 2015; Belkhaoui, et al., 2020). The study of Islamic banks profitability should be of great interest taking into account the specificities of GCC countries ranked as the first centre of Islamic banking in the world. In fact, following the criterion set by the IFSB, the Islamic banking sector is systemically important for all the GCC countries. Besides, these countries are competing seriously for the leader's position in the Islamic finance field. As an illustration we can cite the recent increasing movement of mergers and acquisitions[3], highlighting the Islamic banks strategic growth objectives.

This paper sought to identify the key factors that influence Islamic banks profitability, which may help managers to better ensure its sustainability. The study examined the Islamic banks profitability in GCC countries during the period 2005-2019 with return on assets (ROA), return on equity (ROE) and net financing margin (NFM) as profitability proxies. Methodologically, it relied on the panel data methodology and GMM system estimation with a robustness check. The remainder of the paper is organized as follows: Section 2 reviewed the literature related to the Islamic banks profitability. Section 3 introduced the data and the empirical methodology. Section 4 revealed and discussed the estimated results. Section 5 provided the conclusions drawn from this study.

Literature Review

The literature on Islamic banks profitability suggests two categories of studies. The first examines the profitability of Islamic banks as a whole market while the second, which involves the greater number of publications, offers a comparison of profitability between Islamic and conventional banks. The literature review reveals the most important results reached by both categories of studies, which may highlight the principal factors affecting profitability in Islamic banks. These studies use different methodologies to estimate profitability ranging from the panel approach to the logit model, for different countries and periods.

For the first study category, Bashir (2003) examined the determinants of Islamic banks in the Middle-East during the period 1993-1998 and noted that high capitalisation, loan to asset ratios and favourable macroeconomic conditions lead to higher profitability; however, taxes have an inverse effect. Haron (2004) found

3 In 2020 Dubai Islamic Bank completed the integration of Noor bank in UAE. In early 2021, The Qatari Islamic Bank Masraf Al Rayan has entered into a merger agreement through the absorption of Al Khalij commercial bank.

that internal and external determinants of Islamic banks profitability (liquidity, size, market share, interest rate) are highly correlated with the total income level. Masood and Ashraf (2012) examined the profitability of 25 Islamic banks selected from 12 countries, including the Middle- East region, during the period 2006-2010. The authors found that banks with larger assets size and efficient management achieved greater return on assets. Trad et al. (2017) investigated the profitability and stability of 78 Islamic banks in 12 countries during the period 2004–2013. Their results indicate that bank size and capital are the key indicators of Islamic banks profitability and stability. Belkhaoui et al. (2020) examined financing modes, risk, efficiency, and profitability of the Islamic banks in GCC countries over the period 2001-2015. They found a positive direct relationship between financing based on profit margin and profitability. They also revealed that profitability is influenced negatively by the credit risk and positively by the capitalization ratio and cost efficiency.

The second category exclusively focuses on the results related to GCC countries or a group of countries including the GCC ones. In this regard, Olson and Zoubi (2008) examined whether there is a distinction between conventional and Islamic banks in GCC countries, during the period 2000-2005. They revealed that Islamic banks are more profitable than the conventional ones but are not probably as efficient. Srairi (2009) studied the determinants of conventional and Islamic banks profitability in GCC countries over the period 1999-2006. The findings indicate that internal and external factors (Capital, risk, liquidity, efficiency, and growth) influence the Islamic bank profitability except for the inflation and banking development variables. Zeitun (2012) investigated the performance of Islamic and conventional banks in GCC countries, during the period 2002-2009. The results indicate that efficiency, size, Gross Domestic Product (GDP), and inflation are the determinants of Islamic banks performance while equity and foreign ownership are not significant. Ben Khediri et al. (2015) found that Islamic banks in GCC countries are, on average, more profitable, more liquid, better capitalized, and have a lower credit risk than conventional banks. The classification models results show that the two types of banks may be differentiated in terms of credit and insolvency risk, operating leverage and off-balance sheet activities, but not in terms of profitability, and liquidity. Further, both types of banks are negatively affected by the global financial crisis. Focusing on the effect of the financial crisis, Alqahtani et al., (2016) found that Islamic banks in GCC countries, over the period 1998-2012, performed better than conventional banks in terms of capitalisation, profitability, and liquidity in the early stages of the global financial crisis but worse in later stages with the real economic downturn. Al-Khouri and Arouri (2016) investigated the

simultaneous determinants of bank stability, profitability and growth, for the GCC banking system during the period 2004–2012. The authors found that the Islamic banks profitability is persistent and negatively affected by the credit growth as well as debt ratio and level of regulation. Moreover, Islamic banks that disclose more information are more profitable than conventional ones.

For a group of countries, Metwally (1997) examined 15 interest-free banks and 15 conventional banks during the period 1992-1994 and concluded that the two groups of banks may be differentiated in terms of liquidity, leverage and credit risk, but not in terms of profitability and efficiency. Mokni and Rachdi (2014) studied the profitability of a sample of 15 conventional and 15 Islamic banks in the MENA region for the period 2002-2009. The authors found that the determinants' significance varies among Islamic and conventional banks and that non-performing loans, liquidity, off-balance sheet, capitalisation, expenditure management, and ownership are the determinants of the Islamic banks profitability. Basu et al. (2015) found that during the financial crisis, Islamic banks often had more difficulties than their conventional counterparts in maintaining their profitability. Zarrouk et al. (2016) examined the profitability of conventional and Islamic banks in the MENA region from 1994 to 2012. They found that profitability is positively affected by banks' cost-effectiveness, asset quality, and capitalization level and that non-financing activities allow Islamic banks to achieve higher profits. They concluded that profitability determinants are not significantly different between Islamic and conventional banks. Olson and Zoubi (2017) investigated the profitability of commercial and Islamic banks in Africa, Asia, and the Middle East before, during and after the financial crisis of 2008–2009. The authors confirm that Islamic banks were more profitable and more financially stable than their commercial counterparts before and during the global financial crisis. However, as the crisis spread to the real economy Islamic banks underperformed conventional banks and they found it difficult to reach the pre-crisis levels of profitability. Yanikkaya et al. (2018) analysed and compared the profitability dynamics of conventional and Islamic banks in the Organization of Islamic Cooperation countries and the United Kingdom between 2007 and 2013. The authors found out that almost all the determinants of profitability for all the banks are different implying that the Islamic banks profitability relies on different dynamics from those of the conventional banks.

Toumi (2019) explored how the Islamic finance ethics could impact Islamic banks profitability and capital structure compared to conventional banks. Regarding bank profitability, Toumi (2019) found that loan ratio, credit risk, insolvency risk and costs ratio are the best predictors that help to distinguish between Is-

lamic banks and conventional banks. Sohel Azad et al. (2019) studied the effect of bank lending and fee income on Islamic and conventional banks profitability using data collected from 20 countries over the period 2000 - 2015. They indicated that, compared to the conventional banks, the bank fee in Islamic banks is an important determinant of profitability and that an increase in their lending may not be beneficial for them. Weill and Zins (2021) examined whether loan growth and profitability have a different sensitivity to economic growth in a dual banking system. They came out with the idea that there is no difference in lending cyclicality for both banking models; however, only Islamic banks profitability is procyclical and more precisely this cyclicality is asymmetric, occurring only during economic downturns.

Methodologically, this study is different from the previous research related to Islamic banking in the GCC countries. Our sample included only Islamic commercial banks given their specific business model, involving sale-based and PLS-based financing, which would allow more useful implications and recommendations for the Islamic banking industry. In addition, the empirical study used more than one profitability proxy. Among these proxies, it adopted the NFM proxy that is specific to Islamic banks which would result in a more accurate assessment of the profitability determinants. Finally, the period is relatively long and recent compared to the other studies, and includes the subprime crisis which would allow a better understanding of the Islamic banks profit sustainability.

Data and Methodology

Sample

The study of the GCC Islamic banking is of great interest due to many factors: first the group of Islamic banks is homogeneous, belong to the same region with historical economic relationships and rely on petrol as the main source of revenue. Second, the GCC countries occupy a leading position and stand as the centre of Islamic banking in the world with Saudi Arabia ranking first and owning the most important Islamic banks assets worldwide (IFSB, 2020). In addition, following the criterion fixed by the (IFSB, 2020), the Islamic banking sector is systemically important for all GCC countries. Moreover, there is a harsh competition between these countries over the leading position in the Islamic finance field as illustrated by the recent movement of mergers and acquisitions.

Table 1

List of Islamic commercial banks

Countries	Islamic Banks
Bahrain	Al Salam Bank
	Al Baraka Islamic Bank
	Bahrain Islamic Bank
	Ithmaar Bank
	Kuwait Finance House
	Khaleeji Commercial Bank
Kuwait	Ahli United Bank
	Boubyan Bank
	Kuwait Finance House
	Kuwait International Bank
	Warba Bank
Oman	Alizz Islamic Bank
	Bank Nizwa
Qatar	Al Rayan Bank
	Qatar International Islamic Bank
	Qatar Islamic Bank
Saudi Arabia	Alinma Bank
	Al Rajhi Bank
	Bank AlJazira
	Bank Albilad
United Arab Emirates	Abu Dhabi Islamic Bank
	Ajman Bank
	Al Hilal Bank
	Dubai Islamic Bank
	Emirates Islamic Bank
	Noor Bank
	Sharjah Islamic Bank
Total: 6 countries	**Total: 27 Islamic banks**

The present research covers a relatively long period from 2005 to 2019 characterised by the rapid development of Islamic banking intermediation in the GCC countries. The choice of this period was enhanced by several important criteria regarding some crucial events. Firstly, the period includes the subprime financial crisis with its impact on the profitability of Islamic banks in the GCC countries, followed by the post crisis recovery phase. In addition, during this period the Basel III standards are adopted by all the Islamic banks chosen. The period also witnessed the creation of 14 Islamic banks in all the GCC countries, which represents almost

the half of our sample. The availability of data is also another factor that motivated our choice of the period where mostly all the variables' data were available and at least five successive observations were checked for each bank. The choice of a recent and long period for the GCC countries is an addition to the existent studies that generally focused on a relatively shorter and quite older periods not exceeding 2012, except for Alqahtani et al. (2016) and Belkhaoui et al. (2020). In fact, the results might be more interesting as more data are collected over the years. Further, compared to the existent studies, this research includes the newly created Islamic banks in Oman, launched after the financial crisis precisely in 2012. The research uses the data of 27 Islamic commercial banks in the GCC countries (Table1) where data were collected from annual reports for the banks specific variables and from the World Bank database (World Development Indicators database) for the macroeconomic variables.

Variables Description and Estimation Method

The empirical methodology is based on a panel data analysis. The estimation method of the determinants of profitability was achieved through a pooled regression model using the dynamic panel system GMM method as follows:

$$Profit_{ijt} = \alpha + \beta_1 Profit_{ijt-1} + \beta_2 (Bank\ specific\ variables)_{ijt} + \beta_3 (macroeconomic\ variables)_{jt} + \beta_4\ dummy\ variable_t + \varepsilon_{ijt} \quad (1)$$

Indexes i, j and t indicate, respectively, the observed bank, the country where it operates and the year of observation. $Profit_{ijt}$ is the proxy of the Islamic bank profitability. The dynamic pattern of this variable is captured by introducing its one period lagged value on the right side where β_1 is the parameter to be estimated for the lagged dependent variable. β_2, β_3 and β_4 are the parameters to be estimated for the three categories of variables, respectively, the bank specific variables, the macroeconomic variables, and the dummy variable. The error term (ε_{ijt}) is assumed to pursue a random walk process. The regression of profitability proxies is performed on all explanatory variables displayed below.

The left side of equation (1) includes the proxies of Islamic bank profitability namely the return on assets (ROA), return on equity (ROE) and net financing margin (NFM)[4]. These endogenous variables are considered as the best proxies of

4 NFM can be considered as fitting well the main source of Islamic banking profitability based primarily on *Murabaha* and *Ijarah* contracts.

profitability and intrinsically reflect the performance of Islamic banking model. Profit generation in Islamic banks is the result of an interest free business model based on the *Moudharaba* approach. In this model, the intermediation banking is risk sharing from saving and investment deposit, approximated equity-like, on the one hand, and the tangible assets including a variety of sale-based, lease-based and PLS-based contracts, on the other hand (Saadaoui & Hamza, 2020). Given the specific Islamic banks business model, profitability is the main objective of not only shareholders but also investment depositors according to the PLS principle.

The right side of equation (1) includes all the explanatory variables chosen according to their importance in influencing the Islamic banks profit generation (Table 2 shows the variable description). The bank specific variables include the most fundamental factors of the bank growth and profit sustainability. SIZE measures the size of an Islamic bank and indicates whether a large bank is considered as a necessity for a better generation of a continuous profit. The CAP variable through equities to assets ratio measures the capitalisation of the bank and could be an important requirement for the sustainability of profitability. The asset quality AQ measures the percentage of non-performing financing to gross financing which is crucial for risk solvency and its impact on a bank profitability. The liquidity variable is related to the percentage of loans to deposit reflecting the capability of the deposit to provide liquidity after asset financing and, accordingly, offer a strong liquidity level required for the banking activity. The variable deposit market share DMS measures the capacity of Islamic banks in attracting different forms of deposits, principally investment deposit. In this regard, the DMS variable is decisively important through deposit transformation in assets and accordingly for profit generation, under the condition of preserving the quality of assets and taking into consideration the market discipline of investment depositors. The variable efficiency EFF, measured by the ratio cost to income, reflects the bank efficiency in cost management which is crucial for profit formation. The macroeconomic variables include the most known inflation rate and GDP growth; both are the main indicators of the economic situation, which is important for the banking activity in terms of products pricing, deposit growth and financing allocation. Finally, the period of this study includes the financial crisis, which is proxied by the dummy variable CRISIS, covering the years 2008 and 2009.

Table 2
Variables description

Category	Variables	Symbol	Measurement	Source
Dependent variables:				
Profitability indicators	Return on assets	ROA	Net income/total assets	Annual reports
	Return on equity	ROE	Net income/total equity	
	Net financing margin	NFM	Net financing income/Total earning assets	
Determinants:				
Bank specifics	Size	SIZE	Log Total assets	Annual reports (Calculated by author)
	Capitalization	CAP	Equity/Total assets	
	Deposit market share	DMS	Total Islamic bank deposit/country total Islamic bank deposit	
	Assets quality	AQ	Non-performing financing/Gross Financing	
	Liquidity	LIQ	Total financing/Total deposit	
	Efficiency	EFF	Cost/Income	Bureau van Dijk's BankFocus database
Macroeconomics	Inflation	INF	Growth rate of consumer price index	World Bank database
	GDP growth	GDP	Real GDP growth	
Dummy	Crisis	CRISIS	Equal 1 if there is a crisis (years 2008 and 2009) and 0 otherwise	(Calculated by author)

Equation (1) is estimated using a dynamic panel data estimation to take into account both the individual and temporal dimensions of data. The estimation method is the System GMM developed by Arellano and Bover (1995) and Blundell and Bond (1998), considered as efficient for controlling the variables endogeneity. In fact, as one or several explanatory variables are expected to be correlated with

the error term, System GMM is used to control for this problem of endogeneity by instrumenting the adequate variables using a maximum of lags as instrument for transformed and level equations (Saadaoui & Hamza, 2020). Besides, Blundell and Bond (1998) indicate that System GMM provides more efficient estimators than the first-difference GMM because even if the variables are very persistent, the instruments used in the level equation adequately predict the endogenous variables in the model. Regarding the validity of the model, Hansen test of over-identifying restrictions was used to check the validity of the instruments. If the p-value of this test is significant (strictly lower than 10%), the Hansen test rejects the set of the chosen instruments. In addition, the Arellano and Bond's serial correlation test was used to verify if the error terms exhibit a second order serial correlation. Therefore, if the p-value of the second-order correlation test-AR (2) is not significant (< 10%), the Arellano and Bond (1991) test indicates a bias related to a serial correlation problem. Evidently, for the results validity, the system GMM in one step and two steps are performed with the finite-sample correction of Windmeijer (2005).

Results and Discussion

Descriptive Statistics

The descriptive statistics displayed in Table 3 indicate the number of observations, mean, standard deviations (Std Dev), minimum (Min), and maximum (Max) values for all the variables. These statistics reveal important information regarding the specific banks variables predicted as the main explanation of Islamic banks profitability. On average, the profitability variables ROA, ROE and NFM for the selected GCC Islamic banks are, respectively, equal to 1.6%, 10%, and 3.4%, which reflects a respectable level of profitability despite the subprime crisis impact on the banking sector. This performance can be explained by a steady top-line growth and robust profit generation[5]. The ROE properties indicate the strive of Islamic banks to deliver sustainable and long-term returns to their shareholders.

5 The profit average before the crisis was more than the double of the profit during all the period.

Table 3
Descriptive statistics

Variables	Observations	Mean	Std Dev	Min	Max
ROA	348	0.016239	0.020368	-0.057500	0.132000
ROE	348	0.100443	0.112172	-0.423100	0.589980
NFM	284	0.034358	0.015298	0.003808	0.103593
Size	349	8.973705	1.176867	5.541170	11.536880
Capitalization	349	0.166208	0.104220	0.026580	0.970647
Deposit market share	349	0.234957	0.229689	0.000859	0.979761
Assets quality	291	0.047371	0.051541	0.000002	0.332826
Liquidity	349	0.876241	0.327548	0.325568	4.589136
Efficiency	300	0.528782	0.268712	0.1564	1.9600
Inflation	403	0.032777	0.0334629	-0.04900	0.15100
GDP growth	405	0.041119	0.0448552	-0.07500	0.26200
Crisis	405	0.133333	0.340355	0	1

Regarding the properties of capitalisation and assets quality which averages are equal to 16.6% and 4.7 % respectively, it was found that the Islamic banks are adequately capitalized and enjoy a healthy asset quality. Despite the significant decrease in capitalization recorded during the 2005-2019 period, the capital position is still healthy but this situation could be hampered by the increase of leverage. The assets quality is healthy and the statistics highlight the prudent risk management and the availability of collateral that Islamic banks receive on their financings leading in the end to a reduced risky asset. As a result, the balance sheet is increasingly strong when it is backed by the assets quality and adequate provisioning.

The liquidity indicator is assessed by the ratio of financing to deposit which on average resulted in 87.6%. This ratio level indicates a healthy and strong liquidity position leading the Islamic banks to finance comfortably the debt-based asset and to cover any financing loss or funds withdrawal. This ratio is also supported by the level of deposit and is reinforced in case deposits increase steadily leading to a stable liquidity position. In this regard, the deposit market share indicator is important for the profitability generation of Islamic banks. The deposit market share differs from one bank to another but on average an Islamic bank has a deposit market share equal to 23.5% of the total Islamic banks market. The deposit position is crucial for the banking intermediation through assets financing and investment leading such banks to achieve the expected profitability. The sustained deposit

growth recorded during the whole study period reflects the customer loyalty and provides the Islamic banks with stable and diversified resources. The Islamic banks efficiency ratio is equal to 52.8%, which is basically due to an effective cost management. However, the cost to income can be improved to gain profitability given the strong competition in the banking market. During the study period, the inflation rate, equal to 3.2%, is quite high, and the GDP growth is over 4%, on average, which reflects a strong economic situation largely supported by the oil industry.

Table 4
Correlation matrix

	ROA	*ROE*	*NFM*	*SIZE*	*CAP*	*AQ*	*LIQ*	*DMS*	*EFF*	*INF*	*GDP*	*CRISIS*
ROA	1											
ROE	0.8245*	1										
NFM	0.5658*	0.3799*	1									
SIZE	-0.0003	0.2675*	-0.0007	1								
CAP	0.1660*	-0.0412	0.1097	-0.5265*	1							
AQ	-0.3452*	0.3767*	-0.2136*	-0.1577*	-0.2249*	1						
LIQ	-0.0829	-0.0946	0.0336	-0.2020*	0.4954*	-0.3298*	1					
DMS	0.3340*	0.4033*	0.3242*	0.4975*	-0.0808	0.1432*	-0.1446*	1				
EFF	-0.3915*	-0.5680*	0.0167	-0.5648*	0.3869*	0.1659*	0.2324*	-0.2102*	1			
INF	0.2001*	0.1854*	0.0895	-0.079	0.039	-0.0794	-0.0628	0.0934	-0.0906	1		
GDP	0.4080*	0.2595*	0.1706*	-0.1745*	0.2250*	-0.0366	-0.0369	0.1436*	-0.0914	0.3369*	1	
CRISIS	-0.0311	-0.0942	0.0941	-0.0867	0.0768	-0.0594	-0.0118	0.0142	-0.0445	0.3444*	-0.0816	1

* Significance at 95% confidence level

Before interpreting the estimation results, it is interesting to study the problem of correlation between variables, which may lead to biased results. According

to Kennedy (1992), there is a serious multicollinearity problem if the correlation coefficient is above 80% for each pair of variables. According to the correlation matrix, all variables are under the threshold of 80% except for the correlation between the endogenous variables ROA and ROE which were not used in the same estimation. The correlation matrix results could provide some information for potential determinants of Islamic banks profitability. According to table 4, there is a significant correlation between asset quality, deposit market share, and GDP growth with all proxies of profitability except for crisis and liquidity, which a priori supports the existence of a relationship between these variables and the Islamic banks profitability. Efficiency and inflation are correlated significantly with ROA and ROE. Further, Size and CAP are only correlated positively with ROE and ROA, respectively. Several of the remaining variables are correlated positively or negatively, but they are largely below the multicollinearity critical threshold.

Estimation Results and Robustness Check

Several regression sets were performed for the three proxies of profitability under the specification of a one-step system GMM in addition to a robustness check using the two-step system GMM. All the estimation results are displayed in tables 5 and 6. The Arellano test of autocorrelation and Hansen test of instruments identification are totally in conformity with the rules of the system GMM estimation.

The lagged dependent variable is positively significant with all the profitability indicators showing that profitability past affects its present and proving its dynamics. The variable SIZE does not affect ROE but influences significantly and negatively the ROA and NFM at 5% and 10%, respectively, which is not in line with the positive relationship found by Bashir (2003) and Zeitun (2012) and the non-significant relationship shown by Mokni & Rachdi (2014) and Zeitun (2012) for the ROA. The present result is in line with that of Toumi (2019), who reveals that Islamic banks tend to have a reduced SIZE. In addition, this result is also interesting from the classical viewpoint that insists on the fact that large banks are 'too big to fail'. Therefore, according to the estimation results, large banks are not necessarily the most profitable. Moreover, the variable SIZE is neutral for the shareholders return and this finding might be further supported by the effect of capitalization. In fact, capitalisation has an influence only on ROA but not on ROE and NFM. To some extent, this result is similar to that found by Bashir (2003) and Zeitun (2012) but different from those of Srairi (2009) and Belkhaoui et al. (2020). This result supports the view of the reduced impact of capitalisation on profitability and the potential rise of leverage in achieving the performance target which gives more

room to the investor depositors in the banking growth strategy. In this regard, the estimation result for deposits reinforces the precedent result and reflects a strong positive impact of deposit market share on profitability for all proxies. This result supports the pivotal role of deposits in the Islamic intermediation and more precisely their contribution to satisfying the financing of earning assets. In this regard, Toumi (2019) found that Islamic banks benefit more from the intermediation activity and easily convert the deposits into financing operations, which increases their net margin compared to conventional banks. Furthermore, the growing role of investment depositors in banks profitability and their implication in the profit and loss sharing incite Islamic banks to consider investment accounts holders as principal stakeholders. However, the increase of leverage could also lead the Islamic banks into a critical situation in the presence of displaced commercial risk due to weak or negative returns.

Table 5
One-step estimation results

Estimation method	**GMM system One-step estimation**		
Dependent variables	**ROA**	**ROE**	**NFM**
Dependent variable (-1)	0.339***	0.177***	0.433***
	(0.000)	(0.002)	(0.001)
Size	-0.003**	-0.012	-0.009***
	(0.017)	(0.231)	(0.009)
Capitalization	0.033***	0.026	-0.030
	(0.004)	(0.818)	(0.656)
Deposit market share	0.021***	0.124***	0.032***
	(0.002)	(0.002)	(0.002)
Asset quality	-0.057***	-0.434***	-0.042**
	(0.002)	(0.009)	(0.019)
Liquidity	-0.005	0.033	-0.009
	(0.233)	(0.711)	(0.176)
Efficiency	-0.021***	-0.205***	-0.012**
	(0.000)	(0.000)	(0.013)
Inflation	0.006	0.167	-0.032
	(0.642)	(0.116)	(0.189)

GDP growth	-0.017	-0.083	-0.027
	(0.336)	(0.601)	(0.253)
Crisis	-0.009***	-0.042***	-0.0005
	(0.007)	(0.005)	(0.680)
Constant	0.049***	0.260**	0.115***
	(0.001)	(0.041)	(0.006)
First-order AR	-1.790	-2.210	-2.390
First-order AR (p-value)	(0.074)	(0.027)	(0.017)
Second-order AR	1.48	1.46	1.59
Second-order AR (p-value)	(0.139)	(0.145)	(0.113)
Hansen	19.92	16.31	24.13
Hansen (p-value)	(0.701)	(0.841)	(0.191)
Number of instruments	35	34	30
Observations	252	252	232
Number of banks	27	27	27

The table indicates the one-step System GMM results with standard errors computed in accordance with the Windmeijer (2005) finite-sample correction. The t-statistics are between parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

The assets quality determinant is measured by the ratio of non-performing financing to total financing. According to the estimation result, there is evidence of a negative impact of credit risk on profitability (Srairi, 2009; Belkhaoui et al., 2020). The quality asset is an important determinant of Islamic banks profitability which confirms the requirement of a strong risk profile of clients for the financing allocation. The liquidity through the ratio financing to total deposits is negative, except for the one-step estimation ROE which is positive; however, in all the estimations, liquidity is not significant and has no direct influence on profitability. This result also indicates the weak direct relationship between liquidity and profitability in a normal period. Regarding cost efficiency, the estimation results reveal the crucial role of costing for profit formation; in fact, a cost increase significantly decreases profitability. Therefore, the cost efficiency is obviously an important determinant of Islamic banks profitability. The cost efficiency significance results are in line with those found by Srairi (2009), Zeitun (2012) and Belkhaoui et al. (2020).

Table 6
Two-step estimation results

Estimation method	**GMM system Two-steps estimation**		
Dependent variables	**ROA**	**ROE**	**NFM**
Dependent variable (-1)	0.317***	0.160***	0.448**
	(0.006)	(0.008)	(0.021)
Size	-0.003*	-0.009	-0.009*
	(0.054)	(0.382)	(0.090)
Capitalization	0.041**	0.039	-0.030
	(0.015)	(0.743)	(0.754)
Deposit market share	0.019**	0.119***	0.033*
	(0.021)	(0.004)	(0.069)
Asset quality	-0.055***	-0.416**	-0.043***
	(0.005)	(0.049)	(0.008)
Liquidity	-0.006	-0.007	-0.009
	(0.299)	(0.711)	(0.354)
Efficiency	-0.022***	-0.182***	-0.014**
	(0.008)	(0.001)	(0.035)
Inflation	0.007	0.130	-0.025
	(0.625)	(0.317)	(0.436)
GDP growth	-0.013	-0.082	-0.031
	(0.478)	(0.644)	(0.216)
Crisis	-0.008***	-0.041**	-0.0007
	(0.004)	(0.017)	(0.629)
Constant	0.046**	0.246*	0.121**
	(0.02)	(0.071)	(0.057)
First-order AR	1.850	-1.870	-1.800
First-order AR (p-value)	(0.065)	(0.061)	(0.071)
Second-order AR	1.43	1.22	1.47
Second-order AR (p-value)	(0.153)	(0.222)	(0.141)
Hansen	19.92	16.31	24.13
Hansen (p-value)	(0.701)	(0.841)	(0.191)
Number of instruments	35	34	30
Observations	252	252	232
Number of banks	27	27	27

The table indicates the two-step System GMM results with standard errors computed in accordance with the Windmeijer (2005) finite-sample correction. The t-statistics are between parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10%, respectively.

At the macroeconomic level, and contrary to the findings of Zeitun (2012), our estimations show that inflation is positive, except for NFM, but insignificant (Srairi, 2009). For the second macroeconomic variable represented by GDP growth, the sign is negative, however, this variable is not significant in all the estimations and inconsistent with the significant impact found by Zeitun (2012) and, Weill and Zins (2021). Nonetheless, the Islamic banks profitability, except for the NFM, decreased significantly because of the negative effect of the subprime crisis (Ben Khediri et al., 2015; Basu et al., 2015), which questions the stability view of Islamic banks during a crisis period.

Finally, our study revealed that all the results achieved in the one-step estimation were confirmed in the two-step estimation, which supports the robustness of the empirical results.

Conclusion

The results analysis of this research indicates that Islamic banks in GCC countries are capable of generating their profits thanks to their control of the assets quality, achievement of a strong deposit market share, and improvement of their cost efficiency. A big size bank is not necessarily the most profitable. To some extent, the capitalisation may not be the main factor of Islamic banks performance and the business model of Islamic banks which is converging increasingly toward an excessive leverage is legitimately questionable. The effect of the subprime crisis on profitability cannot be ignored, but the Islamic banks have recovered quickly and got back to a sustained profitability, although they achieved less than their profitability average observed before the crisis (Olson & Zoubi, 2017). The macroeconomic variables have no effect on profitability which explains the weak connexion of Islamic banks with the local economic situation. This research recommends Islamic banks managers to sustain profitability through a closer focus on the relevant drivers of profitability found out in this study and through a vigilance of the impact of an economic downturn on their performance.

This study proved that the profitability of Islamic banks is mainly driven by classical factors regardless of the ethical ones given that Islamic banks model is increasingly similar to that adopted by the conventional banks (Belabes, 2014). In this regard, it is important for future research to analyse the relationship of Islamic banks with investment depositors and its impact on profitability from an Islamic perspective. Future research may address the impact of Islamic banks profitability on deposits to further explore the type of relation between Islamic banks and in-

vestment depositors given their importance in the increase of financial resources and the expansion of Islamic banks under the PLS principle. This issue is also important to analyse whether the behaviour of investment depositors is a profit motive or Sharia motive which might constitute an important factor for these banks profitability. This research issue will allow focusing on Sharia aspects of Islamic banking profitability increasingly tied to the leverage strategy.

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