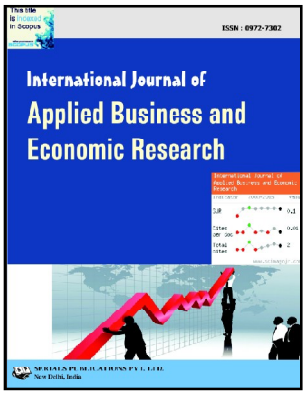

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Profitability Determinants of Islamic Retail Banks: A Panel Data Approach

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Abstract: This study examines the determinants of Islamic banks' profitability in the Kingdom of Bahrain which is a financial hub where the highest concentration of Islamic financial institutions in the region. The panel data approach has been adopted in this study for the data over the period from 2010 to 2016. The empirical results generally indicate that bank-specific and macroeconomic factors have significant effect on profitability for Islamic banks. The findings show that bank size, operating efficiency, and inflation rate have direct and positive significant effect, whereas GDP growth rate has negative significant effect on assets' return.

Keywords: Islamic banking, Islamic finance, profitability, Bahrain.

JEL codes: C13, C23, C53, C58, G21.

1. INTRODUCTION AND BACKGROUND

Bank's ability to generate revenues in excess of costs, in relation to bank's capital base is called profitability of a bank. The bank that gets more profits will be able to diversify its business, hedge effectively against adverse effects and reward its stakeholders in many ways. Accordingly, identifying the determinants of bank's profitability provides an opportunity to improve bank management through knowing which variables are affecting bank's profits as well as its continuing existence and stability as a financial intermediary and an effective contributor to country's economic growth (Masood *et al.*, 2015).

Determinants of banks profitability have profoundly attracted interest due mainly to the importance of the banking sector within the economy. Early studies such as those by Short (1979), Bourke (1989),

Berger (1995), and later studies such as Masood *et al.*, (2009), Masood and Ashraf (2013), Karim *et al.* (2010), Trujillo and Ponce (2013), Abdullah *et al.* (2014), Aggarwal (2016) and Masood *et al.*, (2016) focused on endogenous vs. exogenous or bank-specific vs macroeconomic factors respectively as the key explanatory variables of banks' profitability.

The ratio of profit to assets or the return on assets (ROA) and the profit to equity ratio or the return on equity (ROE) represent two alternatives to measure the profitability of banks. ROA indicates bank's management ability to generate profits from the assets owned by a bank, while ROE shows the shareholders' income on their equity and equals to ROA multiplied by the ratio of assets to equity (Panayiotis *et al.*, 2005). Numerous empirical studies have adopted ROA and ROE to measure the profitability of banks in short and/or long terms and also to determine the main factors that could affect banks' profitability. These studies conclude that bank-specific and economy-specific determinants affect banks' profitability.

The study by Short (1979) which is aimed at identifying the profit rate determinants for 60 banks released that banks' assets growth and concentration at the domestic banking market have significant positive effect on banks' profit. While Bourke (1995) concluded that there is a direct casualty between capital ratio and bank profitability, and the higher is the capital ratio the more is the bank's profit.

Berger (1995) studied a group of banks in the US during the period 1983-1992 in order to investigate the relationship between ROE and capital adequacy ratio. He found that there is a significant relationship between these two variables. The study of Duca and Mclaughin (1999) confirmed that fluctuations in bank profitability as well as in performance are highly correlated with the credit risk dissimilarity, this, in turn, raised bank exposure to credit risk, thus declining bank's profitability. Karim *et al.* (2010) studied the sample of nine African Islamic banks over the period 1999-2009. Their study pointed out that capital adequacy and bank size have positive significant effect on ROA. Trujillo and Ponce (2013) indicated the same results with their sample of 89 banks including 28 commercial banks, 45 savings banks and 16 credit cooperatives. Their study confirmed that capital adequacy directly affects banks' profitability in the long term.

Ahmed *et al.* (2011) used both regression and correlation analysis to investigate the profitability determinants of Pakistani commercial banks over the period 2006-2009. The study outcomes show that operating efficiency, bank size and financial leverage of a bank has a significant and positive relationship with its profitability (ROA). The same results were also found by Al-Tamimi and Charif (2011) and Mirzaei *et al.* (2013). Al-Tamimi and Charif used annual data of 38 banks in the UAE during the period 1996-2005 and found a direct relationship between ROA and operating efficiency, while Mirzaei *et al.* worked on 26 banks listed on Dhaka Stock Exchange during 2008 to 2011.

Masood and Ashraf (2013) argued that assessment of risk can be performed using capital adequacy to determine the profitability position of Islamic banks in Asia and Africa in the specific period. Their study, conducted in 2013 by means of extracting data from 2006 till 2010 found a positive relationship between capital adequacy and profitability of banks. Recently, Aggarwal (2016) studied on 27 Indian banks eight of them were state owned while the rest were publicly traded banks. The findings showed that there is a significant positive relationship between financial leverage and ROA.

Regarding the studies of macroeconomic determinants, Revell (1979) showed the relationship between inflation and bank profitability. He also stated that the effect of inflation on bank profitability based on the rate of increasing wages of the bank and other operating costs is more than that of

inflation rate, and this mainly depends on the accurate predicting of inflation which will help banks manage their operating expenses. Al-Smadi and Al-Wabel (2015) collected data from 15 Jordanian banks between 2000 and 2010 in order to test the effect of inflation rate as an exogenous factor on the performance and profitability of banks in the long term. They concluded that the increase in inflation has adverse effects on profitability where savings decline since people spend more on goods and services. They suggested that the main motive of a bank should be to generate high income to facilitate its stakeholders, especially investors, but the motive maybe adversely affected by inflation or recession. Wasiuzzaman and Tarmizi (2010), Ramadan *et al.* (2011) and Masood and Ashraf (2013) used the annual data on Islamic banks operating in Malaysia and Jordan to test the effect of macroeconomic variables. The regression outcomes show that macroeconomic variables have positive and significant effect on profitability of Islamic banks.

Petria *et al.* (2015) applied quite similar methodology to European banks to state that there are external or macroeconomic factors having direct impact on profitability of commercial banks and that analyst should focus on economic conditions of a country in which a particular bank is operating. Karim *et al.* (2010) found that GDP growth and inflation rate have positive and significant impact on ROA among different Islamic banks operating in Africa during 1999-2009. The study by Poposka and Trpkoski (2016) using data from different financial records of commercial banks in the Balkan region, showed there is a significant positive relationship between GDP growth and ROE of commercial banks. At the same time, Sufian and Parman (2009) and also Abduh and Idrees (2013) in their studies on Malaysian banks found a negative significant effect of GDP growth on banks' profitability since the economy has downturns, and the profitability levels could be adversely affected because the default risk is higher during the downturns than during the upturns.

The review indicates that bank-specific and economy-specific determinants have had either direct or indirect effect on banking profitability. When it comes to Bahraini banking sector, this study provides a considerable interesting context due to country's role as a host for Islamic finance for decades that emergence and development of Islamic banking and finance operations commenced about 30 years ago. More recently, financial markets of the country have moved towards growth due mainly to the increasing performance of Islamic retail banks (Central Bank of Bahrain, 2014). The current paper empirically studies both endogenous and exogenous determinants of the Islamic retail banks' profitability in Bahrain as an Islamic financial hub, using the dynamic panel of Islamic banks data over the period 2010-2016.

The rest of the study is organized as follows: data, methodology, and the hypotheses of the study are presented in the following. Empirical results and findings are discussed in Section three, while Section four concludes the paper.

2. DATA AND METHODOLOGY

2.1. Data

The following table (Table 1) provides the description of bank-specific determinants which include capital adequacy, bank size, financial leverage, credit risk and operating efficiency, as well as economy-specific determinants such as inflation and GDP growth rate.

Table 1
Variables in This Study

Variable	*Description*	*Calculation*
Return on Assets (ROA)	Shows profitability of firm's asset	ROA = Net Income/Total Assets
Return on Equity (ROE)	Measures profitability of stockholders faced during a year, and also illustrates the amount of money the firm earns by utilizing one dollar of its equity.	ROE = Net Income/ Equity
Capital adequacy	Measures the capitalization of a bank, known as bank's risk weighted credit exposure	CA = Capital/ Total Assets
Bank size	Indicates bank's assets book value including cash, loans, securities' market value and short-term investments.	BS = Ln (total assets)
Financial leverage	Refers to company's potentiality to pay off its obligations by employing available resources	FL = Total Liability/Total Assets
Credit risk	This is a risk that could happen when a borrower cannot repay the loan and thus the lender will lose the loan principle or the loan's interest.	CR = Gross Loans/Total Assets
Operating efficiency	Measures operation costs that a bank incurred while managing its total assets	OE = Operating Expenses/ Total Assets
Inflation	Increasing price level during a certain period of time	INF = Percentage change in consumer price index (CPI)
GDP growth rate	Measures the change in real GDP during a certain period of time as reflected on people's standard of livings	GG = Percentage change in Real GDP

Sources: Masood *et al.* (2009), Aslam *et al.* (2016), Rashid & Jabeen, (2016), Karim *et al.*(2010), Trujillo-Ponce, (2013), Paleckova, (2016)

This study is based on the secondary data obtained mainly from the selected banks' annual reports. In addition to the annual reports, Central Bank of Bahrain reports are used during the period from 2010 till 2016. The selected six Islamic retail banks are Ithmaar Bank (ITHB), Al Baraka Bank (ALBB), Kuwait Finance House (KFH), Bahrain Islamic Bank (BISB), Al Salam Bank (ASB), and Khaleeje Commercial Bank (KHCB). The study uses seven independent variables and ROA and/or ROE as dependent variables. Table 2 shows the descriptive analysis of the data which indicates that variability of most of the variables under study, where the value of standard deviation of bank size is the least followed by GDP growth. The non-normality of the variables noted from platykurtic distribution (or negatively skewed) in six variables and leptokutic distributions of three variables in addition to the results of Jarque-Bera normality test. The mean values of ROA and/or ROE were almost negative in many years during the study period. However, the time trend shows some improvement in the values of both, they were mostly negative until 2013 and then they became positive starting with 2014 and onwards.

The profitability (ROA/ROE) bank-specific variables have different trends, where capital adequacy (CA) of Islamic banks declined during the study period, while bank size (BS), credit risk (CR) and financial leverage (FL) began to increase after 2012. GDP growth rate (GG) declined from 4.33% back in 2010 (2010=100) to 3.61% in 2016, while the value of inflation rate (INF) was almost 2% over the study period. The trend of mean values of the variables is shown in Figure 1.

Table 2
Statistical properties of the variables

	Mean	*Max.*	*Min.*	*Std. Dev.*	*Skewness*	*Kurtosis*	*Jarque-Bera*	*Prob.*	*Obs.*
ROA	-0.071	1.35	-4.33	1.141	-1.749	5.547	32.78	0.000	42
ROE	-1.805	11.95	-42.3	11.31	-1.17	6.33	41.82	0.000	42
CA	15.89	28.19	4.78	7.169	1.19	1.54	3.963	0.013	42
BS	3.111	3.96	2.62	0.328	1.044	3.893	9.04	0.010	42
FL	83.75	95.1	71.81	7.117	-1.089	1.549	3.735	0.015	42
CR	41.08	71.81	11.97	15.37	-2.107	2.77	2.66	0.031	42
OE	3.141	7.09	0.04	1.569	3.551	3.006	2.127	0.004	42
INF	2.014	3.3	-0.37	1.1	-1.17	3.56	10.26	0.005	42
GG	3.74	5.41	1.98	1.048	-4.166	2.289	1.075	0.005	42

Sources: Authors' calculations

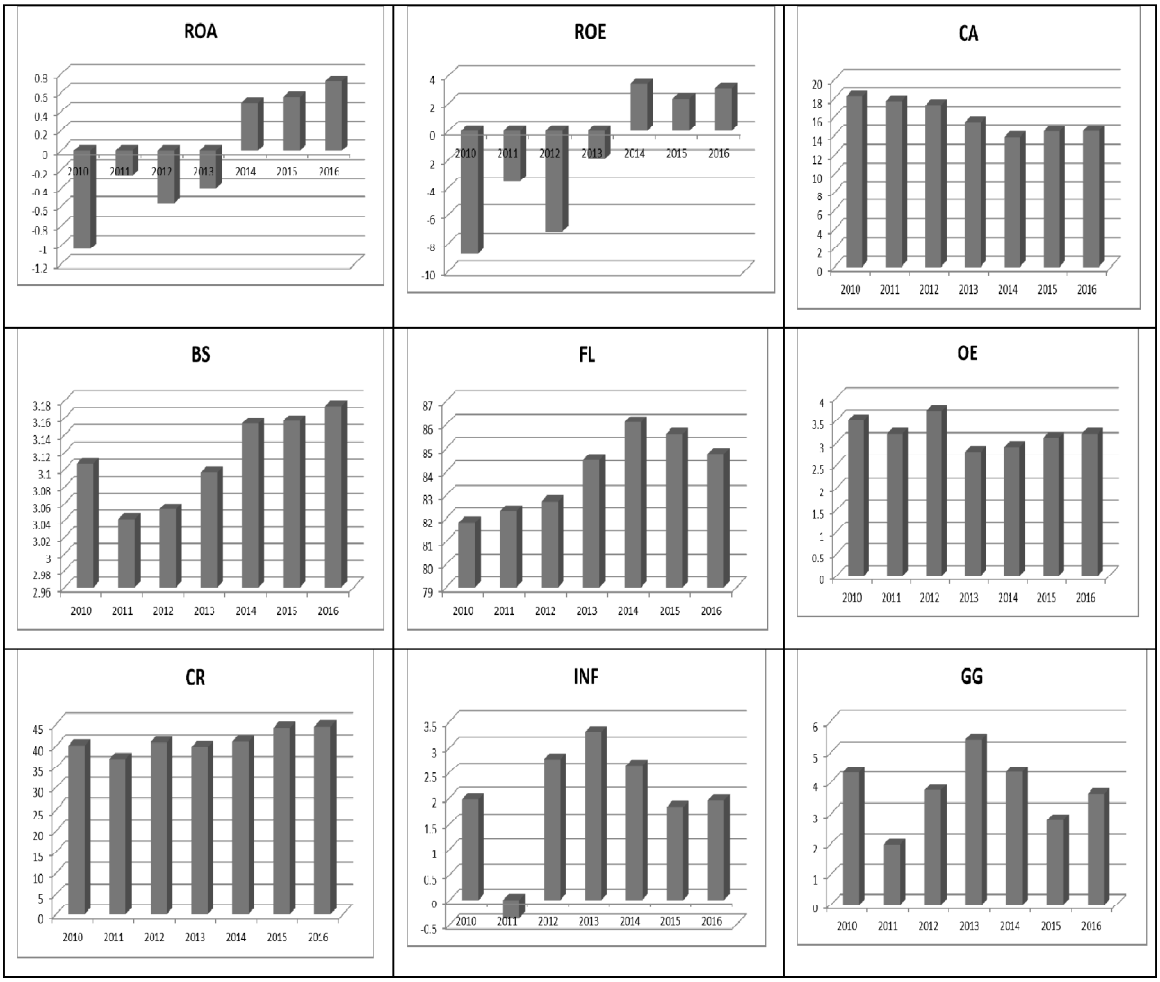

Figure 1: Mean values of the study variables over the period 2010-2016

Sources: Authors' calculations

2.2. Method

The study aims to examine the impact of bank-specific and macroeconomic factors on Islamic retail banks' profitability in Bahrain; accordingly, the study will test the following hypotheses:

H0: Profitability of Islamic retail banks operating in Bahrain is not affected by bank-specific and macroeconomic factors.

H1: Bank-specific variables have significant effect on Bahrain Islamic retail banks' profitability.

H2: Macroeconomic factors affect significantly the profitability of Bahrain Islamic retail banks.

To test the hypotheses above, the study employs the Pooled Ordinary Least Square Method in which the panel data was used to analyze the banks' portability determinants. The basic framework for the panel data was defined via the following regression equation:

$$Y_{i.t} = \alpha + \beta X_{i,t} + €_{i,t}, \quad (1)$$

$$i = 1, 2 ..., N \; t = 1, 2, \ldots\ldots T$$

Where:

$Y_{i.t}$: the profitability of bank (i) at time (t),

β : Vertical vector (K x1) of the estimated parameters for each independent variable,

$X_{i,t}$: the matrix (Tn x K) of the independent variables that affect the profitability of bank (i) at time (t),

$€_{i,t}$: the vertical vector (Tn x 1) of the random error term of bank (i) at time (t).

The sample of the study consists of six banks (n=6), time series (T=7) belonging to each of them. Therefore, the total observations are (N x T), thus equaling to 42 observations. The study includes the dependent variable, which is either ROA, or ROE, and 7 independent variables that are:

Capital adequacy (CA), bank size (BS), financial leverage (FL), credit risk (CR), operating efficiency (OE), inflation (INF) and GDP growth (GG). Accordingly, two regression equations will be estimated, namely:

$$ROA_{it} = a_0 + a_1 CA_{it} + a_2 BS_{it} + a_3 FL_{it} + a_4 CR_{it} + a_5 OE_{it} + a_6 GG_{it} + a_7 INF_{it} + e_{it}, \quad (2)$$

$$ROE_{it} = c_0 + c_1 CA_{it} + c_2 BS_{it} + c_3 FL_{it} + c_4 CR_{it} + c_5 OE_{it} + c_6 GG_{it} + c_7 INF_{it} + u_{it}. \quad (3)$$

Before regressing the equations (2) and (3), the study employs the panel data stationary tests to examine the properties of time series for each variable over the study period, and to determine the order of integration, the study employs two panel Unit Root tests which are (Levin, Lin and Chu, 2002) test or (LLC test), and (Im, Pesaram and Shin, 2003) test or (IPS test). We will explain them in short as follows:

Levin, Lin and Chu (LLC) Test

The LLC test includes three models for testing the existence of unit root, the first of which does not have intercept, neither trend time, while the second one includes only intercept but no trend time, and finally the third one includes both intercept and trend time, as shown in equations (4), (5) and (6) respectively (Jaroslava & Martin, 2005: 7-8):

$$\Delta y_{i,t} = p\, y_{ti-1} + \mu_{i,t}, \quad (4)$$

$$\Delta y_{i,t} = \alpha_0 + p\, y_{ti-1} + \mu_{i,t}, \quad (5)$$

$$\Delta y_{i,t} = \alpha_0 + ß_{i,t} + p\, y_{ti-1} + \mu_{i,t}. \quad (6)$$

$$i = 1, 2 \ldots, N \; t = 1, 2, \ldots\ldots T$$

The three models assume the independence of error term and it is the accepted hypothesis in all panel Unit Root tests. LLC suggests testing the following hypotheses:

$$H_0: p=0, H_1 : p < 0 \quad \text{(model 1)}$$

$$H_0: p=0, \alpha_i = 0, \text{ for } i = 1, 2, 3\ldots\ldots N \quad \text{(model 2)}$$

$$H_1 : p < 0, \alpha_i \in R, \text{ for } i = 1, 2, 3\ldots\ldots N$$

$$H_0: p = 0, ß_i = 0, \text{ for i=1,2,3}\ldots\ldots N \quad \text{(model 3)}$$

$$H_1: p<0, ß_i \in R, \text{ for } i = 1, 2, 3\ldots\ldots N$$

Im, Pesaram and Shin (IPS) Test

IPS test adopts the framework of likelihood; it proposes a new flexible and simple computation procedure for panel Unit Root test by using the T-bar statistics. This procedure is approved for both stationary and non-stationary series at the same time. On the other hand, IPS allows for correlation of serial residual and heterogeneity of the dynamics in addition to variances of error cross groups. IPS test is based on the following formula: (Im H.H. et.al, 2003: 53-74)

$$\Delta y_{i,t} = \alpha_0 + pi\, y_{ti-1} + e_{i,t} \quad (7)$$

$$i = 1, 2, 3\ldots\ldots N$$

It is obvious that IPS presents the individual-effects model with no time trend, and it tests the following hypotheses:

$$H_0: p_i=0 \text{ for } i = 1, 2, 3\ldots\ldots N$$

$$H_1: p_i < 0 \text{ for } i = 1, 2, 3\ldots\ldots N$$

$$p_i = 0 \text{ for } i = N_i + 1, N_i + 2, \ldots\ldots N$$

After testing the stationarity of panel data time series, we will estimate equations (2) and (3) by using two models which are: Fixed Effect Model (FEM) and Random Effect Model (REM).

Determining the best model in panel data depends on the information about the individual- specific components as well as the independent variables' heterogeneity. FEM is based on the parameters of the model which are fixed or not random quantities, while REF implies that all or some of parameters of the model are not fixed or random variables. Both models help to control the unobserved heterogeneity when it becomes constant over time that could be removed from the data by differencing.

Hausman Test is often used to determine which model is more appropriate by determining the endogeneity present in independent variables. The null hypothesis (H_0) based on the appropriate model is REM, which means there is no correlation between independent variables and error terms in the panel

data model, while the alternative hypothesis (H_1) assumes that the appropriate model is FEM, that is, there is a statistically significant correlation between independent variables and error term in panel data. After applying the Hausman test, the computed Hausman statistics is compared with the critical values for the X^2 distribution for k degree of freedom. The null hypothesis is rejected if the Hausman statistics is bigger than its critical value, or p-value is less than 0.05. Although random effect is preferred due to its higher efficiency, the fixed effect method is considered to be more consistent and suitable when error terms are not correlated with regressors (Paul *et al.*, 2010).

3. EMPIRICAL RESULTS

3.1. Stationarity tests

The study here employs both LLC and IPS tests to examine the properties of time series of the panel data over the period 2010-2016. Table 3 shows the results of both tests. LLC test shows that all the study variables do not have unit root at level while the p-value is less than 0.05. This means we reject the null hypothesis and the variables time series are stationary at level and integrated at zero I(0). IPS test implies that the time series are non-stationary at level, but are stationary though at first difference which means they are integrated of 1 or I(1).

Table 3
Results of Panel Unit Root Tests

	LLC test		*IPS test*	
	H0: Unit root (assumes common unit root process)		*H0: Unit root (assumes individual unit root process)*	
Variables	*At level*	*first differences*	*At level*	*first differences*
ROA	-4.53 (0.000)*	-	-0.77 (0.218)	-1.905 (0.028)*
ROE	-4.45 (0.0000)*	-	-0.866 (0.19)	-1.98 (0.023)*
CA	-2.34 (0.009)*	-	-0.017 (0.493)	-1.942 (0.026)*
BS	-1.84 (0.032)*	-	0.367 (0.643)	-1.926 (0.027)*
FL	-2.767 (0.0028)*	-	-0.205 (0.485)	-1.81 (0.049)*
CR	-12.3 (0.000)*	-	-3.35 (0.0004)	-3.526 (0.0002)*
OE	-3.88 (0.0001)*	-	-0.66 (0.254)	-2.243 (0.012)*
INF	-4.44 (0.000)*	-	-0.73 (0.232)	-2.564 (0.005)*
GG	-4.92 (0.000)*	-	-1.01 (0.154)	-1.87 (0.043)*

Sources: Authors' calculations

Before conducting the regression analysis, the panel data on Islamic retail banks in Bahrain is tested for robustness and possible occurrence of multicollinearity. Correlation matrix is created to check the correlation between the independent variables. If the correlation coefficient between two variables is close to 1, then it is an indication of multicollinearity. Furthermore, Variance Inflation Factor (VIF) is determined and its value for each independent variable is compared with the benchmark of five. If its value is greater than five; then there is multicollienerity in data and that one independent variable should be excluded from the model.

The correlation matrix in Table 4 shows that the correlation coefficient between (FL) and (CA) is almost 1 and significant, whereas p-value is less than 0.05. This suggests there is a high inverse correlation between both of them. Moreover, the value of Variance Inflation Factor (VIF) between FL and CA exceeds five, as shown in Table 5. Therefore, when FL variable is excluded from the model, the VIF value of CA would be small. Accordingly, FL variable is removed from both models.

Table 4
Covariance Analysis

Correlation *t-statistics* *Probability*	*ROA*	*ROE*	*CA*	*BS*	*FL*	*CR*	*OE*	*INF*	*GG*
ROA	1	0.949	0.282	-0.052	-0.271	-0.203	-0.598	0.111	-0.110
		19.05	1.863	-0.33	-1.784	-1.31	-4.729	0.063	-0.705
		0.000*	0.069**	0.742	0.08**	1.96	0.000*	0.949	0.48
ROE		1	0.298	-0.210	-0.288	-0.165	-0.637	0.028	-0.032
			1.979	-1.362	-1.905	-1.059	-5.239	0.179	-0.203
			0.054**	0.180	0.063**	0.295	0.000*	0.858	0.839
CA			1	-0.410	-0.975	-0.023	-0.438	-0.090	-0.045
				-2.843	28.07	-0.146	-3.085	0.574	-0.286
				0.007*	0.000*	0.884	0.003*	0.568	0.775
BS				1	0.376	-0.002	0.173	0.047	0.301
					2.569	-0.015	1.111	0.300	0.190
					0.014*	0.988	0.272	0.765	0.850
FL					1	-0.006	0.479	0.053	-0.005
						-0.037	3.459	0.339	-0.036
						0.970	0.001*	0.735	0.971
CR						1	-0.298	0.054	-0.006
							-1.981	0.344	0.004
							0.054**	0.732	0.996
OE							1	-0.049	-0.081
								-0.316	-0.515
								0.753	0.609
INF								1	-0.304
									11.09
									0.000*
GG									1

Sources: Authors' calculations *significant at 5% level, ** significant at 10% level

Table 5
Variance Inflation Factor

Variables	*CA*	*BS*	*FL*	*CR*	*OE*	*INF*	*GG*
VIF	1.18E+07	1.23	1.18E+07	1.11	1.50	1.13	1.21
VIF (excluding FL)	1.66	1.23	-	1.11	1.45	1.11	1.17

Sources: Authors' calculations

3.2. Model estimation

Table 6 shows the results of regression estimation of equations (2) and (3) by using both fixed effect and Random effect models. The appropriateness of each model is determined by means of Hausman test.

Table 6
Estimation of the Model

	ROA model		*ROE model*	
	FEM	*REM*	*FEM*	*REM*
C	-5.99	4.93	-5.82	4.69
CA	0.016	-0.005	0.300	-0.140
	(0.787)	(0.82)	(0.532)	(0.551)
BS	3.76	0.287	2.73	1.736
	(0.002)*	(0.562)	(0.003)*	(0.711)
CR	-0.034	-0.042	-0.14	-0.309
	(0.243)	(0.000)*	(0.507)	(0.003)*
OE	-0.867	-0.708	-0.727	-0.599
	(0.000)*	(0.000)*	(0.000)*	(0.000)*
INF	0.585	0.652	0.337	0.387
	(0.039)*	(0.021)*	(0.116)	(0.081)**
GG	- 0.822	-0.838	- 0.449	- 0.466
	(0.005)*	(0.000)*	(0.043)*	(0.051)*
R^2	0.7422	0.618	0.763	0.591
F-stat.	7.853	9.459	8.81	8.43
	(0.000)*	(0.000)*	(0.000)*	(0.000)*
Hausman test	Chi-square stat.= 12.964 P-value = 0.0115		Chi-square stat.= 3.76 P-value = 0.447	

Sources: Authors' calculations *significant at 5% level, ** significant at 10% level

From the above table, we find that the p-value in Hausman test is less than 0.05 in ROA regression model, which means we reject the null hypothesis, and fixed effect model is the appropriate model for the panel data. In ROE regression model the Hausman test indicates that $P>\chi^2$ is more than 0.05, which implies that the coefficients estimated by Random effect regression are appropriate to show the relationship between ROE and the independent variables.

According to the results shown in Table 6, we can write the estimated function of the ROA and ROE by using the fixed effects model and the Random effects model, respectively, as follows:

ROA = *5.99* + *0.016* CA + *3.76* BS – *0.034* CR – *0.867* OE - *0.822* GG + *0.585* INF (8)
(4.034) (0.062) (1.109)* (0.029) (0.122)* (0.277)* (0.272)*
N=142 Adj.R^2 = 0.647 R^2 = 0.742 D.W=1.71 F-sat.= 7.85 prob.=0.000
*significant at 5% level , Numbers in Parentheses refer to std. error

ROE = *4.69* – *0.140* CA – 1.736 BS – *0.309* CR – *0.599* OE - *0.466* GG + *0.387* INF (9)
(1.84) (0.233) (4.691) (0.098)* (0.092)* (0.231)** (0.219)**
N=142 Adj.R^2 = 0.521 R^2 = 0.591 D.W=1.74 F-sat.= 8.43 prob.=0.000
*significant at 5% level , ** significant at 10% level , Numbers in Parentheses refer to std. error

The outcomes of the regression models are as follows: The effect of growing bank size on Islamic retail banks' profitability has been proved to be positive for both ROA and ROE. The coefficient of bank size is greater for ROA than ROE, which implies it has more impact on ROA, where the relationship is significant for ROA as the p-value is less than 5% and insignificant in the case of ROE. This finding is consistent with the studies by Masood & Ashraf (2013) and also that of Eljelly (2013). Both also gave evidence on the existence of a positive relationship between these two variables. This implies that banks that have high asset value are expected to achieve high profitability. However, high return is attributed to high-risk accepted by financial institutions. Therefore, increase in bank size implies there is high risk involved in it as suggested by (Al-Smadi & Al-Wabel, 2015).

The regression results indicate there is a negative relationship between banks' profitability and operating efficiency. The relationship is significant at the confidence level of 95% for both ROA and ROE. However, the coefficients indicate that operating efficiency has greater effect on ROA as compared to ROE. This finding is consistent with those of Karim *et al.* (2010) and Eljelly (2013). The relationship between ROE and credit risk is negative and significant, while the relationship between ROA and credit risk is negative and insignificant. However, its coefficient value is very low in the case of ROA as compared to ROE. This finding contradicts with the result obtained in (Masood & Ashraf, 2013) who found a positive relationship between these two variables.

The regression estimation shows there is a positive and negative relationship between banks' profitability and capital adequacy in ROA and ROE respectively. Although high value of capital adequacy ratio is crucial for banks to have higher profitability, but the regression results show that capital adequacy is insignificant at the confidence levels of 95%. The study also found a negative and significant relationship between banks' profitability and GDP growth for both ROA and ROE. This finding coincides with those obtained by Sufian & Parman (2009) and Eljelly (2013), while it contradicts with the results obtained by Trujillo-Ponce (2013) and Karim *et al.* (2010) who concluded that economic growth enhances profits and downturn adversely affects interest income. The negative relation between banks' profitability and GDP growth in Bahrain during the study period might be due to either Bahraini preferences or choice of depositing excess funds and taking loans or customers' asymmetric information, or lack of information regarding economic changes in Bahrain.

Finally, the relationship between Islamic retail banks' profitability and inflation is found to be positive. This finding consistent with the studies of Trujillo-Ponce (2013) and Karim *et al.* (2010), both concluded there is a positive relationship between ROA and ROE of banks and inflation.

Based on the findings above, the null hypothesis is rejected which states that the profitability of Islamic banks is not affected by bank-specific and macroeconomic factors, and accept the alternative hypothesis at the confidence level of 95% which indicates that there is a joint effect of the independent variables, even though two variables are individually insignificant.

4. FINAL REMARKS

The current study investigates the profitability of Islamic retail banks and its determinants. Bank-specific and macroeconomic factors are considered to have influence on profitability. Based on the previous studies two dependent variables were considered in this study as those measuring banks' profitability which are ROA and ROE. The study used the panel data on six banks over seven years. The panel unit root test is performed to test the level of stationarity of the time series panel data. LLC and IPS tests results show that the time series are stationary and integrated at zero I(0) and one I(1) respectively.

The study results also show that bank size, operating efficiency, and inflation rate have direct and significant impact on ROA, while GDP growth rate has negative significant effect on ROA at the confidence level of 95% (a=0.05). Credit risk has negative insignificant effect on ROA, while capital adequacy has positive insignificant impact on ROA. The findings of the study show that bank-specific and macroeconomic factors have significant effect on Islamic retail banks' profitability during the study period.

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