

Empirical Evidence of the Determinants of Commercial Banks Profitability in Bahrain

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Abstract

The main purpose of this study is to examine the key determinants of the profitability of commercial banks, Islamic as well conventional in Bahrain. Bahrain serves as a major banking center in the Arabian Gulf and commercial banks play a leading role in the banking sector of Bahrain. In the global banking system, Bahrain occupies an important position as a key offshore banking hub and is renowned as a leading center of Islamic finance. The study uses balanced panel data sets of commercial banks retrieved mainly from the publications of Bahrain Bourse. The study was performed using 8 years of data for the period from 2006 to 2013. The study uses macroeconomic and financial structure indicators including inflation rate, interest rate, exchange rate, economic growth in addition to the banks internal characteristics. The findings reveal that capital adequacy ratio, the global financial crisis of 2008, capital strength, interest rate, debt ratio, and type of the bank are the main determinants of commercial banks profitability measured by ROE. The study found that ROA as a proxy of profitability is inferior to ROE. This implies that management would behave to place more emphasis on ROE rather than ROA when gauging bank performance. The study is valuable to academicians, bankers, policy-makers and bank managers as it fills the gap in the literature by providing up-to-date evidence of the determinants of profitability of banks in Bahrain. The findings of this study may possibly make a contribution to the body of knowledge governing finance decisions in this milieu. It contributes to the contentious academic debate with respect to which bank-specific and macroeconomic variables drive bank profitability – and which do not.

Keywords: multiple-regression, capital strength, debt ratio, economic growth, interest rate, capital adequacy

INTRODUCTION

As of June, 2015, there are 403 financial institutions operating in Bahrain. In addition to the Central Bank, 100 banks operating in the kingdom¹ are categorized as retail conventional banks (19), wholesale conventional banks (57), retail Is

Islamic banks (6), and whole sale Islamic banks (18). Of these, 13 are locally incorporated. Seven of them are commercial banks listed in the Bahrain Bourse. A progressive and well-functioning banking sector is very important for the economic growth of the country and profitability is essential for a well-functioning banking sector (Samina Riaz, 2013). This study intends to investigate the influence of certain bank-specific and bank specific macroeconomic factors on the profitability of commercial banks in Bahrain for the period 2006-2013. Bank specific or internal factors, according to the banking literature, are those factors over which a bank's management has control. Macroeconomic variables within which the bank operates are external factors over

which the management of a bank has low or no control. The macroeconomic and industrial factors used in this study include Global financial crisis, gross domestic product growth rate, inflation rate, interest rate, and exchange rate.

The profitability of banks is normally gauged by three measures; return on equity (ROE), return on assets (ROA) and net interest margin (NIM). This study focused primarily on ROE and ROA. Since the study sample is composed of balanced data composed of Islamic and conventional banks, NIM is excluded as it necessitates calculating interest on loans; something that is not applicable to Islamic banks.

This study is mainly motivated by the fact that there is little or few information available for policy makers in this part of the world that would be used as guidance in this crucial sector.

RESEARCH PROBLEM

A major issue in the bank is its profitability and the determinants of that profitability. To be able to

¹ CBB register, central bank of Bahrain, as of June, 30th 2015.

maximize profitability, bank managers in particular and other stakeholders in general need to know the factors that influence the profitability of the bank. Knowing these factors enables bank managers to exercise more control over profitability. This study tries to solve this issue by identifying key factors that influence the profitability of the bank.

OBJECTIVES OF THE STUDY

The main objective of this study is to assess factors influencing banking profitability. It presents an empirical investigation to the relationship between banks profitability on the one hand and group of bank-specific and macroeconomic factors, on the other with a view to identifying the determinants of banks profitability in Bahrain.

SIGNIFICANCE OF THE STUDY

Few studies focus on the financial sector of Gulf Cooperation Council (GCC) countries in general and Bahrain in particular. Extensive review of the literature reveals that there is a major gap in banking literature in Bahrain. According to the best knowledge of the researcher, there is no one study conducted that similarly investigates and identifies the determinants of banks profitability in the context of Bahrain. Even if there are some, they are dissimilar in relation to the period, data, factors used and methodology utilized.

Most of the evidences regarding commercial banks' profitability largely focus on economic environments that are different from that of Bahrain or GCC countries and their conclusions may not be useful for Bahrain financial planning. In the literature, the conducted studies were mainly focusing on identifying the determinants of profitability of either conventional or Islamic banks. This study, on the other hand, focuses on both types of banks. It has also investigated the effect of the 2008 Global Financial Crisis on the profitability of banks. In addition to the internal characteristics, the study embraces macroeconomic and financial structure indicators encompassing inflation rate, interest rate, exchange rate, and economic growth. Hence, the findings of this study may make a contribution to the body of knowledge in this milieu. This study may well provide more elaborate and contemporary evidences that are helpful for policy makers' strategic decisions and are supportive for researchers, practitioners, and academics. The next section provides some of the banking profitability related literature review.

LITERATURE REVIEW

The examination of banking literature gives emphasis to the existence of a large number of empirical researches that focused on investigating the factors that influence

bank's profitability. The literature of banking profitability mainly considers bank profitability as a function of external and internal factors. Internal factors are bank specific (endogenous) and they are generally under the control of bank management whereas external factors are exogenous to the bank and embrace macroeconomic indicators and industry variables. The literature review of this study emphasizes the fairly recent studies that provide empirical evidence on the factors that influence the profitability in the banking sector.

Bashir (2000) examined the impact of bank characteristics and the financial environment on the performance of Islamic banking in the Middle East. He used a number of internal and external variables to predict banks profitability and efficiencies. His results showed that profitability is positively related to the increases in capital and loan ratios. His empirical results also showed significant positive relationships between banks profitability, in the one hand, and foreign ownership, taxes, higher GDP per capita and higher inflation rates, on the other. The study concluded that foreign-owned banks are more profitable than domestic ones and that profitability is positively influenced by macroeconomic setting and stock market development. Haron (2004) investigated the effects of the factors that influence the profitability of Islamic banks. The findings of his study suggest that total expenditures, liquidity, funds invested in Islamic securities, and the percentage of the profit-sharing ratio between the bank and the borrower of funds are highly correlated with the level of total income received. The study revealed similar effects for external factors like size of the bank, interest rates and market share.

Kosmidou et al. (2005) examined the influence of bank-specific factors, macroeconomic indicators and financial market structure on the profitability of UK commercial banks using panel evidence over the period 1995-2002. Their results indicated that equity to assets ratio as a proxy of capital strength was the main determinant of UK banks profitability. They found that cost-to-income ratio and bank size as having negative impact on UK bank profits. Size of the bank and the efficient management of expenditures were also found by the study to be key factors in influencing profits.

Ben Naceur and Goaied, (2008) investigated the impact of banks' characteristics and macroeconomic indicators and financial structure on banks' profitability in Tunisian banks during 1980-2000. They utilized the balanced panel data regressions as the estimation technique. They found a positive and significant coefficient on the overhead to assets ratio variable in the

net interest margin and ROA equations. The coefficient on economic growth variable was found to be insignificant in all regressions used. They concluded that a larger stock market relative to the banking sector increases bank profits and margins.

Sufian and Chong (2008) examined the determinants of profitability of Philippines commercial banks. Their empirical results suggested that banks profitability is negatively related to size of the bank, credit risk, and overhead expenses while non-interest income and capitalization are revealed to be positively related. They confirmed that the impact of money supply, economic growth, and stock market capitalization are not significant in explaining the variations in the profitability of the Philippines banks. Inflation on the other hand was confirmed to have a negative impact on bank profitability.

Flamini and Schumacher (2009) examined the determinants of bank profitability using a panel of unbalanced data of 41 Sub-Saharan Africa countries. They proposed that profitability measured by ROE is associated with activity diversification, larger bank size, and private ownership. Bank profitability is revealed to be affected by macroeconomic variables, inflation and stable output growth.

Sufian (2011) examines the determinants of the profitability of Korean banks using bank specific and macroeconomic variables employing unbalanced bank level data for the period 1992-2003. He found negative relationships between liquidity levels and profitability. Credit risk and overhead costs were found to have negative impacts on profitability. Inflation was found to have a substantial pro-cyclical impact on bank profitability. The study concluded that Korean banks were relatively more profitable during the pre-Asian financial crisis compared to the post crisis period.

Munyambonera (2011) investigates the key determinants of commercial banks' profitability in Sub-Saharan Africa. He used panel data set for a sample of 224 commercial banks from 42 countries, for the period 1999 to 2006. The study confirmed the importance capital adequacy, assets, operational efficiency, liquidity, GDP growth and inflation in explaining bank profitability.

Hoffmann (2011) studies the determinants of the profitability of the US banking industry using bank specific and macroeconomic variables during the period 1995-2007. The empirical results of the study document a negative relationship between the capital ratio and the profitability. The study finds that economies of scale do

not occur in terms of profitability and the size of the bank. The external factors were revealed to be statistically significant in determining the profitability of banks.

Using ordinary least square technique, Christine and Dong (2011) examine the determinants of profitability of a large sample of US banking sector over the years 2000 to 2008. Their results suggest that bank specific factors, with the exception of size, are significantly positively related to bank performance. GDP and interest rate changes were also found to be significant in explaining banks' profits in the US. In particular, they find that bank-specific variables like capital ratio, loans and deposits are positively related to bank performance as measured by ROA.

Akhtar et al. (2011) used multivariate regression analysis in order to analyze the profitability of conventional commercial banks in Pakistan over the period from 2006 to 2009. Their findings show that gearing ratio, non-performing loans in banks ratio and asset management ratio are having significant effects on the profitability. Size of the bank is found to be a significant indicator for profitability when ROA is used as proxy for bank's profitability and insignificant indicator when ROE is used as proxy for the profitability of commercial banks.

Rao and Lakew (2012) carried out a study to explore the main determinants of profitability of Ethiopian commercial banks. They used unbalanced panel data of banks over the period 1999-2008. They used capital structure, liquidity, credit risk, asset quality, loan portfolio, and expense management aspects as internal factors whereas the industry and the macroeconomic scenarios within which the banks operate are used as the external factors. Their results indicate that the most determinants of bank profitability are the internal factors; Capital adequacy, diversification, bank size, Liquidity, and operational efficiency. The external factors on the other hand were found to be statistically insignificant.

Rami Zeitun (2012) used a cross-sectional time-series to empirically investigate bank-specific variables and macroeconomic indicators on Islamic and conventional banks in GCC countries during the period 2002-2009. He found that bank's equity is significant in explaining and increasing commercial banks profitability. Efficiency measured by the cost-to-income ratio was found to have negative and significant impact on the performance of both Islamic and conventional banks, while bank's size was found to have negative and significant impact on ROA for Islamic banks only.

Bank's age was found to have no effects on banks' profitability. The study also found positive correlation between GDP and profitability, and negative correlation between inflation and profitability.

Samina Riaz (2013) investigated the influence of some bank-specific and macroeconomic indicators on the profitability of commercial banks in Pakistan. She used ROE and ROA as measures of profitability. Her regression results show that credit risk, interest rate, total assets, and total debt to total assets ratios have significant impact on ROE. The results also show that credit risk and interest rate have significant impact on ROA. The variations in results according to the researcher were caused by differences in sizes of Pakistani banks.

Obamuyi (2013) examined the relationships between bank capital, size, interest income, expense management, the economic condition, and banks' profitability in Nigeria. He employed the fixed effects econometric model on a panel data of 20 banks for the period 2006 to 2012. His study findings confirm that the bank capital, interest rate, expenses management and the economic situation of the country have a statistically significant influence on banks' profitability.

Durguti et al. (2014) used time-series data during the period 2006- 2013 to empirically investigate the determinants of banking system profitability in Kosovo. They used linear regression model to analyze the data of the three bank profitability measures (ROA, ROE and NIM). They examined the impact of capital adequacy, total loans to total assets, provision for loan losses to net interest income ratio, non-interest income to total income ratio and managerial efficiency. The study found that all these ratios are having strong influence on the profitability of Kosovo banks.

A more recent study by Ishmael and Benjamin (2015) was conducted to investigate the relationship between profitability and a set of bank-specific characteristics and macroeconomic factors on banks in Ghana for the period 1999-2010. The study confirmed that cost management has an inverse relationship with profitability, whereas bank size and liquidity have positive association with profitability of foreign and local banks. Their research results suggest that bankers should pay attention to cost maintenance, and prudent risk management to deliver profitability.

Going through the previous literature, one can conclude that the main factors that influence the banks' profitability are characterized as being bank-specific, industrial, and/or macroeconomic. The literature

supports the evidence that return on assets (ROA), return on equity (ROE) and net interest margin (NIM) are the main variables used to measure banks profitability.

The previous studies results and findings are, to a certain extent, contradicting in some aspects and harmonizing in others, which implies that the determinants of profitability of banks vary with time, economic environment, and country.

DATA AND METHODOLOGY

This study uses data obtained largely from the balance sheets and income statements of the commercial banks representing the study sample. The bank-specific variables comprise capital adequacy, cost to income ratio, equity to total assets, liquid assets to total assets, bank's size, and total liability to total equity ratio. These data were retrieved from Bahrain Bourse publications and from the individual financial statements of the selected banks. The macroeconomic data encompass gross domestic product growth rate, inflation rate, Interest rate, and exchange rate² and these were obtained from the IMF database. Banks that have fewer than 8 years of data from i.e., 2006 to 2013 were excluded from the study sample. These are either newly chartered or are liquidated or merged with other banks. In other words, the sample comprises all the commercial banks listed in Bahrain Bourse that have published data for the designated study period. The sample is consisted of 6 commercial banks, three of them are conventional, namely, Ahli United Bank (AUB), Bank of Bahrain and Kuwait (BBK), and National Bank of Bahrain (NBB), whereas the remaining three are Islamic banks and encompass Bahrain Islamic Bank (BisB), Al Salam Bank (SALAM), and Ithmar Bank (ITHMAAR).

THE STUDY HYPOTHESES

In order to investigate the relationships between banks profitability and certain bank specific variables (i.e. individual bank characteristics), and a group of macroeconomic variables, the following 12 null hypotheses were designed and used for testing:

H1: There is no statistically significant relationship between banks profitability and capital adequacy of the bank.

H2: There is no statistically significant relationship between banks profitability and the Global financial crisis.

² The study uses GB pound conversion rate (£/BD) for exchange rate calculation of the local currency (BD) as the latter is officially pegged to the US dollar.

H3: There is no statistically significant relationship between banks profitability and cost management (efficiency) of the bank.

H4: There is no statistically significant relationship between banks profitability and capital strength of the bank.

H5: There is no statistically significant relationship between banks profitability and economic growth of the country³.

H6: There is no statistically significant relationship between banks profitability and inflation rate.

H7: There is no statistically significant relationship between banks profitability and interest rate.

H8: There is no statistically significant relationship between banks profitability and liquidity of the bank.

H9: There is no statistically significant relationship between banks profitability and size of the bank.

H10: There is no statistically significant relationship between banks profitability and leverage (debt ratio) of the bank.

H11: There is no statistically significant relationship between banks profitability and type of the bank (Islamic or conventional).

H12: There is no statistically significant relationship between banks profitability and exchange rate⁴ in the country.

THE STUDY MODEL

This study uses multiple-regression model to test the effect of certain explanatory variables (bank specific and macroeconomic indicators) on the profitability of banks. It uses balanced panel data for this purpose. The study examines the potential determinants of commercial banks profitability using correlation test and multiple regression analysis. The study investigates the effect of 12 explanatory variables on the profitability of the bank (explained variable). The variables used in this study were determined based on the results reached by prior studies and established according to the availability of data for measurement purposes.

Profitability in this study is measured by both return on equity (ROE) and return on assets (ROA). The study model expresses banks profitability as a function of capital adequacy ratio (CADEQ), global financial crisis (CRISIS), cost management (efficiency) proxied by the cost to income ratio (CTIR), capital level proxied by

equity to total assets ratio (EQTOTA), economic growth proxied by gross domestic product growth rate (GDPG), inflation rate (INFLR), Interest rate (INTRR), liquidity measured by liquid assets to total assets ratio (LATTA), size of the bank represented by the natural logarithm of its total assets (LNTA), gearing (debt ratio) represented by 'total liability to total equity' ratio (TLBTTE), type of the bank (TYPE), and exchange rate of the home currency (XRATE). Following are the multiple-regression models estimated to test the hypotheses of the study:

EMPIRICAL RESULTS

The following sections represent the empirical results of the study. Besides the descriptive statistics, the study uses correlation and regression analyses.

Descriptive Statistics

In order to describe the basic characteristics of the study variables, the study uses various descriptive statistics. As Table 1 reveals, these include mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera, and probability.

The Table shows that Skewness is positive for 7 series indicating that fat tails on the right hand side of the distribution. On the other hand, the table reveals negative skewness values for 7 series which indicate that fat tails on the left-hand side of the distribution. Positive and negative values of skewness indicate that the results, to a certain degree, are not normally distributed. Since values of kurtosis are deviated from 3, Kurtosis values of all variables shows also that data is not normally distributed. To further test for the normality of the data the study uses Jarque-Bera statistics and corresponding probability (p-values). Based on the values of these two tests the normality assumption is rejected at significance level of 1% (probability equals 0.01 or less) for ROE, ROA, CADEQ, CITR, EQTOTA, INFLR, and rejected at significance level of 5% (probability equals 0.05 or less) for CRISIS, GDPG, LATTA, TYPE and XRATE.

³Country denotes the country where the bank is operating; in this case, the country is Bahrain.

Profitability =f (CADEQ, CRISIS, CTIR, EQTOTA, GDPG, INFLR, INTRR, LATTA, LNTA, TLBTTE, TYPE, XRATE)

$$ROE_{i,t} = \beta_0 + \beta_1 CADEQ_{i,t} + \beta_2 CRISIS + \beta_3 CTIR + \beta_4 EQTOTA_{i,t} + \beta_5 GDPG_{i,t} + \beta_6 INFLR_{i,t} + \beta_7 INTRR_{i,t} + \beta_8 LATTA_{i,t} + \beta_9 LNTA_{i,t} + \beta_{10} TLBTTE_{i,t} + \beta_{11} TYPE + \beta_{12} XRATE_{i,t} + \mu \text{ ---- (1)}$$

$$ROA_{i,t} = \beta_0 + \beta_1 CADEQ_{i,t} + \beta_2 CRISIS + \beta_3 CTIR + \beta_4 EQTOTA_{i,t} + \beta_5 GDPG_{i,t} + \beta_6 INFLR_{i,t} + \beta_7 INTRR_{i,t} + \beta_8 LATTA_{i,t} + \beta_9 LNTA_{i,t} + \beta_{10} TLBTTE_{i,t} + \beta_{11} TYPE + \beta_{12} XRATE_{i,t} + \mu \text{ ---- (2)}$$

Where:

B_0 : the intercept or constant amount

B_1 - β_{12} are coefficients of the explanatory variables

μ : stands for the error term

Profitability= profitability of the listed commercial banks in Bahrain Bourse measured by ROE and ROA.

$ROE_{i,t}$ = return on equity of bank i in year t

$ROA_{i,t}$ = return on assets of bank i in year t

$CADEQ_{i,t}$ = capital adequacy ratio of bank i in year t

$CRISIS$ = global financial crisis, denoted by dummy variables where 0 signifies the years 2008 or before and 1 signifies the years after 2008).

$CTIR_{i,t}$ = cost to income ratio of bank i in year t

$EQTOTA_{i,t}$ = equity to total assets ratio (refers to capital strength) of bank i in year t

$GDPG_{i,t}$ = gross domestic product growth rate of country i in year t (here the country is Bahrain)

$INFLR_{i,t}$ = inflation rate of country i in year t (refers to the changes in the price level and captured by annual growth in inflation rate in Bahrain).

$INTRR_{i,t}$ = interest rate of country i in year t

$LATTA_{i,t}$ = liquid assets to total assets ratio (refers to liquidity) of bank i in year t

$LNTA_{i,t}$ = natural logarithm of total assets as a proxy of size of bank i in year t

$TLBTTE_{i,t}$ = total liability to total equity ratio (leverage or debt ratio) of bank i in year t

$TYPE$ = type of the bank denoted by dummy variables where 1 signifies Islamic and 0 signifies otherwise (conventional).

$XRATE_{i,t}$ = exchange rate of country i in year t (here the country is Bahrain)

Table (1): Descriptive statistics of the study variables

	ROE	ROA	CADEQ	CRISIS	CTIR	EQTOTA	GDPG	INFLR	INTRR	LATTA	LNTA	TLBTTE	TYPE	XRATE
Mean	0.0499	0.0086	0.2156	0.6250	2.3122	0.1640	0.0466	0.0241	0.0729	0.2552	14.484	0.0608	0.5000	1.5868
Median	0.1283	0.0144	0.1804	1.0000	0.4045	0.1153	0.0412	0.0280	0.0755	0.2392	14.560	0.0696	0.5000	1.6720
Maximum	0.2013	0.1706	0.7980	1.0000	85.380	0.7253	0.0829	0.0353	0.0830	0.6025	16.330	0.1230	1.0000	1.7210
Minimum	-0.5188	-0.1400	0.1161	0.0000	0.1960	0.0742	0.0210	-0.004	0.0590	0.0257	12.140	0.00366	0.0000	1.3290
Std. Dev.	0.1665	0.0456	0.1165	0.4893	12.251	0.1124	0.0203	0.0121	0.0092	0.1155	0.9480	0.0314	0.5053	0.1458
Skewness	-1.6969	-0.288	2.9787	-0.5164	6.7002	3.0098	0.4475	-1.464	-0.4255	0.6847	0.1392	-0.3349	0.0000	-0.6557
Kurtosis	5.2779	7.904	14.535	1.2667	45.9370	14.291	1.9731	4.1127	1.6044	4.4236	2.8480	2.0674	1.0000	1.7393
Jarque-Bera	33.413	48.766	337.09	8.1422	4046.3	327.4	3.7113	19.616	5.3439	7.8034	0.2012	2.6370	8.0000	6.6182
Probability	0.000*	0.000*	0.000*	0.017**	0.000*	0.000*	0.156**	0.000*	0.069	0.020**	0.904	0.268	0.018**	0.037**

(*) and (**) signify that the null of normality was rejected at significance levels of 1% and 5% respectively.

CORRELATION ANALYSIS

The study uses the correlation test through utilizing E-views analysis tool to test for multicollinearity of the variables. Table 2 below displays the correlation matrix representing the resulting relationships among the study variables. It shows the degree and direction (sign) of correlation between each pair of the study variables.

The Table, generally, reveals that none of the study variables have multicollinearity problem with another variable as they are all shown to be not highly correlated with each other. This implies that none of the study variables will be excluded from further analysis.

Table (2): Correlation Matrix of the Study Variables

	ROA	ROE	LNTA	LATTA	INTRR	INFLR	GDGP	EQTOTA	CTIR	CRISIS	CADEQ	TLBTTE	TYPE	XRATE
ROA	1.000													
ROE	0.608	1.000												
LNTA	0.023	0.240	1.000											
LATTA	0.129	0.240	-0.375	1.000										
INTRR	0.077	0.192	-0.206	-0.003	1.000									
INFLR	0.141	0.143	-0.023	-0.121	0.173	1.000								
GDGP	0.333	0.354	-0.193	0.077	0.623	0.498	1.000							
EQTOTA	0.179	0.051	-0.639	0.364	0.314	0.083	0.352	1.000						
CTIR	-0.059	-0.111	0.047	-0.152	-0.213	0.039	-0.103	-0.068	1.000					
CRISIS	-0.291	-0.389	0.226	-0.051	-0.752	-0.344	-0.903	-0.380	0.125	1.000				
CADEQ	0.312	0.283	-0.584	0.629	0.306	0.061	0.394	0.846	-0.120	-0.410	1.000			
TLBTTE	-0.021	0.028	0.691	-0.118	-0.229	-0.173	-0.294	-0.713	-0.022	0.289	-0.548	1.000		
TYPE	-0.298	-0.610	-0.691	-0.075	0.000	0.000	2.2E-2	0.502	0.1595	0.000	0.181	-0.746	1.000	
XRATE	-0.294	-0.386	0.211	-0.072	-0.715	-0.290	-0.9097	-0.372	0.110	0.965	-0.410	0.289	0.000	1.000

The correlation analysis shows that CADEQ, EQTOTA, GDGP, INFLR, INTRR, LATTA, LNTA, TLBTTE have a positive relationship with ROE, while CRISIS, CTIR, TYPE, and XRATE have a negative relationship with ROE. In other words, the table reveals that there is a positive relationship between commercial banks profitability measured by ROE and bank specific variables including capital adequacy ratio, capital strength, liquidity, size, and debt ratio, and macroeconomic indicators including economic growth, inflation rate and the interest rate. Besides, the table shows negative relationships exist between profitability and each of the global financial crisis of 2008, cost efficiency management of the bank, type of the bank, and the exchange rate.

The Table shows that the individual correlations between ROA and each of the independent variables to be similar to that of ROE, except for total liability to total equity (TLBTTE), which is conversely shown to be negatively correlated with ROA. The similarity of the resulting signs of associations between the explanatory variables and each of ROA and ROE can be explained by the fact both ROA and ROE are measures of profitability.

Regression Analysis

The study uses multiple regression analysis to examine the impact of the explanatory variables on the profitability of commercial banks in order to identify the determinants of commercial banks profitability. The study uses return on equity (ROE) and return on assets (ROA) as measures of profitability of commercial banks. ROE is used as a proxy for profitability of Model 1 and ROA is used as a proxy of profitability of Model 2. Adjusted R-squared, p-value, and Durbin-Watson statistics were used by both models for decision making

criteria. P-values are used as criteria to help decide whether accept or reject the hypotheses of the study. The null hypothesis is rejected and the alternative hypothesis is accepted at 1%, 5%, and 10% level of significance if the P-value is less than or equal to 0.01, .05 and .10 respectively.

The Adjusted-R² is used as a measure of a goodness-of-fit that penalizes additional explanatory variables through using a degrees of freedom (d. f.) adjustment when estimating the variance error. The adjusted R² value of 0.820215 for Model 1 of the study suggests that the model serves its purpose in determining the effect of the independent (macroeconomic and bank-specific) variables on the profitability of the bank. This indicates that 82.02% of the variability of the bank profitability in Model 1 can be explained by the independent variables. The study uses Durbin-Watson Statistic as a statistical method to test for first order serial correlation in the errors of a regression model (Tony Lancaster, 2004).

DW helps in specifying the right combination of explanatory variables (Gujarati, 2004). Durbin and Watson (1950 and 1951) applied this statistic to the residuals from ordinary least squares regressions and developed bounds tests for the null hypothesis that the errors are serially uncorrelated against the alternative that follow a first order autoregressive process. D-W Statistic is also used to test the presence of autocorrelation in the residuals (prediction errors). The D-W statistic value of 1.840866 (model 1) indicates an absence of autocorrelation and confirms that there is no serial correlation as it is very close to 2.0. It implies neither underestimation nor overestimation of the level of significance for such a number of observations. For Model 1, the computed F-statistic of 18.86867 at probability (F-value) of 0.000000 for the data regression

indicates the null that all coefficients are simultaneously zero is rejected and implies that the regression is significant overall.

Table 3 below demonstrates the regression results between the independent and the explanatory variables

employed in the study. It shows the regression analysis between ROE and each of the independent variables (i.e., CADEQ, CRISIS, CTIR, EQTOTA, GDPG, INFLR, INTRR, LATT, LNTA, TLBTTE, TYPE and XRATE).

Table (3): Regression results between ROE and explanatory variables using Least Square Method (MODEL1)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.548931	0.652854	2.372553	0.0233
CADEQ	-0.727138	0.290663	-2.501648	0.0172**
CRISIS	-0.164719	0.092025	-1.789948	0.0821*
CTIR	0.001262	0.000904	1.396034	0.1715
EQTOTA	0.547157	0.258280	2.118464	0.0413**
GDPG	-1.232545	1.556028	-0.792110	0.4336
INFLR	-1.013814	1.169400	-0.866952	0.3919
INTRR	-5.198754	1.799809	-2.888502	0.0066***
LATT	0.200153	0.140629	1.423277	0.1635
LNTA	-0.019054	0.022391	-0.850950	0.4006
TLBTTE	-5.369754	0.687590	-7.809528	0.0000***
TYPE	-0.507281	0.053781	-9.432287	0.0000***
XRATE	-0.041729	0.316492	-0.131849	0.8959
R-squared	0.866118	Mean dependent var		0.049892
Adjusted R-squared	0.820215	S.D. dependent var		0.166518
S.E. of regression	0.070605	Akaike info criterion		-2.237611
Sum squared resid	0.174479	Schwarz criterion		-1.730827
Log likelihood	66.70266	Hannan-Quinn criter.		-2.046097
F-statistic	18.86867	Durbin-Watson stat		1.840866
Prob(F-statistic)	0.000000			

***, **, and *, signify 1%, 5% and 10% respectively.

The Table shows capital adequacy ratio (CADEQ) coefficient of -0.727138 is negative and statistically significant at 5% level with a p-value of 0.0172. This suggests that the capital adequacy ratio has a negative significant impact on ROE. Therefore, the First hypothesis that there is no statistically significant relationship between banks profitability and capital adequacy ratio of the bank is rejected, and thus, the alternative hypothesis is accepted. This indicates also that capital adequacy ratio is a significant determinant factor of bank profitability. The negative sign of the relationship (coefficient) suggests that an increase in capital adequacy ratio decreases the profitability of the bank. This result is consistent with the research results of Athanasoglou et al. (2008), Sehrish et al. (2011), Hoffmann (2011) and Nsambu (2014) who found capital adequacy to have significant negative impact on performance of commercial banks. However, it is not consistent with the results of Rao and Lakew (2012), Shoaib et al. (2015) and Peterson Ozili (2015) who found capital adequacy to have positive and significant influence on the profitability of commercial banks. It is also inconsistent with the results of Berger (1995),

Goddard et al. (2004) and Dawood (2014), who found a positive link between bank profitability and capital adequacy ratio.

The results revealed that there is a significant negative relationship exists between ROE and the global financial crisis (CRISIS) with level of significance at 10% and a p-value of 0.0821. This suggests that the global financial crisis of 2008 has a negative significant impact of bank profitability. Therefore, the Second hypothesis that there is no statistically significant relationship between bank profitability and the Global financial crisis is rejected and thus, the alternative hypothesis is accepted. This implies that financial crises are significant determinants of banks profitability. The negative sign of the coefficient between profitability and crisis suggests that banks profitability is higher before the crisis and less during or after the crisis. This result comports with the research results of Dietrich and Wanzenried (2010) who found many variables to have less effect on banks' profitability during the financial crisis, though the same variables proved to have more effects before the crisis. However, it is not consistent with the results of Deger and Adem (2011) who found that the profitability of Turkish banks generally

increased during the crisis. On the other hand, Siraj and Pilla (2012) findings revealed that Islamic banks were less affected by the financial crisis compared to conventional banks in the GCC region.

Table 3 shows an insignificant positive relationship exists between efficiency measured by cost to income ratio (CTIR) and ROE with a coefficient of 0.001262 and p-value of 0.1715. This means that the Third hypothesis that there is no statistically significant relationship between banks profitability and cost management (efficiency) is accepted. This indicates that cost to income ratio is not a significant factor in explaining banks profitability in Bahrain. This result is consistent with the research results of Kosmidou et al. (2007) who found cost efficiency measured by cost to income ratio as insignificant in explaining Greek subsidiary banks' profits. However, it is not consistent with the results of Athanasoglou et al. (2008), Alexiou and Sofoklis (2009) and Dietrich and Wanzenried (2010), who found the coefficient of the cost-to-income ratio plays a critical role in determining bank profitability. It is also inconsistent with the research results of Kosmidou et al. (2005), Usman Dawood (2014) and Ishmael and Benjamin (2015), who found negative relationship exists between cost efficiency and banks profitability.

The empirical results indicate also that capital strength of banks represented by equity to total assets ratio (EQTTA), positively and significantly influences banks profitability measured by ROE. This means that the Fourth hypothesis that there is no statistically significant relationship between bank profitability and capital strength of the bank is rejected and hence the alternative hypothesis is accepted. The positive sign of the coefficient (relationship) between these two variables can be explained by the fact that banks with more equity capital are safer and face lower expected bankruptcy. Such an advantage, certainly, can be translated into more profitability as it enables banks to reduce their cost of capital and as such increase their profitability. This result is consistent with the research results of Berger (1995), Demircuc-Kunt and Huizinga (1999), Abreu and Mendes (2002), Staikouras and Wood (2003), Kosmidou et al. (2007), Flamini and Schumacher (2009), Liu and Wilson (2010), Javaid et al. (2011), Rami Zeitun (2012) and Syafri Mandai (2012), who found significant positive link between equity and profitability. However, it is not consistent with the results of Alkassim (2005) and Athanasoglou et al. (2006), who found that capital represented by equity to total assets ratio is negatively related to bank profitability. It is also not consistent with the findings of Pratomo and Abdul Ghafar (2007) who argued that low

equity to total assets ratio increases the value of the firm.

The Table also shows negative and insignificant relationship exists between ROE and economic growth measured by gross domestic product growth (GDPG) with a coefficient of -1.232545 and p-value of 0.4336. This means that the Fifth hypothesis that there is no statistically significant relationship between bank profitability and economic growth is accepted. This result implies that economic growth is not a determinant of commercial bank profitability in Bahrain. This result is comports with the results of Dietrich and Wanzenried (2010) who found that GDP growth rate does not affect bank profitability in Switzerland. It is also comports with the research results of Sufian and Chong (2008), and Deger and Adem (2011), who found that economic growth is insignificantly explaining the variations in the profitability of banks. However, it is not consistent with the results of Bourke (1989), Demircuc-Kunt and Huizinga (1999), Nicolae et al. (2015) and Shoaib et al. (2015), who found positive relationships, exist between GDP growth and profitability of the bank.

Inflation rates were also shown to have negative and statistically insignificant relationship with ROE of the bank. This means that the Sixth hypothesis that there is no statistically significant relationship between bank profitability and inflation rate is accepted. This implies that inflation rate is not a significant determinant factor of banks profitability in commercial banks in Bahrain. This finding comports with the results of Sufian and Chong (2008), Sayilgan and Yildirim (2009) and Khizer et al. (2011), who found negative relationship between inflation and banks' profitability. However, it is not consistent with the findings of Bashir (2000), Abreu and Mendes (2002), Guru et al. (2002), Kosmidou et al. (2005), Alexiou and Sofoklis (2009), Muhammad Bilal et al. (2013), and Ishmael and Benjamin (2015), who found inflation rate positively affects the bank's profitability.

The empirical results show statistically significant negative relationship at 1% level exists between ROE and interest rates (INTRR) with p-value of (0.0066). This indicates that interest rates are significant determinants of banks' profitability. Therefore, the Seventh hypothesis that there is no statistically significant relationship between bank profitability and interest rates is rejected and, thus, the alternative hypothesis is accepted. This finding is consistent with the research results of Bourke's (1989) and Guru et al. (2002), who found negative association between interest rates and bank profitability. However, it is not comports with the results of Molyneux and Thornton (1992) and

Deger and Adem (2011), who found significant positive relationships between interest rate and bank's profitability.

Table 3, shows the coefficient of Liquid assets to total assets (LATTA) of 0.200153 is statistically insignificant at 10% level with p-value of 0.1635. Therefore the Eighth hypothesis that there is a statistically significant relationship between banks profitability and liquidity of the bank is accepted. This implies that the liquidity is not a determinant factor of the commercial banks profitability. This result is consistent with the research results of Bourke (1989) and Haron (2004), who found a positive significant link between profitability and liquidity. It is also consistent with the research results of Kosmidou et al. (2007) who found liquidity as an insignificant factor determining Greek banks' profitability. However, it is not consistent with the results of Molyneux and Thorton (1992) and Shoaib et al. (2015), who concluded that liquidity is negatively correlated with banks profitability. It is also inconsistent with the results of Hassan and Bashir (2003), Nahang and Araghi (2013), and Dawood (2014), who found the liquidity ratio to have significant impacts on various banks' profitability measures.

The results, according to Table 3, show that natural logarithm of total assets (LNTA) of the bank is negative and statistically insignificant at 10% level with P-value of 0.4006. This implies that the bank size is not a determinant factor of commercial banks profitability in Bahrain. Therefore the Ninth hypothesis that there is a statistically significant relationship between banks profitability and size of the bank is accepted. The negative sign of the coefficient of (LNTA) indicates that this relation is caused by diseconomies of scale suffered by banks in Bahrain. This result is consistent with the results of Spathis et al. (2002), Dietrich and Wanzenried (2010), Hoffman (2011) and Dawood (2014), who found insignificant, negative effect of size on banks' profitability. It is also consistent with the research results of Javaid et al. (2011) who concluded that higher total assets may not necessarily lead to higher profits. However, it is not consistent with the results of Akhtar et al. (2011) and Khizer et al. (2011), who found positive relationships exist between profitability and banks size. It is also inconsistent with Sufian and Chong (2008) and Deger and Adem (2011), whose empirical results suggest that bank size has a statistically significantly impact on banks' profitability.

The empirical results also show that total liability to total equity ratio (TLBTTE) has a negative and statistically significant relationship with ROE at 1% level and a p-value of 0.0000. This implies that debt

ratio is a determinant factor of commercial banks profitability. Therefore the Tenth hypothesis that there is no statistically significant relationship between banks profitability and debt ratio (leverage) of the bank is rejected and thus the alternative hypothesis is accepted. This result is not consistent with the research results of Hassan and Bashir (2003) who found that liabilities over total assets ratio to have statistically significant positive impact on profitability.

The empirical results, as shown in Table 3, show that type of the bank (Islamic or conventional) has a negative and statistically significant relationship with ROE at 1% level and a p-value of 0.0000. This implies that the type of the bank is a determinant factor of commercial banks profitability when measured by ROE. Therefore the Eleventh hypothesis that there is no statistically significant relationship between banks profitability and type of the bank is rejected and thus, the alternative hypothesis is accepted. This result is consistent with the research results of Alkassim (2005), Saiful Azhar and Mohammad (2008) and Akhtar et al. (2011), who found variations in results between Islamic and conventional banks liquidity and profitability. It is also consistent with the research results of Siddiqui (2008) who examined the relative performance of Islamic versus conventional banks and confirmed that Islamic banks have shown good performance with respect to their ROA and ROE and have demonstrated better risk management than conventional banks. In addition, it is consistent with the results of Siraj and Pilla (2012) who found that Islamic banks possess a higher average annual growth rate of total operating income than conventional banks in GCC region. Moreover, It is comports with the research results of Abu Hanifa et al. (2015) who found one type of banks, as more profitable than the other types of commercial banks in Bangladesh.

Table 3 shows a negative and statistically insignificant relationship exists between ROE and exchange rate (XRATE) with a coefficient of -0.041729 and p-value of 0.8959. Therefore, the Twelfth hypothesis that there is no statistically significant relationship between banks profitability and exchange rate in the country is accepted. This result reveals that a higher exchange rate of the country currency may not necessarily lead to a higher level of banks profitability. This implies that exchange rate variable is not significant in determining banks profitability. This finding is consistent with the research results of Eze Osuagwu (2014) who found exchange rate as not significant in determining banks profitability. However, it is not consistent with the findings of Ibi and Collins (2014) who found exchange

rate to be the determinant of profit in many Nigerian banks.

On the other hand, the study uses ROA as another model to investigate the influence of the internal and external factors on banks profitability. Table 4 below shows the regression results of Model 2 of the study. It shows the regression analysis between return on assets (ROA), and each of the explanatory variables (i.e., CADEQ, CRISIS, CTIR, EQTOTA, GDPG, INFLR, INTRR, LATTA, LNTA, TLBTTE, TYPE and XRATE).

Table 4 shows significant positive relationship exists between ROA and the one-year-lagged return on assets, which implies that previous year's profitability explains the current year's profitability. Another statistically significant relationship is also found between ROA and bank type. This indicates that type of the bank is a significant factor in determining the profitability when measured by ROA.

The Table reveals positive, though statistically insignificant, relationships between ROA and each of cost to income ratio (CTIR), equity to total assets (EQTTA) ratio, gross domestic product growth (GDPG)

ratio, and exchange rate (XRATE). On the other hand, it shows negative, but statistically insignificant relationships between ROA and each of capital adequacy ratio, Global financial crisis (CRISIS), inflation rate (INFLR), interest rate (INTRR), liquid assets to total assets (LATTA), Size of the bank (LNTA), and debt ratio (TLBTTE). This means that cost efficiency, leverage, economic development, exchange rate, capital adequacy, the Global financial crisis, inflation rate, interest rate, liquidity, size of the bank, and debt ratio are insignificant determinants of profitability when measured by ROA. However, the adjusted R-squared of 0.200828 implies that only 20% of the variation in the dependent variable (ROA) is explained by the independent variable of the study. Yet, the D-W statistic value of 1.654199 indicates an absence of autocorrelation and confirms that there is no serial correlation. This indicates neither overestimation nor underestimation of the level of significance for such a number of observations. The study reveals that the explanatory variables used in this study are, generally, having significant association with profitability proxied by ROE, and insignificant association with profitability proxied by ROA.

Table (4): Regression results between ROA and explanatory variables using Least Square Method (Model 2)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.185436	0.385017	0.481630	0.6332
ROA(-1)	0.271759	0.156255	1.739205	0.0913*
CADEQ	-0.069773	0.180984	-0.385524	0.7023
CRISIS	-0.036824	0.053991	-0.682039	0.5000
CTIR	0.000225	0.000531	0.422966	0.6751
EQTOTA	0.158562	0.154498	1.026307	0.3122
GDPG	0.792044	0.906481	0.873757	0.3886
INFLR	-0.399045	0.684945	-0.582593	0.5641
INTRR	-1.507990	1.090768	-1.382502	0.1761
LATTA	-0.060886	0.084100	-0.723969	0.4742
LNTA	-0.012845	0.013632	-0.942298	0.3529
TLBTTE	-0.417786	0.402757	-1.037317	0.3071
TYPE	-0.071997	0.031372	-2.294920	0.0282**
XRATE	0.112137	0.185619	0.604126	0.5499
R-squared	0.426681	Mean dependent var		0.008347
Adjusted R-squared	0.200828	S.D. dependent var		0.046006
S.E. of regression	0.041128	Akaike info criterion		-3.302148
Sum squared resid	0.055820	Schwarz criterion		-2.751040
Log likelihood	91.60047	Hannan-Quinn criter.		-3.094762
F-statistic	1.889201	Durbin-Watson stat		1.654199
Prob. (F-statistic)	0.069504			

***, **, and *, signify 1%, 5% and 10% respectively.

Among the two profitability measures used, the return on equity model generates higher R squared and higher

F-Statistic than return on assets model. This indicates that the selected macroeconomic indicators and the bank specific variables used in this study have given a

superior explanation of profitability measured by ROE rather than those measured by ROA.

LIMITATIONS OF THE STUDY

This study is confined to six commercial banks listed in Bahrain Bourse. The period of the study is confined to 8 years (i.e., from 2006 to 2013). In addition the study uses annual data. For future research, it would be desirable to employ monthly or quarterly data and examine a longer period of operational activity of commercial banks.

CONCLUSIONS

This study has empirically investigated the impact of certain macroeconomic indicators and bank-specific variables on banks' profitability in Bahrain. The empirical findings reveal that significant negative relationships exist between ROE and each of capital adequacy ratio (CADEQ), the global financial crisis (CRISIS), interest rate (INTRR), total liability to total equity ratio (TLBTTE), and type of bank (TYPE). Significant positive relationship, however, is revealed to exist between ROE and equity to total assets (EQTTA). Additionally, the study reveals that insignificant negative relationships exist between ROE and each of the following: gross domestic product growth (GDPG), inflation rate (INFLR), natural Logarithm of total assets (LNTA), and exchange rate (XRATE). The findings of the study also show that profitability measured by ROE is positively though insignificantly affected by cost to income ratio (CITR) and liquid assets to total assets (LATTA).

On the other hand, the findings show that profitability, measured by ROA, is significantly influenced by one-year lagged ROA and bank type (TYPE). No other significant relationship exists between ROA and the remaining explanatory variables.

The study concludes that capital adequacy ratio, the financial crisis of 2008, capital strength, interest rate, debt ratio, and type of bank are the main determinants of commercial banks profitability. The variation in the results of model 1 (when ROE is taken as the dependent variable) and model 2 (when ROA is taken as the dependent variable) is possibly due to the variations in the sizes of the banks used in the study sample and their market shares.

The inconsistencies, if any, between this study's results and those in the literature are conceivably caused by the variations in the use of country or countries as a study context and the differences in study periods used for data gathering.

REFERENCES

- Abreu, M. and Mendes, V. (2002), "Commercial Bank Interest Margins and Profitability: Evidence from E.U. Countries". University of Porto Working Paper Series, No: 122.
- Abu Hanifa M. N., Mustafa M. C., Najneen J. C., Mohammad J. K., and Sajeda P. (2015), "The Effect of Bank Specific and Macroeconomic Determinants of Banking Profitability: A Study on Bangladesh", *International Journal of Business and Management*, vol. 10, issue: 6, pp: 287-297.
- Akhtar, M. Farhan, Ali, Khizer and Sadaqat, Shama (2011), "Liquidity Risk Management: A comparative study between Conventional and Islamic Banks of Pakistan", *Interdisciplinary Journal of Research in Business*, vol. 1, issue: 1, pp: 35-44.
- Akhtar, Muhammad Farhan, Ali, Khizer, and Sadaqat, Shama (2011), "Factors Influencing the Profitability of Conventional Banks of Pakistan", *International Research Journal of Finance and Economics*, Issue 66, pp: 117-124.
- Alexiou, Constantinos and Sofoklis, Voyazas (2009), "Determinants of Bank Profitability: Evidence from the Greek Banking Sector", *Economic Annals*, Vol. LIV, issue: 182, pp: 93-118.
- Alkassim, Faisal A. (2005), "The Profitability of Islamic and Conventional Banking in the GCC Countries: a Comparative Study", Master degree project, University of Wales Bangor, United Kingdom.
- Athanasoglou, Panayiotis P., Brissimis, Sophocoles N., and Delis, Manthos D. (2008), "Bank-specific, industry-specific and macroeconomic determinants of bank profitability", *Journal of International Financial Markets, Institutions and Money*, vol. 18, issue: 2, pp: 121-136.
- Bashir, Abdel-Hameed M. (2000), "Determinants of Profitability and Rate of Return Margins in Islamic banks: Some Evidence from the Middle East", prepared for the ERF's Seventh Annual Conference on October 26-29th. Amman, Jordan.
- Bashir, Abdel-Hameed M. (2001), "Assessing the performance of Islamic Banks: Some evidence from the Middle East", 21st annual meeting of Middle East Economic Association, in conjunction with Allied Social Sciences Association in New Orleans, Louisiana, U.S.A., January 7-9, 2001.

- Ben Naceur, Samy (2003), "The Determinants of the Tunisian banking Industry Profitability: Panel Evidence", ERF Research Fellow, Department of Finance Université Libre de Tunis.
- Ben Naceur, Samy and Goaied, Mohamed (2008), "The Determinants of Commercial Bank Interest Margin and Profitability: Evidence from Tunisia", *Frontiers in Finance and Economics*, vol. 5, issue: 1, pp:106 – 130
- Berger, Allen N. (1995), "The relationship between capital and earnings in banking", *Journal of Money, Credit and Banking*, Vol. 27, issue: 2, pp: 432-456.
- Bourke, Philip (1989), "Concentration and other Determinants of Bank Profitability in Europe, North America and Australia". *Journal of Banking and Finance*, vol. 13, issue: 1, pp: 65- 79.
- Christine Zhang and Liyun Dong (2011), "Determinants of Bank Profitability: Evidence from the U.S Banking Sector" research project submitted in partial fulfillment of the requirements for the degree of master of financial risk management, Beedie School of Business, Simon Fraser University.
- Dawood, Usman (2014), "Factors impacting profitability of commercial banks in Pakistan for the period of (2009-2012)", *International Journal of Scientific and Research Publications*, Vol. 4, Issue: 3, pp: 1-7.
- Deger Alper and Adem Anbar (2011), "Bank Specific and Macroeconomic Determinants of Commercial Bank Profitability: Empirical Evidence from Turkey", *Business and Economics Research Journal*, vol. 2, issue: 2, pp: 139-152.
- Demirguc-Kunt, Asli and Huizinga, Harry (1999), "Determinants of Commercial Bank Interest Margins and Profitability: Some International Evidence". *World Bank Economic Review*, vol. 13, issue: 2, pp: 379-408.
- Dietrich, Andreas and Wanzenried, Gabrielle (2011), "Determinants of bank profitability before and during the crisis: Evidence from Switzerland", vol. 21, issue: 3, pp: 307-327.
- Durguti Esat, Donika Aliu- Zhuja and Erëza Arifi (2014) "An Examination of the Net Interest Margin As Determinants of Banks' Profitability in the Kosovo Banking System", *European Academic Research*, Vol. 2, Issue: 5, pp: 6350-6364.
- Eze Simpson Osuagwu (2014), "Determinants of Bank Profitability in Nigeria", *International Journal of Economics and Finance*, Vol. 6, issue: 12, pp: 46-63.
- Flamini, Valentina, M. C. and Schumacher, Liliana (2009), "The Determinants of Commercial Bank Profitability in Sub-Saharan Africa", IMF working paper, International Monetary Fund, WP/09/15.
- Goddard, John, Phil Molyneux and John Wilson (2004), "The profitability of European banks: A cross-sectional and dynamic panel analysis", *The Manchester School*, vol. 72, issue: 3, pp: 363-381.
- Guru, Balachander, Staunton, J. and Bala Shanmugam (2002), "Determinants of commercial bank profitability in Malaysia", Multimedia University, Working Papers.
- Haron, Sudin (2004), "Determinants of Islamic Bank Profitability", *Global Journal of Finance and Economics USA*, vol. 1, issue 1, March 2004.
- Hassan, K. and M. Bashir (2003), "Determinants of Islamic Banking Profitability", International Seminar on Islamic Wealth Creation, University of Durham, U.K, 7-9 July, 2003.
- Hoffmann, Paolo S. (2011), "Determinants of the Profitability of the US Banking Industry, International Journal of Business and Social Science", vol. 2, issue: 22, pp: 255- 269.
- Ibi, Esor Egbe and Collins Etim Udofia (2014), "The Determinants of Bank Profit: A Disaggregated Analysis of Commercial Bank's Profit in Nigeria", *International Journal of Business and Social Science*, Vol. 5, issue: 1, pp: 200-2011.
- IMF (2015), International Financial statistics, available at www.imf.org.
- Ishmael Appiah Gyamerah and Benjamin Amoah (2015), "Determinants of Bank Profitability in Ghana", *International Journal of Accounting and Financial Reporting*, vol. 5, issue: 1, pp: 173-187.
- Javaid, Saira, Anwar, Jamil, Zaman, Khalid and Ghafoor, Abdul (2011), "Determinants of Bank Profitability in Pakistan: Internal Factor Analysis", *Mediterranean Journal of Social Sciences*, vol. 2, issue: 1, pp: 59-78.

- Khizer Ali, Muhammad Farhan Akhtar and Hafiz Zafar Ahmed (2011), "Bank-Specific and Macroeconomic Indicators of Profitability – Empirical Evidence from the Commercial Banks of Pakistan", *International Journal of Business and Social Science*, vol. 2, issue: 6, pp: 235-242.
- Kosmidou, Kyarki, Pasiouras, Fotios, and Tsaklanganos, Angelos (2007), "Domestic and multinational determinants of foreign bank profits: The case of Greek banks operating abroad", *Journal of Multinational Financial Management*, vol. 17, issue: 1, pp: 1-15.
- Kosmidou, Kyarki, Tanna, S., and Pasiouras, F. (2005). "Determinants of profitability of domestic UK commercial banks: panel evidence from the period 1995-2002", Money Macro and Finance (MMF) Research Group Conference 2005, 45, Money Macro and Finance Research Group, pp: 2-27
- Liu, H., and Wilson, J.O.S. (2010), "The profitability of banks in Japan". *Applied Financial Economics*, vol. 20, issue: 24, pp: 1851-1866
- Molyneux, Philip and Thornton, John (1992), "Determinants of European Bank Profitability: A Note". *Journal of Banking and Finance*, vol. 16, issue: 6, pp: 1173-1178.
- Muhammad Bilal, Asif Saeed, Ammar Ali Gull, and Toquer Akram (2013), "Influence of Bank Specific and Macroeconomic Factors on Profitability of Commercial Banks: A Case Study of Pakistan", *Research Journal of Finance and Accounting*, vol. 4, issue: 2, pp: 117-127.
- Munyambonera Ezra Francis (2011) "Determinants of Commercial Banks' Profitability In Sub-Saharan Africa", daadpartnership.htw-berlin.de/fileadmin/Workshops/2011_Uganda/... PDF file
- Nahang, Fatemeh and Araghi, Maryam Khalili (2013), "Internal factors affecting the profitability of City Banks", *International Research Journal of Applied and Basic Sciences*, vol. 5, issue: 12, pp: 1491-1500.
- Nicolae Petria, Bogdan Capraru, Iulian Ihnatov (2015), "Determinants of banks' profitability: evidence from EU 27 banking systems", *Procedia Economics and Finance*, vol. 20, pp: 518 – 524.
- Nsambu Kijjambu Frederick (2014), "Factors Affecting Performance of Commercial Banks in Uganda A Case for Domestic Commercial Bank", Proceedings of 25th International Business Research Conference 13 - 14 January, 2014, Taj Hotel, Cape Town, South Africa, ISBN: 978-1-922069-42-9.
- Obamuyi T. Marshal (2013), "Determinants of Banks' Profitability in A Developing Economy: Evidence from Nigeria, *Organizations and Markets in Emerging Economies*", vol. 4, issue: 2(8), pp: 97-111.
- Peterson K Ozili (2015), "Determinants of Bank Profitability and Basel Capital Regulation: Empirical Evidence from Nigeria", *Research Journal of Finance and Accounting*, vol. 6, issue: 2, pp: 124-131.
- P
ratomo, Wahyu Ario and Ismail, Abdul Ghafar (2007), "Islamic Bank Performance and Capital Structure", Online at <http://mpa.ub.uni-muenchen.de/6012/> MPRA Paper No. 6012, posted 29. November 2007 13:38 UTC.
- Rami Zeitun (2012), "Determinants of Islamic and Conventional Banks Performance in GCC Countries Using Panel Data Analysis", *Global Economy and Finance Journal*, vol. 5, issue: 1, pp. 53 – 72.
- Rao K. Mohana and Lakew, T. Berhanu (2012), "Determinants of Profitability of Commercial Banks in A Developing Country: Evidence from Ethiopia", *International Journal of Accounting and Financial Management Research (IJAFMR)*, vol. 2 Issue: 3, pp: 1-20.
- Saiful Azhar Rosly and Mohammad Ashadi Mohd. Zaini, (2008) "Risk-return analysis of Islamic banks' investment deposits and shareholders' fund", *Managerial Finance*, vol. 34 Issue: 10, pp: 695-707.
- Samina Riaz (2013) "Profitability Determinants of Commercial banks in Pakistan", Proceedings of 6th International Business and Social Sciences Research Conference 3 – 4 January, 2013, Dubai, UAE, ISBN: 978-1-922069-18-4
- Sayilgan, G., and Yildirim, O. (2009), "Determinants of Profitability in Turkish Banking Sector: 2002-2007", *International Research Journal of Finance and Economics*, vol. 28, pp: 207-214.
- Shoaib Nisar, Wang Susheng, Jaleel Ahmed and Peng Ke (2015), "Determinants of Bank's Profitability in Pakistan: A Latest Panel Data Evidence", *International Journal of Economics, Commerce and Management*, Vol. 3, Issue: 4, pp: 1-16.

Siddiqui, Anjum (2008), "Financial Contracts, Risk and Performance of Islamic Banking", *Managerial Finance*, vol. 34, Issue: 10, pp: 680-694.

Siraj, K.K. and P. Sudarsanan Pilla (2012), "Comparative Study on Performance of Islamic Banks and Conventional Banks in GCC region", *Journal of Applied Finance & Banking*, vol. 2, issue: 3, pp: 123-161.

Spathis, C., Koasmidou, K., & Doumpos, M. (2002), "Assessing Profitability Factors in the Greek Banking System: Amulticriteria methodology", *International Transactions in Operational Research*, pp: 517-530.

Staikouras, C. and Wood, G. (2003), "The determinants of bank profitability in Europe", Paper presented at the Proceedings of the European Applied Business Research Conference. Venice, Italy, June 9 – 13, 2003.

Sufian Fadzlan (2011) "Profitability of the Korean Banking sector: Panel evidence on bank Specific and Macroeconomic determinants", *Journal of Economics and Management*, vol.7, issue: 1, pp: 43-72.

Sufian Fadzlan and Royfaizal Razali Chong (2008), "Determinants of Bank Profitability in a Developing Economy: Empirical Evidence from the Philippines", *Asian Academy of Management Journal of Accounting and Finance*, Vol. 4, issue: 2, 91–112.

Syafri Mandai (2012), "Factors Affecting Bank Profitability in Indonesia", the 2012 International Conference on Business and Management 6 – 7 September 2012, Phuket – Thailand.

Tony Lancaster (2004), *Introduction to Modern Bayesian Econometrics*, Wiley-Blackwell.

APPENDIX 1: PANEL DATA

	Year	ROE	ROA	LATT A	CTIR	CADE Q	LNT A	EQTOT A	TLBTT E	GDP G	INFL R	XRAT E	INTR R	TYP E	CRISI S
AUB	2013	0.201	0.02	0.239	0.403	0.162	16.33	0.109	0.082	0.039	0.033	1.701	0.059	0	1
	2012	0.130	0.013	0.2167	0.356	0.156	16.24	0.106	0.085	0.034	0.028	1.684	0.06	0	1
	2011	0.127	0.012	0.2173	0.304	0.16	16.18	0.103	0.087	0.021	-0.004	1.66	0.068	0	1
	2010	0.11	0.012	0.2053	0.381	0.141	16.12	0.104	0.086	0.043	0.020	1.721	0.072	0	1
	2009	0.091	0.010	0.1855	0.338	0.151	16	0.110	0.081	0.026	0.028	1.707	0.079	0	1
	2008	0.128	0.011	0.1917	0.391	0.138	16	0.102	0.089	0.062	0.035	1.447	0.082	0	0
	2007	0.128	0.013	0.2394	0.375	0.162	15.98	0.115	0.077	0.083	0.033	1.329	0.083	0	0
	2006	0.135	0.01	0.3454	0.401	0.148	15.87	0.074	0.123	0.065	0.020	1.445	0.08	0	0
BISB	2013	0.079	0.007	0.2586	0.534	0.1161	13.72	0.086	0.015	0.039	0.033	1.701	0.059	1	1
	2012	-0.519	-0.044	0.2117	0.801	0.1231	13.63	0.084	0.109	0.034	0.028	1.684	0.06	1	1
	2011	-0.171	-0.021	0.227	0.749	0.1358	13.64	0.121	0.073	0.021	-0.004	1.66	0.068	1	1
	2010	-0.397	-0.042	0.2702	1.077	0.141	13.75	0.107	0.084	0.043	0.020	1.721	0.072	1	1
	2009	-0.138	-0.021	0.1606	0.707	0.1374	13.72	0.154	0.055	0.026	0.028	1.707	0.079	1	1
	2008	0.134	0.026	0.2068	0.313	0.2929	13.68	0.191	0.005	0.062	0.035	1.447	0.082	1	0
	2007	0.134	0.038	0.3031	0.324	0.41	13.4	0.284	0.004	0.083	0.033	1.329	0.083	1	0
	2006	0.174	0.030	0.4479	0.388	0.31	12.99	0.172	0.008	0.065	0.020	1.445	0.08	1	0
BBK	2013	0.146	0.014	0.3325	0.484	0.1533	14.99	0.103	0.087	0.039	0.033	1.701	0.059	0	1
	2012	0.163	0.015	0.365	0.465	0.1429	14.95	0.093	0.097	0.034	0.028	1.684	0.06	0	1
	2011	0.134	0.012	0.3498	0.453	0.1485	14.83	0.086	0.106	0.021	-0.004	1.66	0.068	0	1
	2010	0.169	0.016	0.3239	0.418	0.1857	14.71	0.098	0.092	0.043	0.020	1.721	0.072	0	1
	2009	0.164	0.015	0.2573	0.464	0.1751	14.64	0.101	0.089	0.026	0.028	1.707	0.079	0	1
	2008	0.121	0.013	0.2136	0.306	0.2006	14.59	0.097	0.094	0.062	0.035	1.447	0.082	0	0
	2007	0.160	0.0144	0.2157	0.350	0.2329	14.55	0.113	0.078	0.083	0.033	1.329	0.083	0	0
	2006	0.191	0.019	0.1531	0.414	0.162	14.34	0.111	0.080	0.065	0.020	1.445	0.08	0	0

NBB	2013	0.151	0.019	0.284	0.324	0.3122	14.83	0.132	0.066	0.039	0.033	1.701	0.059	0	1
	2012	0.16	0.019	0.3662	0.316	0.2786	14.79	0.120	0.073	0.034	0.028	1.684	0.06	0	1
	2011	0.170	0.020	0.3073	0.333	0.2505	14.69	0.115	0.077	0.021	- 0.004	1.66	0.068	0	1
	2010	0.164	0.171	0.2811	0.359	0.229	14.64	0.116	0.077	0.043	0.020	1.721	0.072	0	1
	2009	0.177	0.020	0.2143	0.357	0.223	14.57	0.114	0.078	0.026	0.028	1.707	0.079	0	1
	2008	0.160	0.017	0.2506	0.383	0.193	14.53	0.107	0.084	0.024	0.035	1.447	0.082	0	0
	2007	0.167	0.022	0.2997	0.361	0.283	14.46	0.131	0.066	0.083	0.033	1.329	0.083	0	0
	2006	0.163	0.022	0.2756	0.360	0.2869	14.33	0.135	0.064	0.065	0.020	1.445	0.08	0	0
SAL AM	2013	0.038	0.035	0.217	0.565	0.214	13.9	0.226	0.033	0.039	0.033	1.701	0.059	1	1
	2012	0.055	0.052	0.215	0.451	0.209	13.76	0.221	0.034	0.034	0.028	1.684	0.06	1	1
	2011	-0.062	-0.06	0.414	1.836	0.249	13.74	0.217	0.035	0.021	- 0.004	1.66	0.068	1	1
	2010	-0.124	-0.122	0.369	1.903	0.247	13.66	0.235	0.032	0.043	0.020	1.721	0.072	1	1
	2009	-0.144	-0.14	0.321	0.406	0.286	13.57	0.257	0.029	0.026	0.028	1.707	0.079	1	1
	2008	0.148	0.046	0.3079	0.313	0.247	13.23	0.311	0.020	0.062 4	0.035	1.447	0.082	1	0
	2007	0.145	0.058	0.6025	0.289	0.487	12.89	0.401	0.014	0.082 9	0.033	1.329	0.083	1	0
	2006	0.120	0.087	0.5745	0.196	0.798	12.14	0.725	0.004	0.065	0.020	1.445	0.08	1	0
ITH MAA R	2013	-0.143	-0.011	0.1478	0.976	0.1277	14.84	0.102	0.062	0.039	0.033	1.701	0.059	1	1
	2012	-0.053	-0.004	0.1374	85.38	0.1264	14.82	0.114	0.057	0.034	0.028	1.684	0.06	1	1
	2011	-0.102	-0.009	0.1208	1.217	0.1288	14.77	0.117	0.057	0.021	- 0.004	1.66	0.068	1	1
	2010	-0.219	-0.022	0.1348	0.720 6	0.132	14.75	0.133	0.052	0.043	0.020	1.721	0.072	1	1
	2009	-0.348	-0.041	0.1702	1.393	0.1277	14.65	0.154	0.045	0.026	0.028	1.707	0.079	1	1
	2008	0.024	0.004	0.0458	0.515	0.1441	14.52	0.214	0.037	0.062	0.035	1.447	0.082	1	0
	2007	0.081	0.022	0.0257	0.413	0.1863	14.25	0.315	0.022	0.083	0.033	1.329	0.083	1	0
	2006	0.073	0.017	0.0277	0.421	0.2952	14.04	0.339	0.020	0.065	0.020	1.445	0.08	1	0