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PROFITABILITY AND STABILITY OF BANKS: A COMPARATIVE STUDY OF ISLAMIC AND CONVENTIONAL BANKS IN MENA REGION

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ABSTRACT

The profitability and stability are the two main objectives of all financial institutions, particularly for the banks. An understanding of the drivers of the profitability and stability will enable banks to achieve these objectives effectively. This study aims to investigate and compare the determinants of the profitability and stability of Islamic and conventional banks in MENA region over the period of 2011 to 2017. In addition, this study aims at identifying the differences in the profitability and stability of banks in MENA region. Two profitability measures used are the return on asset (ROA) and the return on equity (ROE), and the stability measure used is the Z-score. Generalized method of moments was applied to test the models of study using a balanced panel data set of 714 observations, obtained from the cross-section of 31 Islamic banks and 71 conventional banks over a seven-year period. The findings of the study indicated that the determinants of the profitability and stability of banks in MENA region vary according to the bank type, Islamic or conventional, and the location in GCC and non-GCC countries. Furthermore, the results revealed that there is a significant difference in the impact of most of the bank-specific variables on the profitability and stability of banks with respect to the bank type. The Islamic banks in MENA region are less profitable than conventional banks when the profitability was measured by ROA. In addition, the Islamic banks in MENA region were found to be less stable than the conventional banks.

INTRODUCTION

In all countries, banks play a crucial role in their economy. The economic growth relies on the stability of the financial sector in any economy [1]. Profitability and stability are the two main objectives of all financial institutions, particularly for the banks [2]. Therefore, it is very important to investigate the determinants of the bank performance and stability especially for the period after the financial crisis [3]. Islamic and conventional banking

systems are considered profitable institutions and evaluation of banks profitability is an essential issue for the managers, the regulators as well as the investors [4]. In a competitive financial market, the performance of banks offers an important signal to the managers of banks whether to promote their finance by enhancing their deposit service or loan service or both. Also, it provides a signal to depositors whether to keep or withdraw their funds from the bank. Besides, the performance of banks is important for the regulators for their regulation purposes [5].

Khan et al. [6] investigated the differences in the performance of Islamic banks and conventional banks in Pakistan by using the financial ratios. Two types of analyses were conducted, which are the sample t-test as well as the logistic regression and used the bank type as the dependent variable. The study found that the profitability, efficiency, risk and liquidity management of Islamic banks are relatively better than conventional banks. On the other hand, the result indicated that conventional banks are superior in asset quality. During the crisis, the result indicated that Islamic banks are less profitable than conventional banks.

Rashid et al. [7] examined the relationship between the competitive conduct of banks and the stability of banking system including ten conventional banks, four Islamic banks (full-fledged), and six standalone Islamic branches of conventional banks for the period of 2002-2012. Random effects estimator used to examine the impact of bank-specific and macroeconomic variables on the stability of these banks measured by z-score. The result revealed that Islamic banks performed better than conventional banks and they contributed more effectively to the financial sector's stability. The result of the regression analysis indicated that the profitability ratio, income diversity, asset size, market concentration, and the ratio of loan to asset significantly impact on the banking stability. The GDP has a significant positive impact on the stability of both types of banks while when the empirical model estimated without the market concentration ratio; it was statistically significant only for Islamic banks.

Khasawneh [8] used ROA and NIM to measure the banking profitability and z-score to measure the stability of banks. The result found that Islamic banks are more profitable but less stable than conventional banks under the period of the examination. In addition, the financial crisis has affected the profitability and stability of Islamic and conventional banks, smaller banks are less stable than larger banks, and the vulnerability of banks has increased by the off-balance sheet activities for Islamic bank and conventional banks in MENA region.

Trad et al. [3] used GMM method to investigate the determinants of the performance and stability of 77 Islamic banks and 101 conventional banks in 13 countries of MENA region during the financial crisis and the European sovereign debt debacle. The inflation has a negative impact on the performance of the banks while it a positive impact on the performance of Islamic banks measured by ROA. In addition, the result indicated that GDP has a positive impact on the performance of the two types of banks when the

profitability measured by ROA while it has a negative impact when the profitability measured by ROE. More importantly, this study found that Islamic banks are more stable and more profitable than conventional banks. Thus, this study aims to investigate and compare the determinants of the profitability and stability of Islamic and conventional banks considering an important region, MENA from 2011 to 2017. In addition, this study aims to examine the differences impacts on profitability and stability in MENA region.

METHODOLOGY

The main source of data in this study is the Bank Focus; which is a new bank scope data product "Orbis Bank Focus" covered only the period from 2011 to 2017. The country-level inflation rate and the annual GDP growth rate were collected from World Bank's World Development indicators and International Monetary Fund (IMF) database respectively. Moreover, this study used Bloomberg database "an essential global provider of financial news and information and financial software tools" for one variable, which its data was not available in Bank Focus for few banks.

The criterion of selecting the countries in this study is that each country should have at least one Islamic bank and one commercial bank with a complete data, where unavailability of the data made this country to be excluded. The total number of selected banks is 102 banks including 31 Islamic banks and 71 conventional banks. The total number of observation is 714 (217 Islamic banks and 497 conventional banks).

Variables

Two dependent variables are used in this study as indicators of the financial performance of banks in terms of profitability, which are the return on asset and return on equity. Also, z-score is used in this study as a measure of the financial stability of banks and to assess the banks' soundness [9,10].

The group of the independent variables in this study is divided into two main sub-categories. The first includes the banks-specific determinants that explain the profitability and stability of banks. The selected bank-specific factors are the asset quality, capital adequacy, liquidity, efficiency, credit risk and bank size. The second group includes the macroeconomic factors namely, GDP growth rate and the annual inflation rate which can have a significant impact on the profitability and stability of banks.

Heteroscedasticity test

The cross-sectional models are more likely to have heteroscedasticity, and it also can exist in the time series models. Having an unequal variance means that the disturbances are heteroscedastic. The existence of heteroscedasticity makes the OLS estimators inefficient because it increases the distributions' variances. In addition, with the existence of this problem the variance and standard errors will be underestimated by the OLS method and as a result, F-statistics and t-statistics will be higher than expected [11].

Generalized method of moments (GMM)

This study used GMM method to examine the relationship between both profitability and stability indicators with the bank-specific and macroeconomic characteristics.

Result And Discussion

Correlation Analysis

This result of the correlation analysis indicates that, for the sample of all banks in MENA region, the asset quality ratio (AQR), capital adequacy ratio (CAR), bank's size (BZ), real GDP growth rate, and annual inflation rate (CPI) have a positive correlation with the bank profitability measured by ROA while liquidity ratio (LQR), credit risk ratio (CRR), and efficiency ratio (EFF) have a negative relation with ROA. For ROE, the result indicates that the ROE has a positive relation with the liquidity ratio, bank size, GDP, and inflation while it has a negative relation with asset quality ratio, capital adequacy, credit risk, and efficiency ratio. Also, the result indicates that AQR, CAR, BZ, and GDP have a positive correlation with the banks' stability measured by Z-score while LQR, CRR, EFF, and CPI have a negative correlation with the Z-score. Moreover, most of the explanatory variables have a low correlation with each other (the highest correlation among the explanatory variables is -0.607 which is between AQR and LQR).

Heteroscedasticity test

Table 1 demonstrates the results of the panel cross-section heteroscedasticity LR test indicate that, for the sample of all banks in MENA region, for the samples of Islamic and conventional banks, as well as for the samples of GCC-countries and non-GCC countries, the p-value of the cross-section heteroscedasticity for all models under examination is 0.0000 which is less than 0.05. Based on this result, the null hypothesis (the null hypothesis states that residual is homoscedastic) is rejected. Thus, this result indicates the presence of heteroscedasticity problem in this study.

Table 1: Panel cross- section heteroscedasticity LR test

Sample	Dependent variable	Likelihood ratio		
		Value	df	Probability
All banks	ROA	1154.753	102	0.0000
	ROE	1563.1	102	0.0000
	Z-score	2080.202	102	0.0000
Islamic banks	ROA	317.48	31	0.0000
	ROE	670.1	31	0.0000
	Z-score	543.9738	31	0.0000
Conventional banks	ROA	633.207	71	0.0000
	ROE	604.26	71	0.0000
	Z-score	1514.492	71	0.0000
GCC	ROA	821.67	61	0.0000

	ROE	652.9849	61	0.0000
	Z-score	1098.581	61	0.0000
Non-GCC	ROA	357.65	41	0.0000
	ROE	489.9	41	0.0000
	Z-score	778.4057	41	0.0000

Comparative analysis of the profitability between Islamic and conventional Banks

Table 2 demonstrates the results of bank profitability for all banks, Islamic banks and conventional banks in MENA region (GCC and non-GCC countries). The results of this study indicate that the determinants of the profitability of Islamic and conventional banks in MENA region vary according to the type of bank. The results indicate that Asset quality ratio (AQR) plays a critical role in increasing the profitability of conventional banks in MENA region while for Islamic banks, AQR impact negatively on Islamic banks' profitability and this result is only significant when the profitability of Islamic banks was measured by ROA.

Moreover, the difference in the nature of the loan between Islamic and conventional banks can result in this difference in the impact of AQR on their profitability. In Islamic banks, the loan is represented by the investment. Combining these different types of loan, make the result insignificant for all banks in MENA region. Also, the capital adequacy ratio (CAR) increases the profitability of conventional banks and this result is significant for both profitability measures while for Islamic banks, the result is only positive and significant when the profitability measured by ROA while for ROE, the CAR impact negatively on the profitability of Islamic banks but this result is insignificant. This result indicates that the capital ratio is one of the important determinants of conventional banks profitability than Islamic banks. For all banks, CAR is only significant for ROA.

Furthermore, the liquidity ratio (LQR) found to be having a positive impact on the profitability of conventional banks while a negative impact on the profitability of Islamic banks. Moreover, the impacts of LQR on the profitability of all banks differ according to the profitability measures. However, the result of the impact of LQR on the profitability of all banks, Islamic banks, and conventional banks is insignificant indicating that the liquidity ratio is not one of the important determinants of the banks' profitability in MENA region.

Also, the credit risk ratio (CRR) has a significant negative impact on the profitability of conventional banks while for Islamic banks; its effect is different according to the profitability measures. However, the relation between CRR and the profitability of Islamic banks is insignificant. For all banks, CRR has a significant negative impact on the profitability measured by ROA while it has a positive but insignificant effect on the profitability measured by ROE. Moreover, the efficiency ratio has a significant negative impact on all banks, Islamic banks, and conventional banks in MENA region. For bank's size, the result indicates that the increase in the size of the

conventional bank improves its profitability. In contrast, bank's size is not one of the important determinants of the profitability of Islamic banks as well as all banks in MENA region where the result is insignificant.

Table 2: The results of bank profitability (All banks, Islamic banks and Conventional banks in MENA region)

Variables	All Banks				Islamic banks				Conventional Banks			
	Panel A		Panel B		Panel A		Panel B		Panel A		Panel B	
	ROA		ROE		ROA		ROE		ROA		ROE	
	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.	Coef.	t-Stat.
AQR	0.00	(-0.79)	0.00	(-0.00)	-0.02	(-4.13)***	-0.18	(-1.62)	0.01	(2.27)**	0.11	(2.79)***
CAR	0.06	(11.22)***	-0.05	(-0.80)	0.04	(4.98)***	-0.23	(-1.52)	0.14	(14.90)***	0.19	(2.44)***
LQR	-0.01	(-1.64)	0.02	-0.429	-0.02	-1.48	-0.04	(-0.23)	0.00	-0.29	0.06	-1.22
CRR	-0.01	(-1.70)*	0.03	-0.51	-0.01	(-1.58)	0.03	-0.34	-0.19	(-2.88)***	-2.29	(-4.28)***
EFF	-0.03	(-7.07)***	-0.35	(-9.15)***	-0.04	(-8.22)***	-0.58	(-5.95)***	-0.01	(-1.82)*	-0.18	(-5.4

												4)***
BZ	0.01	-0.14	-0.09	(-0.17)	0.01	-0.11	-2.25	(-1.26)	0.12	(2.67)***	0.94	(2.56)***
GDP	0.05	-1.31	0.39	-0.84	0.02	-0.36	0.50	-0.460	0.09	(1.81)*	0.47	-1.23
CPI	0.04	(2.93)***	0.26	(1.86)*	-0.06	(-2.05)**	-0.51	(-0.90)	0.07	(5.89)***	0.57	(5.68)***
IB_D	-0.15	(-1.75)*	0.93	-0.96								
GCC_D	-0.02	(-0.17)	-2.96	(-2.03)**	-0.38	(-1.65)*	0.09	-0.02	-0.22	(-1.43)	-3.36	(-2.77)***
Adjusted R2	0.44		0.26		0.63		0.18		0.54		0.46	

Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10% respectively.

For the macroeconomic variables, the real GDP growth rate has a positive impact on the profitability of all banks, Islamic banks, and conventional banks in MENA region. However, the result is only significant for the conventional

banks' profitability measured by ROA while the result is insignificant for Islamic banks as well as all banks. In addition, the annual inflation rate has a significant positive impact on the profitability of conventional banks and all banks in MENA region while it has a negative impact on the profitability of Islamic banks and only significant for the Islamic banks' profitability measured by ROA. Finally, the result reveals that conventional banks are more profitable than Islamic banks in MENA region when the profitability was measured by ROA.

Comparative analysis on the financial stability between Islamic and conventional Banks

Table 3 demonstrates the results of the bank stability for all banks, Islamic banks and Conventional banks in MENA region (GCC and non-GCC countries). The results of this study indicate that the determinants of the stability of Islamic and conventional banks in MENA region vary according to the type of the bank. Asset quality ratio plays a critical role in decreasing the stability of the conventional banks and all banks in MENA region while it increases the stability of Islamic banks.

Moreover, the difference in the nature of the loan between Islamic and conventional banks can result in this difference in the impact of AQR on their stability. In Islamic banks, the loan is represented by the investment. Also, the capital adequacy ratio (CAR) plays a critical role in increasing the stability of all banks, Islamic banks, as well as the conventional banks.

Furthermore, liquidity ratio (LQR) has a negative impact on the stability of conventional banks and it is one of the important determinants of conventional banks' stability in MENA region. In contrast, the impact of the liquidity ratio on the stability of Islamic banks and all banks is insignificant. Furthermore, The difference in the importance of the liquidity ratio in explaining the financial stability of Islamic and conventional banks lead to the result to be insignificant for all banks in MENA region.

Also, the results indicate that the higher credit risk ratio (CRR) results in a lower level of the stability in the banking sector. However, this result is significant for conventional banks and all banks while for Islamic banks, the impact of the CRR on their stability is insignificant. Thus, the credit risk ratio is not one of the important determinants of Islamic banking stability. In addition, the results indicate that bank's size is one of the important banks-specific factors in explaining the stability of banks. Moreover, increasing the size of bank improves its stability and this result is significant for all banks, Islamic banks, and conventional banks in MENA region.

Table 3: The results of the bank stability (All banks, Islamic banks and Conventional banks in MENA region)

Variables	Z-score					
	All Banks		Islamic banks		Conventional Banks	
	Coef	t-	Coefficie	t- statistic	Coeffici	t- statistic

	ficie nt	statisti c	nt		ent	
AQR	-0.62 6732	(-2.4043 47)**	0.69344	(1.788114)*	-1.26035 6	(-3.085453) ***
CAR	2.36 9105	(5.839 997)** *	2.029772	(3.758624)***	3.71762	(4.412839)***
LQR	-0.22 9656	(-0.6725 6)	0.82416	-1.255987	-0.98797	(-1.881281) *
CRR	-0.84 5429	(-2.3619 25)**	-0.002249	(-0.006257)	-19.4451 5	(-3.356167) ***
EFF	-0.32 6978	(-1.3084 16)	-0.294582	(-0.839888)	-0.18643 4	(-0.527336)
BZ	12.0 8085	(3.645 395)** *	11.55739	(1.813128)*	9.44778 1	(2.378361)**
GDP	-0.61 0209	(-0.2066 62)	2.099856	-0.540449	-5.18813 5	(-1.247891)
CPI	-2.72 0983	(-3.0646 33)***	-0.131693	(-0.065456)	-1.17422 4	(-1.073442)
IB_D	-6.92 4756	(-1.1060 97)				
GCC_D	-10.3 5568	(-1.0991 42)	-1.258736	(-0.082896)	1.61142 8	-0.122548
Adjusted R2	0.14 5985		0.177186		0.19831 9	
Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10% respectively.						

For the macroeconomic variables, the results indicate that the real GDP growth is not an important factor which can affect the banking stability. Moreover, the result of the impact of the GDP growth on the stability of all banks, Islamic banks, and conventional banks is insignificant. In addition, the annual inflation rate has a negative impact on the stability of banking sectors. However, the impact of the inflation rate on the financial stability is significant only for all banks. Finally, the result revealed that there is no significant difference in the stability of Islamic banks vs. conventional banks in MENA region.

Differential impact of bank's profitability

Table 4 presents the empirical result of the differential impact of bank-specific variables on the profitability of all banks in MENA region (GCC and non-GCC countries). Referring to panel A and B, the coefficient of the real GDP growth rate is positive and significant at 1% and 10% for ROA and ROE respectively. This result indicates that the profitability of banks increases as the GDP growth rate increases. Moreover, it is expected that GDP growth rate to have a positive impact on the profitability of banks since the supply and demand for banks' loan and deposit are expected to increase with a higher GDP. This result for all banks is consistent with the finding of Trad et al. [3] for ROA and not consistent with the same study for ROE. Based on the result presented on panel A and B, an increase in the annual inflation rate results in a higher profitability ratio where the annual inflation rate' coefficient is positive.

Table 4: The results of the differential impact on the profitability of banks

Variables	Panel A		Panel B	
	ROA		ROE	
	Coef.	t- Stat.	Coef.	t- Stat.
AQR* IB-D	-0.022	(-2.029)**	-0.175	(-1.786)*
CAR* IB-D	0.111	(6.323)***	0.155	-0.973
LQR* IB-D	-0.107	(-3.284)***	-0.374	(-1.261)
CRR* IB-D	-0.012	(-1.431)	0.029	-0.378
EFF* IB-D	-0.028	(-2.633)***	-0.534	(-5.468)***
BZ* IB-D	0.797	(2.761)***	4.373	(1.662)*
GDP	0.184	(3.318)***	0.846	(1.671)*
CPI	0.011	-0.841	0.446	(3.825)***
IB_D	-3.822	(-1.416)	3.098	-0.126
Adjusted R2	0.022		0.141	
Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10% respectively.				

Moreover, the higher rates of interest on banks' loans are related in general to the high rates of inflation which will result in increasing their profitability. However, the result is significant for ROE at 1% while for ROA, this result is insignificant. This finding of the positive relation between CPI and profitability of all banks corroborates the result of Olson and Zoubi [12] for ROA and Wasiuzzaman and Gunasegavan [13].

Differential impact of bank's stability

Table 5 presents the empirical result of the differential impact of bank-specific variables on the stability of all banks in MENA region (GCC and non-GCC countries). The coefficient of real GDP growth rate is positive indicating that the higher GDP growth rate results in increasing the stability of all banks in MENA region. According to Uhde and Heimeshoff [10], in the time of the economic prosperity, the opportunities for investment increase, the asset quality of the banks increases because the solvency of the borrowers also rises as a result of the increases in the performance of the economy. Also, the banks

increase their capital to avoid the economic downturns in the future. However, this result is insignificant. For the annual inflation rate, the result indicates that an increase in the annual inflation rate reduces the stability of all banks in MENA region. This result is significant at 1% level. As suggested by Rashid et al. [7], when the level of the price in the economy rises, the probability of insolvency will be higher.

Table 5: The results of the differential impact on the stability of banks

Variables	Z-score	
	Coefficient	t- statistic
AQR* IB-D	-2.76382	(-3.82913)***
CAR* IB-D	6.352523	(5.404423)***
LQR* IB-D	-4.182697	(-1.916061)*
CRR* IB-D	-1.853504	(-3.317894)***
EFF* IB-D	0.510994	-0.710884
BZ* IB-D	76.57086	(3.956149)***
GDP	1.249276	-0.335462
CPI	-2.656285	(-3.096196)***
IB_D	-545.2824	(-3.013739)***
Adjusted R-squared	-0.293226	
Note: ***, **, and * indicate statistical significance at 1%, 5%, and 10% respectively.		

CONCLUSION

Finally, the results of this study revealed several significant differences between the determinants of the profitability and stability of Islamic and conventional banks. The findings of the study indicated that the determinants of the profitability and stability of banks in MENA region vary according to the bank type, Islamic or conventional, and the location in GCC and non-GCC countries. There is a significant difference in the impact of most of the bank-specific variables on the profitability and stability of banks with respect to the bank type. The Islamic banks in MENA region are less profitable than conventional banks when the profitability was measured by ROA. The Islamic banks in MENA region were found to be less stable than the conventional banks. More importantly, the results of this study will help both Islamic and conventional banks to enhance their regime, strategies, and policies. Additionally, this study is not only crucial for the managers and regulators of banks but also important for the investors. For instance, this study will help the investors in their investment strategy and investment choice among several Islamic and conventional banks in MENA region.

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