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### THE EFFECT OF LIQUIDITY AND RATE OF RETURN RISKS ON THE PROFITABILITY OF ISLAMIC AND CONVENTIONAL BANKS IN GCC COUNTRIES

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#### **ABSTRACT**

The bank profitability plays an essential role at micro and macro levels of the economy. At the micro level, profit is the essential prerequisite of a competitive banking institution and the cheapest source of funds. The objective of this research is to study the effect of liquidity risk and rate of return risk on bank's profitability. The empirical study covers a sample of 15 conventional and 15 Islamic banks in GCC countries over the period 2008-2017. The banks' profitability is measured by return on equity (ROE) and return on asset (ROA). Moreover, this research considers the impact of the financial crises on GCC countries' banking sector. The result shows a significant relationship between the liquidity risk, rate of return risk and bank's profitability. In addition, a positive and significant relationship between liquidity risk and conventional bank's profitability. On the other hand, a negative and significant relationship appears in Islamic banks. Spread has a positive and significant relationship with the Islamic and conventional bank's profitability. Furthermore, this study contributes to the literature by analyzing the ROA and ROE, as the profitability measurements along with the liquidity risk and rate of return risk in 15 Islamic and 15 conventional banks located in GCC region.

#### **INTRODUCTION**

A robust and sustainable financial growth can only be attained through the creation of an efficient financial system. Mokni and Rachdi [1] compared the

profitability of Islamic and conventional banks in MENA region during 2002-2009. They used the bank-specific and macroeconomic determinants of ROA and ROE. They found that the determinants' significant varies between Islamic and conventional banks. The accumulation of unpaid loans decreases the bank return. Thus, the non-performing loans affect the bank's profitability negatively. For the Islamic banks, liquidity has a positive and significant impact, and the ownership status also showed a significant effect. However, off-balance sheet activities and efficiency of expenditure management are negatively linked to the Islamic bank's profitability.

Banking capital and macroeconomic control variables affect the performance of conventional banks. Interest rate risk has a significant impact on both the measures of ROA and ROE. This study performs a comparative analysis of two banking system and found that interest rate and liquidity risk have an almost similar impact on both the types of banking systems. A similar study has been done in MENA region by Khasawneh [2], he concluded that the Islamic banks are more profitable than conventional banks while in other hands, the conventional banks are more stable than Islamic banks at the period between 2006-2013. Zarrouk at al. [3] investigated whether the Islamic bank profitability is driven by the same forces as those driven conventional banking in MENA region. They concluded that profitability determinants did not differ significantly between two sectors. The Islamic banks in GCC are comparatively more profitable as compared to the conventional banks [4]. Alghfais [5] conducted the same result on Saudi Arabia banks that Islamic banks are more profitable, have higher capitalization, have lower risk and contribute more to the economic growth than conventional banks. Siraj and Pillai [6] conducted that Islamic banks in GCC countries were less affected by the financial crises.

Rashid and Jabeen [7] conducted that conventional banks are affected by operating costs, reserves and overheads while the performance of Islamic bank is affected by the market concentration, deposits, and operating efficiency. GDP and lending rates have significant negative impacts on the variables of profitability on both banks. Fayed [8] found out that conventional banks are profitable, liquid, have credit risk management as well as solvency more than Islamic banks in Egypt during the period from 2008-2010. Ergeç and Arslan [9] studied the impact of interest rate on Islamic and conventional part. The result showed that Islamic banks in Turkey are visibly influenced by interest rate.

Loon Mun and Mohd Thas Thaker [10] compared the asset-liability management in the Islamic and conventional banks in Malaysia. They found that there is a positive relationship between the asset liability management and the financial performance in both types of banks. Mohammad [11] investigated the liquidity creation of Islamic banks and their exposure to liquidity risk in comparison with conventional banks in GCC region. He found that consistent with the previous studies; Islamic banks create more liquidity through channeling the higher amount of liquid funds into illiquid real economic activities. Accordingly Islamic banks face more complexity in managing their asset and liability in a timely fashion. Thus, liquidity risk appears. Akhtar at al. [12] conducted that Islamic banks size of the bank and

networking capital to net assets have a positive but insignificant impact on their profitability for both the cases of conventional and Islamic banks. In addition, a positive and significant relationship is found between the capital adequacy ratio in conventional banks and return on assets in Islamic banks. Conventional banks in Pakistan were more profitable and they have liquidity risk management than Islamic banks. Therefore, this study identifies the effect of liquidity and rate of return risks on the profitability of Islamic and conventional banks in GCC countries.

## **METHODOLOGY**

This study uses the ROE as a measure of bank profitability; that is the ratio of net profit to the equity as a percentage. It reflects the efficiency and effectiveness of the banking management in the use of shareholders' investments. In addition, the ROA is measured as the net income to total assets ratio and it is used in this study as a second variable to test the bank's profitability. The ROA reflects the management ability to use their financial and real investment to generate profit [13-15].

### ***Data and Sampling Procedure***

The study aimed to evaluate and compare the effect of liquidity and rate of return risks on bank's profitability. Due to the unavailability of the Islamic bank's data especially in GCC region, the study is limited for 15 Islamic banks and 15 conventional banks located in GCC. A panel data analysis was conducted for the period 2008-2017. Furthermore, to investigate the impact of the financial crises, the study has considered two periods: the period from 2008-2017 (period includes financial crises) and the period from 2011-2017 (period without financial crises). In addition, the dummy variable was used in both the Islamic and conventional banks from 2008-2010 to test if the financial crises affect the sample. The Bloomberg financial database is used to extract all the data employed in this study. A regression model was also used as all variables are stationary at level. In additions, the econometrics program E-Views software was used for analyzing the data and producing the regression result.

## **RESULT AND DISCUSSION**

This paper analyzes the profitability of all banks, conventional and Islamic banks using ROE and ROA. The ordinary least square (OLS) regression tests two periods; one with the financial crises and the other one is without the financial crises.

### ***Empirical Results and Findings of ROE as A Dependent Variable***

Table 1 demonstrates the empirical results for the ROE as a dependent variable for all banks, Islamic banks, and conventional banks for the two periods (with and without financial crises) using the spread along with the liquidity ratio (liquid assets over total assets). In addition, using the ROE as a dependent variable, Table 2 shows the impact of the spread and the liquidity ratio (liquid assets over total liabilities) on all banks, Islamic and conventional banks profitability.

### ***Empirical Results and Findings - All Banks***

The overall sample in Table 1 and Table 2 shows that the liquidity ratio is not significant with the ROE. However, it presents a negative relation in Islamic banks and a positive relation in conventional banks. The positive impact is offsetting the negative impact. Accordingly, this causes the moderation effect that changes the direction or the magnitude of the relationship between the two variables.

Moreover, as shown in Table 1, the spread showed a positive and significant relationship with bank's profitability. For the period includes financial crises, the estimated coefficient is positive =14.121 with t-statistics = 1.608 statistically significant at least at 10% level. This result indicates that there is a positive relationship between spread and bank's profitability. Similarly, a positive and significant relationship appears in the period exclude financial crises. The effect is highly significant at 1%.

Likewise, a positive and significant relationship between the spread and bank's profitability at 1% for both periods include and exclude financial crises based on Table 2. The adjusted R-square, which indicates the percentage of the variance in independent variable explained by the variance in the dependent variable as shown in Table 1 and Table 2 are 0.45 and 0.67 respectively. This indicates that 45% and 67% of the variance in ROE is explained by the variance in spread and liquidity ratio.

In addition, the dummy variable (DFC) that tests the financial crises is significant which means that the financial crises have an impact on the result. The value of Durbin-Watson (DW) test statistics in Table 1 is 2.24 and 1.33 for the period include and exclude financial crises, and as shown in Table 2 the (DW) is 1.98 and 2.31 respectively for the period include and exclude financial crises. This result for (DW) shows that there is no evidence of the present autocorrelation problem.

### ***Empirical Results and Findings - Islamic Banks***

The result shows that for the period includes financial crises in the Islamic banks; there is a negative relationship between the liquidity risk and the return on equity. The effect is highly significant at 5 percent in liquid assets over total assets (LIQASST), this means that for one unit increase in the liquidity ratio (LIQASST), the ROE will decrease by 7.465 as shown in Table 1.

Likewise, liquid assets over total liabilities (LIQLIA) are negatively significant at 1 percent, for one unit increase in the liquidity ratio (LIQLIA), the ROE will decrease by 2.900 as shown in Table 2. Similarly, the empirical result for the period excludes financial crises indicates that there is a negative relationship between the liquidity ratio and ROE. This means for one percent increase in liquid assets over total assets (LIQASST) and liquid assets over total liabilities (LIQLIA), the ROE will decrease by 22.851 percent and 12.146 percent as shown in Table 1 and Table 2 respectively.

Furthermore, as shown in Table 1 and Table 2, the adjusted R-square is .68 for the period includes financial crises, which indicates that 68 percent of the variation in the dependent variable (ROE) can be explained by the variation in the liquid assets over total assets (LIQASST), liquid assets over total liabilities (LIQLIA), and spread. Reference to Table 1 and Table 2, the spread shows positive and significant relationship at 1%. This means that there is a positive relationship between the spread and the bank's profitability.

The value of Durbin-Watson (DW) test statistics in Table 1 and Table 2 indicates that there is no evidence of the present autocorrelation problem. In addition, the dummy variable (DFC) that tests the financial crises is significant at 1%, which means that the financial crises have an impact on the result.

### ***Empirical Results and Findings - Conventional Banks***

The results in this study for the period include financial crises illustrates that the coefficient is significant at 1 percent in the liquid assets over total assets (LIQASST) and in the liquid assets over total liabilities (LIQLIA). Thus, for one unit increase in the liquid asset over total assets (LIQASST) and the liquid assets over total liabilities (LIQLIA), the ROE will increase by 4.817 and 3.929 respectively as shown in Table 1 and Table 2.

Regarding the R-square, 63 percent of the variation in the dependent variable (ROE) can be explained by the variation in the liquid assets over total assets (LIQASST), the liquid assets over total liabilities (LIQLIA) and spread. In addition, using lags for the liquidity ratios in the conventional banks for the period excludes financial crises; the result indicates that for one percent increase in liquid assets over total assets (LIQASST) and liquid assets over total liabilities (LIQLIA), the ROE will increase by 7.834 percent and 6.818 percent respectively as shown in Table 1 and Table 2.

The empirical results indicate that the coefficient of the spread is significant with the ROE for the conventional banks. Thus, it is positively significant at 1 percent for the period includes and excludes financial crises. In addition, the dummy variable (DFC) that tests the financial crises is positively significant at 1%. The value of Durbin-Watson (DW) test statistics in Table 1 and Table 2 indicates that there is no evidence of the present autocorrelation problem.

### ***Empirical Results and Findings of ROA as a Dependent Variable***

The test also uses the ROA as a dependent variable along with the spread and the two liquidity ratios. Table 3 and Table 4 demonstrates the results for ROA SPREAD LIQASST and LIQLIA respectively for All Banks, Islamic Banks and Conventional Banks

### ***Empirical Results and Findings - All Banks***

The overall sample in Table 3 and Table 4 shows that the liquidity ratio is not significant with the ROA. However, it presents a negative relation in Islamic banks and a positive relation in conventional banks. This paper finds evidence of moderation that affects the results on the all-banks sample. So, the study

tests the impact of the moderation in Islamic banks and conventional banks separately.

As shown in Table 3, the spread showed a positive and significant relationship with bank's profitability. For the period includes financial crises, the estimated coefficient is positive =5.238 with t-statistics = 2.806 statistically significant at least at 1% level. This result indicates that there is a positive relationship between spread and bank's profitability. Similarly, a positive and significant relationship appears in the period exclude financial crises. The effect is highly significant at 1%.

Likewise, a positive and significant relationship between the spread and bank's profitability at 1% for both periods include and exclude financial crises based on Table 4. The adjusted R-square, which indicates the percentage of the variance in the independent variable explained by the variance in the dependent variable as shown in Table 3 and Table 4 are 0.44 and 0.43 respectively. This indicates that 44% and 43% of the variance in ROA is explained by the variance in spread and liquidity ratio.

The value of Durbin-Watson (DW) test statistics in Table 3 is 2.16 and 2.03 for the period include and exclude financial crises, and as shown in Table 4 the (DW) is 2.16 and 2.04 respectively for the period include and exclude financial crises. This result means that there is no evidence of the present autocorrelation problem.

In addition, the dummy variable (DFC) that tests the financial crises is positively significant at 10%. This depicts that the financial crises years have an impact on the ROA as a dependent variable.

### ***Empirical Results and Findings - Islamic Banks***

The ROA as a dependent variable shows a negative relationship between the liquid assets over total assets (LIQASST) and liquid assets over total liabilities (LIQLIA) in the Islamic banks. For the period includes the financial crises, the result indicates that for one percent increase in liquid assets over total assets (LIQASST) and liquid assets over total liabilities (LIQLIA), the ROA will decrease by 1.375 percent and 1.355 percent respectively as shown in Table 3 and Table 4. Regarding the period that excludes the financial crises, for one unit increase in the liquid assets over total assets (LIQASST) and liquid assets over total liabilities (LIQLIA), the ROA will decrease by 3.131 percent and by 2.370 percent in Table 3 and Table 4 respectively.

Reference to Table 3, 38 percent of the variation in the dependent variable (ROA) can be explained by the variation in the liquid assets over total assets (LIQASST) and spread. Furthermore, 40 percent of the variation in the dependent variable (ROA) can be explained by the variation in the liquid assets over total liabilities (LIQLIA) and spread, as shown in Table 4. The value of Durbin-Watson (DW) test statistics in Table 3 and Table 4 indicates that there is no evidence of the present autocorrelation problem.

In addition, the spread has a positive and significant relationship with bank's profitability at least at 1% level for both periods include and exclude financial crises as shown in Table 3 and Table 4. Furthermore, the dummy variable (DFC) that tests the financial crises is positively significant. This positive significant depicts that the financial crises years have an impact on the ROA as a dependent variable.

#### *Empirical Results and Findings - Conventional Banks:*

Regression estimates in Table 3 indicates that the liquid assets over total assets (LIQASST) are significant at 1 percent with the ROA as a dependent variable. Furthermore, for one unit increase in the liquid assets over total assets (LIQASST), the ROA will increase by 0.552 percent and by 0.488 percent respectively for the period include and exclude financial crises.

In addition, there is a positive and significant relationship between the spread and bank's profitability for the period includes and excludes financial crises. For the period includes the financial crises, the relationship is significant at 1% level. Hence, for one unit increase in the spread, the ROA will increase by 5.892 percent based on Table 3. Furthermore, using the lag for the period exclude financial crises, the relationship is significant at 5 %. Hence, for one unit increase in the spread, the ROA will increase by 6.746 percent.

Regarding adjusted R-square, around 70 percent of the variation in the dependent variable (ROA) can be explained by the variation in the liquid assets over total assets (LIQASST), the liquid assets over total liabilities (LIQLIA) and spread according to Table 3 and Table 4. With reference to Table 4, liquid assets over total liabilities (LIQLIA) have a positive and significant effect at 1% on the profitability. Therefore, for one unit increase in the (LIQLIA), the ROA will increase by 0.523 and 0.455 percent respectively for the period include and exclude financial crises.

Similarly, the spread has a positive relationship with bank's profitability. Hence, for one unit increase in the spread, the ROA will increase by 6.063 and 7.002 respectively for the period include and exclude financial crises. The value of Durbin-Watson (DW) test statistics in Table 3 and Table 4 indicates that there is no evidence of the present autocorrelation problem.

**Table 1.** Results for ROE SPREAD LIQASST For All Banks, Islamic Banks and Conventional Banks

ROE Variables	9 Years			7 Years		
	All Banks	Islamic	Conventional	All Banks	Islamic	Conventional
Constant	0.368	0.332	1.160	11.030	14.993	8.634
	(0.149)	(0.439)	(0.980)	(9.789) ***	(2.722) ***	(9.965) ***
LIQASST	2.579	-7.465	4.817	1.124	-22.851	-
	(1.109)	(-1.745) **	(2.180) ***	(0.582)	(-1.767) **	

<b>SPREAD</b>	14.121	18.718	49.291	37.939	38.412	38.807
	(1.608) *	(2.564) ***	(2.558) ***	(2.654) ***	(1.852) **	(3.009) ***
<b>DFC</b>	2.636	3.342	1.320			
	(1.666) **	(3.953) ***	(2.341) ***			
<b>Constant-LAG</b>	0.677	0.722	0.644			
	(11.952) ***	(10.741) ***	(6.129) ***			
<b>LIQASST-LAG</b>						7.834
						(3.575) ***
<b>SPREAD-LAG</b>				26.453	15.161	112.510
				(3.292) ***	(0.973)	(3.651) ***
<b>Adjusted R Squared</b>	0.45	0.68	0.63	0.05	0.07	0.16
<b>F-statistic</b>	80.34	72.67	58.52	3.35	2.56	6.57
<b>Prob(F-statistic)</b>				0.01	0.04	0.00
<b>Durbin-Watson stat</b>	2.24	1.90	2.09	1.33	1.62	1.34

\*, \*\* and \*\*\* indicate statistical significance at the 10 percent, 5 percent, and 1 percent level () Referring to T-Statistic

**Table 2.** Results for ROE SPREAD LIQLIA For All Banks, Islamic Banks And Conventional Banks

<b>ROE Variable s</b>	<b>9 Years</b>			<b>7 Years</b>		
	<b>All Banks</b>	<b>Islamic</b>	<b>Convention al</b>	<b>All Banks</b>	<b>Islamic</b>	<b>Convention al</b>
<b>Constant</b>	0.845	1.303	1.229	2.904	9.025	8.617
	(1.751)**	(1.706)**	(1.046)	(6.132)***	(3.493)** *	(9.911)***
<b>LIQLIA</b>		-2.900	3.929	-0.502	-12.146	
		(-2.316)***	(2.058)***	(-0.581)	(-1.918)**	
<b>SPREA D</b>		21.303	48.387	19.782	22.595	38.279
		(3.041)***	(2.554)***	(4.024)***	(3.400)** *	(2.970)***
<b>DFC</b>	2.198	3.260	1.305			
	(2.897)***	(3.874)***	(2.320)***			
<b>Constant-LAG</b>	0.743	0.703	0.647	0.767	0.630	
	(16.316)** *	(10.728)** *	(6.188)***	(29.040)** *	(8.603)** *	
<b>LIQLIA-LAG</b>	0.130					6.818
	(0.197)					(3.494)***
<b>SPREA</b>	13.531					



<b>D-LAG</b>	(4.423)***					
<b>Adjusted R Squared</b>	0.67	0.68	0.63	0.70	0.59	0.16
<b>F-statistic</b>	138.73	72.73	58.02	141.74	44.53	6.45
<b>Prob(F-statistic)</b>	0.00	0.00	0.00	0.00	0.00	0.00
<b>Durbin-Watson stat</b>	1.98	1.89	2.07	2.31	2.29	1.45

\*, \*\* and \*\*\* indicate statistical significance at the 10 percent, 5 percent, and 1 percent level () Referring to T-Statistic

**Table 3.** Results for ROA SPREAD LIQASST For All Banks, Islamic Banks and Conventional Banks

<b>ROE Variables</b>	<b>9 Years</b>			<b>7 Years</b>		
	<b>All Banks</b>	<b>Islamic</b>	<b>Conventional</b>	<b>All Banks</b>	<b>Islamic</b>	<b>Conventional</b>
<b>Constant</b>	0.396 (1.389)	0.534 (0.914)	0.167 (1.392)	0.382 (6.576)***	1.200 (2.518)***	0.394 (4.863)***
<b>LIQASST</b>		-1.375 (-1.619)*	0.552 (2.440)***	0.126 (1.298)	-3.131 (-1.656)*	
<b>SPREAD</b>	5.238 (2.806)***	5.717 (3.070)***	5.892 (2.605)***	3.844 (3.954)***	6.681 (2.949)***	2.791 (1.407)
<b>DFC</b>	0.319 (1.656)*	0.551 (1.676)*	0.095 (1.152)			
<b>Constant-LAG</b>	0.556 (5.948)***	0.515 (4.218)***	0.690 (8.725)***	0.697 (23.502)***	0.537 (4.723)*	0.583 (5.715)***
<b>LIQASST-LAG</b>	-0.265 (-0.438)					0.488 (2.204)***
<b>SPREAD-LAG</b>						6.746 (1.76)**
<b>Adjusted R Squared</b>	0.44	0.38	0.70	0.70	0.44	0.66
<b>F-statistic</b>	52.88	21.73	81.06	141.88	15.03	43.45
<b>Durbin-Watson stat</b>	2.16	2.23	2.21	2.03	2.40	1.95

\*, \*\* and \*\*\* indicate statistical significance at the 10 percent, 5 percent, and 1 percent level () Referring to T-Statistic

**Table 4.** Results for ROA SPREAD LIQLIA For All Banks, Islamic Banks and Conventional Banks

<b>ROE Variables</b>	<b>9 Years</b>			<b>7 Years</b>		
	<b>All Banks</b>	<b>Islamic</b>	<b>Conventional</b>	<b>All Banks</b>	<b>Islamic</b>	<b>Conventional</b>

<b>Constant</b>	0.341	0.647	0.156	0.682	1.251	0.391
	(0.844)	(1.162)	(1.332)	(3.346)***	(2.738)***	(5.008)***
<b>LIQLIA</b>	-0.082		0.523	-0.254	-2.370	
	(-0.260)		(2.545)***	(-0.835)	(-1.639)**	
<b>SPREAD</b>	5.401	6.414	6.063		5.094	2.792
	(3.423)***	(3.232)***	(2.578)***		(3.733)***	(1.383)
<b>DFC</b>	0.316	0.527	0.095			
	(1.614)*	(1.699)**	(1.188)			
<b>Constant-LAG</b>	0.556	0.506	0.684	0.593	0.529	0.576
	(6.006)***	(4.222)	(8.485)***	(4.478)***	(4.744)***	(5.455)***
<b>LIQLIA-LAG</b>		-1.355				0.455
		(-1.640)*				(2.230)***
<b>SPREAD-LAG</b>				3.614		7.002
				(2.517)***		(1.767)**
<b>Adjusted R Squared</b>	0.43	0.40	0.71	0.70	0.44	0.66
<b>F-statistic</b>	52.70	23.05	81.97	142.88	18.70	43.32
<b>Durbin-Watson stat</b>	2.16	2.25	2.20	2.04	2.44	1.95

\*, \*\* and \*\*\* indicate statistical significance at the 10 percent, 5 percent, and 1 percent level () Referring to T-Statistic

## 1. CONCLUSION

The findings show that liquidity ratios affect the profitability of the Islamic banks negatively. The bank may fail without having a required level of liquidity and funding to meet the short-term obligation. Therefore, banks that have higher liquidity ratio have more liquidity and are less vulnerable to frailer. However, having higher liquid asset is usually associated with lower rate of return. Considering that the money available is not generating any additional profit to the bank, and so negative relationship is expected. In contrast, the liquidity ratios affect the conventional banks positively. The spread has a positive relationship with the profitability of the Islamic and conventional banks. Moreover, the financial crises, as a dummy variable, are significant with the ROE as a dependent variable for all banks, Islamic banks and conventional banks. There is a significant impact of the financial crises on the liquidity, capital, and risks in Islamic and conventional banks. However, it is significant with the ROA as a dependent variable in all banks and Islamic banks only. Lastly, the findings provide some evidence that the liquidity risk and interest rate risk / rate of return risk affect the profitability of conventional and Islamic banks in GCC.

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