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An empirical investigation between liquidity and key financial ratios of Islamic banks of United Arab Emirates (UAE)

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Abstract: This paper empirically analyzes the impact of liquidity risk on key financial performance aspects of Islamic banks in the UAE. To document the association between liquidity risk and other performance ratios, time series data are taken for full-fledged Islamic banks working in the UAE from 2000 to 2014. Liquidity ratios and capital adequacy ratios, profitability ratios, and tangibility ratios are determined. Correlation and regression analyses are used to test the study hypotheses using SPSS. The findings indicate that capital adequacy and tangibility ratios are the main factors to determine liquidity risk of UAE Islamic banks. Furthermore, the results showed that the size of Islamic banks' assets and capital adequacy had a positive and significant association with liquidity risk. Policymakers and Islamic finance experts should devote more attention to enhancing the base of Islamic finance assets to manage liquidity issues.

JEL Classifications: G21, G32

Keywords: Islamic banks, liquidity risk, UAE, capital adequacy, profitability ratios

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1. Introduction

Islamic banking has emerged as an effective tool for funding projects globally. Most of financial institutions and centers are finding clear insights that Islamic finance has already been moving side by side within the global financial system. Islamic finance has the ability to contribute and to meet the challenges of ending poverty and boosting prosperity. Islamic banking is one of the fastest emerging sectors in the last years. The Islamic finance sector has growing fast over the years, growing at 15-20% annually. Nowadays, assets of Islamic finance are close to U.S \$2 trillion for all different sectors of the industry (World Bank report, 2015). Islamic banks are playing a positive role in enhancing economic growth in the developing countries due to its distinctive characteristics (Tabash & Dhankar, 2014a). Financial system and banking play an important role in economic activities in all countries. The flow of funds between lenders, investors and borrows creates the cycle of production and progress in the society. The banking sector constitutes about 80% of the total transactions in the Middle East and is considered a major component in the economic growth and then economic development.

The Middle East markets have recognized that Islamic banking alternative has become increasingly attractive among the investment community, corporate end users, consumers and intermediaries particularly after global financial crisis 2008. Islamic finance basically enhances financial movements connected to the real sector and far away from funding activities that are harm to the society. In most of Arab and Muslim countries, Islamic

banking assets have been growing more than conventional banking assets. There is also a highly attention in Islamic banking industry from non-Muslim countries such as China, Germany, and U.K. The financial and banking sector is considered to be an important source for funding projects and Small and Medium Sized Enterprises (SMEs).

Islamic banking in the Middle East and North African (MENA) has now considered as an integral part in the developments of any country. It meets the financial needs of the people without conflicting with their religious values and beliefs. All studies that examined the role of Islamic banking in the growth of the economy confirmed that there is a long-term association between Islamic finance and economic growth in GCC countries (Tabash & Dhankar, 2014b, Yahya et al., 2017). The most important players in Islamic finance industry are still the GCC countries, which accounts for the majority of assets. Also, the Islamic finance model is making advances in other countries such as Malaysia, Indonesia, Turkey and Pakistan. According to Ernst & Young report (2015), “total Islamic finance assets of banks rose to 17% percent between 2009 and 2013, hitting more than U.S. \$778 billion. Of that, the GCC countries responsible for around U.S \$ 517 billion, ASEAN countries for U.S \$160 billion and South Asia for U.S \$ 23 billion; the rest of the world (especially Turkey) is making up the remaining of U.S \$ 78 billion. Table 1 shows the average Islamic asset growth rates from 2006 to 2008 to selected countries of Middle East. The assets growth rates have been growing in all countries with the highest growth rate shown by Bahrain of 43.77 % and the lowest by Jordan of 8.28 %. Saudi Arabia, UAE and Kuwait were still giants in terms of assets growth rate of Islamic banks compared to Egypt, Jordan, Yemen, and Lebanon.

TABLE 1. ISLAMIC ASSETS GROWTH RATE IN MIDDLE EAST COUNTRIES (2006-2008)

MIDDLE EAST COUNTRIES	ISLAMIC ASSETS GROWTH RATE (%) 2006-2008
Bahrain	43.77
Egypt	15.90
Jordan	8.28
Kuwait	33.185
Lebanon	253.82
Qatar	41.29
Kingdom of Saudi Arabia(KSA)	25.55
United Arab Emirates (UAE)	28.675
Yemen	13.685

Source: Ernst & Young report (2014-2015).

TABLE 2. ASSETS OF ISLAMIC BANKS IN UAE (2014 – 2015)

	2014 (AED BILLIONS) Q4	2015 (AED BILLIONS) Q4
Assets	405	464
Percent of total asset banking	18.0	19.0
Islamic investments	266	307
Percent of domestic credit	21.0	22.2

Source: Central Bank of the UAE report.

The banking sector of UAE, the biggest banking sector in the GCC by total assets, continued its positive growth rate in 2008 (World Fact Book, 2014). Islamic banks assets have been increased by 15% in 2015, reaching AED 464 billion, with their share in total assets have been increased from 18% at the end of 2014 to 19% at the of 2015. At the same time, their investments have risen by 15.0%, reaching AED 307 billion, or 22.0% of domestic credit (Central Bank report, 2015). It is shown from Table 2 that the assets of Islamic banks of UAE have increased from 405 billion in the end of 2014 to 464 billion in the end of 2015 with annual growth rate is 15%.

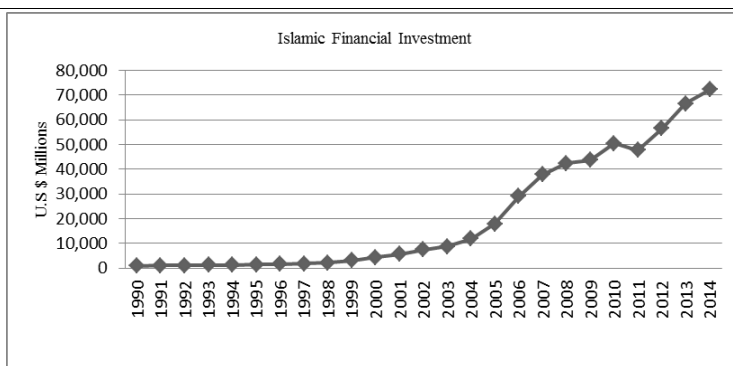
At the same time, the Islamic investments also have jumped from 266 billion to 307 with annual percentage rate equals to 15.0%. Further, the Islamic banks assets in the UAE have risen to greater than U.S \$ 70,000 million in 2014 from U.S \$ 1 million in the year of 1990 with a cumulative growth rate 98.57% as appeared in Figure 1. Currently, there are 45 banks working in UAE. 23 out of 45 are national banks while other 22 banks are foreign banks. There are 5 full-fledged Islamic banks (see Table 3), out of 23 national banks, working under Shariah principles and the other banks have mixed banking operations (Emirates Diary, 2015).

TABLE 3. FULL-FLEDGED ISLAMIC BANKS IN THE UAE

No.	BANK	ESTABLISHMENT DATE
1	Dubai Islamic Bank	1975
2	Abu Dhabi Islamic Bank	1997
3	Sharjah Emirates Bank	2002
4	Dubai Bank	2002
5	Emirates Islamic Bank	2004

Source: Central Bank of the UAE report.

FIGURE 1. ISLAMIC FINANCIAL INVESTMENTS IN UAE (1990-2014)



Source: Own elaboration.

Today, one of the most popular kinds of risks for banking sector is the liquidity risk, which is the result of disparity of the two sides of the balance sheet. This disparity has both sides, the first one is an excess of cash that should be reinvested and the other is the shortage of cash that should be funded.

Liquidity risk comes from difficulties in keeping cash at an accepted cost. It is known in Islamic banking there is no interest on loans and interest is totally forbidden. Therefore, Islamic banks have to accumulate funds to meet its financial obligations. Furthermore, the trade of debt is also not permitted in Islamic banks (Anas & Mounira, 2008). Moreover, extra liquidity for Islamic banks cannot be reinvested at conventional banks as the Islamic banks do not use interest. At the same time, the larger the number of Islamic banks and the broader their fields, the better could be the ability for help in this area. The global financial crisis (2008) occurred when the banks failed to provide liquidity to depositors and third parties (Siddiqi, 2008). Therefore, the management of liquidity in banks, particularly Islamic banks, is extremely challenging in the current, unusual external environment and competitive economic conditions. Some have argued that lack of liquidity is the basic issue and one of the main hinders of Islamic banks growth (Vogel & Hayes, 1998). Therefore, to understand and to overcome these problems, the current study investigates the liquidity risk of Islamic banks in the UAE.

The purpose of this study is to identify the impact of liquidity risk on Islamic banking key performance ratios in full-fledged Islamic banks of the UAE. The importance of this study comes from the fact that it brings to the surface the significant sector in the world economies, namely the Islamic finance economy. The results of this study help decision makers and Islamic finance experts to get new insights in improving the liquidity of Islamic banks and to achieve more profitable Islamic investments in the UAE and the world. The paper contains six sections. The first one provides the introduction. The literature review is given in section 2. Section three shows the methodology applied in this study while section four depicts the results, discussion and analysis. Conclusion is mentioned on section 5. Section 6 shows the limitation of the study.

2. Literature review

A search of the literature on liquidity risk for Islamic banks in UAE produced a limited number of studies. Most of the studies that have assessed liquidity risk in Islamic banks are from South Asian countries such as Pakistan and Malaysia. Few studies have documented the association between liquidity risk and other key performance indicators in Islamic banks in the context of the UAE. The author has examined the literature and summarized some of the studies.

Waemustafa & Sukri (2016) have discussed the influence of external and internal factors affecting liquidity risk of Islamic and conventional banks in Malaysia. The authors have employed time series regression analysis of Islamic banks and conventional banks from 2000 to 2010. Their study found that Islamic banks maintain higher liquidity compared to conventional banks. The multivariate regression analysis showed that 4 out of 14 bank-specific factors and one macroeconomic factor significantly influences the liquidity risk of Islamic banks whereas conventional banks show that 5 out of 13 bank-specific factors are significant to liquidity risk.

Ghenimi & Omri (2015) tested the components that affect liquidity risk for Islamic and conventional banks in the Gulf region, utilizing a sample of 11 Islamic banks and 33

conventional banks for the period ranging from 2006 to 2013. Their findings demonstrate that for equity, net interest margin, capital adequacy, there is a positive impact on liquidity risk for Islamic banks, while other variables like ROA, nonperforming loans, size and GDP growth have a negative effect.

Ramazan & Zafar (2014) also showed the importance of the size of Islamic banks, capital, ROE, CAR and ROA, with liquidity risk of Islamic banks of Pakistan. They used secondary data that covered a period of 2007 to 2011 of fledged Islamic banks of Pakistan. The authors used fixed effects model with least squares regression model to find the results. They found a significant association of size of the bank and with liquidity risk whereas rest of the independent variables depicted statistically insignificant associations with liquidity risk. Abedifar et al (2014) in their studies have examined the latest empirical literature in Islamic banking and finance. They discussed the current and future trends of Islamic finance industry. Their work suggested that there are no major differences between Islamic and conventional banks in terms of their efficiency, competition and risk features (although small Islamic banks are found to be less risky than their conventional counterparts).

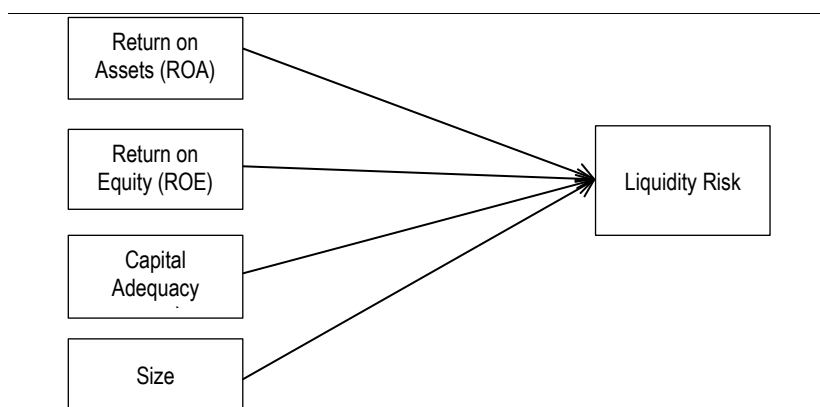
Moreover, Iqbal (2012) investigated the bank size, Non- Performing Loan ratio (NPL), Return on Assets (ROA), Return on Equity (ROE), and Capital Adequacy ratio (CAR) with liquidity risk of conventional and Islamic banks in Pakistan. The study is done using secondary data for 2007-2010. The study found as significant and positive relation between CAR, ROA, ROE and the size of the bank with the liquidity risk in both models, whereas a negative and significant relation of NPL is observed in both regression models. Uddin (2009) have examined the association between the impacts of liquidity on the stocks return. He used monthly data for stocks return in New York Stock Exchange (NSE). His findings confirmed that there is a negative link found between liquidity and stock return but the relationship is not liner. Further, he concluded that the fluctuation in relative stocks liquidity does not positively affect the return.

On the other hand, Ahmed et al. (2011) investigated the determinants of liquidity risk of listed Islamic banks in Pakistan. The authors used liquidity risk as the dependent variable and size, tangibility of assets; leverage, profitability and age are used as independent variables. The findings indicated that leverage, tangibility and age are main determinants of liquidity risk of Islamic banks in Pakistan, and liquidity risk has an insignificant association with profitability and size of Islamic banks. This study is also supported by another study that found a confirmed relationship but insignificant association of the size of the bank and net-working capital to net assets with liquidity risk in both models (Akhtar et al., 2011). Furthermore, the capital adequacy ratio of conventional banks and return on assets of Islamic banks was found to be positive and significant at the 10% significance level.

Sawada (2010) studied the liquidity risk in Japan for 1926 to 1932. The study utilized panel data with a regression test and suggested that banks respond to liquidity upsets considerably throughout an increase in banks' cash worth not by liquidating bank credit but by trading securities in the economic market. Ismal (2010) had studied the liquidity management of Islamic banks in Indonesia with a sample of 17 Islamic banks and 409 individuals. The results indicated that organizations expanded the reform of liquidity management on both assets and liabilities and stimulating the practice of the Islamic liquid appliances in the integrated plan. In another study done by Ika & Abdullah (2011), they compared the Islamic and conventional banks in Indonesia from 2000 to 2007. They measured the profitability, liquidity and credit abilities of Islamic and conventional banks of Indonesian banking system. They used performance ratio analysis to test the liquidity

measures of banks. The ratios included cash deposit ratio, loan deposit ratio, and liquidity ratios. Mann-Whitney model is done to examine the study hypothesis. Their findings concluded that Islamic banks had more liquid assets than conventional banks in Indonesian banking sector. At the same year, Muhammad & Manarvi (2011) compared the efficiency of Islamic and the conventional banks in Pakistan. They used a sample of Islamic and conventional banks ranging from 2005 to 2009. They used capital adequacy, assets, management capability, earnings and liquidity known as CAMEL test for the selected sample. 5 Islamic banks and 5 conventional banks are chosen for study. Their findings concluded that the Islamic banks are doing better in capital adequacy and shows a strong liquidity status of Islamic banks in comparison to conventional banks in Pakistan. In another study done by Awan (2009), he used the comparative study of the Islamic and conventional banks in Pakistan from the period 2006-2008. He used liquidity ratios, profitability ratios and banks' size in his analysis. 6 conventional banks and 6 Islamic banks are selected for the study. His results concluded that Islamic banks are doing better compared to their counterparts. At the same year, Hassan (2009) had studied three types of risks that impeded Islamic banks progress in Brunei Darussalam such as, credit risk, foreign-exchange risk and operating risk. He concluded that the three risks can be managed efficiently by using risk management practices like risk identification and risk assessment and analysis.

FIGURE 2. ASSOCIATION BETWEEN INDEPENDENT AND DEPENDENT VARIABLES



Source: Own elaboration.

Al-Tamimi & Al-Mazrooei (2007) have examined the degree to which the UAE banks use risk management practices and techniques in dealing with different types of risk. Their results found that the three most important types of risk facing the UAE banks are foreign exchange risk, followed by credit risk, then operating risk. It also found that the UAE banks are somewhat efficient in managing risk, and risk identification and risk assessment and analysis are the most influencing variables in risk management practices. Further, Molyneux & Iqbal (2005) have studied the efficiency of Islamic banking sector. They provided an overview of the literature that deals with measuring bank efficiency and

shows the recent empirical evidence that has sought to compare bank cost and profit efficiencies of Islamic and conventional banks. The main finding of their work showed that Islamic banking as a production process is almost always more cost and profit efficient than conventional banking. This is perhaps due to the lower funding costs and loan-loss levels in Islamic banking as compared with other types of banking operations.

Most of the studies in the literature indicate that liquidity risk is the heart of any financial intermediary institutions such as banks. This aspect shows one of the major risks in the financial and banking industry. Based on examination of the literature, the most appropriate factors that can affect liquidity risk are shown in Figure 2. Liquidity risk (LQ) is measured as the ratio between cash and total assets. It shows to what degree the assets of banks, could be transferred to be cash to meet their liquidity risk. Return on Assets (ROA) is an indicator on the capability of a bank's administration to manage profitability and the efficiency of the bank operations. Return on Equity (ROE) is measured as the capability of the bank to generate profits to shareholders. Capital Adequacy Ratio is an indicator to a bank's capital. It is mainly used to protect depositors from risk and to achieve efficiency and stability of the financial and banking sector. Finally, size is defined as the total assets of the bank.

3. Research methodology

3.1. Sample and data collection

The data set is extracted from the Islamic Banks and Financial Institutions Information (IBIS) database for full-fledged Islamic banks working in the UAE. Data is fetched from the balance sheets, income statements and cash flow statements published by Islamic banks in the UAE, as appeared on Table 3. Key financial ratios were determined based on averages for the period of 2000 to 2014. Five full-Islamic banks have been selected as a sample of this study on the basis of the following criteria.

1. Availability of data for the study period.
2. The study only considered full-fledged Islamic banks that follow Islamic principles in all its operations .

The total number of observations is 375 observations . The study uses the averages for the analysis which means 75 observations. For the analysis, first, Microsoft Excel was used to calculate financial ratios. Second, SPSS software was used for hypothesis testing and to determine the factors that affect liquidity risk of Islamic banks in the UAE.

3.2. Hypotheses

The following hypotheses are constructed to be evaluated against the model:

First hypothesis:

H₀: There is no association between ROA and LR of Islamic banks of UAE.

H₁: There is association between ROA and LR of Islamic banks of UAE.

Second hypothesis:

H₀: There is no association between ROE and LR of Islamic banks of UAE.

H₁: There is association between ROE and LR of Islamic banks of UAE.

Third hypothesis:

H₀: There is no association between CAP and LR of Islamic banks of UAE

H₁: There is association between CAP and LR of Islamic banks of UAE.

Fourth hypothesis:

H₀: There is no association between the size and LR of Islamic banks of UAE

H₁: There is association between the size and liquidity risk and LR of Islamic banks of UAE.

3.3. Variables and the model

It is clear from equation 1 that liquidity risk is a dependent variable.

$$Y(\text{Liquidity risk}) = \alpha + \beta_1(\text{ROA}) + \beta_2(\text{ROE}) + \beta_3(\text{CAR}) + \beta_4(\text{Size}) + \varepsilon \quad (1)$$

Table 4 shows the proxies used in the study for independent and dependent variables. Least squares method of analysis is used to assess and predict the association.

TABLE 4. STUDY VARIABLES

VARIABLES	PROXIES
<i>Liquidity risk</i>	Cash/total assets
<i>ROA</i>	Net profit/total asset
<i>ROE</i>	Net profit/equity
<i>CAR</i>	Equity/total liabilities
<i>Size</i>	Natural log of total assets
ε	Error term
<i>A</i>	Value of intercept

Source: Own elaboration.

3.4. Tools used for the analysis

For the analysis, first, Microsoft Excel is utilized to calculate financial ratios. Second, SPSS is used to assess the hypotheses. The related samples were tested using an ANOVA.

4. Analysis, discussion and results

4.1. Descriptive analysis

Table 5 presents the descriptive analysis for variables used in the study. The results show that the maximum liquidity ratio reached 30.54% from 9.22%. The mean ROE was 10.8927, which is more than the ROA of 1.4647, which supports the principles of Islamic

finance (i.e., equity mode of financing). The minimum CAR ratio was 15.59, which is quite enough for Islamic banks investments. The standard deviation of the size of Islamic banks' assets is 0.36947, which indicates those assets are increasing annually by a steep percentage.

TABLE 5. DESCRIPTIVE STATISTICS

	No.	MINIMUM	MAXIMUM	MEAN	STD. DEVIATION
<i>Liquidity</i>	15	9.22	30.54	18.9033	6.77812
<i>ROA</i>	15	.40	2.43	1.4647	.59286
<i>ROE</i>	15	3.72	15.98	10.8927	3.48518
<i>CAR</i>	15	15.59	29.42	20.4227	4.97521
<i>Size</i>	15	3.21	4.32	3.8507	.36947
<i>Valid N (list wise)</i>	15				

4.2. Model summary

Table 6 summarizes the model used to examine the association between liquidity risk and other explanatory factors. The adjusted R square is equal to 0.755, which means that the model is a good fit for the purpose of the study. The findings indicate that almost 76% variation of the liquidity risk is due to predictors. The Durbin-Watson test result is 2.135, which is close to the required value of 2, which means there is no autocorrelation between the variables (Durbin & Watson, 1951). The R square (i.e., the coefficient of determination) shows that 82.5 % of the variation of the liquidity risk could be determined by the use of ROA, ROE, Size and CAR. The remaining 16.5% of variability in liquidity risk is explained by other variables not included in this study.

TABLE 6. MODEL SUMMARY

	R	R SQUARE	ADJUSTED R SQUARE	STD. ERROR OF THE ESTIMATE	DURBIN-WATSON
Liquidity	0.0908 ^a	0.825	0.755	3.35308	2.135

Note: ^a Predictors - (constant), Size, ROE, ROE, CAR.

4.3. ANOVA results

Table 7 shows that the correlation is statistically significant with F value equals to 11.802 and P value (sig. 0.001 less than 0.05) which means that the final model significantly improves our ability to predict the dependent variable.

The results of the regression analysis are shown in Table 8. The findings show that the size of the Islamic banks in the UAE has a positive and significant relation with liquidity risk (LQR) at 95% confidence level. The magnitude of the coefficient β_4 shows that if the asset size increases by one unit, the liquidity risk changes by 31.361 units in the same direction. This result is consistent with Muhammad et al. (2011) who found a positive

association between bank size and liquidity of Islamic banks in Pakistan. The size of the bank has a positive and significant association with liquidity risk; therefore, H_1 is accepted.

TABLE 7. ANOVA ANALYSIS

Model	Sum of squares	df	Mean square	F test value	Sig.
Regression	530.768	4	132.692	11.802	0.001 ^a
Residual	112.432	10	11.243		
Total	643.200	14			

Note: ^a Predictors: (constant), Size, ROE, ROE, CAR.

TABLE 8. REGRESSION ANALYSIS RESULTS

MODEL	UNSTANDARDIZED COEFFICIENTS	STANDARDIZED COEFFICIENTS	T	SIG.	5% CONFIDENCE INTERVAL		COLLINEARITY	
					Lower bound	Upper bound	Tolerance	VIF
<i>Constant</i>	-128.954	28.365	-4.546	0.001	-192.155	-65.753		
<i>ROA</i>	0.792	2.768	0.286	0.781	-5.377	6.960	0.298	3.354
<i>ROE</i>	-0.496	0.390	-1.270	0.233	-1.366	0.374	0.434	2.305
<i>CAR</i>	1.535	0.413	3.717	0.004	0.615	2.455	0.190	5.255
<i>Size</i>	31.361	5.376	5.833	0.000	19.382	43.339	0.204	4.913

ROA and ROE have insignificant associations with liquidity risk, with significance values equal to 0.781 and 0.233 respectively (i.e., more than 0.05). This leads us to accept H_0 , that there is no significant association between liquidity risk and ROA or ROE. This result is in accordance with the findings of Sawada's (2010) study that showed there is no association between liquidity risk and ROE or ROA. CAR has a positive and a significant association with liquidity risk in Islamic banks in the UAE. This finding means that for each one unit increase in capital adequacy, liquidity risk changes by 1.535 units in the same direction. Ghenimi & Omri (2015) confirmed the results of capital adequacy and liquidity risk. Therefore, H_1 is accepted, There is a significant association between liquidity risk and CAR. It also is clear from Table 8 that size and CAR have the major weight of the liquidity risk with standardized coefficients 1.709 and 1.126 respectively.

5. Conclusions

The present study investigated the liquidity risk of Islamic banks working in the UAE for the period 2000-2014. The sample included 5 full-fledged Islamic banks operating in the UAE. Results of the regression analysis show that only the asset size of Islamic banks and capital adequacy have statistically positive and significant associations with liquidity risk; therefore, one can assume that the strong asset base of Islamic banks contributes to greater liquidity control for banks. This means that the capacity of Islamic banks to absorb financial shocks and to deal with nonperforming loans is higher than that of conventional banks. This study is not only provided an extension to the literature that addresses the

association between liquidity risk and other factors but also was a pioneering study that examined the liquidity risk of Islamic banks in the UAE.

6. Limitations of the study

This study is restricted to some key variables in terms of liquidity, ROE, ROA, CAR and size. Hence, more studies should be carried out to take more variables like operating efficiency, asset management, asset quality and others. The current study is done only for full-fledged Islamic banks in the UAE. Therefore, another study should be done for conventional banks of UAE also to compare and discuss the differences between both of them. This leads to help policymakers and financial experts to test the robustness of the results of the two different banking sectors.

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