Liquidity Risk Management: A comparative study between Conventional and Islamic Banks of Pakistan

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ABSTRACT

The role of Bank is diversified into financial intermediaries, facilitator and supporter. Yet the banks place themselves as a trusted body for the depositors, business associates and investors. Liquidity risk may arise from these diverse operations, as they are fully liable to make available, liquidity when stipulated by the third party. Additional efforts are required by Islamic banks for scaling liquidity management due to their unique characteristics and conformity with sharia principles. The objective of this study is to look into the liquidity risk associated with the solvency of a financial institution, with a purpose to evaluate liquidity risk management (LRM) through a comparative analysis between conventional and Islamic banks of Pakistan. This paper investigates the significance of Size of the firm, Networking Capital, Return on Equity, Capital Adequacy and Return on Assets (ROA), with liquidity Risk Management in conventional and Islamic banks of Pakistan. The study is based on secondary data, that covers a period of four years, i.e. 2006-2009. The study found positive but insignificant relationship of size of the bank and net-working capital to net assets with liquidity risk in both models. In addition Capital adequacy ratio in conventional banks and return on assets in islamic banks is found to be positive and significant at 10% significance level.

Keywords: Liquidity risk, Conventional Banks, Islamic Banks, Pakistan.

1. 0 INTRODUCTION

The banking sector is considered to be an important source of financing for most businesses. Today the most familiar region of risk with conventional and Islamic banks is liquidity risk. Liquidity risk is the outcome from the disparity involving the maturities of the two sides of the balance sheet. This disparity either results in an excess of cash that wishes to be invested or result in a deficiency of cash that wishes to be funded. Also liquidity risk surfaces from complexities in acquiring cash at logical cost. As loans that are based on interest are forbidden in Islamic banks, cannot make use of such funds to congregate liquidity obligations in need. In addition the vending of debt is not permitted (Anas & Mounira, 2008). Extra liquidity with Islamic banks cannot be straightforwardly relocated to conventional banks as the Islamic banks do not recognize interest. Conversely the larger the quantity of Islamic banks and broad their functions, the better will be the capacity of assistance in this area.

Banks are motivated by various reasons to hold certain amount of liquid balances. Liquidity refers to the ability of the bank to meet up deposit withdrawals, maturing loan request and liabilities without setback[1]. Banks defends its customers aligned with troubles of liquidity by captivating in financial liabilities that can be drained on demand, on the added side of the balance sheet, offering dedicated lending services. The arrangement of balance sheets of banks usually illiquid loans are financed by extremely liquid deposits[2].

Liquidity in financial markets has multiple connotations. Liquidity signifies the aptitude of a financial firm to keep up all the time a balance between the financial inflow and outflow over time (Vento & Ganga, 2009). Likewise in the preceding decade worldwide growth rates of 10% to 15% per annum has been experienced by Islamic banking. In addition with their presence in over 51 countries shows increasing pace of Islamic banking system moving into conventional financial system (Sole, 2007).

[1]Metwally, M. (1997)."Differences between the financial characteristics of interest-free banks and conventional banks". European Business Review , pp: 94

[2]Clementi, D. (2001). "FINANCIAL MARKETS: IMPLICATIONS FOR FINANCIAL STABILITY". Balance Sheet, 9 (3), pp: 9

At present a lot of countries around the world currently having twofold banking system, as interest free banks are functioning parallel to conventional banks. United Arab Emirates was the pioneer country which leads the way to twofold banking system. In 1973 with a paid-up capital of US$14 million, Dubai Islamic Bank was established. Following Dubai Islamic Bank various interest free banks started operating in different regions of the world. At present over 100 interest-free banks are functioning in 45 countries (Metwally, "Differences between the financial characteristics of interest-free banks and conventional banks", 1997). Recent transformations in financial markets have implicated the payment scheme and the banking procedures openly devoted to short term forecasting (Gabbi, 2004). This paper, thus emphasize the significant factors to take into study while putting into action an successful liquidity risk management, to accomplish a more incorporated structure for financial markets.

Banking Sector in Pakistan

Radical changes have been observed in banking sector of Pakistan over a phase of 62 years. Originally it undergoes lack of capital and indecision due to established political and socioeconomic calamity. Ensuing amendments were made to amount the power and function of SBP from side to side State Bank of Pakistan Act 1956 which motivated the private sector to set up financial institutions and banks. In addition privatization developments of banking sector which begin in 1992 provoked local investors and motivated foreign banks (Ahmad, Malik, & Humayoun, 2010). Network of banking system in Pakistan amounted to Rs. 638 billion in 2008-2009, which was Rs. 131 billion in 2003-2004. While total assets for the banking sector amounted to Rs. 5595 billion in 2008-2009, which were Rs. 3003 billion in 2003-2004[3]. At present 5 Islamic banks and 24 conventional banks are participating in extremely competitive atmosphere[4].

Does Islamic banking risk differ from the conventional bank risk?

The risk summary of Islamic banks is more or less parallel to the conventional (interest-based) banks. On the other hand, the risk faced by Islamic banks is categorized in two dimensions. The first dimensions of practice which are alike to conventional structure, and not in disagreement with the Islamic finance principles, and the second dimension of practices which are new-fangled or tailored and are believed to congregate the Islamic law and principles. One such scenario is of the termination of the Murabahah agreement that boosts the possibility for liquidity troubles (Anas & Mounira, 2008). Discovering, gauging, managing and scrutinizing a variety of risk contacts are the major fundamentals of risk management process.
Hence, this study is structured as follows: the next section subsequent the introduction, highlights the important literature. The third section defines the methodology of this study. Statistical results and analysis is illustrated in fourth section. The fifth section gives the major conclusions.

2.0 LITERATURE REVIEW

To estimate loss rates and scheming quality of portfolio, a simple statistical tool by means of risk index was developed for risk measurement (Smith, "Measuring Risk on Consumer Instalemnt Credit", 1964)**.** Modigliani and Pogue (1974) presented two measure of risk; relative measure denoted by beta and measure of total risk denoted by standard deviation. Relying on monthly rate of return between 1945 to 1970 they established beta measure to be more significant for securities' pricing and predictable for great portfolios. Doherty (1975) presented a model based on loss probabilities to show how the scope and level of interdependence connecting unusual ways of treating risk rely on the composition of quality in risk management.

Ratti (1980) found that dissimilarities in environment can cause positive (negative) income affect that show the way to fewer (extra) risk taking by banks. Kim and Santomero (1988) found capital ratios fruitless mean to limit bank's insolvency risk. Deakins and Hussain (1994) argued that method of risk estimation has very important inferences for banker and business relationships and highlighted on investing both in time and resources through risk assessment process, Metwally (1997) found that while financing loans interest-free banks depend deeply on their equity, face extra complexity, and inclined to be fairly additional conservative in utilizing their loan able resources than conventional banks.Clementi (2001) presented an outline of the tendency in consolidation of the market, prior to

[3]Askari Bank Limited: Annual Report 2009, pp: 2
[4]State Bank of Pakistan: Retrieved November 13, 2010, from http://www.sbp.org.pk/f_links/index.asp

reviewing present suggestions on new Basel Accord and on the bank's capital adequacy. The study highlighted the returning difficulty of liquidity and then presented some examination of fresh developments, predominantly in risk transfer method. The study stressed that modernism must be handled with some care, and found risk management as significant goal of financial system.

Ghannadian and Goswami (2004) observed the performance of an Islamic banks and how Islamic banking scheme can offer liquidity and support in the process of money creation from side to side contribution transactions accounts and found that in all developing economies investing funds on basis of profits and losses is an attractive choice for the banks. Gabbi (2004) emphasized about the reliance of risks on organization's place in the market. The study explained that liquidity risk can be controlled in the course of practices that are severely connected to the scale and scope of financial measures, seeing as large banks are capable both to manage additional market information and to influence monetary policy functions. Zheng (2006) found that short-term yield spreads are dominated by liquidity risk. Franck and Krausz (2007) found that securities market matter more in supporting bank for likely liquidity deficiency while studying the function of stock exchange as a similar function of and lender of last resort. Many dealers assert that extra liquid markets are superior to fewer liquid markets (Mainelli, 2008) and found uniqueness of liquid markets are flexibility deepness and tightness.

Zheng and Shen (2008) stated that in the presence of liquidity risk more realistic loss can be estimated by liquidity adjusted conditional value at risk which provides a better measure for risk. And also suggested efficient Monte Carlo method: which applies to portfolio of securities or single securities, and finds approximate conditional value at risk and risk at value of all percentiles from the loss distribution with in single set of samples. Anas and Mounira (2008) suggests that Islamic banks should strengthen their risk management practices such as, to enhance secondary market they need price transparency and liquidity. Moreover, they can trade Sukuks and Financial Takaful (insurance) as a medium of risk-hedging. Hassan (2009) argues that three types of risks are being faced by Islamic banks in Brunei Darussalam such as, credit risk, foreign-exchange risk and operating risk, and they are managing those risks very efficiently with the help of risk management practices, which includes risk identification (RI) and risk assessment and analysis (RAA). Dinger (2009) proposed that in emerging economies, due to the existence of transnational banks aggregate liquidity shortage risk has been reduced, as in normal circumstances they are holding low liquidity assets but in crises they holds higher liquid assets as compared to single market banks.

Vaihekoskia (2009) investigated that in the period of systematic liquidity risk (illiquidity) of those stocks which provides high rate of return were negatively related to the price of liquidity risk. Therefore, systematic liquidity risk is not priced as an asset-specific risk but as market-wide systematic risk as it is enough to occupy all liquidity related risks. Uddin (2009) identified that there exists the negative relationship between liquidity and stock return, as stock become more illiquid the liquidity risk increases more than the relative rate, also indicate that return is not affected by the fluctuations in the relative stock liquidity. Ismal (2010) indicate that with respect to liquidity management, the Islamic banks in Indonesia are evaluating themselves on the basis of three factors such as, banks liquidity management policy, liability side and asset side, and they stands in the index of "good" grade. Ismal (2010) suggested that Islamic banks should improve their policies to balance liability and asset, communicate their operations and principles to public to deepen their understanding towards Islamic banks and restructure management of liquidity on asset and liability side in order to improve and strengthen their liquidity management.

Sawada (2010) investigated that in the times of crises, due to the liquidity shock persuaded by the depositors, banks increase their cash holdings by selling their securities in the financial market, not by liquidating their loans. As they adjust their portfolio dynamically through selling and buying their securities in financial market. Ojo (2010) emphasized on the significance of risks all the way through a position to the vital role engaged by capital adequacy. On the basis of Accord principles the study observed that beside substantial development, a lot work is yet to be done specifically relative to liquidity risk.

3.0 RESEARCH METHODOLOGY

3.1 Sample & Data Collection:

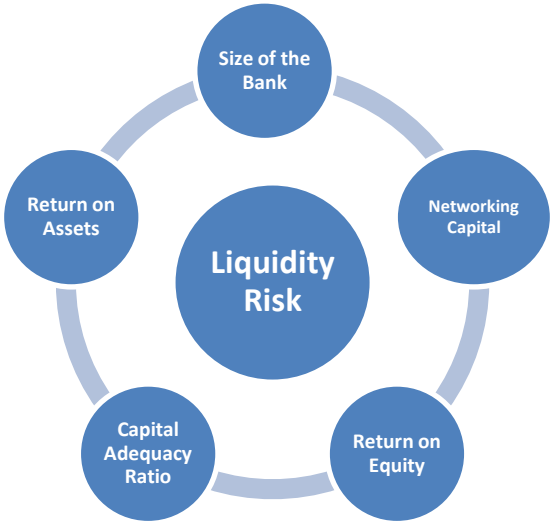
To attain the abovementioned research objectives, this paper uses a sample of 12 banks, of which 6 are conventional and 6 are Islamic banks. Data was collected from the bank's annual reports over the period 2006-2009. Financial

data from these annual reports is used to calculate and to evaluate the liquidity risk management in conventional and Islamic banks of Pakistan. The total sample contained of 48 bank-year observations.

3.3 Research Model

$$Y_1 = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + €$$

Liquidity risk is the dependent variable of this study. Explanation of dependent and independent variables along with their proxies are specified in Table 3.3.1.In addition, list of Islamic and conventional banks that are considered for this study is specified in Table 3.3.2. Descriptive, correlations and regression analysis is applied to study and compare the affect of independent variables on the dependent variable. SPSS is used in investigating, measuring and comparing the liquidity risk for conventional and Islamic banks according to their diverse individuality.



4.0 STATISTICAL RESULTS AND ANALYSIS

The statistical analysis of secondary data has been divided into three dimensions, i.e. descriptive, correlated and regression. Table 4.1 exhibit descriptive statistics of the explanatory variables. The analyzed statistics figures show the mean, standard deviation, maximum and minimum values of conventional and Islamic banks. The correlation coefficients are stated in Table 4.2. This gives information on the degree of correlation between the explanatory variables. The opportunity has been tested with the Pearson correlation coefficients test. The matrix explains that in general the correlation between the explanatory variables is not well-built that multicollinearity problems are not severe. Kennedy (2008) identified that multicollinearity is a problem when the correlation is above 0.70[5].

ROE is found to be correlated with ROA in Islamic Banking (Model II). Whereas in conventional banks these variables are perfectly independent, as suggested by Pearson correlation coefficients. Hence the critically developed models reflects on the outcome of size of the bank, net-working capital, return on equity, capital adequacy ratio and return on assets in both models, i.e. conventional banks (Model I), and Islamic banking (Model II).

According to the regression results as specified in table 4.3, size is positive correlated but found insignificant with liquidity risk in both conventional and Islamic banks as the confidence level is approximately 63% and 85% respectively. Net-working capital ratio is positive and highly insignificant with dependent variable. The relation of return on equity (ROE) with exploratory variable is negative but insignificant in Model I and significant in Model II with 95% confidence level. Capital adequacy ratio found to be positively related and significant in model I with approximately 95% confidence level and insignificant in model II. The dependent variable is positively associated with return on assets (ROA) but insignificant in model I and significant in model II approximately 92% confidence

[5]Kennedy P. (2008), a Guide to Econometrics. Malden, Massachusetts: BlackWell Publishing.

level. The model adopted has a fixed effect specification (within group estimator). *Significant at the 10%, 5% & 1% level. Beta (β_1, β_2, β_3, β_4 & β_5) values represent the proportionate change in liquidity risk due to explanatory variables, remaining change is due to unknown factors that are included in error (€) term. In addition Table 4.4 recapitulates the sign of coefficients for all independent variables.

The regression highlights the size of the bank is positively related. Isshaq and Bokpin (2009) found positive association between size of the bank and liquidity. The result of this study is accordance with the previous studies as found by (Sawada, 2010), this research authenticate that the size of the bank is positive and insignificant while the cash-to-asset ratio is uses as dependent variable.Net-working capital ratio is positive but insignificant in both models. Networking capital ratio is positively related in both models, this results are supported by (Isshaq and Bokpin, 2009). Ojo (2010) described the value of capital adequacy ratio as defined in the Basel II accord as a measure to reduce risk. This study found capital adequacy ratio to be positive but statistically significant in conventional banks (Model I), supported by (Sensarma & Jayadev, 2009). However capital adequacy ratio is insignificant in case of Islamic banks. (Tarawneh, "A Comparison of Financial Performance in the Banking Sector: Some Evidence from Omani Commercial Banks", 2006) used return on equity as gauge for performance. Though, results of this pragmatic study are in line with that of (Rosly & Zaini, 2008) who found that return on equity do not imitate risk-taking features. This paper shows positive ad significant relation with Islamic banks but positive and insignificant with conventional banks. These results are in accordance with the findings of (Siddiqui, 2008). This establish that superior performance in elements of assets and return confirmed they had better profitability than conventional banks.

5.0 CONCLUSION

This study examines liquidity risk management through a comparative study between Conventional and Islamic banks of Pakistan. This study employed 12 banks from conventional and Islamic banks of Pakistan. Descriptive, correlation and regression analysis is used. The data for the period 2006-09 is collected from the websites of banks, website of State Bank of Pakistan and from the Lahore stock exchange. The above results show the fitness of the both models I & II at F-statistic of 13.467and 4.728 at 0% level of significance respectively. This points out that both models are good fit. Independent variables that have positive but insignificant relation are; size of the bank and net-working capital to net assets in both models. Capital adequacy ratio in conventional banks and return on assets in islamic banks are positive and significant at 10% significance level.In addition relation of return on assets in conventional banks and capital adequacy ratio in Islamic banks found to be positive but insignificant. We found that conventional banks in Pakistan were more tend on the way toconsidering projects with long-term financing. In additionthe study found that superior performance in elements of assets and return confirmed that theyhad better profitability and liquidity risk management than Islamic banks.This study reveals an efficient image of banking sector of Pakistan ever since its conception. It facilitates the academician, scholars and bankers to have a picture about banking developments in managing liquidity risk as the journey offers the study of conventional banking to Islamic banking to improve their consideration for liquidity risk management.

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Table 3.3.1 Variables and their proxies

Symbol	Variable	Proxies
A	Value of the Intercept	
Y_1	Liquidity Risk	Cash to Total Assets
X_1	Size of the Bank	Logarithm of total assets
X_2	Networking capital	Ratio of short-term claims less short-term debt to net assets
X_3	Return on Equity	Earnings Available for common stockholders/Common Stock Equity
X_4	Capital Adequacy Ratio	Tier 1 Capital + Tier 2 Capital / Risk Weighted Assets
X_5	Return on Assets	Asset Utilization Ratio = Operating Income/Total Assets
€	Error Term	

Table 3.3.2 List of Banks included in the study

Sr. No.	Conventional Banks	Sr. No.	Islamic Banks
1	National Bank of Pakistan	**1**	BankIslami Pakistan Limited
2	The Bank of Khyber	**2**	Dawood Islamic Bank Limited
3	Allied Bank Limited	**3**	Dubai Islamic Bank Pakistan Limited
4	United Bank Limited	**4**	AlBaraka Bank (Pakistan) Limited
5	MCB Bank Limited	**5**	Meezan Bank Limited
6	Habib Bank Limited	**6**	Emirates Global Islamic Bank

Table 4.1: Summary Statistics

Descriptive Statistics (Conventional Banks)				
	Minimum	Maximum	Mean	Std. Deviation
Liquidity Risk	0.0397	0.8161	0.1185	0.1508
Size	7.4344	8.9758	8.5178	0.4871
NWC	1.2219	12.1081	3.3161	2.2180
ROE	-0.0669	1.5016	0.3709	0.3027
CAR	0.0996	0.3564	0.1565	.05411
ROA	-0.0103	0.0680	0.0308	0.0190
Descriptive Statistics (Islamic Banks)				
	Minimum	Maximum	Mean	Std. Deviation
Liquidity Risk	0	0.1577	0.0874	0.0371
Size	6.4306	8.0941	7.3098	0.4108
NWC	0.4951	8.0357	3.0016	2.8802
ROE	-0.2898	0.3080	0.0058	0.1582
CAR	0	0.6183	0.2645	0.1697
ROA	-0.0512	0.0243	-0.0039	0.0216

Table 4.2: Pearson Correlation Coefficients

Pearson Correlation Coefficients (Conventional Banks)					
	Size	NWC	ROE	CAR	ROA
Size	1	0.241	0.469	-0.526	0.518
NWC		1	0.0564	-0.391	-0.122
ROE			1	-0.224	0.381
CAR				1	-0.071
ROA					1
Pearson Correlation Coefficients (Islamic Banks)					
	Size	NWC	ROE	CAR	ROA
Size	1	0.652	0.343	-0.545	0.141
NWC		1	0.617	-0.613	0.520
ROE			1	-0.271	0.931
CAR				1	-0.131
ROA					1

- ❖ Correlation is significant at the 0.01 level (2-tailed).
- ❖ Correlation is significant at the 0.05 level (2-tailed).

Table 4.3: Regression Results for Liquidity Risk

Coefficients-Model I (Conventional Banks)[6]					
	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	-0.6098	0.4376		-1.3935	0.1804
Size	0.0460	0.0504	0.1485	0.9115	0.3741
NWC	0.0638	0.0082	0.9386	7.7576	0.0000
ROE	-0.0419	0.0621	-0.0842	-0.6755	0.5079
CAR	0.7748	0.3821	0.2781	2.0277	0.05766
ROA	0.6369	1.0885	0.0804	0.5851	0.5657
R-squared	0.789		**Mean dependent var**	0.11856	
Adjusted R-squared	0.730		**S.D. dependent var**	0.13393	
Sum squared resid	0.110		**F-statistic**	13.4670	
Durbin-Watson stat	2.615		**Prob(F-statistic)**	0.00000	

Coefficients-Model II (Islamic Banks)[6]					
	Un-standardized Coefficients		Standardized Coefficients	T	Sig.
	B	**Std. Error**	**Beta**		
(Constant)	-0.2373	0.1953		-1.2151	0.24309
Size	0.0411	0.0275	0.4550	1.4962	0.1553
NWC	0.0067	0.0045	0.5193	1.4756	0.1607
ROE	-0.3210	0.1573	-1.3668	-2.0407	0.0593
CAR	0.0506	0.0569	0.2350	0.8888	0.3881
ROA	2.0588	1.1232	1.1966	1.8329	0.08674
R-squared	0.582		**Mean dependent var**	0.07986	
Adjusted R-squared	0.459		**S.D. dependent var**	0.03319	
Sum squared resid	0.017		**F-statistic**	4.728	
Durbin-Watson stat	2.102		**Prob (F-statistic)**	0.007	

Table 4.4: Signs of Coefficients for Independent Variables

Sign	Variables
Positive	Size, NWC, CAR, ROA
Negative	ROE

[6]Dependent Variable: LiquidityRisk