IRBAS www.irbas.academyirmbr.com April 2021
International Review of Basic and Applied Sciences Vol. 9 Issue.2

Determinants of Firm-level Factors and its Effect on Liquidity Risk: A Study of Islamic Banking Sector of Pakistan

UMAIR AHMED
Lecturer, Department of Management Sciences,
Qurtuba University of Science & IT.

MUHAMMAD ASIF
Assistant Professor- Department of Management Sciences,
City University of Science & IT.
Email: asifbaloch@cusit.edu.pk

Dr. NAVEED
Assistant Professor, Department of Management Sciences,
Qurtuba University of Science & IT, Peshawar.
Email: naveedtoru97@gmail.com

Abstract

Liquidity risk of Islamic banks is an essential part of risk management because Islamic banks have limited tools to manage liquidity risk due to avoidance of Riba. This study aims to investigate Firm-level factors and its impact on Liquidity risk of Islamic banking system of Pakistan. Firm-level factors are those internal or external factors which can influence the performance of a bank. Independent variables of the study include; non-performing loans, size of banks, capital adequacy ratio, assets management ratio & profitability ratio. The sample of the study comprises all five full-fledged Islamic banks with annual data ranging from 2010 to 2019, on the basis of the Purposive sampling technique. The panel diagnosis shows that random effect model is best to analyze the impact of firm-level factors on liquidity risk of Islamic banks. The empirical analysis suggested that all the explanatory variables were found significant with the dependent variable. Results further suggest that Size of bank, Non-performing loans, and assets management have an inverse relationship with liquidity risk of Islamic banks while Capital adequacy ratio and return on equity was found to have a positive relationship with liquidity risk. Additionally, it was observed that all the firm's level factors have a significant relationship with liquidity risk; therefore, focus should be given to these factors to control the problems of liquidity risk management in Islamic banking system of Pakistan.

Keywords: *Liquidity Risk, Non-Performing Loans, Capital Adequacy Ratio, Return on Equity, Assets Management, Firm's Level Factors.*

Introduction

Islamic banks are one of the rising and emerging industry, all over the world and as well as in Pakistan, because it has a significant impact on the economic growth and development of a country. Islamic banking is Riba free and based on sharia principles. For the fulfillment of customer's need, now a day's most of the conventional banks have also started Islamic banking operations by adopting sharia principles along with the conventional banking system, such operations include Islamic banking "window" and a separate "Islamic bank branch". Islamic banks providing Riba-free banking which is satisfactory against the perception of Muslim customers about conventional banking and risk factor of profit and loss. Islamic banking products contain a high-risk factor for loss which cannot be found in the conventional banks.

Islamic banks have different unique products according to the sharia and all of them have several associated risks which may affect the performance of an Islamic bank in different manners. Supply of fund can occur through; deposits by customers, borrowing from financial markets, repayment of credit facility, non-interest income and from sales of assets. While demand for funds can come through: withdraws by customers, demand for credit by customers, non-interest expenses (Rose & Hudgins, 2013). Lack of liquidity is the fundamental problem and key barrier to the growth of Islamic banks. Their basic reasons for liquidity problem in Islamic banks is lack of funding as compared to conventional banks because of a limited number of financial instruments and absence of secondary or money market for Islamic financial instruments complicates the problem of mismatched maturities in Islamic banks (Asma, 2016). As a result, Islamic banks are unable to generate or provide the sufficient returns to their customers. Keeping in view the above discussion and questions the following are the research objectives: to investigate the major determinants of firm-level factors in Islamic banks & to empirically evaluates the effect of firm-level factors on Liquidity risk of an Islamic bank. In order to indicate and to overcome these problems, the present study explores the determinants of firm-level factors of liquidity risk of Islamic banks of Pakistan.

Liquidity risk in Islamic banks were evaluated by many researchers; some of them did descriptive study to highlight the sources of risk in Islamic banks; some of them provides guidelines to reduce or control the liquidity risk; some introduced different models through which liquidity risk can be measured is Islamic banks; other taken a lower time span and sample size. The current study is focusing on major variables which can affect the liquidity risk in Islamic banks. The study attempted to develop a more comprehensive model by adding relevant and specific variables as suggested by literature to measure the liquidity risk.

Literature Review

Risk can be defined as a probability or threat of damage, loss, liability or any other negative event which can be caused due to an external or internal unexpected happening. According to Arif *et al.* (2016) risk occurs when the probability of more than one outputs and such output is unknown. As mentioned in business dictionary risk is the possibility or threat of damage, liability, loss, injury and another abnormal occurrence which can be caused by internal as well as external vulnerabilities, and that can be accepted by proactive actions (Cambridge, 2015). Conceptually risk denotes a potential inverse impact on different features of values that can be incurred through future event or conditions that may occur and may have negative or inverse effects. Channar *et al.* (2015) classified risk into two components i.e. systematic and unsystematic risk. Systematic risk is also known as market risk and is inherited in the entire market segment while unsystematic risk can affect a small group of assets or only an asset. The risk is a concept of future events which can be the negative potential impact on some occurrence. The major risk which a bank faced is operational risk, market risk, credit risk, liquidity risk, mismatches risk, foreign exchange risk & interest rate risk (Eid & Kamal, 2012). It can be classified into two main categories i.e. systematic risk and unsystematic risk. Systematic risk is concerned with the market and economic condition of a company and it can be minimized in portfolio investment. Where, unsystematic risk is concerned with the assets of a company but this cannot be diversified, but due to some risk transferring techniques it can be minimized (Vyas & Singh, 2011). Tariq (2016) consider liquidity risk as the main risk in a bank, it occurs when a bank is unable to pay its liabilities because of a mismatch between the current assets and liabilities. In general Islamic banks have excess liquidity. Additionally, Islamic banks may not prefer investment in highly leverage companies and due to this approach equity investment become less risky. Islamic banks may face the same liquidity risk level and nature which a conventional bank has.

Empirical Evidences

Akhtar *et al.* (2011) explore the impact of different factors on liquidity risk of Islamic banks. Dependent variable liquidity risk while return on assets, bank size, net working capital, capital adequacy ratio and return on equity were selected as independent variables. Data collection was limited to 2006 to 2009 for six Islamic banks in Pakistan. Results from empirical analysis suggested that there was an insignificant but

positive relationship was founded on liquidity risk with bank size and networking capital while return on assets and capital adequacy ratio were positively significant towards liquidity risk. However, only return on equity was reflects an insignificant relationship.

Iqbal (2012) selected liquidity risk as dependent variable and liquidity ratio was used as a proxy. Independent variables were consisting of nonperforming loans, bank size, return on equity, return on assets and capital adequacy ratio. Data consisted from 2007 to 2010 and sample consists of five Islamic banks of Pakistan. Results suggested that return on equity, capital adequacy ratio, return on assets and bank size was positively significant to liquidity risk. Further, it was found that only non-performing loan has a negative significant impact.

Naveed *et al.* (2011) in their study from 2006 to 2009 used cross-sectional data. Five riba free banks in Pakistan were selected as a sample. In the study, three dependent variables were evaluated i.e. Credit risk, liquidity risk, and operational risk. Independent variables were included capital adequacy, assets management, leverage, bank size and non-performing loans. The study found a positive significant relationship between assets management and bank size with liquidity and credit risk; while both were insignificant with operational risk. Leverage and nonperforming loans were positively significant with operational risk and liquidity risk.

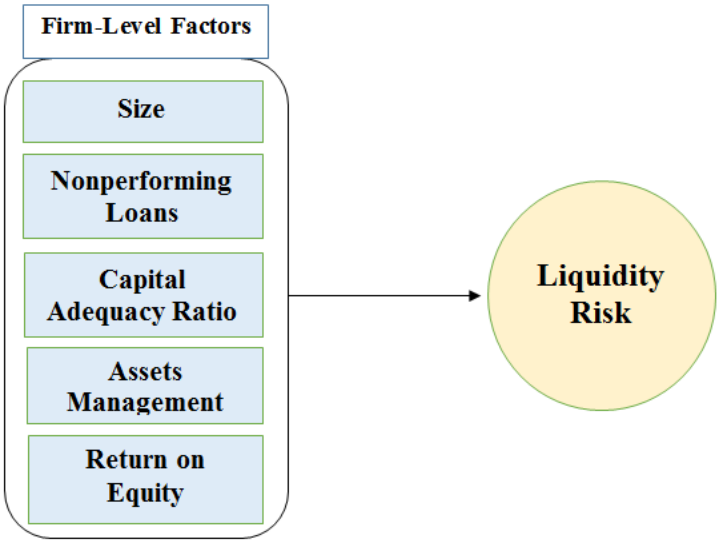
According to Arif *et al.* (2016) risk management is an essential task for every financial service industry. The study selected nonperforming loans, liquidity risk, capital adequacy ratio, operational risk and interest rate risk as risk management proxies. Data was limited to 2005-2014 and collected from annual reports of banks. Tools of analysis include descriptive statistics, correlation analysis and random effects OLS regression. Results from the empirical analysis suggest that effective risk management can increase the bank's productivity and efficiency. Operational risk, liquidity risk, capital adequacy ratio, interest rate risk and nonperforming loans were the major factors of profitability in banks.

Tariq (2016) used a comprehensive model to analyze liquidity risk in Islamic banks. A sample of the study was 42 Islamic banks which were taken from 15 countries of the world for ten years' time period from 2007 to 2014. Panel data analysis were used to check the liquidity risk amount dependent and independent variables. Liquid assets were divided on total assets used as a proxy to measure the liquidity risk, while; cash ratio, securities, square of bank size, return on assets, bad financing and equity ratio were selected as independent variables. Results showed that cash ratio, equity of bank, bank size and securities have a negative relationship with liquidity risk. Where bad financing and high-profit assets had a positive relationship. The study further suggests that bank size is found insignificant with the dependent variable.

Ahmed *et al.* (2013) also investigated liquidity risk of Islamic banks by taking bank size, leverage, profitability, tangibility, bank age and profitability as independent variable. Results revealed that tangibility, leverage, and age had a significant impact on liquidity risk where; size and profitability had an insignificant relationship with liquidity risk. The study selected 5 Islamic banks for the 5 years from 2005 to 2009 by using panel data analysis.

Theoretical Framework

- Ramzan & Zafar (2014) found the significant impact of Size on Liquidity Risk (LR).
- Ahmed et al. (2010) found the significant impact of Nonperforming Loans on LR
- Naveed et al. (2011) found the significant impact of Capital Adequacy Ratio on LR.
- Ismail (2010) found the significant impact of Assets Management on LR.
- Abdullah (2012) found the significant impact of Return on Equity on LR.
- Asma (2016) & Salman (2013) suggested Liquidity Risk as a significant relation with Size, NPL, CAR, AM, and ROE.



Hypotheses of the Study

H_1: There is a significant impact of firm's level factor on Liquidity risk.
$H_{1.1}$: There is a significant impact of Size of the bank on Liquidity risk.
$H_{1.2}$: There is a significant impact of Nonperforming loans on liquidity risk.
$H_{1.3}$: There is a significant impact of capital adequacy ratio on liquidity risk
$H_{1.4}$: There is a significant impact of assets management on liquidity risk
$H_{1.5}$: There is a significant impact of return on equity on liquidity risk

Methodology

The study was based on panel data which were selected from a secondary source. All Islamic banks in Pakistan which are called as full-fledged Islamic banks were a population of the study. Five banks were selected on the basis of Purposive sampling technique (Saunders *et al.*, 2012). Data was selected for seven years from 2010 to 2019. Data of selected Islamic banks for analysis purpose was collected from the annual reports as well as from the state bank of Pakistan's data bank. One bank (MCB-Islamic Bank Limited) was not selected due unavailability of data because it had started its operations from September 14, 2015, and cannot fulfill the requirements of panel data.

Model Used:

For analysis purpose regression model was used to investigate the impact of firm-level factors on liquidity risk of Islamic banks.

$$LR = \beta 0 + \beta 1\, SIZE + \beta 2\, NPL + \beta 3\, CAR + \beta 4\, AM + \beta 5\, ROE + \epsilon i$$

Where; LR: Liquidity Risk, Size: Size of bank, NPL: Non-Performing Loans Ratio, CAR: Capital Adequacy Ratio, AM: Assets Management, ROE: Return on Equity

Dependent variable

Liquidity Risk

According to Salman (2013), an asset is called liquid if it has the feature of quick and easy convertibility into cash or its equivalent. It can be measured as follows:

$$Liquidity\ Risk = \frac{Liquid\ Assets}{Total\ Assets}$$

Independent Variables

Size

Ramzan & Zafar (2014) define the size of a bank as, "Total value of stocks at market price in a portfolio of a mutual fund is bank size". Total assets were usually used as a proxy for bank size.

$$Size = Natural\ logarithm\ of\ total\ assets$$

Non-Performing Loans Ratio (NPL)

According to Ahmad *et al.* (2010) a payment of a debt which cannot pay by account receivable for 90 days can be scheduled for non-performing loans. It can be measured as follows:

$$\text{NPLs Ratio} = \frac{Non\ Performing\ Loans}{Total\ Loans}$$

Capital Adequacy Ratio (CAR)

Capital Adequacy Ratio or Capital-to-risk weight asset ratio can be measured to safeguard the capital of depositors (Naveed *et al.*, 2011). It can be measured as:

$$Capital\ Adequacy\ Ratio = \frac{Tier\ one\ Capital + Tier\ two\ Capital}{Risk\ Weighted\ Assets}$$

Assets Management (AM)

According to Ismal (2010) it is said to be the proper utilization of a firm's assets. It reflects that how to manage assets effectively & efficiently in order to generate more earnings. It can be measured as:

$$Asset\ uitilization\ Ratio = \frac{Operating\ Income}{Total\ Assets}$$

Return on Equity (ROE)

According to Abdullah (2012) return on equity is a rate which shows that how much net income is returned on share capital. It can be measured as:

$$ROE = \frac{Net\ Profit}{Share\ Holder's\ Equity}$$

Data Analysis & Discussion

Panel Diagnosis

Panel diagnostic test suggests random effects model from Breusch-Pagan test as well as from Hausman Test. Only F-test suggests the fixed effect which cannot be selected. All the models were tested at 5% critical level of significance. (Annexure I)

Collinearity Analysis

VIF values of all independent variables are less than 10; therefore, there is no problem of Collinearity (Hair *et al.* 1995). (Annexure II)

Normality Test

P-value (0.07801) is greater than 0.05 therefore, we can accept Ho and conclude that the residuals are normally distributed. (Annexure III)

Regression Analysis

Random-effects GLS regression

LR	Coef.	z	p> | z |
SIZE	-3.677269	-2.33	0.020
NPL	-0.3141749	-2.29	0.022
CAR	0.3835481	2.83	0.005
AM	-3.390752	-5.54	0.000
ROE	0.245308	2.03	0.042
CONS	75.04705	30.22	2.48

R-sq (Overall): 0.7411 | F- Stats= 10.354 (P-Value= 0.000)

As the t-test results show that the p–values of Nonperforming loans ratio, size of bank, assets management, capital adequacy ratio and return on equity are smaller than 0.05, therefore we can conclude that all independent variables have significant effect on liquidity risk, where Size of bank, non-performing loans, assets management shows negative impact on liquidity risk, while capital adequacy ratio and return on equity positively affect liquidity risk. Moreover, the adjusted R-square is 0.7411, which means that 74.11% variation has been explained by Size of bank, non-performance loan, capital adequacy ratio, Assets Management and Return on equity in liquidity risk. Since p-values for $\beta 1$, $\beta 2$ and $\beta 3 < 0.05$, therefore, we reject null hypotheses and accept alternative hypotheses by concluding that there is the significant negative effect of debt ratio on fixed investment but there is a significant positive impact of equity and cash flow ratio on fixed investment. The Bank size is found negative and significant with liquidity risk. However, the significant result is a good sign because larger banks may face low liquidity risk and stability as compared to the small bank. Better bank size suggests the better ability of a bank to create the huge market share. Non-performing loans were negative but its magnitude was too minute it suggests that it minimizes the liquidity risk with a lower amount which is significant. Capital adequacy ratio also found significant with liquidity risk and having a positive relationship. It means that increase in capital adequacy ratio can increase the liquidity risk of Islamic banks. Assets management is also negative with liquidity risk; the negative sign shows that proper utilization of assets can reduce the liquidity risk. Return on equity is also

significant but found positive with liquidity risk. It shows that high profitability may cause liquidity risk in Islamic banks.

Conclusion

The aim of this study is to empirically investigate the impact of Firm-Level Factors on liquidity risk of Islamic banks of Pakistan from 2010-2016. Banking sector may face several risks and liquidity risk is one of critical risk to manage because it varies with minor fluctuations. Conventional banks have many tools which can be used to manage liquidity risk effectively but in case of Islamic banks, such tools are limited. Therefore, it is necessary to understand the determinants of firm's level factors which affect the liquidity risk of Islamic banks in Pakistan. The study was based on five full-fledged Islamic banks of Pakistan. The study concludes that all the selected firm's level factors have a significant impact on liquidity risk of Islamic banks. Islamic banks must concentrate on the associated risk with Islamic banking products. Small banks should concentrate on the liquidity risk because findings suggest that large banks having low liquidity risk. Capital adequacy and return on equity were positive and can cause high liquidity risk. While Non-performing loans, Size of banks and assets management have an inverse relationship with the liquidity of Islamic banks.

Recommendations

Managers have to focus on bank size because strong assets base of Islamic banks can provide more strength to control liquidity. The findings may considerable for policymakers while making policy regarding risk management practices. Banks have to improve the performance of assets and liabilities through which one can manage liquidity at assets side as well as liability side on Islamic banks. In future studies can be conducted by using same independent variables to find out the relationship with any other type of risk that could be a credit risk, operational risk, and market risk. Many countries throughout the world can be selected as a sample to broaden the current study.

References

Abdullah, A. (2012). Liquidity risk management: a comparative study between domestic and foreign banks in Pakistan. *Journal of Managerial Sciences Volume VI Number*, *1*, 62.

Ahmed, F., & Bashir, T. (2013). Explanatory Power of Macroeconomic Variables as Determinants of Non-Performing Loans: Evidence from Pakistan. *World Applied Sciences Journal*, *22*(2), 243-255.

Ahmad, R., Afza, T., Qayyum, A., & Bodla, M. A. (2010). Working capital management and corporate performance of manufacturing sector in Pakistan. *International Research Journal of Finance and Economics*, *47*(1), 156-169.

Akhtar, M. F., Ali, K., & Sadaqat, S. (2011). Liquidity risk management: a comparative study between conventional and Islamic banks of Pakistan. *Interdisciplinary Journal of Research in Business*, *1*(1), 35-44.

Ali, S. S. (2004). *Islamic modes of finance and associated liquidity risks.* Paper presented at the conference on Monetary Sector in Iran: Structure, Performance & Challenging Issues, February, Tehran, Iran.

Ali, S. S. (2013). State of liquidity management in Islamic financial institutions. *Islamic Economic Studies*, *21*(1), 63-98.

Arif, H., Ihsan, A., & Hussain, J. (2016). Risk Management and Bank Performance in Pakistan.

Cambridge, D. (2015). Cambridge dictionaries online: Cambridge University Press, Cambridge, UK.

Channar, Z. A., Abbasi, P., & Maheshwari, M. B. (2015). Risk Management: A Tool for Enhancing Organizational Performance. *Pakistan Business Review*, *17*(1), 1-20.

EID, W., & KAMAL, A. (2012). *Mapping the Risks and Risk Management Practices in Islamic Banking.* Durham University.

Hair Jr, J. F., Anderson, R. E., Tatham, R. L., & William, C. (1995). Black (1995), Multivariate data analysis with readings. *New Jersy: Prentice Hall*.

Iqbal, A. (2012). Liquidity Risk Management: A comparative study between Conventional and Islamic banks of Pakistan. *Global Journal of Management and Business Research*, *12*(5).
Ismal, R. (2010). *The management of liquidity risk in Islamic Banks: the case of Indonesia* (Doctoral dissertation, Durham University).
Naveed, A., Akhtar, M. F., & Usman, M. (2011). Risk management practices and Islamic banks: An empirical investigation from Pakistan. *Interdisciplinary Journal of Research in Business*, *1*(6), 50-57.
Ramzan, M., & Zafar, M. I. (2014). Liquidity risk management in Islamic Banks: A study of Islamic banks of Pakistan. *Interdisciplinary journal of contemporary research in business*, *5*(12), 199-215.
Rose, P., & Hudgins, S. (2014). Bank Management & Financial Services, 9th.
Salman, S. A. (2013). State of liquidity management in Islamic financial institutions. *Islamic Economic Studies*, *21*(1), 63-98.
Tariq, A. (2016). Liquidity Risk in Islamic Banks *Proceedings of Annual Bangkok Business and Social Sciences Research Conference*,.
Van Greuning, H., & Iqbal, Z. (2008). *Risk analysis for Islamic banks*: World Bank Publications.
Vyas, M., & Singh, S. (2011). Risk Management in Banking Sector. *BVIMR Management Edge*, *4*(1).

Annexures

Annexure I
Panel Diagnosis

Tests	Hypotheses	P-values	Decision
F test	H_0 = Pooled OLS model is appropriate H_1 = Fixed Effect model is appropriate	4.90712e-034	Fixed effect model is appropriate
Breusch-Pagan test	H_0 = Pooled OLS model is appropriate H_1 = Random Effect model is appropriate	0.0466257	Random effect model is appropriate
Hausman test	H_0 = Random Effect model is appropriate H_1 = Fixed Effect model is appropriate	0.050037	Random effect model is appropriate

Annexure II
VIF Values> 10.0 may indicate collinearity problem

Variable	VIF
Size	1.661
NPL	1.497
CAR	2.217
AM	1.539
ROE	2.364

Annexure III

Frequency distribution for uhat1, obs 1-35

Number of bins = 7, mean = 1.12751e-014, sd = 3.54709

Test for null hypothesis of normal distribution:

Chi-square (2) = 5.102

P-value 0.07801