Risk Management Implementation and Solutions for Islamic Banking and Finance

Risk Management Implementation and Solutions for Islamic Banking and Finance

By

Omar Masood and Kiran Javaria

Cambridge
Scholars
Publishing

Risk Management Implementation and Solutions for Islamic Banking and Finance

By Omar Masood and Kiran Javaria

This book first published 2018

Cambridge Scholars Publishing

Lady Stephenson Library, Newcastle upon Tyne, NE6 2PA, UK

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

ISBN (10): 1-5275-1145-6
ISBN (13): 978-1-5275-1145-3

CONTENTS

PREFACE

Islamic banking is growing quickly in different parts of the world. The concept of Islamic finance is not new as it is as old as the religion itself and has its own principles. These principles are derived from the Quran which was written 1400 years ago. Islamic banking works under Islamic rules and regulations which are laid down by Islamic Shariah. In Islamic banking, it is important to manage the risk and return policy and also implement these policies in order to get better results. The major risk which Islamic institutions need to focus on is liquidity risk management. A well-managed financial institution should have a precise mechanism for the identification, monitoring, measurement, and mitigation of liquidity risk. The key focus of this book is to manage risk in Islamic financial institutions and to follow Shariah law in order to achieve the goals of an organisation.

The major question that arises here is: how to overcome or manage the risk in Islamic institutions? What strategies should Islamic financial institutions follow which will lead them towards higher performance and profit maximisation? This book will answer the question: why focus on risk management? What are the solutions and policy implementation tactics that Islamic banks should follow? The book will explain the Basel committee policy implementation, how to tackle risk, how to manage enterprise risk, and so on. The Basel committee of banking supervision defined funding liquidity as “the ability of banks to meet their liabilities, unwind or settle their positions as they come due” (BIS, 2008). Liquidity risk management is a vital component of the global risk management agenda of the financial services sector regarding all financial institutions. Even though Basel II required regulators and banks to implement an improved framework for dealing with liquidity risk, the measurement and management of bank liquidity risk did not receive sufficient attention.

This book addresses the risk mitigation techniques which Islamic institutions are using these days. The chapters of this book explain and contribute new ideas and analysis. They target different Islamic institutes from all over the globe and investigate their risk management solutions and implementations. This book also discusses the issues and challenges faced by Islamic banks. It analyses the Basel III implementation and outcome, practical enterprise risk management practices, liquidity risk management and understanding in leading Islamic banks, the success story

of the global takaful industry, and also some key drivers of Islamic risk management systems.

INTRODUCTION

Application of Key Risk Management Techniques

Islamic finance is a growing part of the financial sector in the world. It is spreading wherever there is a sizeable Muslim community, *Ummah*. Rapid innovations in financial markets and the internationalisation of financial flows have changed the face of conventional banking, in particular after the recent financial crisis.

New information-based activities, like trading in financial markets and creating income through fees, are a major source of a bank's profitability. Financial innovations lead to an increased market orientation and entail the use of assets such as mortgages, automobile loans, and export credits as backing for marketable securities; this is known as the securitisation process. Rapid developments in conventional banking have also affected the reshaping of Islamic banks and financial institutions. This general introduction and the first chapter rely heavily on the work by Hennie and Zamir (Hennie van Greuning, Amir Iqbal, in Risk analysis for Islamic banks, World Bank document). Financial systems are crucial for the efficient allocation of resources in a modern economy.

The acquiring and processing of information about economic activities and entities, the packaging and repackaging of financial claims, and financial contracting are common elements that differentiate financial intermediation from other economic activities. Information plays a central role in financial contracts and financial markets. Today, information is considered as a valuable commodity. The main functions of a financial intermediary are asset transformation, conduct of orderly payments, brokerage, and risk transformation. Asset transformation takes place in the form of matching the demand for and supply of financial assets and liabilities (for example, deposits, equity, credit, loans, and insurance) and entails the transformation of the maturity, scale, and location of the financial assets and liabilities of the ultimate borrowers and lenders. The *Shariah* provides a set of *intermediation contracts* that facilitate an efficient and transparent execution and financing of economic activities.

Islamic finance was practised in the Muslim world throughout the Middle Ages, fostering trade and business activities with the development of credit. Islamic merchants in Spain, the Mediterranean, and the Baltic

states became indispensable middlemen for trading activities. Several techniques and instruments of Islamic finance were later adopted by European financiers. Financial intermediation in Islamic history has an established historical record and has made significant contributions to economic development over time. Financiers in the early days of Islam—known as *sarrafs "moneychangers"*—undertook many of the traditional, basic functions of a conventional financial institution, such as intermediation between borrowers and lenders, operation of a secure and reliable domestic as well as cross-border payment system, and provision of services such as the issuance of promissory notes and letters of credit. Commercial historians have equated the function of *sarrafs* with that of banks. Historians like Udovitch consider them to have been "bankers without banks" (Udovitch, 1981). For more details, the reader can refer to Hennie and Zamir (Hennie van Greuning, Amir Iqbal, in Risk analysis for Islamic banks, World Bank document).

Sarrafs, "moneychangers", operated through an organised network and well-functioning markets, which established them as sophisticated intermediaries, given the tools and technology of their time. It is claimed that financial intermediaries in the early Islamic period also helped one another to overcome liquidity shortages on the basis of mutual help arrangements. The goal of financial management is to maximise the value of a bank, as defined by its profitability and risk level. Financial management comprises risk management, a treasury function, financial planning and budgeting, accounting and information systems and internal controls. The key aspect of financial management is risk management. This covers strategic planning, asset-liability management, and the management of the bank's financial risks. Credit or counterparty risk is the chance that a debtor (or issuer) of a financial instrument will not repay principal and other investment-related cash flows according to the terms specified in a credit agreement. It means that payments may be delayed or not made at all, which can affect a bank's liquidity.

As financial instruments and markets have become more complex and processing has been automated, the treasury function has been made more complex. Typical treasury functions include at least the following elements.

- ✓ Funding and liquidity management;
- ✓ The overall policy framework, including general policy guidance and directions, ALM (asset-liability management), strategic asset allocation, benchmark approval, and use of external portfolio managers;

- ✓ Investment and cash flow management, (asset management);
- ✓ Risk analysis including model validation, risk measurement for liquidity, counterparty or credit, market, commodity, and currency risk, performance measurement, analysis, and reporting, compliance with broad investment guidelines, and quantitative strategies and risk research (model development, benchmark construction);
- ✓ Treasury operations including correspondent bank accounts (banking relations), settlements, accounting, and information systems and services.

Like conventional banks, Islamic banks are also exposed to some forms of asset-liability mismatch risk. In addition, typical treasury risks for Islamic banks are liquidity, equity-investment, market, rate-of-return, and hedging risks. Market risks are similar to the market risks of conventional banks, except that there is no interest rate risk. Instead of interest rate risk, Islamic banks are exposed to **mark-up** risks and are further exposed to the risks of changes in the benchmark indexes used to determine **"mark-up rates"** and other rates on return. Islamic banks are exposed to operational risks and to several specific risks. These specific risks stem from the nature of their business, business environment, competition, and certain prevailing practices. These risks include displaced commercial risk, withdrawal risk, fiduciary risk, *Shariah risk*, and reputation risks, among others.

Specific aspects of Islamic banking could heighten the operational risks of Islamic banks:

- ✓ Cancellation risks in the nonbinding *murabahah* (partnership) and *istisnah* (manufacturing) contracts;
- ✓ Failure of the internal control system to detect and manage potential problems in the processes and back-office functions.

Potential difficulties in enforcing Islamic contracts in a broader legal environment:

- ✓ Need to maintain and manage commodity inventories often in illiquid markets;
- ✓ Failure to comply with *Shariah* requirements;
- ✓ Potential costs of monitoring equity-type contracts and the associated legal risks;
- ✓ *People risk* is another type of operational risk arising from incompetence or fraud;

- ✓ *Technology risk* is also an operational risk associated with the use of software and telecommunications systems that are not tailored specifically to the needs of Islamic banks. Capital absorbs possible losses and provides a basis for conserving the confidence of depositors. It is the ultimate determinant of a bank's lending capacity.

A bank's balance sheet cannot be expanded beyond the level determined by its capital adequacy ratio (CAR). The availability of capital determines the maximum level of assets.

Capital provides stability and absorbs losses. It also provides a measure of protection to depositors and other creditors in the event of liquidation. Conventional bank capital consists of equity capital, retained reserves and certain non-deposit liabilities. Capital represents a means of funding earnings-generating assets and a stability cushion. Capital is part of a bank's sources of funding that can be applied directly to the purchase of revenue-earning assets. A bank's capital structure relates to the ratio of capital to deposits and the ratio of debt capital to equity capital. In the late 1980s, the Basel committee on banking supervision took the lead in developing a risk-based capital adequacy standard. The minimum capital adequacy requirements for both credit and market risks are set out for each of the *Shariah*-compliant financing and investment instruments. Like for conventional financial institutions, in the IFSB standard, the minimum capital adequacy requirement for Islamic banks is not lower than 8% of the total capital in any country.

In terms of future challenges, the immediate need is to develop instruments that enhance liquidity; to develop secondary, money, and inter-bank markets; and to perform asset-liability and risk management.

This Book is organised as follows.

Chapter one presents the liquidity measurement and management of Islamic banks. This chapter explains that Islamic banking is a key area for all Muslims, one which is of interest for deposit purposes nowadays. It aims to examine the impact of different liquidity ratios on the performance of Islamic banks. To justify the theoretical basis, the author conducted an empirical analysis and selected 25 international Islamic banks over a period of 10 years from 2006 to 2015. Eight differently composed liquidity ratios from the balance sheets of current items were used in the study. The chapter concludes that the financial performance of Islamic banks has improved by maintaining liquidity at a good level and by holding liquidity

further which can have an inverse impact on the financial performance of Islamic banks.

Chapter two reveals the implementation of Basel III and its outcome in the Islamic banking sector. Pakistan, with its recent economic expansion and slow rate of Basel III implementation, is one of the countries that has had to confront such obstacles. In this paper, our empirical analysis is based on a survey of risk managers. The goal of Basel III is to improve capital standards and its scientific treatment of risk ensures that it is well regarded, specifically in the Islamic banking sector of Pakistan.

Chapter three develops the experience of the global takaful industry. This chapter has been developed with the aim of discovering the impact of enterprise risk management (ERM) implementation on the financial performance of the global takaful industry. In this regard, the ERM implementation level has been measured through the availability of a Chief Risk Officer (CRO), the establishment of a risk management committee in the firm, the board independence level within the firm, the hiring of an auditor from big four auditor firms, and many more aspects. The conclusion of the chapter reveals that financial performance is highly affected by ERM implementation in the takaful industry.

Chapter four studies the current situation of liquidity risk management in Islamic banks. The purpose of this particular chapter is to determine if any liquidity risk exists in the Islamic banks of Pakistan and if it does, what effect it has on the resilience of the industry in that country. This chapter also sheds light on the existing situation in liquidity risk management. Further, it takes a look at the attitudes of central and Islamic banks towards liquidity risk management policies.

Chapter five investigates the different perspectives of enterprise risk management. The level of ERM implementation in Islamic institutions is measured in this chapter. Two control variables also employed in the study are age and Gross Domestic Product (GDP). The findings of this chapter can be utilised for the advancement of enterprise risk management within the takaful industry, making it a strength of the industry rather than a business risk.

Chapter six explains the novel and unique characteristics of Islamic banks in handling liquidity. This chapter utilises different ratios which include current ratio (CR), liquid to asset ratio (LA), quick ratio (QR), cash and due from banks to asset ratio (CDA), investment to asset ratio (IT), cash and due from banks to deposit ratio (CDD), investment to deposit ratio (IDR) and cash deposit ratio (CD) in order to determine the drivers of liquidity risk management in Islamic banks.

Chapter seven presents the empirical evidence in the takaful industry of an emerging economy (Pakistan) where the population is composed of 98% Muslims. This chapter explains the prevailing risk in the economy faced by a takaful firm in their consumption of family takaful. This chapter empirically verifies the link between risky macroeconomic variables (i.e. risk of per capita income, savings, risk of increase in inflation, stock index risk) with the demand for family takaful in the context of Pakistan using time-series data from 2006 to 2015 of "Pak-Qatar family takaful company and Dawood family takaful company". The chapter's finding is applicable in all Muslim and emerging economies.

CHAPTER ONE

ISLAMIC FINANCIAL INSTITUTIONS' LIQUIDITY RISK MEASUREMENT AND MANAGEMENT

Summary of Chapter One

Islamic banking and conventional banking are two parallel pillars of the banking sector. Conventional banks are interest-based while Islamic banks have interest-free banking. Islamic banking is a key area for all Muslims and one which interests them for deposit purposes nowadays. This study aims to examine the impact of different liquidity ratios on the performance of Islamic banks. The study selected 22 international Islamic banks over a period of 10 years, from 2007 to 2016. Seven differently composed liquidity ratios from the balance sheets of current items were used in the study; cash and due from banks to asset ratio (CDA), current ratio (CR), quick ratio (QR), liquid to asset ratio (LA), cash and due from banks to deposit ratio (CDD), investment to deposit ratio (IDR) and cash deposit ratio (CD) as independent variables. Whereas return on asset (ROA) and return on investment (ROI) are used as dependent variables. The age and size of the bank are used as control variables. Different analysis techniques were used to analyse the results. Two models were incorporated in the study. The results show that LA, QR, CDA and CDD contribute to explaining ROA and ROI. Whereas, the IDR, CD, AG, LTA impact on financial performance but not as strongly as the above-mentioned because they do not explain all the financial performance indicators. Overall, it is concluded that financial performance is influenced by the independent variables of the study. The financial performance of Islamic banks improved by maintaining liquidity at a good level, and by holding liquidity further which can have an inverse impact on the financial performance of Islamic banks. The study incorporates a few control variables which have an impact on relationships.

Keywords: liquidity, financial performance (ROA, ROI), Islamic banks.

Section 1: Introduction to Risk Management

The banking industry consists of two pillars; one is the conventional banking system and the other is the Islamic banking system. In early times, there were only conventional banks which performed operations based on interest; later on, Islamic banks were introduced as the result of the conservatism movement, in which followers of Islam showed their need to follow banking practices in light of Shariah laws and ensure the soundness of their Muslim economies, as explained by Taylor (2003). Islamic financial transactions follow basic principles, some of which are: first, finances must not involve any activity which is prohibited by Islamic laws; second, it must not include any type of riba (interest); third, economic activity must not involve any type of oppression (zulm); fourth, the activity should not consist of speculation (gharar); fifth, zakat payments must be done; and sixth, products and services that oppose the laws of Islam must be avoided (for instance haram products) (Inyangala, 2014).

Islamic banks were less affected by the global financial crises due to the nature of their practice in which all transactions are trade based and asset linked (Hidayat & Abdullah, 2012). It is not the case that the crises did not completely impact on the Islamic banks. They were affected, but not as badly as conventional banks, and one reason is that Islamic banks hold and maintain their levels of liquidity more than conventional banks (Kassim, Majid & Yousaf, 2010). The importance of liquidity can be seen by the comments of many researchers in their studies. Liquidity is the ability of an Islamic bank to pay off or meet its short-term immediate and unpredicted obligations. Liquidity is very important for any type of institutional survival, in the case of Islamic banks. Liquidity also attracts potential depositors and investors. Liquidity is like a lifeblood for every institution and specifically for Islamic banks (Siegel & Shim, 2000; Masood & Bellalah, 2013).

The basic motivation of this work is to check the liquidity risk of Islamic banks. A lack of liquidity causes banks to face a liquidity risk, and this risk arises when the banks' ability to match the maturity of its assets and liabilities is affected. This study fills a gap regarding how to overcome liquidity risks in Islamic banks and also examines the importance of liquid assets in the area of Islamic banks. The aim of this study is to understand liquidity risk and performance measure concepts and also to define different variables of liquidity and then examine the relationship of these variables with performance in terms of Return on Asset (ROA) and return on investment (ROI). This chapter is divided into four further sections. The second section will give the literature review which explains the

Islamic banking system, its development and performance and liquidity risks faced by banks. The third section demonstrates the research methodology of the paper. The fourth section will give empirical findings and the fifth section finally concludes along with short recommendations.

Section 2: Liquidity Risk Measurement Critical Analysis

a) History and Development of the Islamic Banking Sector

The basic difference between Islamic and conventional banks is "Riba". Riba is an Arabic word with the literal meaning of an "increase". Riba is prohibited in Islam as, according to Taylor (2003), the riba prohibition does not mean that money cannot be lent to any borrower. In fact, it can be, but under the laws of Shariah. This prohibition in Islam is to avoid any unearned profit, or illegality of any form of profit or gain, unearned in a sense that they result from risky transactions which cannot be calculated with contracting parties in advance. The Islamic bank works under the light of Islamic laws and incorporates an interest-free banking system, as it prevents its functions from riba. Many countries around the globe incorporate a twofold banking system which means that conventional banks operate in parallel to Islamic banks (Akhtar, Ali, & Sadaqat, 2011).

b) Liquidity risk in Islamic banks

Liquidity is a description of an institution's ability to convert its assets into cash at short notice and without any loss in its asset value. The assets which have a high quality of liquidity are those assets that can be instantly transformed into cash (Committee on Banking Supervision, 2013). In banking, the liquidity ratio plays a very important role, because banks usually deal with demand deposits and time deposits, and both take the form of large funds borrowed from depositors (Anyanwu, 1993). Liquidity risk is a very important issue to tackle in the banking sector. Different ratios exist through which banks measure liquidity; financial institutions need to maintain a balance between both the inflow and outflow of the institution over time.

Cash and due from banks to deposit ratio (CDD): The cash and due from banks to total deposit ratio was calculated as cash and due from banks divided by total deposits (Iqbal, 2001; Rasul, 2013; Fatima & Ibrahim, 2013). Cash and due from banks to total deposits ratio was used

in many studies to measure the liquidity and mixed results were found. Rasul (2013), used cash and due from banks to total deposit ratio to reflect the liquidity of the Islamic banks of Bangladesh and found that cash and due from banks to total deposits has a significant relationship with return on asset and return on deposits, whereas an insignificant relationship with return on equity at 10% level of significance.

Investment to deposit ratio (IDR): This ratio was used in many studies for assessing liquidity. Investment to deposit ratio is calculated as investments of the bank divided by the total deposits of the bank. The illiquidity and insolvency of the bank are indicated by a high investment to deposit ratio. Samad and Hassan (1999), in their study, measure the liquidity ratio by the cash deposit ratio in addition to some other proxies. They calculate the cash deposit ratio by dividing the cash on deposit, as the most liquid asset of any bank is cash, so, the cash deposit ratio indicates the liquidity of the bank; the higher the ratio, the more liquid the bank is, compared to a bank which has a low ratio.

Cash deposit ratio (CD): Samad and Hassan (1999), in their study, used the cash deposit ratio in addition to some other proxies. They calculated the cash deposit ratio by dividing the cash on deposit, as the most liquid asset of any bank is cash, so, the cash deposit ratio indicates the liquidity of the bank; the higher the ratio, the more liquid the bank is, compared to a bank which has a low ratio. Mansoor Khan, Ishaq Bhatti, and Siddiqui (2008), while examining the different modes of Islamic finance, used a cash deposit ratio along with some other indicators and found a significant impact. The results showed that the performance of Pakistani banks is good in terms of ROA and ROE, and the banks also maintain liquidity. In addition, Loghod (2010), in his study, also found that this cash deposit ratio had a significant association with the enlargement of banks' profitability.

Current ratio (CR): The current ratio is used to determine the liquidity of a company. The current ratio shows the ability of the company to meet its short-term debt obligations. Malik, Awais, and Khursheed (2016), in their study, also calculate the liquid ratio by performing an addition of cash and investments and then dividing it by current liabilities. The current ratio is used to measure liquidity. As Samad and Hassan (1999) found while conducting an exploratory study on the profitability of Malaysian Islamic banks, this shows the ability of a bank to pay and meet the current liability demand of depositors. Similarly, Khan, Ali, and Khan (2015), also

use the same ratio to measure liquidity along with some more ratios. The results show that the current ratio has a significant relationship with profitability and is improving for Pakistani Islamic banks whereas it is declining for Malaysian Islamic banks.

Liquid to asset ratio (LA): Mansoor Khan, Ishaq Bhatti, and Siddiqui (2008), examined Islamic modes of finance including two Islamic banks of Pakistan, namely Al Baraka and Meezan bank. Their study includes different ratios of capital adequacy, asset composition, and liquidity, earning and profitability ratios. Their study incorporates liquid asset to total asset in order to measure liquidity along with liquid asset to total deposits and cash deposit ratio. Liquid asset to total asset has a significant association with profitability, and also shows that the liquid asset to total asset ratio is high for the Al Baraka Islamic bank.

Quick ratio (QR): The quick ratio is a liquidity ratio which is used to display the speed of the institution for quickly transforming its assets into cash to repay a short-term debt. According to Ishaq *et al.* (2016), quick ratio is a measure of the company's ability to meet its obligations in the short term. Quick assets are assets that can be easily converted into cash without a significant depression of book value. It is a measure of financial strength or weakness of a company. Their study used quick ratio in addition to some more proxies to measure the liquidity ratio of commercial banks of Pakistan.

Cash and due from banks to asset ratio (CDA): Cash and due from banks to total asset ratio is also a proxy used to measure the entities liquidity level, and is defined as the ratio of cash and cash due from banks to net assets (Yu & Jiang 2010; Bokpin, 2013). Fatima and Ibrahim (2013), also measure liquidity by cash and due from banks to total assets. They selected five Islamic banks of Bangladesh and collected data from 2005 to 2007. The result shows that cash and due from banks to total asset is significantly associated with profitability.

c) Performance Measures (ROA, ROI) of Islamic banks

Banks which are solid and profitable have the ability to withstand negative shocks, and also to ensure the stability of the financial system (P. P. Athanasoglou, Brissimis & Delis, 2008). The study also suggests that profit is not only a tool to indicate the performance of a bank, but it also helps to determine the planning and efforts made by management in order

to increase the bank's performance, and also to increase the chances of the bank remaining in competitive markets. The performance ratios examine the ability of a business to earn a profit by making its activities profitable (Alshatti, 2015).

Return on Investment (ROI): According to Bashir (2003), before tax profit ratio is defined as the net income accumulating in a bank from non-interest activities (such as fees, service charges, foreign exchange, and direct investment) divided by total assets. Samad and Hassan (1999), define the profit expense ratio as the division of profit by total expense; the higher the ratio, the more cost-effective the bank is, and it also generates great profits within the given expenses.

Return on Asset (ROA): Previous studies used different indicators to measure performance. Return on Asset (ROA) is a financial ratio that is used to measure the financial performance of a bank. It is defined as net income divided by total assets (Ariffin, 2012; Obudho, 2014; Daly & Frikha, 2015). This ratio depicts the proportion of the bank's assets that contribute to achieving results.

d) Management of Liquidity Risk and its impact on Performance

The liquidity of any organisation (bank) is reflected by its amount of liquid assets; the higher the liquid assets, the more the organisation (bank) is in a liquidate state (as in having more liquid assets) (Akhtar, Ali & Sadaqat, 2011). Whereas, the reward that appears as a result of taking risks is called profit in Islam. Malik, Awais and Khursheed (2016) conducted a study and asserted that ROA and ROI are proxies of profitability (dependent variables). Whereas current, liquidity and quick ratios are proxies used for liquidity, the findings show a significant relationship between measures of bank liquidity and ROA. However, the relationship between profitability and liquidity became statistically insignificant when ROE and ROI were used as proxies of profitability. Arellano and Bond (1991) suggested that to manage liquidity, the banks must assess and restructure their strategies, and it will improve both the yields on shareholders' equities and the use of assets by banks. The results show the rejection of a null hypothesis and show there is a significant positive relationship, and that liquidity affects the performance of commercial banks. Accordingly, the study also finds that in Nigeria, the significant determinants of a bank's performance are the size of the board, bank liquidity, and debt structure. Based on the results, the study suggested that

to achieve superior bank performance, banks must raise their liquidity; on the other hand, it was suggested that the performance of banks can also be increased by effectively managing the debt structures of banks. Irfan and Zaman (2014) examined the efficiency of Islamic banks of Asian countries. The study findings showed that Islamic banks are efficient, and banks can be placed according to their efficiency rank; Brunei stands at the top, then Pakistan, Iran, and Bangladesh. Liquidity is an important financial ratio to determine the efficiency of the Islamic banking system.

Hypothesis Development:

- H1a: There is a significant and positive relationship between current ratio and return on asset.
- H1b: There is a significant and positive relationship between current ratio and return on investment.
- H2a: There is a significant and positive relationship between liquid asset ratio and return on asset.
- H2b: There is a significant and positive relationship between liquid asset ratio and return on investment.
- H3a: There is a significant and positive relationship between quick ratio and return on asset.
- H3b: There is a significant and positive relationship between quick ratio and return on investment.
- H4a: There is a significant and positive relationship between cash and due from banks to asset ratio and return on asset.
- H4b: There is a significant and positive relationship between cash and due from banks to asset ratio and return on investment.
- H5a: There is a significant and positive relationship between cash and due from banks to deposit ratio and return on asset.
- H5b: There is a significant and positive relationship between cash and due from banks to deposit ratio and return on investment.
- H6a: There is a significant and positive relationship between investment to deposit ratio and return on asset.
- H6b: There is a significant and positive relationship between investment to deposit ratio and return on investment.
- H7a: There is a significant and positive relationship between cash deposit ratio and return on asset.
- H7b: There is a significant and positive relationship between cash deposit ratio and return on investment.

Section 3: Methods used for Risk Assessment

A. Statistical Tool: The focus of the analysis of this study is Islamic banks. Islamic banks are interest-free banks and operate according to Islamic Shariah laws. Panel data can detect the effect of variables that cannot be easily detected by purely cross-sectional data or time series data. So, this study uses panel data. The present study uses secondary data as it has already been collected and prepared by the Islamic banks in the form of their official financial reports. Secondary data is good for the handling of longitudinal studies (over a long period of time). Because of these advantages, the present study incorporates secondary data. The sampling technique used in this study is purposive sampling. Similarly, according to Kothari (2004), purposive sampling is a technique to select the subjects for the study based on certain characteristics or criteria in order to fulfil the study objectives.

B. Data: The data was extracted from balance sheets and income statements and their respective notes. Data was collected from 2004 to 2016, but as all banks were not in operation in 2004, certain banks were analysed which were in operation since 2007. 22 Islamic banks were selected for this study, from 2007 to 2016. The data was collected for 22 Islamic banks which are operating in different countries and fulfil the criteria selected for this study. Abu Dhabi Islamic bank, ABC Islamic bank (E.C), Al Baraka Islamic Bank B.S.C., Al Rajhi bank, Al Baraka Bank (South Africa), Bank Al-Jazzier, Bahrain Islamic bank B.S.C., Bank Islam Malaysia Berhad, Boubyan bank, bank Muamalat, Dubai Islamic bank, European Islamic investment bank, Faysal bank (Pakistan), Hong Leong Islamic Bank, Islamic bank of Britain, Islamic bank Bangladesh limited, Jordan Islamic bank for finance and investment, Kuwait Turk participation bank, Meezan bank, Qatar Islamic bank, Sharjah Islamic bank, and Tadhamon International Islamic bank are the Islamic banks selected for the present study.

Section 4: Empirical Analysis of Risk Management

Tests confirmed the existence of heteroscedasticity, autocorrelation and endogeneity in the data set. Therefore, a generalised method of moment test is used to assess the relationship between liquidity variables and profitability measures (ROA, ROI).

As the p-value is smaller than the prescribed value, it is stated that heteroscedasticity is found in both models. The results of the autocorrelation test show that autocorrelation exists in both models as the null hypothesis is rejected in Model 1 and Model 2. The Hausman specification test shows that IT and CDD are endogenous against ROA; LA, CD and CDD are endogenous against ROI at 5% level of significance.

Model Specification: Different authors and researchers suggest using some instrumental models for estimation in case of failure of OLS assumptions, more specifically in the existence of endogeneity (Arellano & Bond, 1991); (Arellano & Bover, 1995). In econometric models, some independent variables and the lag term of dependent variables are used as instruments for the endogeneity problem. A fixed effect model is used for the data analysis.

Table 1: Heteroscedasticity and Autocorrelation in panel data

	ROA	**ROI**
Wald test for groupwise heteroscedasticity		
chi2 (25)	2869.36	1.70E+05
Prob>chi2	0.0000	0.0000
Wooldridge test for autocorrelation in panel data		
F-stat	9.206	6.937
P-value	0.0057	0.0145
Hausman specification test for Endogeneity		
Chi-Sq	23.327	35.525
P-value	0.0096	0.0014

Table 2: Descriptive summary of data

	Mean	Maximum	Minimum	Std. Dev.	Observations
ROA	0.82	5.88	-13.41	1.91	250.00
ROI	7.09	88.86	-103.48	19.22	250.00
CR	88.31	609.10	0.26	101.03	250.00
LA	17.31	64.66	0.03	11.27	250.00
QR	44.23	551.36	0.03	70.14	250.00
CDA	16.05	64.66	-0.09	11.40	250.00
CDD	52.16	637.50	-0.05	91.26	250.00
IDR	86.91	791.99	0.00	120.59	250.00
CD	7.79	97.88	-0.05	13.62	250.00
AG	25.42	110.00	1.00	19.14	250.00
LTA	10.06	12.97	5.84	1.16	250.00

ROI was used in the present study to quantify the financial performance of Islamic banks. The highest ROI is 88.86 of Al Baraka Bank (South Africa) among all Islamic banks in the year 2015. ROA means the value is 0.82 which depicts the ROA of all Islamic banks on average. The standard deviation of ROA is 1.91 which shows that the deviation in the financial performance is not very large across all countries and all Islamic banks, as all banks perform in light of Islamic Shariah. The CR is lowest at 0.26 in 2007 by ABC Islamic bank (E.C). The CR minimum value is not negative which shows that in financial crises, Islamic banks did not suffer from a negative liquidity position. No single LA ratio has a negative sign which shows that in the years of global financial crises, all the Islamic banks maintained their LA ratio to some extent. The average value of QR is 44.23 overall. The trend of mean shows a positive sign with fluctuations. Overall, average CDA is 16.05. The trend of CDA average shows a slight increasing trend in 2008 as compared to 2007 and again drops a little value in 2009. Positive CDD values mean that all Islamic banks maintain their liquidity position and this secures them from bankruptcy. The average value of IDR is 86.91 which is positive in nature by its sign, which depicts that all sampled Islamic banks consist of this ratio for their liquidity purposes. The overall mean of the CD ratio is 7.79, and its trend shows a decrease in the average ratio from

2007 to 2008. The dispersion of AG is overall 19.14 standard deviation. The mean of LTA is 10.06 which is positive in nature because no bank can have negative total assets.

Correlation analysis: The range of the correlation coefficient lies between +1 to -1. The +1 indicates a perfect positive correlation, which depicts that with an increase of one variable, the other variable will also increase, or in other words, both variables are directly proportional.

Fixed Effect Model Return on Asset Result: A null hypothesis of the j-statistic is accepted on the basis of the p-value and instruments are found to be valid. The model includes cross-section weights as GMM (Generalised Method of Moments) weights. The Durbin-Watson statistic falls in the range near to 2 which shows there is no autocorrelation. The value of R-square is 69%, whereas the adjusted R-square value indicates that combined liquidity variables explain 64% of financial performance in terms of ROA when other factors remain the same.

Return on Investment Results: No autocorrelation is detected by the value of Durbin-Watson which lies in the range near to 2. The R-square of the model is 61% and the adjusted R-square shows that the liquidity explains financial performance as measured by an ROI of 53% when other factors remain the same.

Section 5: Chapter Conclusion

All Islamic banks follow the teaching of Islamic Shariah in their operations and practices. The interest-free banks' earnings are not dependent on any kind of interest; instead, they largely depend on liquidity for their survival and capital enlargements. This chapter aims to trace the importance of liquidity and also to check the impact of liquidity on the enlargement or shrinkage of the financial performance of Islamic banks. The study defines different variables as liquidity measures and uses current ratio, liquid ratio, quick ratio, cash and due from banks to asset ratio, investment to asset ratio, cash and due from banks to deposit ratio and investment to deposit ratio as independent variables to measure the liquidity of Islamic banks. The dependent variables used in the study are Return on Asset (ROA), Return on Equity (ROE) and Return on Investment (ROI). The study also incorporates some firm-specific variables as control variables, which are the size of the Islamic bank (LTA) and the age, which is the number of years the Islamic bank has

been in operation (AG). The study used a set of 22 international Islamic banks to investigate the relationship between liquidity and the financial performance of Islamic banks over the period from 2006 to 2015. The overall study found that Islamic banks try to maintain a good level of liquidity in order to prevent them from bankruptcy and to perform smooth operations. This highlights two important issues, “liquidity” and “financial performance”. The study found that Islamic banks cannot achieve expected profit enlargements without confirmation of their proper liquidation (liquidity level not too high, nor too low). The study also found a very weak impact of control variables on the financial performance of the selected sampled Islamic banks.

CHAPTER TWO

BASEL III IMPLEMENTATION AND OUTCOMES FOR ISLAMIC BANKS

Summary of Chapter Two

Basel is basically a voluntary regulatory framework which is used globally to check stress testing, market adequacy and market liquidity risk. Although it was designed to improve and stabilise the financial system worldwide, especially in developing and emerging countries, the implementation of Basel III has presented a number of challenges and obstacles. Pakistan, with its recent economic expansion and slow rate of Basel III implementation, is one of the countries that has had to confront such obstacles. In this paper, our empirical analysis is based on a survey of risk managers. Its goal is to improve capital standards and its scientific treatment of risk ensures that Basel III is well regarded, specifically in the Islamic banking sector of Pakistan. The hindrance to its implementation is an operational risk; this problem has only been partially addressed. The publicly owned banks are considered less proficient than the privately owned banks.

Keywords: Basel Accord; governance; Islamic banks; regulation.

Section 1: Chapter Introduction

The Basel Accords arose from a need to provide steady structures and secure budgetary frameworks via a set of principles, considered to be worthy in fiscal centres around the world, which advocate the logical mediation of danger. As a component of the Accords, banks confront various least-capital prerequisites. Such governance is beneficial to the economy, as it ensures banks are protected against misfortunes coming about because of exposure to business, credit and operational hazards. It also binds banks to endorse capital points of confinement and ensure that they are prepared for systemic danger. This chapter presents the hypothesis that Pakistani banks are relying heavily on the implementation

of the Basel Accords, and results can be achieved if proper policy-making is instigated and employee skills are developed.

Hypothesis

This hypothesis was derived from a survey filled out by risk managers, which highlighted the following areas of interest. These were used through the dissecting deviations present in Pakistan, maintaining the roadmap money segment for the execution of the Basel Accords in Pakistan.

- Are there contrasts in the execution of the Basel Accords in the private and public banking sectors of Pakistan? Is one sector more inclined to use the Basel Accords?
- Have banks started to prepare outer Basel Accord connections via external training?
- What are the respondents' assumptions regarding the competency of employees in the risk management department?
- What are the respondents' suppositions regarding the viability of the bank's plan for implementing the Basel Accords?
- Is there any need for change in the system to guarantee compliance with the Basel Accords?
- How many years' worth of data is covered by the default time series? The more extended this time series and the more data that is accessible, measures, in a roundabout way, the consistency with which the Basel Accords have been implemented, and the bank's preference for these Accords and related benchmarks.
- What is the degree of compliance with exposure prerequisites according to the international financial reporting standards (IFRS) and other Basel Accords necessities?
- Does the bank bring to light issues among its clients regarding compliance with the Basel Accords? This is very important in terms of sharing data on universal encounters with the financial crisis and problems being highlighted in the Basel Accords.

History of the implementation of the Basel Accords

The financial system is responsible for the functioning of the economy as well as modern life. The aim of the financial system is to support both investors and savers so their money can be put to work. The savings of one person are said to be the finance for another's investment, like household savings made via the funding of a pension being issued by companies in

order to expand their business. The financial system plays an important role in getting people to have confidence in the economy, which helps it function properly. Many different banks contribute towards maintaining financial stability because it is an essential ingredient for a successful and healthy economy (Maio, 2012).

In February 1975, the first Basel committee on banking supervision (BCBS) meeting took place; such meetings continued regularly three or four times a year after that (Basel committee on banking supervision 2009). The members of the committee are from all over the world, including Brazil, Australia, France, China, Hong Kong, India, Indonesia, Spain, Africa, the United Kingdom, the United States, Turkey, Switzerland, Mexico, Korea, Japan, South Africa, Saudi Arabia, Russia, the Netherlands, Luxembourg, Italy, Mexico, and Singapore. All of these countries are represented by their central bank, or by the formal responsibility of banking businesses where there is no central bank.

One of the biggest problems relating to regulatory authorities is the soundness of the banking system. All banks were measured via the soundness of the leverage ratio in the 1990s: leverage capital/leverage ratio D total asset.

If this ratio is high, it is said that banks are well protected against risk. However, this ratio cannot tell us about the difference between assets and their risks. If asset risk increases with the passage of time but the capital does not change, banks fail in terms of insolvency and soundness (Hassan, 2002).

i. Basel I

The main requirement of the first Basel Accord (Basel I) was that all financial institutions held at least 8% capital of their risk-weighted assets. A bank's capital consists of mainly two parts. The first part is shareholder equity and retained earnings (Tier 1 capital). The second part includes all kinds of external and internal resources (Tier 2 capital). It was necessary under Basel I for the Tier 1 capital to represent almost half of the total capital, or for the Tier 1 capital to be 100% of the Tier 2 capital (Hassan, 2002). With the help of Basel I, different kinds of risk weights were assigned to debtors' assets, e.g., 100%, 50%, 20% or 0%. This tells us that if an asset has 0% risk, then this type of asset (e.g., government securities) requires no capital. However, if the asset has a risk weight of 50%, then the bank requires 4% capital, and if the asset has a risk weight of 100%, then the bank requires 8% capital. If the asset has a risk weight of 20%,

then the bank contains 1.64% capital of the asset's value. Basel I was measured via the following equation:

Capital / risk-based capital ratio D risk-adjusted assets

A decade after Basel I was implemented, a lot of changes in finance, technology and other sectors led to it developing many weaknesses. For example, banks' high-risk assets off-balance-sheet and operational risks were not considered by Basel I (Mohanty, 2008).

ii. Basel II

Due to all the weaknesses of Basel I, the BCBS decided to change Basel I into a more sensitive type of regulation. For this reason, Basel II was introduced (Akhtar, 2006).

The more sensitive framework provided through this new Basel Accord was especially for banks. The Basel II risk measure consists of the following equation:

Risk-based capital D: capital/credit risk C market risk C operational risk

Basel II dealt with all kinds of risks, e.g., operational, credit and market risk. The difference between Basel I and Basel II was that Basel I did not deal with operational risk. In addition, Basel II set up 8% credit requirements for operational and credit risk (Ahmad, 2008). Many weaknesses were seen five years after the implementation of Basel II. The reasons for its failure are given below.

Reasons for Basel II failure

Procyclicality: Due to the procyclicality of the financial system, if there was an economic boom in a country, its banks contained less capital for recovering risk, but if the economy was down, its banks required more capital for risk recovery (Udeshi, 2004).

Credit ratings provided by external sources: Another cause of Basel II's failure was its use of many ratings provided by external sources. As a lot of nations do not contain a department of credit assessment, they rely on the credit rating provided by institutions. Therefore, these external credit-rating institutions grew in importance, which created many problems, such as mispriced risk. "Because of this, many conflicts arose and it became necessary to revise Basel II" (Maio, 2012).